TRIBUTE (BROOKDALE) LIMITED

1101A/1105/1163 KINGSTON ROAD, CITY OF PICKERING TRAFFIC IMPACT STUDY

December 20, 2024







1101A/1105/1163 KINGSTON ROAD, CITY OF PICKERING TRAFFIC IMPACT STUDY

TRIBUTE (BROOKDALE) LIMITED

REPORT

PROJECT NO.: 221-12931-00 DATE: DECEMBER 20, 2024

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December 20, 2024

TRIBUTE (BROOKDALE) LIMITED c/o Stephen Deveaux Executive Vice President, Land Development 1815 Ironstone Manner, Unit 1 Pickering, Ontario L1W 3W9

Dear Mr. Deveaux,

Subject: Traffic Impact Study for Proposed Development at 1101A/1105/1163

Kingston Road, Pickering

WSP Canada Inc. (WSP) is pleased to submit this traffic impact study to support the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) applications for the proposed mixed-use development located at 1101A/1105/1163 Kingston Road in the City of Pickering.

Based on the enclosed study findings of this report, it is expected that the proposed development can be readily accommodated by the study area transportation network with some signal timing adjustments.

We thank you for the opportunity to undertake this study. Please do not hesitate to contact us if you have any questions or comments.

Sincerely,

Ismet Medic, B.A.Sc.

Technical Director

Transportation Planning and Science

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1 INTRODUCTION

WSP was retained by Tribute Communities to prepare a Transportation Impact Study (TIS) for the proposed mixed-use development located at 1101A/1105/1163 Kingston Road in the City of Pickering. The site location and study area are shown in **Figure 1-1**.

The site is currently occupied by a shopping centre with various retail tenants including Home Depot, Food Basics, and others. The proposed development will, upon the completion of all four phases, fully replace the existing shopping centre with multi-use blocks containing a total of 5,264 residential units and 6,585 m² of retail space. The site plan is shown in **Figure 1-2**.

The subject site is proposed to utilize existing connections to Kingston Road (both via Walnut Lane and a direct right-in/right-out access) and Dixie Road, as well as the City's proposed extension of Walnut Lane to Liverpool Road.

The main objective of this study is to evaluate if there are any adverse impacts on the local transportation network related to the proposed development and to evaluate the proposed parking and loading arrangements. Our study approach and findings are documented herein.





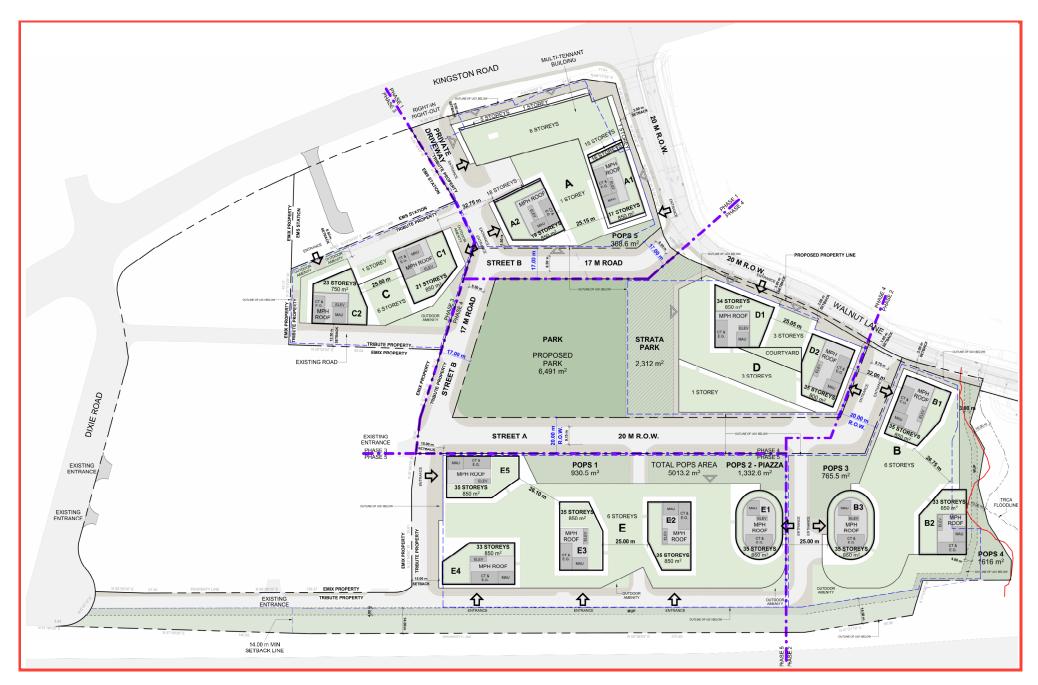




Figure 1-2
Site Plan

2 EXISTING CONDITIONS

This section of our assessment describes the existing road network and traffic conditions within the study area.

2.1 BOUNDARY ROADWAYS

The following roadways make up the boundary road network that surrounds the subject site:

Liverpool Road is a north-south type B arterial road under the jurisdiction of the Region Municipality of Durham with a speed limit of 50 km/h within the study area.

Pickering Parkway is an east-west type C arterial road under the jurisdiction of the City of Pickering with a speed limit of 50 km/h within the study area.

Kingston Road, which directly borders the site to the north, is an east-west type B arterial road under the jurisdiction of the Region Municipality of Durham with a speed limit of 60 km/h within the study area. Dedicated bus and bicycle lanes are provided within the portions of the study area west of Delta Boulevard and near Liverpool Road.

Walnut Lane, which directly borders the site to the northeast, is a north-south collector road under the jurisdiction of the City of Pickering with a speed limit of 40 km/h within the study area.

Dixie Road is a north-south type C arterial road under the jurisdiction of the City of Pickering with a speed limit of 60 km/h north of Kingston Road and 40 km/h south of Kingston Road.

Fairport Road is a north-south type C arterial road under the jurisdiction of the City of Pickering with a speed limit of 40 km/h within the study area.

Delta Boulevard is a north-south local road under the jurisdiction of the City of Pickering with a speed limit of 40 km/h within the study area.

Whites Road is a north-south type A arterial road under the jurisdiction of the Region Municipality of Durham with a speed limit of 60 km/h within the study area.

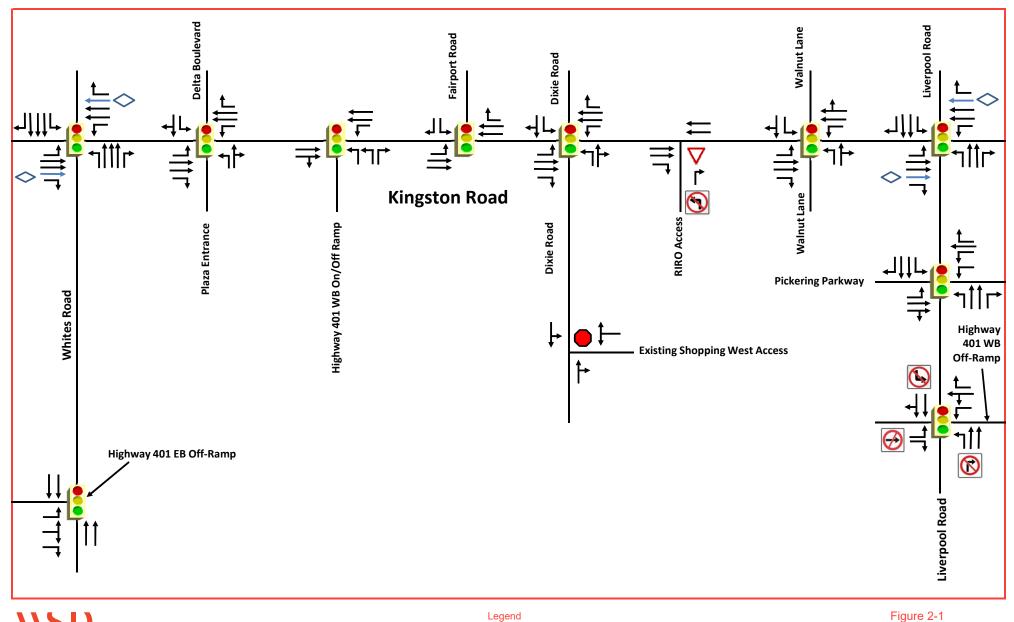
Highway 401 is an east-west freeway under the jurisdiction of the Ontario Ministry of Transportation with a speed limit of 100 km/h. It has eastbound on and off-ramps and westbound on-ramps at Whites Road, westbound on and off-ramps at Kingston Road (approximately 250 metres east of Delta Boulevard), and westbound on and off-ramps at Liverpool Road.

The study area includes the following intersections:

- Liverpool Road & Highway 401 Westbound Off-Ramp;
- Liverpool Road & Pickering Parkway;
- Liverpool Road & Kingston Road;
- Kingston Road & Walnut Lane;
- Kingston Road & Dixie Road;

- Kingston Road & Fairport Road;
- Kingston Road & Highway 401 WB Ramps;
- Kingston Road & Delta Boulevard;
- Kingston Road & Whites Road;
- Whites Road and Highway 401 Eastbound Off-Ramp;
- Dixie Road & Shopping Plaza Entrance.

The lane configurations at the study intersections are illustrated in Figure 2-1.











2.2 TRANSIT SERVICES

The site is situated in an area that is very well-served by transit, with stops and stations connecting to various parts of the City and the region within 500 metres or less of the proposed development. Weekday and weekend minimum service levels range depending on bus type and location, with PULSE bus routes having 15-minute headways, base bus routes having 30-minute headways, and rural bus routes having 90-minute headways during weekday and weekend a.m. and p.m. peak periods. The site is serviced by the following Durham Region Transit (DRT) bus routes:

- The 900 PULSE operates in an east-west direction along Kingston Road between Centennial College and Bond Street East and Ritson Road North. The route connects to several important destinations, such as the Oshawa Centre Terminal, Centennial College, and University of Toronto Scarborough. This bus route stops adjacent to the site at the intersection of Kingston Road & Walnut Lane. Overnight service along this corridor is provided by the N1 Route.
- The 920 Route operates in an east-west direction along Kingston Road between Scarborough Town Center and Harmony Terminal. This bus route stops adjacent to the site at the intersection of Kingston Road & Walnut Lane.
- The 916 PULSE operates in an east-west direction mostly along Rossland Road East between Pickering Parkway Terminal and Harmony Terminal. The bus route's nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.
- The 917 Route operates in an east-west direction mostly along Bayly Street between Pickering Parkway Terminal and Oshawa Centre Terminal. The route connects to several important destinations, such as Pickering Parkway Terminal, Pickering Station, Ajax Station, Whitby Station, Durham College, and Oshawa Centre Terminal. The bus route's nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.
- The 110 Route operates in an east-west direction mostly on Finch Avenue between Pickering Parkway Terminal and Sunbird Trail. The bus route's nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.
- The 291 Route operates in an east-west direction mostly along Kingston Road, then in a north-south direction mostly along Harwood Avenue South between Pickering Station and the intersection of Westney Road South & Harwood Avenue South. The bus route's nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.
- The 103 Route operates in an east-west direction between Pickering Parkway
 Terminal and the intersection of Altona Road & Pine Grove Avenue. The bus route's nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.
- The 112 Route operates in a north-south direction between Pickering Parkway
 Terminal and the intersection of Burkholder Drive & Belcourt Street. The bus route's
 nearest stop to the site is at the intersection of Kingston Road & Liverpool Road.

The site is also serviced by the following GO Transit regional bus routes:

- The 41 Hamilton/Pickering bus route operates primarily east-west between Hamilton and the Pickering GO Station. This bus route stops adjacent to the site at the intersection of Kingston Road & Walnut Lane.
- The 92 Oshawa/Yorkdale bus route operates primarily east-west between the Oshawa GO station and the Yorkdale Bus Terminal. This bus route stops adjacent to the site at the intersection of Kingston Road & Walnut Lane.

The site is also located approximately 1 km away from the Pickering GO station, at which the Lakeshore East GO Train line provides all-day service between Union Station and Durham College Oshawa GO Station.

A map of the DRT transit routes and bus stops in the area is shown in **Figure 2-2**.

Figure 2-2: Existing Transit Routes



Source: Durham Region Transit System Map, Effective October 21, 2024

2.3 ACTIVE TRANSPORTATION NETWORK

Along Kingston Road, sidewalks of varying quality are provided along at least one side of the roadway within the portions of the study area west of Delta Boulevard and east of Dixie Road (including along the frontage of the site). Additionally, dedicated bicycle lanes are provided within the portions of the study area west of Delta Boulevard and near Liverpool Road.

All other boundary roadways have sidewalks on at least one side of the roadway.

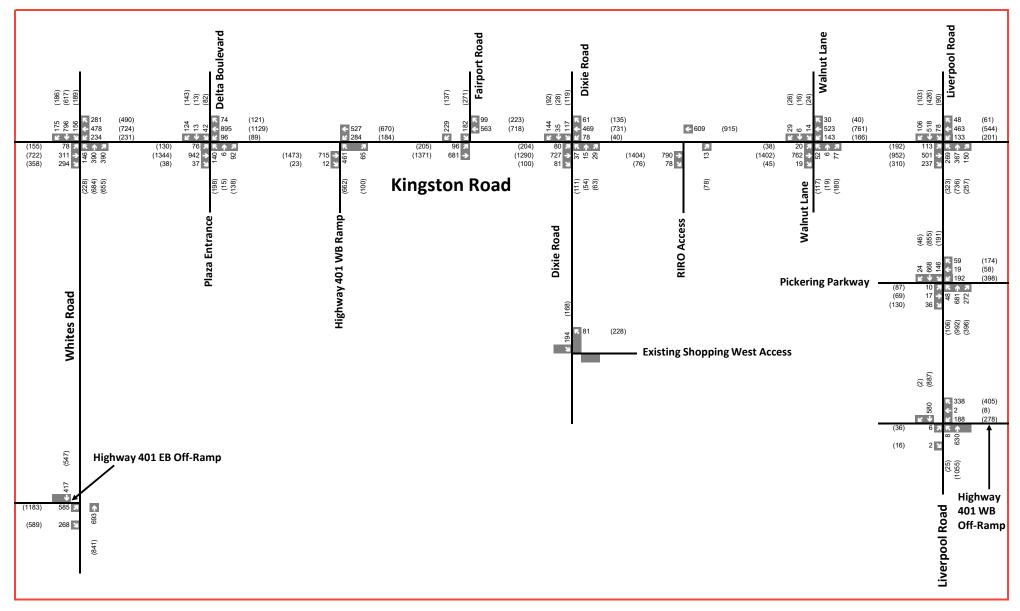
2.4 TRAFFIC DATA

Table 2-1 summarizes the list of turning movement counts collected for this study, as well as the source and date of the counts. Traffic data was collected during typical weekday a.m. and p.m. peak periods. The turning movement counts used are included in **Appendix A**.

Table 2-1: Traffic Data Information

| Intersection | Count Date | Source |
|--|-------------------|--|
| Liverpool Road & Highway 401 WB Off-Ramp | June 8, 2022 | Spectrum Traffic Data Inc; |
| Liverpool Road & Pickering Parkway | June 8, 2022 | Retrieved from 1786-1790 Liverpool Road TIS (BA Group) |
| Liverpool Road & Kingston Road | November 19, 2024 | |
| Kingston Road & Walnut Lane | January 10, 2023 | Horizon Data Services Limited |
| Kingston Road & Dixie Road | January 10, 2023 | |
| Kingston Road & Fairport Road | December 6, 2022 | |
| Kingston Road & Highway 401 WB Ramps | December 6, 2022 | |
| Kingston Road & Delta Boulevard | December 13, 2022 | Durham Region |
| Kingston Road & Whites Road | December 6, 2022 | |
| Whites Road & Highway 401 EB Off-Ramp | December 6, 2022 | |

The weekday a.m. and p.m. peak hour volumes at the study intersections are illustrated in **Figure 2-3**.





Legend

Figure 2-3

2.5 EXISTING TRAFFIC CONDITIONS

To analyze existing traffic conditions in the study area, capacity analyses were undertaken using the Synchro 11 traffic analysis software. This software incorporates the methodology outlined in the Highway Capacity Manual (HCM), Transportation Research Board, 2000 and 2010. The signal timing plans for the study intersections were acquired from the Region and are provided in **Appendix A**.

The Synchro model has been established based on the Regional Municipality of Durham *Design Specifications for Traffic Control Devices, Pavement Markings, Signage and Roadside Protection* (Durham Region guidelines), dated April 2023. The bus blockage parameter has been applied on lane segments with a near-side bus stop to account for the presence of regular DRT and GO Transit bus services.

Per the Durham Region guidelines, the width of all lanes were coded as the actual lane widths, determined by measurements taken using Google satellite imagery.

For existing conditions, intersection peak hour factors were calculated from the 15-minute peak hour traffic counts. However, a PHF of 0.92 was assumed for all intersections in all future condition models in order to be consistent with the Durham Region guidelines.

The conflicting pedestrian, conflicting bicycles, and heavy vehicle percentages were also based on the traffic counts.

A lost time of zero was initially applied at all of the signalized intersections.

The existing "bus-only" lanes on Kingston Road were not counted as traffic lanes in the model.

All of the evaluation parameters are maintained from existing to future evaluations to allow "apples to apples" comparisons.

An intersection capacity analysis provides an indication of traffic operations based on calculations of volume-to-capacity (v/c) and delays for individual movements at an intersection. Level of Service (LOS). **Appendix B** provides the LOS definitions according to the HCM 2000 methodology.

Traffic operations were analyzed at the study intersections to determine the existing LOS during the weekday a.m. and p.m. peak hours. The results of the intersection capacity analysis under existing conditions with the above calibration are summarized in **Table 2-2**. Detailed intersection capacity analysis sheets are included in **Appendix C**.

Table 2-2: Existing Intersection Operations

| _ | \A/ I - I - | . A M. Daalalla | \A/ I - I - | . D.M. Daalalla | |
|------------------|------------------------|-----------------------|------------------------|------------------|--|
| | Weekday A.M. Peak Hour | | Weekday P.M. Peak Hour | | |
| | Overall | Critical | Overall | Critical | |
| Intersection | LOS | Movement | LOS | Movement | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | |
| | Seconds) | Ratio) | Seconds) | Ratio) | |
| | Si | gnalized Intersectio | ns | | |
| Liverpool Road & | | | | | |
| Highway 401 WB | B (13) | | C (23) | WB-R (0.99) | |
| Off-Ramp | _ (''') | | - (, | 112 11 (0.00) | |
| Liverpool Road & | | | | | |
| Pickering | B (15) | | C (25) | SB-L (0.91) | |
| Parkway | B (13) | | C (23) | 3D-L (0.91) | |
| | | | | | |
| Liverpool Road & | C (27) | | C (34) | WB-L (0.96) | |
| Kingston Road | ` , | | , , | ` , | |
| Kingston Road & | A (7) | | B (13) | | |
| Walnut Lane | (- / | | _ (:-, | | |
| Kingston Road & | B (16) | | B (18) | | |
| Dixie Road | D (10) | | D (10) | | |
| Kingston Road & | B (15) | | B (14) | | |
| Fairport Road | B (13) | | B (14) | | |
| Kingston Road & | | | | | |
| Highway 401 WB | C (21) | | C (25) | NB-L (0.87) | |
| Ramps | , | | | , , | |
| Kingston Road & | | | | | |
| Delta Boulevard | C (22) | | B (15) | NB-L (0.87) | |
| Kingston Road & | | | | | |
| Whites Road | B (20) | | C (28) | NB-R (0.90) | |
| | - | | - | | |
| Whites Road & | 0 (00) | | C (00) | | |
| Highway 401 EB | C (20) | | C (26) | | |
| Off-Ramp | | | | | |
| | Uns | signalized Intersecti | ons | | |
| Dixie Road & | | | | | |
| Shopping Plaza | A (9) | | A (10) | | |
| Entrance | | | | | |
| - | | • | | - | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values over 0.90.

As shown in **Table 2-2**, the results presented above indicate that all study intersections operate within capacity. All intersections operate at an acceptable LOS of 'C' or better.

A queueing analysis for the study intersections was completed under existing conditions and is presented in **Table 2-3**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix C**.

Table 2-3: Existing Intersection Queue Lengths

| Intersection | Lane | Available | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | |
|------------------------------|----------|-------------|--|-----------|
| | Movement | Storage (m) | A.M. Peak | P.M. Peak |
| | | • , , | Hour | Hour |
| | EBL | N/A | 5 | 17 |
| | EBR | N/A | 0 | 0 |
| Livernand Beed | WBL | 203 | 32 | 47 |
| Liverpool Road | WBT | 203 | 33 | 48 |
| & Highway 401 WB Off-Ramp | WBR | 125 | 29 | 119 |
| WB OII-Kallip | NBL | 27 | 3 | 7 |
| | NBT | 348 | 47 | 98 |
| | SBT | 138 | 54 | 46 |
| | EBL | 59 | 7 | 31 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 48 |
| | WBT | 305 | 10 | 19 |
| Liverpool Road | WBR | 62 | 0 | 15 |
| & Pickering Parkway | NBL | 54 | 7 | 13 |
| | NBT | 138 | 44 | 130 |
| | NBR | 76 | 5 | 6 |
| | SBL | 133 | 22 | 66 |
| | SBT | 234 | 62 | 107 |
| | SBR | 36 | 0 | 0 |
| | EBL | 189 | 25 | 49 |
| | EBT | 671 | 84 | 152 |
| | EBR | 98 | 56 | 66 |
| | WBL | 171 | 31 | 79 |
| Liverneel Beed | WBT | 372 | 63 | 71 |
| Liverpool Road | WBR | 117 | 2 | 5 |
| & Kingston Road | NBL | 186 | 59 | 70 |
| Koad | NBT | 234 | 45 | 92 |
| | NBR | 52 | 15 | 25 |
| | SBL | 49 | 18 | 21 |
| | SBT | 327 | 64 | 52 |
| | SBR | 61 | 12 | 11 |

| | Lane | Available | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | |
|--|----------|---------------|--|-----------|
| Intersection | Movement | Storage (m) | A.M. Peak | P.M. Peak |
| | Wovement | Otorage (III) | Hour | Hour |
| Kingston Road & Walnut Lane | EBL | 26 | 3 | 8 |
| | EBT | 105 | 25 | 101 |
| | EBR | 26 | 1 | 3 |
| | WBL | 37 | 12 | 36 |
| | WBT | 671 | 19 | 40 |
| | NBL | 63 | 21 | 42 |
| | NBT | 101 | 14 | 29 |
| | SBL | 19 | 10 | 12 |
| | SBT | 201 | 10 | 12 |
| | EBL | 145 | 22 | 33 |
| | EBT | 872 | 116 | 188 |
| | EBR | 65 | 24 | 14 |
| | WBL | <u>55</u> | 8 | 5 |
| Kingston Road | WBT | 167 | 27 | 62 |
| & Dixie Road | WBR | 80 | 3 | 3 |
| a Dixie Roau | NBL | 13 | 17 [9] | 39 [27] |
| | NBT | 100 | 12 | 28 |
| | SBL | 16 | 41 [28] | 41 [28] |
| | SBT | 212 | 24 | 20 |
| | EBL | 75 | 27 | 20 |
| Kingston Road & Fairport Road | EBT | 400 | 113 | 203 |
| | WBT | 872 | 23 | 25 |
| | WBR | 19 | 5 | 8 |
| & Faii port Noau | SBL | 19 16 | 66 [46] | 86 [63] |
| | SBR | 261 | 21 | 15 |
| | EBT | 245 | 60 | 140 |
| Kingston Bood | WBL | 48 | 10 | 61 [27] |
| Kingston Road & Highway 401 WB Ramps | WBT | 400 | 12 | 75 |
| | NBL | 193 | 72 | 99 |
| | NBR | 193 52 | 12 | 16 |
| Kingston Road & Delta Boulevard | EBL | 52 52 | 13 | 12 |
| | EBT | 199 | 87 | 107 |
| | EBR | 149 | 4 | 0 |
| | WBL | 100 | 27 | 5 |
| | WBT | 245 | 137 | 116 |
| | WBR | 245 18 | 17 | 8 |
| | NBL | 107 | 54 | 74 |
| | NBT | 107 | 15 | 19 |
| | SBL | 146 | 19 | 30 |
| | | | | |
| | SBT | 146 | 18 | 19 |

| Intersection | Lane | Available | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | |
|---|----------|-------------|--|---------------|
| | Movement | Storage (m) | A.M. Peak | P.M. Peak |
| | | | Hour | Hour |
| Kingston Road & Whites Road | EBL | 127 | 21 | 33 |
| | EBT | 262 | 44 | 101 |
| | EBR | 123 | 44 | 59 |
| | WBL | 87 | 21 | 54 |
| | WBT | 199 | 28 | 51 |
| | WBR | 35 | 1 | 38 [8] |
| | NBL | 72 | 33 | 53 |
| | NBT | 135 | 33 | 58 |
| | NBR | 35 | 40 [17] | 194 [115] |
| | SBL | 89 | 34 | 44 |
| | SBT | 361 | 71 | 54 |
| | SBR | 47 | 15 | 16 |
| Whites Road & Highway 401 EB Off-Ramp | EBL | 272 | 79 | 125 |
| | EBR | 225 | 19 | 114 |
| | NBT | 162 | 54 | 96 |
| | SBT | 293 | 31 | 58 |
| Dixie Road & Shopping Plaza Entrance | WBL | 193 | 2 | 7 |
| | NBT | 107 | 0 | 0 |
| | SBT | 44 | 3 | 3 |

The queueing analysis for existing conditions indicates that the 95th and 50th percentile queues are expected to be accommodated within the available storage lengths with the exception of the northbound left-turn and southbound left-turn movements at the intersection of Kingston Road & Dixie Road, the southbound left-turn movement at Kingston Road & Fairport Road, the westbound left-turn movement at Kingston Road & Highway 401 WB Ramps, and the northbound right-turn and westbound right-turn movements at Kingston Road & Whites Road.

For Kingston Road & Dixie Road, the northbound left-turn lane storage length is restricted by the close proximity of the existing site access located 20 metres south of the intersection. However, the south leg of Dixie Road primarily operates as a private local driveway servicing the retail developments south of Kingston Road and therefore, these queues do not impact traffic on Kingston Road. Moreover, there is an additional site access on Dixie Road and the driveway blockage is not a concern. The southbound left-turn movement at Kingston Road & Dixie Road experiences relatively high volumes for its short storage length (approximately 120 vehicles in both the a.m. and p.m. peak hours). The 50th and 95th percentile queues are expected to exceed the painted lane markings for the southbound left-turn lane; however, the queues are not expected to reach the adjacent upstream intersection (i.e. stop-controlled intersection at Dunbarton Road & Dixie Road) which is approximately 80 metres north of Kingston Road.

Through a review of video footage taken at the intersection of Kingston Road & Dixie Road during a.m. and p.m. peak period, it was observed that the northbound and

southbound left-turning queue issues present in the synchro analysis is consistent with what was viewed in the footage. In the footage, it was found that in the a.m. peak period the storage length of the northbound and southbound left-turn was exceeded occasionally and was exceeded more frequently in the p.m. peak period. This is consistent with the synchro results as it shows the 50th percentile queue exceeding the storage length for both the northbound and southbound left turn movements in the p.m. peak period, and only the southbound left-turn exceeding its storage length with the 50th percentile queue.

At the intersection of Kingston Road & Highway 401 Westbound Ramps, the westbound left-turn movement in the p.m. peak hour exceeds the storage length for 95th percentile queues. The 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues is limited as the 50th percentile (average) queue lengths are within the available storage lengths. Therefore, it is expected that these queues can be accommodated by the available storage length.

Similarly, at the intersection of Kingston Road & Whites Road, the westbound right-turn movement in the p.m. peak hour and the northbound right-turn movement in the a.m. peak hour exceed the storage length in the 95th percentile but remain within the storage length in the 50th percentile. Therefore, it is expected that these queues can be accommodated by the available storage length. For the northbound right-turn movement in the p.m. peak hour, it is expected that queues will exceed the storage length in the 50th percentile. This is mainly due to the short existing storage length, which is approximately 35 metres. Considering the high volume of vehicles turning northbound right, the existing storage length is insufficient. However, since the intersection has three northbound through lanes, spillover from the right turn lane is not expected to cause significant delays for the through movement.

At the intersection of Kingston Road & Fairport Road, the 50th percentile queues for the southbound left-turn movement exceeds the storage length in both the a.m. and p.m. peak hours. This is due to a short existing storage length of 16 metres. However, the adjacent through lane is more than 5.5 metres wide beyond the left turn lane allowing two car widths to be accommodated. Hence, spillover from the left turn queues does not impede vehicles trying to turn right.

3 FUTURE CONDITION ASSUMPTIONS

3.1 HORIZON YEARS

The traffic conditions for the following horizon years were assessed in this study per Durham Region TIS requirements:

- 2028: Anticipated phase 1 build-out complete;
- 2033: Anticipated full build-out of development;
- 2038: 5-years after full build-out, and
- 2043: 10-years after full build-out.

3.2 WALNUT LANE EXTENSION CLASS EA

The Walnut Lane Extension Class EA study dated October 2022 outlines the proposed extension of Walnut Lane from Kingston Road eastward to Liverpool Road, as shown in **Figure 3-1**. Walnut Lane is a two-lane road, and the extension is proposed to accommodate all road users (i.e. vehicles, public transit, cyclists, and pedestrians) as per the "Complete Streets" guidelines. The extension is anticipated to be built by the 2028 horizon year.

PROPOSED EA STUDY AREA

OUR SCORT

NATIONAL PROPOSED

EA STUDY

AREA

PRÉVIOUS LY BUILT

WALNUT LANE
SECTION

(APPROXIMATE LOCATION)

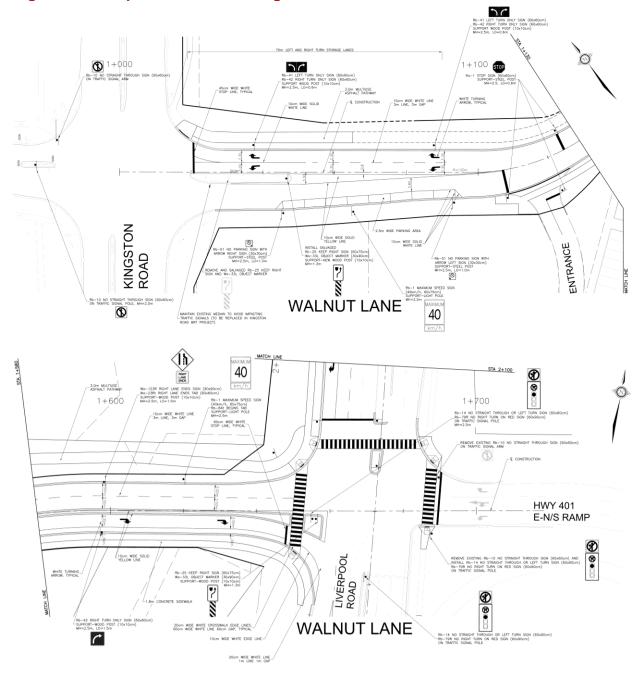
Figure 3-1: Walnut EA Lane Extension Class EA Study Area

One of the concerns investigated in the Class EA study is that the extension could result in increased traffic infiltration through the existing Walnut Lane north of Kingston Road. The Class EA explored traffic calming measures to address current and anticipated future traffic infiltration concerns in the area. It was recommended that the northbound through movement be prohibited at the intersection of Walnut Lane & Kingston Road, as illustrated in **Figure 3-2**. This assumption was carried through in all future models, where any existing northbound through trips were reallocated to the northbound left

movement, and carried through westbound to Kingston Road & Dixie Road, where vehicles can turn right and continue north on Dixie Road.

The Class EA study explored three lane configurations at the intersection of Liverpool Road & Walnut Lane / Highway 401 Westbound Off-Ramp. The preferred design identified in the study suggests all movements would be permitted except for the eastbound through and eastbound-left turn movements, as illustrated in **Figure 3-2**.

Figure 3-2: Proposed Future Configuration of Walnut Lane Connections

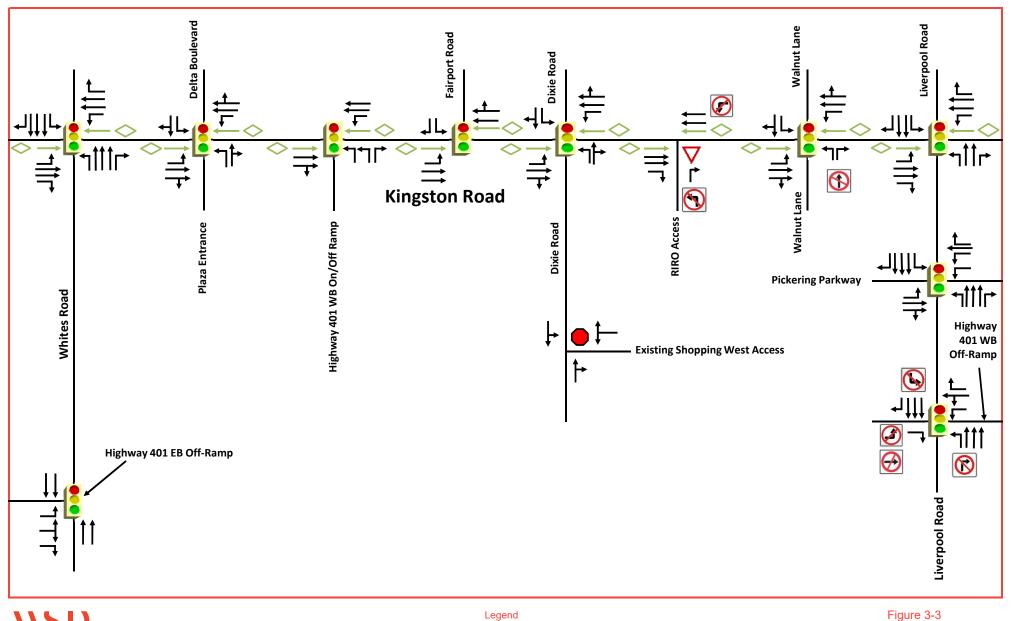


3.3 PLANNED ROAD NETWORK IMPROVEMENTS

In addition to the extension of Walnut Lane (detailed in the prior section), the following future road improvements were included in this study:

- The Region is planning to widen Liverpool Road between Kingston Road and Highway 401 to a six-lane cross section. The future lane configuration of the intersections along this section of Liverpool Road is to be determined by a Liverpool Road Environmental Assessment. For the purpose of this study, it is assumed that these lane configuration changes will be present starting from 2033. The Region has provided the following lane configuration to be assumed:
 - Liverpool Road & Kingston Road
 - Southbound: 1 right; 2 through; 1 left
 - Northbound: 1 right; 2 through; 1 left
 - Eastbound: 1 right; 2 through; 1 left/U-turn; 1 median bus through
 - Westbound: 1 right; 2 through; 1 left/U-turn; 1 median bus through
 - Liverpool Road & Pickering Parkway / Private Access
 - Southbound: 1 right; 3 through; 1 left
 - Northbound: 1 right; 3 through; 1 left
 - Eastbound: 1 through/right; 1 through; 1 left
 - Westbound: 1 right; 1 through; 2 left
 - Liverpool Road & Highway 401 WB Ramp / Walnut Lane Extension
 - Southbound: 1 right; 3 through
 - Northbound: 3 through; 1 left
 - Eastbound: 1 right
 - Westbound: 1 right; 1 through/left; 1 left
- As part of the future Durham-Scarborough Bus Rapid Transit (BRT), Kingston Road from Altona Road to Notion Road is planned to be widened to allow for two-dedicated centre-median transit lanes. The project includes converting the existing curbside bus lanes to centre-median lanes. Metrolinx is currently in the preliminary design stage. The preliminary designs for Kingston Road are provided in **Appendix E** and were used in this study. The preliminary design drawings reveal that many of the existing exclusive right turn lanes along Kingston Road would need to be removed to accommodate the BRT. Shared through-right lanes along Kingston Road will likely take away auto traffic capacity on the corridor. According to the Region's TOR response, construction of sections from Dixie Road to Bainbridge Drive and Steeple Hill to Merriton Road, which encompass all of the study intersections along Kingston Road evaluated in this report, is expected to be complete by 2025. Therefore, the road network changes occurring due to the BRT are implemented in all future scenarios in all horizon years.

The future lane configuration for horizon years 2028, 2033, 2038 and 2043, which includes all the road improvements listed above, is illustrated in **Figure 3-3**.











3.4 PLANNED TRANSIT NETWORK IMPROVEMENTS

Kingston Road was identified as a future rapid transit corridor in the *Durham Region Long Term Transit Strategy (LTTS) Final Report*, dated March 2010. As previously mentioned, Metrolinx is currently in the preliminary design stage of a future bus rapid transit (BRT) corridor along Kingston Road between Altona Road and Notion Road as part of their Durham-Scarborough BRT project. Upon completion, Kingston Road will be widened to accommodate two centre-median transit lanes and raised transit platforms on the far-side of signalized intersections.

The project aims to bring more frequent and reliable transit service to Durham Region and the City of Toronto and improve connections on both sides of the regional boundary. It is anticipated that two-way transit service will be provided every five minutes.

As previously discussed, the site is located in proximity to the Pickering GO station which is part of the Lakeshore East GO Line. Metrolinx announced improvements for the Lakeshore East GO Line to support future 15-minute two-way service between Union Station and Oshawa.

The future planned transit improvements are illustrated in **Figure 3-4**, which is taken from the 2017 Durham Region Transportation Master Plan – 2031 Transportation Networks.

WESTNEY RO ALTONA ROAD Site WHITES ROAD FINCH AV NUE 2 37 MGSTON ROAD -401 GO Station **BAYLY STREET** C.N.R. York BROCK ROAD Pickering GO Station 2031 Higher-Order Transit Network **Durham Region Transit (DRT) GO Train Sevices** Rapid Transit (Exclusive Lanes) Existing GO Station Protect for Future Rapid Transit* Future GO Station 0 Existing GO Line High Frequency Bus in HOV Lane Protect for Future HOV* Future GO Line High Frequency Bus in Shared Lane Protect for Future GO Line* **Provincial Transit** Other Transit Spine** Future Provincial Transitway Rouge Hill Peak Period Service Headway (minutes) Existing Commuter Lot GO Station Future Commuter Lot P Interchange Railway rores: Protect for future transit corridors anticipated seyond 2031. Urban Area ™Other Transit Spine can be a combination of DRT and GO Bus service Area Municipal Boundary Regional Boundary

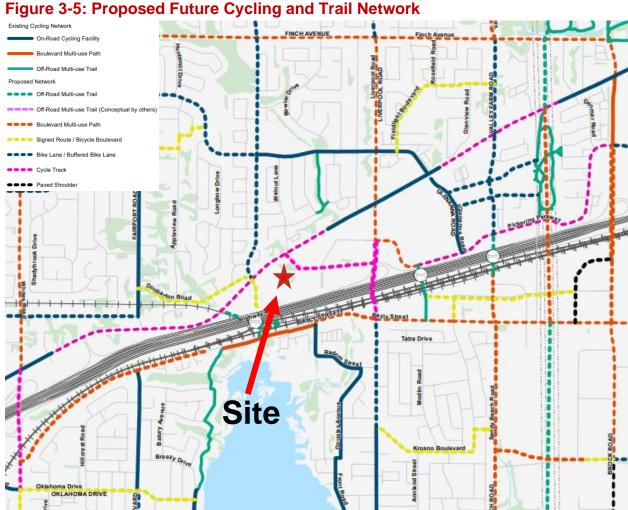
Figure 3-4: Future Transit

3.5 PLANNED ACTIVE TRANSPORTATION NETWORK **IMPROVEMENTS**

Durham Region's Transportation Master Plan (2017) details the proposed widening of the Liverpool Road bridge over Highway 401 to accommodate cycling facilities beyond the year 2031. Liverpool Road has been identified as a future primary cycling network route by the Region.

The cycling network along Kingston Road is proposed to be expanded and is also planned as a primary cycling route. Upon completion of the median BRT on Kingston Road, cycle tracks and sidewalks will be constructed along both sides of the corridor from Altona Road to Notion Road. The preliminary design drawings in Appendix E show the proposed cycle tracks at all study intersections along Kingston Road.

Additionally, the City of Pickering's Integrated Transportation Master Plan (2021), identifies that future cycling facilities are proposed along Walnut Lane (between Kingston Road and Liverpool Road), Dixie Road, and Dunbarton Road.



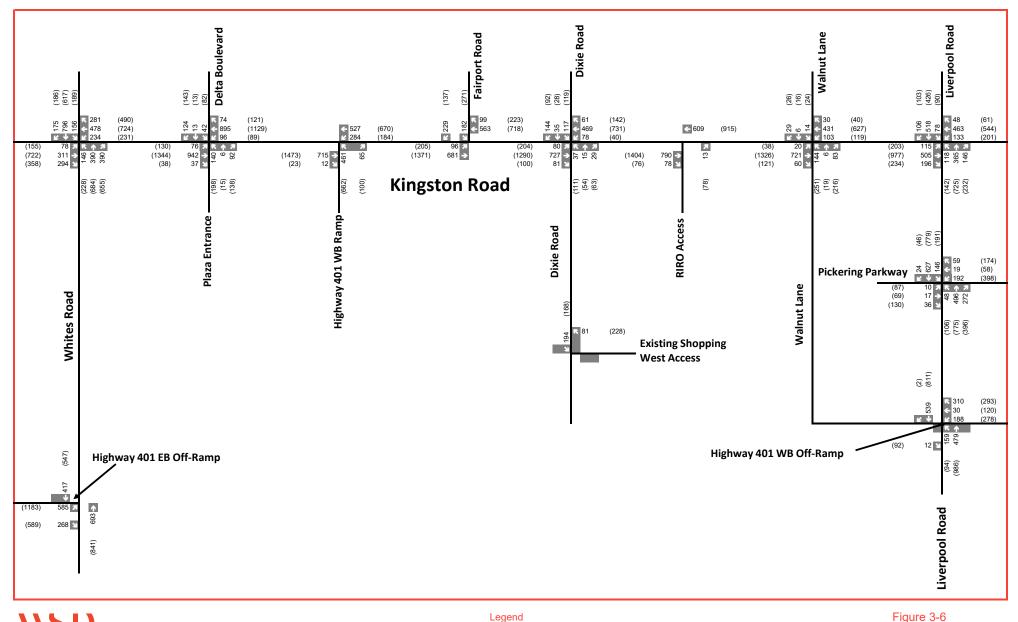
Source: Map 5, City of Pickering Integrated Transportation Master Plan (2021)

3.6 TRAFFIC ASSUMPTIONS

3.6.1 TRAFFIC DIVERSION WITH THE WALNUT LANE EXTENSION

The extension of Walnut Lane would provide motorists within the area with alternative routes and, therefore, it is expected that some of existing traffic in the area would redistribute with the extension in place. The Walnut Lane Extension EA study estimated redistributions in the p.m. peak hour turning movement volumes associated with the preferred option (found in Figures 16, 17, and 20 of Appendix A of the EA report).

To maintain consistency with the EA study, the same traffic volume redistributions were also applied in this study in the p.m. peak hour. The a.m. peak hour traffic redistributions were estimated by applying the ratio between the p.m. peak hour diversion volumes and the existing volumes to the a.m. peak hour counts. The redistributed traffic is presented in **Figure 3-6**. As discussed in Section 3.2, to maintain the northbound through movement prohibition at Kingston Road & Walnut Lane, any redistributed volumes using the northbound through movement were reallocated to the northbound left movement towards Dixie Road to allow vehicles to travel north via Dixie Road instead.





3.6.2 FUTURE MODE SHARES

As assumed in the study for the Tribute Liverpool & Highway 401 development, non-auto mode shares in the study area are assumed to increase by 5% by the 2028 horizon year and 10% by the 2033, 2038, and 2043 horizon years. This assumption was based on existing and future mode share information from the Region's TMP. These increases are applied to the existing non-auto travel mode shares for the study area from the 2016 TTS data to develop non-auto mode share reductions to the site trip generation. The 2016 TTS mode shares are discussed in further detail in **Section 5.1**.

3.6.3 CORRIDOR TRAFFIC GROWTH

As stated in the TOR, a 0.5% annual growth rate was applied to the through movement volumes along Liverpool Road. It should be noted that, in some of the approved background TIS studies, no traffic growth along Liverpool Road was assumed. Hence, the application of the 0.5% growth rate represents a conservative approach.

No growth rate was applied on Kingston Road. Given the expected 10% increase in transit mode split due to the BRT, a reduction in existing traffic volumes along this corridor would be expected. Therefore, even applying a 0% growth rate represents a conservative assumption.

3.6.4 BACKGROUND DEVELOPMENTS

There are several proposed developments in the vicinity of the project site that will contribute additional traffic to the roads in the study area. The following background developments were included in this study:

- 1294 Kingston Road, 1848 Liverpool Road & 1852 Liverpool Road: Proposed mixed-use development consisting of two buildings having heights of 25-storeys and 13-storeys.
- 1854 & 1858 Liverpool Road Ward 2: Proposed 13-storey mixed-use apartment building containing 98 dwelling units with approximately 460 square metres of commercial space on the ground floor.
- Expansion of the Development at 1355 Kingston Road: Proposed retail expansion of 45,449 square feet GLA (expansion of the current Cineplex). Background traffic to be only included in the PM peak conditions.
- Home Life Care Services at 1234 Kingston Road: Proposed two-storey office building of 4,648 square feet in GFA.
- **Tribute Liverpool & Highway 401:** Proposed mixed-use development consisting of three buildings with 1,779 residential units, 6,265 ft² retail, and 6.168 ft² childcare centre
- **1786-1790 Liverpool Road:** Proposed mixed-use development consisting of 594 residential units and 190 m² GFA of ground-floor retail use

The traffic volumes generated by the background developments were taken from their corresponding traffic impact studies. However, a.m. peak hour site traffic volumes for

1234 Kingston Road were not available, therefore they were estimated using ITE trip rates. The background development volumes are provided in **Appendix D**.

It is assumed that all of these background developments would be constructed and operational by the 2028 horizon year.

3.6.5 FUTURE HEAVY VEHICLE PERCENTAGES

The Walnut Lane extension is planned to replace the existing west leg of the intersection of Liverpool Road & Highway 401 WB Off-Ramp, which currently experiences high heavy vehicle percentages on some movements in the a.m. peak hour. With the Walnut Lane extension expected to carry substantially higher volumes of vehicles than the current west leg (which serves a restaurant and a bank), it is expected that heavy vehicle percentages will lower to a level comparable with the other study intersections. Therefore, during the a.m. peak hour, the heavy vehicle percentages for some movements at this intersection were reduced to 5%, which is conservative relative to the existing percentages at other nearby intersections.

3.6.6 FUTURE SIGNAL TIMINGS

Given the future centre-median transit lanes along Kingston Road, all eastbound and westbound left-turns will need to be fully protected. Therefore, in the future models, protected eastbound and westbound left-turn phases were added for all study intersections along Kingston Road. **Table 3-1** shows the changes made to the left-turn phases to accommodate the future BRT.

Table 3-1: Existing and Future Left-Turn Types Along Kingston Rd

| Intersection | Direction | Existing Left-Turn Type (Without BRT) | | Future Left-Turn Type (With BRT) |
|--|-------------|--|----------------------|--|
| | | AM | PM | AM & PM |
| Liverpool Road & | EB | Protected-Permissive | Protected-Permissive | Protected |
| Kingston Road | WB | Protected-Permissive | Protected-Permissive | Protected |
| Kingston Road & | EB | Permissive | Permissive | Protected |
| Walnut Lane | WB | Permissive | Protected-Permissive | Protected |
| Kingston Road & | EB | Protected-Permissive | Protected-Permissive | Protected |
| Dixie Road | WB | Protected-Permissive | Protected-Permissive | Protected |
| Kingston Road & | EB | Protected-Permissive | Protected-Permissive | Protected |
| Fairport Road | WB (U-Turn) | N/A | N/A | Protected |
| Kingston Road & Highway 401 Westbound Ramps | WB | Protected-Permissive | Protected-Permissive | Protected |
| Kingston Road & | EB | Protected-Permissive | Protected-Permissive | Protected |
| Delta Boulevard | WB | Protected-Permissive | Protected-Permissive | Protected |
| Kingston Road & | EB | Protected-Permissive | Protected-Permissive | Protected |
| Whites Road | WB | Protected-Permissive | Protected-Permissive | Protected |

With the future lane configuration at the intersection of Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp, it is assumed that split phasing will be provided for the eastbound and westbound movements, with the eastbound right-turn occurring in an

overlap phase with a northbound left-turn phase. In addition, it was assumed that the northbound left-turn phase be a protected-permissive phase.

All-red clearance times and pedestrian clearance times crossing Kingston Road were updated to reflect the preliminary drawings for the BRT included in **Appendix E** (detailed design drawings provided by the Region were used for the intersection of Kingston Road & Walnut Lane). Both calculations were based on the equations found in the Durham Region guidelines. All-red clearance times are determined by using a function of the width of the intersection (from the stopbar to the farthest edge of the crosswalk on the opposing side), the length of a standard vehicle, and the posted speed. The pedestrian clearance (i.e. Flashing Don't Walk – FDW) was calculated as the duration needed to cross the longest pedestrian crossing at a 1.0 m/s walk speed and was allowed to extend into the amber and all-red intervals.

In addition, as per Region comments, any fully protected left-turn phases were adjusted to have a minimum 2 second all-red clearance.

The following signal timing improvements were applied in the future models:

- In order to accommodate the combination of background traffic growth, lane configuration changes due to the BRT, and the addition of protected left-turn phases, the cycle length was increased to 130 seconds at all study intersections along Kingston Road during the p.m. peak hour and at the intersections along Kingston Road between Whites Road and Fairport Road during the a.m. peak hour;
- An eastbound right-turn phase (overlapping with the existing northbound left-turn phase) was added during the p.m. peak hour at the intersection of Kingston Road & Liverpool Road; and
- Various signal phase splits optimizations were made throughout the study network.

4 FUTURE BACKGROUND TRAFFIC CONDITIONS

The projected future background traffic volumes were developed by superimposing the traffic redistributions resulting from the Walnut Lane extension, general corridor growth along Liverpool Road, and the background development volumes onto the existing traffic volumes.

This section of the report documents the future background traffic assessments for each of the horizon years.

4.1 2028 FUTURE BACKGROUND

The background traffic operations were analyzed based on the resulting 2028 future background traffic forecasts shown **Figure 4-1.** The resulting levels of service are outlined in **Table 4-1** and the details related to intersection operations provided in **Appendix F-1**.

The Synchro results indicate that all of the intersections continue to operate at an overall acceptable LOS. However, even with the implementation of signal timing improvements, the westbound left-turn movement at Kingston Road & Walnut Lane, Kingston Road & Dixie Road and Kingston Road & Highway 401 WB Ramps, as well as the eastbound left-turn movement at Kingston Road & Whites Road are projected to operate over-capacity. This is largely due to the implementation of the BRT, which necessitated the conversion of the originally protected-permissive left-turn into a fully protected left-turn. A fully protected left-turn restricts vehicles from turning without an advanced left-turn arrow, reducing the capacity of the left turn movement and creating additional delay that was not present in the existing conditions. It is important to recognize that the analysis results are worse than how the study area intersections are expected to operate as future traffic volumes are overestimated due to the utilization of a peak hour factor of 0.92. When intersections operate close to capacity, the peak hour factor is typically close to 1.00; hence, the future traffic volumes are probably close to 8% overestimated. Therefore, a sensitivity analysis using a PHF of 1.00 for intersections with over-capacity movements is provided in Table 4-2. The results show that all movements operate within capacity. Additionally, the application of the annual traffic growth rate of 0.5% along Kingston Road represents a conservative approach that likely overestimated traffic volumes along this road.

Another over-capacity movement includes the northbound left-turn at Kingston Road & Walnut Lane. In addition to the implementation of the BRT, the northbound left turn movement currently acts as an exit for the existing shopping centre, which generates high volumes for this movement. The northbound left traffic from this intersection will have an option to exit the site via the northbound left movement at the Kingston Road and Dixie Road, which is expected to operate with significant residual capacity during the p.m. peak hour. Hence, this movement is not anticipated to cause issues in the future total scenarios as the high volumes exiting the existing site using the northbound left-turn movement would not be present with the proposed development.

Other over-capacity movements include the eastbound through movements at Kingston Road & Highway 401 WB Ramp and Liverpool Road & Kingston Road. These movements are most likely due to the addition of future eastbound and westbound traffic and the implementation of the BRT. As mentioned, the addition of the protected left-turn phase for the BRT reduces the available split for the eastbound direction. The reduced time coupled with the additional future trips causes stress on these movements.

Table 4-1: 2028 Future Background Intersection Operations

| Weekday A.M. Peak Hour Weekday P.M. Peak Hour | | | | | | | | |
|---|-----------|-----------------------|-----------|--|--|--|--|--|
| | Overall | Critical | Overall | Critical | | | | |
| Intersection | LOS | Movement | LOS | Movement | | | | |
| Intersection | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | | |
| | Seconds) | Ratio) | Seconds) | Ratio) | | | | |
| | rtatioj | | | | | | | |
| Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp | B (16) | gnalized Intersectio | C (26) | | | | | |
| Liverpool Road & Pickering Parkway | B (16) | | C (28) | | | | | |
| Liverpool Road & Kingston Road | C (33) | | D (46) | EB-T (1.05) | | | | |
| Kingston Road & Walnut Lane | C (34) | | D (43) | EB-TR (0.99) WB-L (1.00) NB-L (1.02) | | | | |
| Kingston Road & Dixie Road | C (27) | WB-L (1.04) | C (33) | EB-L (0.90) | | | | |
| Kingston Road & Fairport Road | B (18) | | C (33) | EB-L (0.92) | | | | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (54) | EB-TR (1.04) WB-L (1.03) | | | | |
| Kingston Road & Delta Boulevard | C (33) | | D (37) | EB-L (0.93) EB-T (0.91) WB-L (0.93) NB-L (0.93) | | | | |
| Kingston Road & Whites Road | C (32) | | D (48) | EB-L (1.00) EB-T (1.02) | | | | |
| Whites Road & Highway 401 EB Off-Ramp | C (20) | | C (26) | | | | | |
| | Uns | signalized Intersecti | ons | | | | | |
| Dixie Road & Shopping Plaza Entrance | A (9) | WB-LR (0.08) | A (10) | WB-LR (0.24) | | | | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Table 4-2: 2028 Future Background Intersection Operations – PHF Sensitivity Analysis

| | Weekday | y A.M. Peak Hour | Weekday | y P.M. Peak Hour |
|------------------|-----------|----------------------|-----------|------------------|
| | Overall | Critical | Overall | Critical |
| Intersection | LOS | Movement | LOS | Movement |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity |
| | Seconds) | Ratio) | Seconds) | Ratio) |
| | Si | gnalized Intersectio | ns | |
| Liverpool Road & | | | D (40) | ED T (0.05) |
| Kingston Road | | - | D (40) | EB-T (0.95) |
| Kingston Road & | | | | EB-T (0.91) |
| Walnut Lane | | | C (35) | WB-L (0.92) |
| Walliut Laile | | | | NB-L (0.95) |
| Kingston Road & | C (25) | WB-L (0.95) | | |
| Dixie Road | C (23) | WD-L (0.93) | | |
| Kingston Road & | | | | EB-T (0.93) |
| Highway 401 WB | | | D (43) | WB-L (0.95) |
| Ramps | | | | WD-L (0.93) |
| Kingston Road & | | | D (40) | EB-L (0.92) |
| Whites Road | | | D (40) | EB-T (0.91) |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

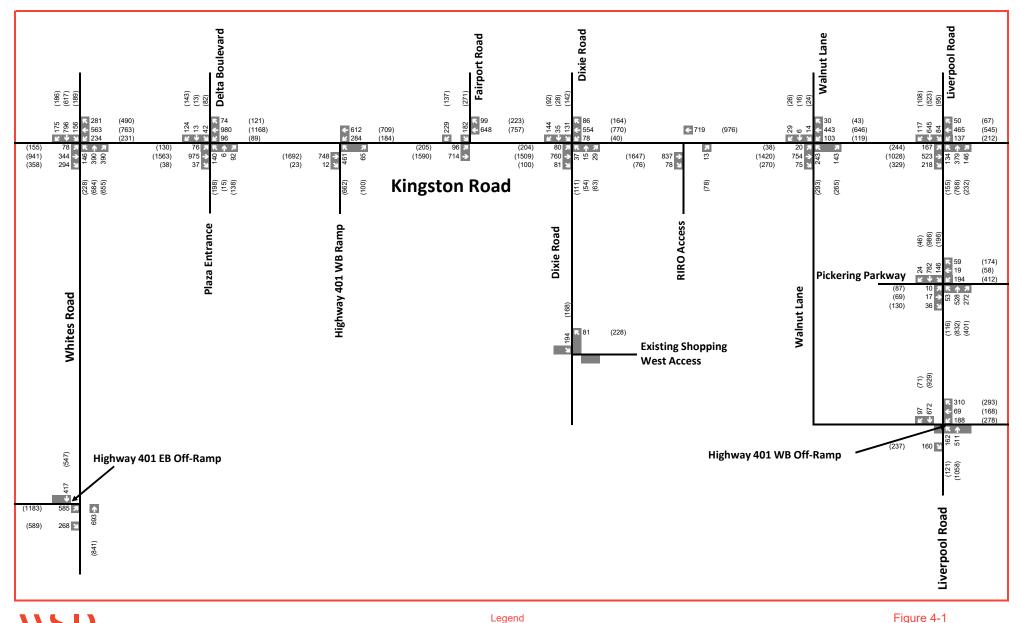




Figure 4-1

The queues at the study intersections were assessed under 2028 future background conditions. A queueing analysis for the study intersections is presented in **Table 4-3**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix F-1**.

Table 4-3: 2028 Future Background Intersection Queue Lengths

| Intersection | Lane | Available Storage | | ile Queues (m) ile Queues (m)] |
|-------------------------------|----------|----------------------|----------------|-----------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| Liverpool Road & Walnut | EBR | N/A | 49 | 68 |
| | WBL | 203 | 44 | 63 |
| | WBT | 203 | 44 | 64 |
| Lane / | WBR | 125 | 23 | 66 |
| Highway | NBL | 50 | 47 | 18 |
| 401 WB Off- | NBT | 348 | 25 | 87 |
| ramp | SBT | 138 | 24 | 79 |
| ramp | SBR | 38 | 2 | 7 |
| | EBL | 59 | 7 | 32 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 53 |
| Liverne | WBT | 305 | 10 | 19 |
| Liverpool | WBR | 62 | 0 | 16 |
| Road & | NBL | 54 | 6 | 36 |
| Pickering | NBT | 138 | 54 | 116 |
| Parkway | NBR | 76 | 20 | 54 |
| | SBL | 133 | 22 | 67 |
| | SBT | 234 | 74 | 155 |
| | SBR | 36 | 0 | 0 |
| | EBL | 221 | 69 | 61 |
| | EBT | 671 | 51 | 179 |
| | EBR | 98 | 28 | 76 |
| 1 : | WBL | 237 | 66 | 99 |
| Liverpool | WBT | 372 | 73 | 94 |
| Road & | WBR | 117 | 0 | 0 |
| Kingston Road | NBL | 186 | 32 | 43 |
| Roau | NBT | 234 | 50 | 122 |
| | NBR | 52 | 15 | 37 |
| | SBL | 49 | 21 | 27 |
| | SBT | 325 | 89 | 80 |
| | SBR | 61 | 8 | 9 |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|----------|----------------------|----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 12 | 0 |
| | EBT | 105 | 138 [101] | 291 [130] |
| Kingston | WBL | 159 | 45 | 76 |
| Road & | WBT | 671 | 72 | 21 |
| Walnut | NBL | 63 | 82 [59] | 143 [84] |
| Lane | NBR | 101 | 14 | 76 |
| | SBL | 19 | 7 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 88 |
| | EBT | 872 | 88 | 259 |
| Vingotor | WBL | 129 | 54 | 25 |
| Kingston Road & | WBT | 167 | 71 | 146 |
| Dixie Road | NBL | 13 | 17 [9] | 46 [29] |
| DIXIE ROAU | NBT | 100 | 12 | 35 |
| | SBL | 16 | 47 [32] | 57 [38] |
| | SBT | 212 | 26 | 22 |
| Vingeton | EBL | 238 | 47 | 50 |
| Kingston Road & | EBT | 400 | 7 | 242 |
| Fairport | WBT | 872 | 86 | 33 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 46 | 328 [285] |
| Road & | WBL | 135 | 112 | 102 |
| Highway | WBT | 400 | 71 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 20 |
| | EBL | 39 | 41 [22] | 40 [37] |
| | EBT | 199 | 158 | 138 |
| Kingston | WBL | 121 | 43 | 48 |
| Road & | WBT | 245 | 179 | 95 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 24 |

| Intersection | Lane | Available Storage | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | | |
|------------------------|----------|----------------------|--|----------------------|--|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| | EBL | 153 | 43 | 89 | |
| | EBT | 274 | 56 | 196 | |
| | EBR | 123 | 67 | 89 | |
| | WBL | 87 | 95 [68] | <mark>81</mark> [61] | |
| Kingston | WBT | 199 | 93 | 80 | |
| Road & | WBR | 35 | 69 [36] | 129 [43] | |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] | |
| Road | NBT | 135 | 39 | 68 | |
| | NBR | 35 | 53 [31] | 189 [124] | |
| | SBL | 89 | 44 | 66 | |
| | SBT | 361 | 81 | 62 | |
| | SBR | 47 | 20 | 17 | |
| Whites | EBL | 272 | 81 | 131 | |
| Road & | EBR | 225 | 19 | 124 | |
| Highway 401 EB Off- | NBT | 162 | 56 | 99 | |
| Ramp | SBT | 293 | 32 | 60 | |
| Dixie Road | WBL | 193 | 2 | 7 | |
| & Shopping Plaza | NBT | 107 | 0 | 0 | |
| Entrance | SBT | 44 | 3 | 3 | |

As a result of background growth, changes in lane configurations, and changes in signal timings, some of the queues under 2028 future background conditions have increased in comparison to existing conditions, some of which have exceeded their available storage. However, many of the exceeding queues were already present in the existing conditions, including those movements at Kingston Road & Dixie Road, Kingston Road & Fairport Road, Kingston Road & Highway 401 WB Ramps, and Kingston Road & Whites Road.

There are some new queueing issues present, most notably at Kingston Road & Walnut Lane, where the eastbound through and northbound left-turn queues exceed the storage length. For the eastbound through movement, the storage length is considered to be the distance from the intersection to the nearest adjacent intersection. In this case, it was assumed to the RIRO intersection for the existing site. This intersection is unsignalized with right turning vehicles yielding to the eastbound through movements. The blockage of this driveway could be mitigated by installing a 'do not block driveway' sign on the eastbound approach. Considering this, the storage length for the eastbound through movement would be much larger in reality as it would go all the way to Dixie Road, which is nearly 300 metres away. This storage length is more than enough to accommodate the 95th and 50th percentile queues. As discussed previously, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

The northbound left-turn movements at Kingston Road & Walnut Lane exceeds the storage length in both the a.m. and p.m. peak hours, but it is only in the p.m. peak hour that the 50th percentile queues exceed the storage length. These queueing issues are most likely due to the short storage length available and the changes in signal timing caused by the new BRT.

Similarly, Kingston Road & Dixie Road and Kingston Road & Whites Road have queueing issues for the northbound left movements, where they're 95th percentile queue exceed their storage length. As mentioned, these issues are most likely due to the changes caused by the new BRT.

4.2 2033 FUTURE BACKGROUND

The background traffic operations were analyzed based on the resulting 2033 future background traffic forecasts shown **Figure 4-2**. The resulting levels of service are outlined in **Table 4-4** and the details related to the intersection operations provided in **Appendix F-2**.

The Synchro results indicate that all of the intersections continue to operate at an acceptable LOS. All movements operate within capacity with the exception of the westbound left-turn movement at Kingston Road & Walnut Lane in the a.m. peak hour and several movements in the p.m. peak hour, all of which were identified in the 2028 future background scenario as well.

The 2033 future background results are nearly the same as the 2028 future background results since no background growth was applied to Kingston Road. The only other difference between the two horizon years is along Liverpool Road, where the road widening has now been implemented, as discussed in **Section 3.3**.

Like the 2028 future background scenario, a PHF sensitivity analysis is shown in **Table 4-5** for any over-capacity movements. The results show that all movements can operate within capacity.

Table 4-4: 2033 Future Background Intersection Operations

| Weekday A.M. Peak Hour Weekday P.M. Peak Hour | | | | | | | | |
|---|-----------|-----------------------|-----------|-----------------------------|--|--|--|--|
| | Overall | Critical | Overall | Critical | | | | |
| Intersection | LOS | Movement | LOS | Movement | | | | |
| IIILEI SECTION | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | | |
| | Seconds) | Ratio) | Seconds) | Ratio) | | | | |
| | | gnalized Intersectio | | i Natio) | | | | |
| Liverpool Road & | <u></u> | gnanzea mier sectio | | | | | | |
| Walnut Lane / | | | | | | | | |
| Highway 401 WB | B (16) | | C (24) | | | | | |
| Off-Ramp | | | | | | | | |
| Liverpool Road & | | | | | | | | |
| Pickering | B (15) | | C (25) | | | | | |
| Parkway | B (10) | | 0 (20) | | | | | |
| Liverpool Road & | | | | | | | | |
| Kingston Road | C (34) | | D (52) | EB-T (1.05) | | | | |
| | | | | EB-TR (0.99) | | | | |
| Kingston Road & | C (27) | | D (43) | WB-L (1.00) | | | | |
| Walnut Lane | - (, | | _ (::, | NB-L (1.02) | | | | |
| Kingston Road & | 0 (0.1) | MD 1 (4 04) | 0 (00) | , , | | | | |
| Dixie Road | C (24) | WB-L (1.04) | C (32) | EB-L (0.90) | | | | |
| Kingston Road & | D (40) | | C (22) | ED 1 (0.00) | | | | |
| Fairport Road | B (19) | | C (33) | EB-L (0.92) | | | | |
| Kingston Road & | | | | ED TD (4 04) | | | | |
| Highway 401 WB | C (29) | C (29) | | EB-TR (1.04) WB-L (1.03) | | | | |
| Ramps | | | | WD-L (1.03) | | | | |
| | | | | EB-L (0.93) | | | | |
| Kingston Road & | C (34) | | D (37) | EB-T (0.91) | | | | |
| Delta Boulevard | 0 (34) | | D (31) | WB-L (0.93) | | | | |
| | | | | NB-L (0.93) | | | | |
| Kingston Road & | C (32) | | D (48) | EB-L (1.00) | | | | |
| Whites Road | 0 (02) | | D (40) | EB-T (1.02) | | | | |
| Whites Road & | | | | | | | | |
| Highway 401 EB | C (20) | | C (26) | | | | | |
| Off-Ramp | | | | | | | | |
| | Uns | signalized Intersecti | ons | Г | | | | |
| Dixie Road & | 4 (2) | MD I D (2.22) | A (10) | MD I D (0.04) | | | | |
| Shopping Plaza | A (9) | WB-LR (0.08) | A (10) | WB-LR (0.24) | | | | |
| Entrance | | | | | | | | |

For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Table 4-5: 2033 Future Background Intersection Operations – PHF Sensitivity Analysis

| | Weekday | y A.M. Peak Hour | Weekda | y P.M. Peak Hour |
|--------------------------------------|-----------|----------------------|-----------|---|
| | Overall | Critical | Overall | Critical |
| Intersection | LOS | Movement | LOS | Movement |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity |
| | Seconds) | Ratio) | Seconds) | Ratio) |
| | Si | gnalized Intersectio | ns | |
| Liverpool Road & Kingston Road | | | D (46) | EB-T (0.95) |
| Kingston Road & Walnut Lane | | | C (35) | EB-T (0.91) WB-L (0.92) NB-L (0.95) |
| Kingston Road & Dixie Road | C (22) | WB-L (0.95) | | - |
| Kingston Road & Highway 401 WB Ramps | | | D (43) | EB-T (0.93) WB-L (0.95) |
| Kingston Road & Whites Road | | | D (40) | EB-L (0.92) EB-T (0.91) |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

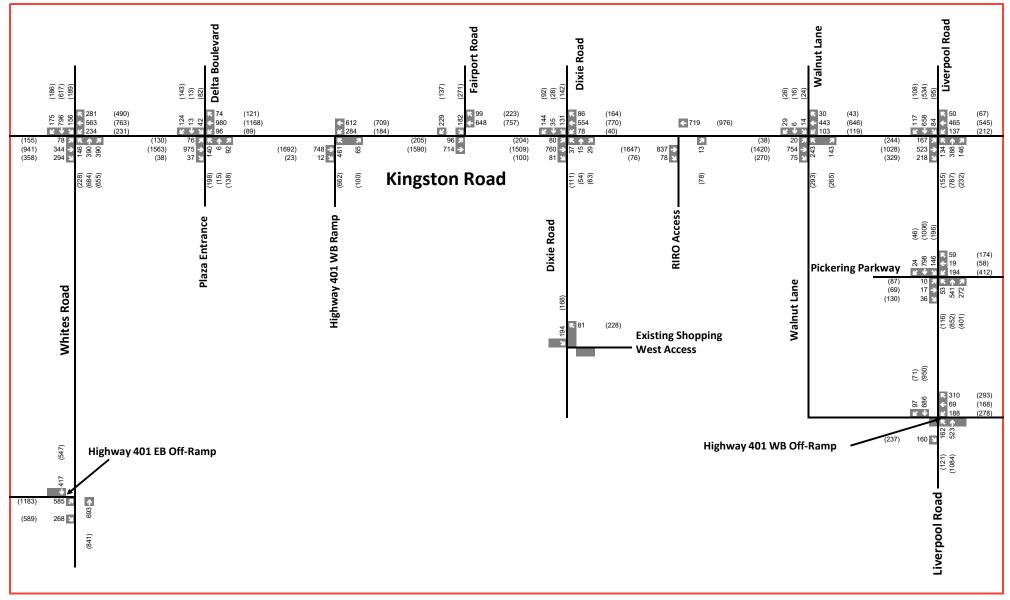




Figure 4-2

Legend

A queueing analysis for the study intersections is presented in **Table 4-6**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix F-2**.

Table 4-6: 2033 Future Background Intersection Queue Lengths

| Intersection | Lane | Available | | tile Queues (m) tile Queues (m)] |
|-------------------------------|----------|----------------|----------------|-------------------------------------|
| intersection | Movement | Storage (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBR | N/A | 49 | 68 |
| Liverpool Road & Walnut | WBL | 203 | 44 | 63 |
| | WBT | 203 | 44 | 64 |
| | WBR | 125 | 23 | 66 |
| Lane / | NBL | 50 | 17 | 18 |
| Highway | NBT | 348 | 17 | 52 |
| 401 WB Off- | SBT | 138 | 24 | 79 |
| ramp | SBR | 38 | 2 | 11 |
| | EBL | 59 | 7 | 32 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 53 |
| 1 | WBT | 305 | 10 | 19 |
| Liverpool Road & | WBR | 62 | 0 | 16 |
| | NBL | 54 | 6 | 34 |
| Pickering Parkway | NBT | 138 | 36 | 73 |
| Fairway | NBR | 76 | 20 | 54 |
| | SBL | 133 | 22 | 61 |
| | SBT | 234 | 47 | 84 |
| | SBR | 36 | 0 | 0 |
| | EBL | 221 | 69 | 74 |
| | EBT | 671 | 61 | 183 |
| | EBR | 98 | 34 | 77 |
| Liversel | WBL | 237 | 66 | 99 |
| Liverpool Road & | WBT | 372 | 73 | 94 |
| Koad & Kingston | WBR | 117 | 0 | 0 |
| Road | NBL | 186 | 32 | 43 |
| Roau | NBT | 234 | 51 | 125 |
| | NBR | 52 | 15 | 38 |
| | SBL | 49 | 21 | 27 |
| | SBT | 325 | 90 | 81 |
| | SBR | 61 | 8 | 9 |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|----------|----------------------|-----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 13 | 0 |
| | EBT | 105 | 121 [85] | 291 [130] |
| Kingston | WBL | 159 | 43 | 76 |
| Road & | WBT | 671 | 73 | 35 |
| Walnut | NBL | 63 | 81 [59] | 143 [84] |
| Lane | NBR | 101 | 14 | 76 |
| | SBL | 19 | 7 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 88 |
| | EBT | 872 | 88 | 259 |
| Vingeton | WBL | 129 | 53 | 25 |
| Kingston Road & | WBT | 167 | 44 | 85 |
| Dixie Road | NBL | 13 | 17 [9] | 46 [29] |
| DIXIE ROAU | NBT | 100 | 12 | 35 |
| | SBL | 16 | 47 [32] | 57 [38] |
| | SBT | 212 | 26 | 22 |
| Vingoton | EBL | 238 | 43 | 50 |
| Kingston Road & | EBT | 400 | 3 | 242 |
| Fairport | WBT | 872 | 86 | 36 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 47 | 328 [285] |
| Road & | WBL | 135 | 107 | 101 |
| Highway | WBT | 400 | 81 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 20 |
| | EBL | 39 | 41 [22] | 40 [37] |
| | EBT | 199 | 159 | 138 |
| Kingston | WBL | 121 | 45 | 48 |
| Road & | WBT | 245 | 176 | 95 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 24 |

| Intersection | Lane | Available Storage | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | | |
|------------------------|----------|----------------------|--|----------------------|--|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| | EBL | 153 | 43 | 89 | |
| | EBT | 274 | 56 | 196 | |
| | EBR | 123 | 67 | 89 | |
| | WBL | 87 | 95 [62] | <mark>81</mark> [61] | |
| Kingston | WBT | 199 | 96 | 80 | |
| Road & | WBR | 35 | 67 | 129 [43] | |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] | |
| Road | NBT | 135 | 39 | 68 | |
| | NBR | 35 | 53 [31] | 189 [124] | |
| | SBL | 89 | 44 | 66 | |
| | SBT | 361 | 81 | 62 | |
| | SBR | 47 | 20 | 17 | |
| Whites | EBL | 272 | 81 | 131 | |
| Road & | EBR | 225 | 19 | 124 | |
| Highway 401 EB Off- | NBT | 162 | 56 | 99 | |
| Ramp | SBT | 293 | 32 | 60 | |
| Dixie Road | WBL | 193 | 2 | 7 | |
| & Shopping | NBT | 107 | 0 | 0 | |
| Plaza Entrance | SBT | 44 | 3 | 3 | |

The queueing analysis indicates that the queues do not change significantly between the 2033 future background scenario and 2028 future background scenario. The same queues exceeding their storage length in the 2028 future background scenario is present in the 2033 future background scenario with the exception of Kingston Road & Delta Boulevard. Although this movement exceeds the storage length of the 95th percentile, it is not expected to create significant delays for the through movement as there are two eastbound through lanes at this intersection.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

4.3 2038 FUTURE BACKGROUND

The background traffic operations were analyzed based on the resulting 2038 future background traffic forecasts shown **Figure 4-3**. The resulting levels of service are outlined in **Table 4-7** and the details related to the intersection operations provided in **Appendix F-3**.

Synchro results indicate that all intersections continue to operate at an acceptable LOS. All movements operate within capacity with the exception of the westbound left-turn movement at Kingston Road & Walnut Lane in the a.m. peak hour and several

movements in the p.m. peak hour, which were identified in the 2028 and 2033 Future Background scenarios as well.

The 2038 future background results are nearly the same as the 2028 and 2033 future background results since no background growth was applied to Kingston Road.

As with the 2028 and 2033 future background scenarios, a PHF sensitivity analysis was done. The results continue to show that all movements can operate within capacity.

Table 4-7: 2038 Future Background Intersection Operations

| Weekday A.M. Peak Hour Weekday P.M. Peak Hour | | | | | | | | |
|--|------------------|-----------------------|-----------|--|--|--|--|--|
| | Overall | Critical | Overall | Critical | | | | |
| Intersection | | Movement | | | | | | |
| intersection | LOS (Delevier | | LOS | Movement | | | | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | | |
| | Seconds) | Ratio) | Seconds) | Ratio) | | | | |
| | SI | gnalized Intersectio | ns | | | | | |
| Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp | B (16) | | C (24) | | | | | |
| Liverpool Road & Pickering Parkway | B (15) | | C (25) | | | | | |
| Liverpool Road & Kingston Road | C (34) | | D (52) | EB-T (1.05) | | | | |
| Kingston Road & Walnut Lane | C (27) | | D (43) | EB-TR (0.99) WB-L (1.00) NB-L (1.02) | | | | |
| Kingston Road & Dixie Road | C (24) | WB-L (1.04) | C (32) | EB-L (0.90) | | | | |
| Kingston Road & Fairport Road | B (19) | | C (33) | EB-L (0.92) | | | | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (54) | EB-TR (1.04) WB-L (1.03) | | | | |
| Kingston Road & Delta Boulevard | C (34) | | D (37) | EB-L (0.93) EB-T (0.91) WB-L (0.93) NB-L (0.93) | | | | |
| Kingston Road & Whites Road | C (32) | | D (48) | EB-L (1.00) EB-T (1.02) | | | | |
| Whites Road & Highway 401 EB Off-Ramp | C (20) | | C (26) | | | | | |
| | Uns | signalized Intersecti | ons | | | | | |
| Dixie Road & Shopping Plaza Centre | A (9) | WB-LR (0.08) | A (10) | WB-LR (0.24) | | | | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

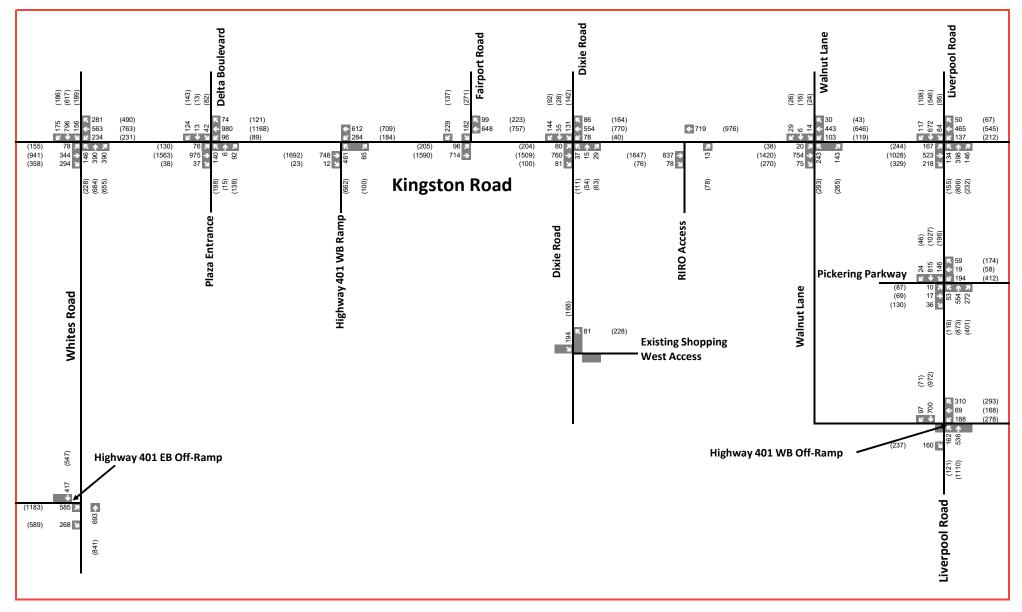
² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Table 4-8: 2038 Future Background Intersection Operations – PHF Sensitivity Analysis

| | Weekday | y A.M. Peak Hour | Weekday | y P.M. Peak Hour |
|--------------------------------------|-----------|----------------------|-----------|---|
| | Overall | Overall Critical | | Critical |
| Intersection | LOS | Movement | LOS | Movement |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity |
| | Seconds) | Ratio) | Seconds) | Ratio) |
| | Si | gnalized Intersectio | ns | |
| Liverpool Road & Kingston Road | | | D (46) | EB-T (0.95) |
| Kingston Road & Walnut Lane | | | C (35) | EB-T (0.91) WB-L (0.92) NB-L (0.95) |
| Kingston Road & Dixie Road | C (22) | WB-L (0.95) | | |
| Kingston Road & Highway 401 WB Ramps | | | D (43) | EB-T (0.93) WB-L (0.95) |
| Kingston Road & Whites Road | | | D (40) | EB-L (0.92) EB-T (0.91) |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.





Legend

A.M. Peak Hour

Traffic Volumes

P.M. Peak Hour

Traffic Volumes

Figure 4-3

A queueing analysis for the study intersections is presented in **Table 4-9**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix F-3**.

Table 4-9: 2038 Future Background Intersection Queue Lengths

| Intersection | Lane Movement | Available Storage | | tile Queues (m) tile Queues (m)] |
|----------------------|------------------|----------------------|----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| Liverneel | EBR | N/A | 49 | 68 |
| Liverpool Road & | WBL | 203 | 44 | 63 |
| Walnut | WBT | 203 | 44 | 64 |
| Lane / | WBR | 125 | 23 | 66 |
| Highway | NBL | 50 | 17 | 18 |
| 401 WB Off- | NBT | 348 | 17 | 54 |
| Ramp | SBT | 138 | 24 | 81 |
| Kamp | SBR | 38 | 2 | 11 |
| | EBL | 59 | 7 | 32 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 53 |
| Liverneel | WBT | 305 | 10 | 19 |
| Liverpool Road & | WBR | 62 | 0 | 16 |
| | NBL | 54 | 6 | 35 |
| Pickering Parkway | NBT | 138 | 37 | 75 |
| Faikway | NBR | 76 | 20 | 55 |
| | SBL | 133 | 22 | 62 |
| | SBT | 234 | 48 | 86 |
| | SBR | 36 | 0 | 0 |
| | EBL | 221 | 69 | 74 |
| | EBT | 671 | 61 | 183 |
| | EBR | 98 | 34 | 77 |
| 1 : | WBL | 237 | 66 | 99 |
| Liverpool Road & | WBT | 372 | 73 | 94 |
| | WBR | 117 | 0 | 0 |
| Kingston Road | NBL | 186 | 32 | 43 |
| Nuau | NBT | 234 | 53 | 129 |
| | NBR | 52 | 15 | 39 |
| | SBL | 49 | 21 | 27 |
| | SBT | 325 | 93 | 83 |
| | SBR | 61 | 8 | 9 |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|----------------------|----------|----------------------|----------------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 13 | 0 |
| | EBT | 105 | 121 [85] | 291 [130] |
| Kingston | WBL | 159 | 43 | 76 |
| Road & | WBT | 671 | 73 | 35 |
| Walnut | NBL | 63 | 81 [59] | 143 [84] |
| Lane | NBR | 101 | 14 | 76 |
| | SBL | 19 | 7 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 88 |
| | EBT | 872 | 88 | 259 |
| l/:maratan | WBL | 129 | 53 | 25 |
| Kingston | WBT | 167 | 44 | 85 |
| Road & Dixie Road | NBL | 13 | 17 [9] | 46 [29] |
| Dixie Roau | NBT | 100 | 12 | 35 |
| | SBL | 16 | 47 [32] | 57 [38] |
| | SBT | 212 | 26 | 22 |
| IZ:n matan | EBL | 238 | 43 | 50 |
| Kingston Road & | EBT | 400 | 3 | 242 |
| Fairport | WBT | 872 | 86 | 36 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 47 | 328 [285] |
| Road & | WBL | 135 | 107 | 101 |
| Highway | WBT | 400 | 81 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 20 |
| | EBL | 39 | <mark>41</mark> [22] | 40 [37] |
| | EBT | 199 | 159 | 138 |
| Kingston | WBL | 121 | 45 | 48 |
| Road & | WBT | 245 | 176 | 95 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 24 |

| Intersection | Lane | Available Storage | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | | |
|------------------------|----------|----------------------|--|----------------------|--|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| | EBL | 153 | 43 | 89 | |
| | EBT | 274 | 56 | 196 | |
| | EBR | 123 | 67 | 89 | |
| | WBL | 87 | 95 [62] | <mark>81</mark> [61] | |
| Kingston | WBT | 199 | 96 | 80 | |
| Road & | WBR | 35 | 67 | 129 [43] | |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] | |
| Road | NBT | 135 | 39 | 68 | |
| | NBR | 35 | 53 [31] | 189 [124] | |
| | SBL | 89 | 44 | 66 | |
| | SBT | 361 | 81 | 62 | |
| | SBR | 47 | 20 | 17 | |
| Whites | EBL | 272 | 81 | 131 | |
| Road & | EBR | 225 | 19 | 124 | |
| Highway 401 EB Off- | NBT | 162 | 56 | 99 | |
| Ramp | SBT | 293 | 32 | 60 | |
| Dixie Road | WBL | 193 | 2 | 7 | |
| & Shopping Plaza | NBT | 107 | 0 | 0 | |
| Entrance | SBT | 44 | 3 | 3 | |

The queueing analysis indicates that the queues do not change significantly between the 2038 future background scenario and the 2028 and 2033 future background scenarios. The same queues exceeding their storage length in the 2033 future background scenario is present in the 2038 future background scenario.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

4.4 2043 FUTURE BACKGROUND

The background traffic operations were analyzed based on the resulting 2043 future background traffic forecasts shown in **Figure 4-4**. The resulting levels of service are outlined in **Table 4-10** and the details related to the intersection operations provided in **Appendix F-4**.

Synchro results indicate that all intersections continue to operate at an acceptable LOS. All movements operate within capacity with the exception of the westbound left-turn movement at Kingston Road & Walnut Lane in the a.m. peak hour and several movements in the p.m. peak hour, which was identified in the 2028, 2033 and 2038 future background scenarios as well.

The 2043 future background results are nearly the same as the 2028, 2033 and 2038 future background results since no background growth was applied to Kingston Road.

As with the 2028, 2033, and 2038 future background scenarios, the PHF sensitivity results show that all movements continue to operate within capacity.

Table 4-10: 2043 Future Background Intersection Operations

| Weekday A.M. Peak Hour Weekday P.M. Peak Hour | | | | | | | | | |
|---|---|----------------------|-----------|--|--|--|--|--|--|
| | Overall | Critical | Overall | Critical | | | | | |
| Intersection | LOS | Movement | LOS | Movement | | | | | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | | | |
| | Seconds) | ` Ratio) | Seconds) | ` Ratio) | | | | | |
| | Śi | gnalized Intersectio | ns | | | | | | |
| Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp | Liverpool Road & Walnut Lane / Highway 401 WB | | C (24) | | | | | | |
| Liverpool Road & Pickering Parkway | B (15) | | C (25) | | | | | | |
| Liverpool Road & Kingston Road | C (34) | | D (52) | EB-T (1.05) | | | | | |
| Kingston Road & Walnut Lane | C (27) | | D (43) | EB-TR (0.99) WB-L (1.00) NB-L (1.02) | | | | | |
| Kingston Road & Dixie Road | C (24) | WB-L (1.04) | C (32) | EB-L (0.90) | | | | | |
| Kingston Road & Fairport Road | B (19) | | C (33) | EB-L (0.92) | | | | | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (54) | EB-TR (1.04) WB-L (1.03) | | | | | |
| Kingston Road & Delta Boulevard | C (34) | | D (37) | EB-L (0.93) EB-T (0.91) WB-L (0.93) NB-L (0.93) | | | | | |
| Kingston Road & Whites Road | C (32) | | D (48) | EB-L (1.00) EB-T (1.02) | | | | | |
| Whites Road & Highway 401 EB Off-Ramp | C (20) | | C (26) | | | | | | |
| | | Unsignalized | | | | | | | |
| Dixie Road & Shopping Plaza Entrance | A (9) | WB-LR (0.08) | A (10) | WB-LR (0.24) | | | | | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Table 4-11: 2043 Future Background Intersection Operations – PHF Sensitivity Analysis

| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|--------------------------------------|-----------|----------------------|------------------------|---|--|
| | Overall | Critical | Overall | Critical | |
| Intersection | LOS | Movement | LOS | Movement | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | |
| | Seconds) | Ratio) | Seconds) | Ratio) | |
| | Si | gnalized Intersectio | ns | | |
| Liverpool Road & Kingston Road | | | D (46) | EB-T (0.95) | |
| Kingston Road & Walnut Lane | | | C (35) | EB-T (0.91) WB-L (0.92) NB-L (0.95) | |
| Kingston Road & Dixie Road | C (22) | WB-L (0.95) | | - | |
| Kingston Road & Highway 401 WB Ramps | | | D (43) | EB-T (0.93) WB-L (0.95) | |
| Kingston Road & Whites Road | | | D (40) | EB-L (0.92) EB-T (0.91) | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

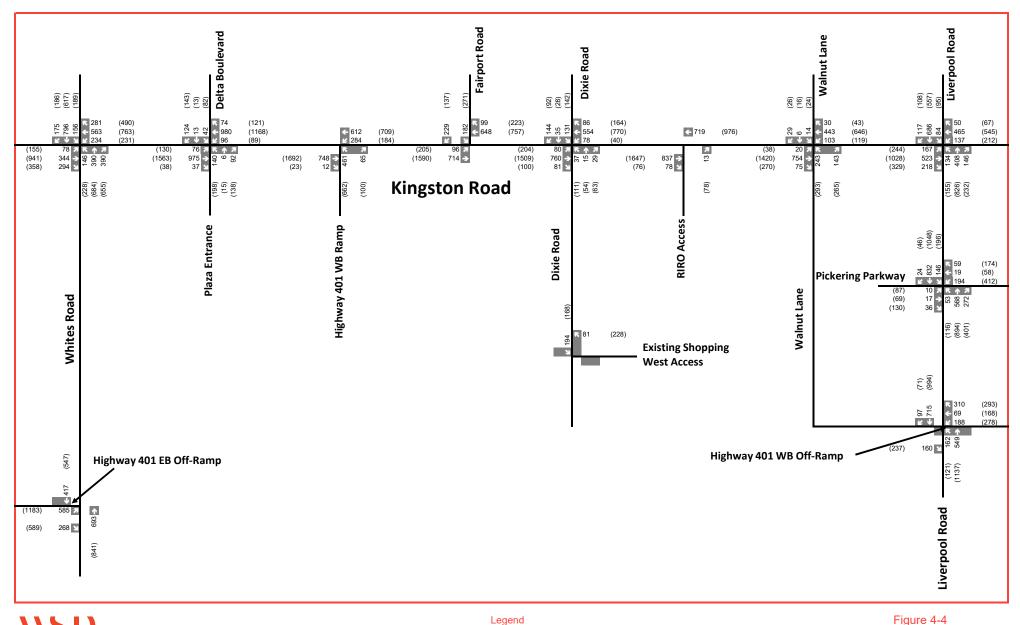




Figure 4-4

A queueing analysis for the study intersections is presented in **Table 4-12**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix F-4**.

Table 4-12: 2043 Future Background Intersection Queue Lengths

| | Lane | Available | | tile Queues (m) |
|----------------------|----------|------------|----------------|---------------------------------|
| Intersection | Movement | Storage | A.M. Peak Hour | tile Queues (m)] P.M. Peak Hour |
| | EBR | (m) N/A | 49 | 68 |
| Liverpool | WBL | 203 | 44 | 63 |
| Road & | WBT | 203 | 44 | 64 |
| Walnut | WBR | 125 | 24 | 66 |
| Lane / | | | | 18 |
| Highway | NBL | 50 | 17 | |
| 401 WB Off- | NBT | 348 | 17 | 56 |
| Ramp | SBT | 138 | 25 | 83 |
| - | SBR | 38 | 2 | 11 |
| | EBL | 59 | 7 | 32 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 53 |
| Liverpool | WBT | 305 | 10 | 19 |
| Road & | WBR | 62 | 0 | 16 |
| Pickering Parkway | NBL | 54 | 6 | 36 |
| | NBT | 138 | 38 | 77 |
| . arkway | NBR | 76 | 20 | 56 |
| | SBL | 133 | 22 | 63 |
| | SBT | 234 | 49 | 89 |
| | SBR | 36 | 0 | 0 |
| | EBL | 221 | 69 | 74 |
| | EBT | 671 | 61 | 183 |
| | EBR | 98 | 34 | 78 |
| Liverneel | WBL | 237 | 66 | 99 |
| Liverpool | WBT | 372 | 73 | 94 |
| Road & | WBR | 117 | 0 | 0 |
| Kingston | NBL | 186 | 32 | 43 |
| Road | NBT | 234 | 54 | 133 |
| | NBR | 52 | 15 | 40 |
| | SBL | 49 | 21 | 27 |
| | SBT | 325 | 95 | 85 |
| | SBR | 61 | 8 | 9 |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|----------|----------------------|-----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 13 | 0 |
| | EBT | 105 | 121 [85] | 291 [130] |
| Kingston | WBL | 159 | 43 | 76 |
| Road & | WBT | 671 | 73 | 35 |
| Walnut | NBL | 63 | 81 [59] | 143 [84] |
| Lane | NBR | 101 | 14 | 76 |
| | SBL | 19 | 7 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 88 |
| | EBT | 872 | 88 | 259 |
| Vingeton | WBL | 129 | 53 | 25 |
| Kingston Road & | WBT | 167 | 44 | 85 |
| Dixie Road | NBL | 13 | 17 [9] | 46 [29] |
| DIXIE ROAU | NBT | 100 | 12 | 35 |
| | SBL | 16 | 47 [32] | 57 [38] |
| | SBT | 212 | 26 | 22 |
| Vingoton | EBL | 238 | 43 | 50 |
| Kingston Road & | EBT | 400 | 3 | 242 |
| Fairport | WBT | 872 | 86 | 36 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 47 | 328 [285] |
| Road & | WBL | 135 | 107 | 101 |
| Highway | WBT | 400 | 81 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 20 |
| | EBL | 39 | 41 [22] | 40 [37] |
| | EBT | 199 | 159 | 138 |
| Kingston | WBL | 121 | 45 | 48 |
| Road & | WBT | 245 | 176 | 95 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 24 |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|------------------------|----------|----------------------|----------------|-------------------------------------|
| | Movement | (m) ¯ | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 153 | 43 | 89 |
| | EBT | 274 | 56 | 196 |
| | EBR | 123 | 67 | 89 |
| | WBL | 87 | 95 [62] | <mark>81</mark> [61] |
| Kingston | WBT | 199 | 96 | 80 |
| Road & | WBR | 35 | 67 | 129 [43] |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] |
| Road | NBT | 135 | 39 | 68 |
| | NBR | 35 | 53 [31] | 189 [124] |
| | SBL | 89 | 44 | 66 |
| | SBT | 361 | 81 | 62 |
| | SBR | 47 | 20 | 17 |
| Whites | EBL | 272 | 81 | 131 |
| Road & | EBR | 225 | 19 | 124 |
| Highway 401 EB Off- | NBT | 162 | 56 | 99 |
| Ramp | SBT | 293 | 32 | 60 |
| Dixie Road | WBL | 193 | 2 | 7 |
| & Shopping Plaza | NBT | 107 | 0 | 0 |
| Centre | SBT | 44 | 3 | 3 |

The queueing analysis indicates that the queues do not change significantly between the 2043 future background scenario and the 2028, 2033 and 2043 future background scenarios. The same queues exceeding their storage length in the previous future background scenarios are present in the 2043 future background scenario.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

5 SITE GENERATED TRAFFIC

5.1 TRIP GENERATION

The vehicle trips generated by the proposed development during the weekday a.m. and p.m. peak hours were estimated using the trip generation rates outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition.

The following adjustments were applied to the base ITE generated trips to calculate vehicle trips:

— Internal Trip Capture:

It is intended that the proposed 70,877 sq. ft. of retail GFA will be mainly servicing the proposed residential use and other nearby residents. Hence, it is anticipated that the proposed retail use will not generate many new trips. However, as a conservative approach, we accounted for the potential new trips generated by the retail use, and accordingly applied a multi-use share factor to determine the number of internally captured trips. The multi-use share factor was calculated using the methodology for internal trip capture estimation for mixed-use developments from *NCHRP Project 8-51*. The multi-use adjustment factors calculations can be found in **Appendix G**.

— Mode Split:

As noted in the ITE's *Trip Generation Handbook*, the ITE trip generation rates include a modest (0 to 5%) transit split and are generally taken in a fairly suburban context. Therefore, the site trips initially estimated using the ITE rate were adjusted based on the TTS data to reflect the existing mode splits in the study area. The TTS mode splits for residential and retail trips in the study area traffic analysis zones (TAZ 1039, 1040, 1041, and 1043) are shown in **Table 5-1** and **Table 5-2**, respectively. The TTS mode share data is provided in **Appendix G**. As shown, a large portion of the transit related trips in the area are GO train trips as the Pickering GO Station is located in proximity to the site.

However, when the BRT is anticipated to be operational, there will likely be a shift from auto to transit trips in the area. As discussed in **Section 3.6.2**, it is assumed that non-auto mode shares in the study area will increase by 5% by 2028 and 10% by 2033/2038/2043. These increases are applied to the existing non-auto travel mode shares for the study area from the 2016 TTS data to develop non-auto mode share reductions to the site trip generation.

As a comparison, Metrolinx's *Durham Scarborough Bus Rapid Transit Study Initial Business Case Report* (2018) forecasted that the a.m. peak period transit mode share in Downtown Pickering would be 33% when the center median BRT is in operation, as shown in **Figure 5-1**. In comparison to the existing a.m. peak hour transit mode share (i.e. 22%), the BRT is forecasted to increase transit mode share by 11%, which is comparable to the 10% transit mode increase assumed in this study.

Transit Mode Share: AM Peak Period - Westbound 45% 40% 35% **Transit Mode Share** 30% 25% 20% 15% 10% 5% 0% UTSC to Downtown Pickering Downtown Downtown Scarborough Durham Village (Ajax) Oshawa Pickering Whitby Centre to UTSC Boundary **2011** 33% 22% 18% 16% 19% 17% 2041 Base Case 27% 17% 19% 19% 28% 17% Centre Median 43% 37% 33% 30% 30% 25% ■ Curbside 44% 30% 29% 36% 32% 25% Hybrid 43% 36% 33% 30% 29% 25%

Figure 5-1: Future Transit Mode Share with Durham-Scarborough BRT

Source: Durham Scarborough Bus Rapid Transit Study Initial Business Case Report (Metrolinx, 2018)

Table 5-1: Existing Mode Share – Residential Trips

| | Modal Split Percentage | | | | |
|---------------------|------------------------|----------|---------|----------|--|
| Primary Travel Mode | A.M. Peak Hour | | | ak Hour | |
| · | Inbound | Outbound | Inbound | Outbound | |
| Auto – Driver | 79% | 56% | 65% | 83% | |
| Auto – Passenger | 4% | 17% | 12% | 13% | |
| Transit | 0% | 8% | 4% | 4% | |
| Rail Transit | 0% | 14% | 15% | 0% | |
| Walking and Cycling | 17% | 5% | 4% | 0% | |

Table 5-2: Existing Mode Share - Retail Trips

| | Modal Split Percentage | | | | |
|---------------------|------------------------|----------|----------------|----------|--|
| Primary Travel Mode | A.M. Peak Hour | | P.M. Peak Hour | | |
| | Inbound | Outbound | Inbound | Outbound | |
| Auto – Driver | 79% | 80% | 93% | 88% | |
| Auto – Passenger | 21% | 20% | 7% | 11% | |
| Transit | 0% | 0% | 0% | 0% | |
| Rail Transit | 0% | 0% | 0% | 0% | |
| Walking and Cycling | 0% | 0% | 0% | 1% | |

It is our opinion that this future non-auto mode share reduction is conservative as the TMP's auto mode share targets apply to the entire Region, and areas immediately adjacent to the rapid transit service are expected to have much higher non-auto rates. For example, based on the 2016 TTS data, the non-auto mode split in the York Region is 14%, while the areas along Yonge Street served by the VIVA rapid transit service have a non-auto mode split above 35%. It should be noted that at that time the VIVA Blue BRT route was operating in mixed traffic operations with headways between 10 to 12 minutes and that all these zones were located more than 400 metres of walking distance from bus stops. Additionally, the TTS zones 2125 and 2126 around Promenade Mall in Vaughan with high-density development land uses have a combined non-auto more split of around 40%. Therefore, given the proximity of the Kingston BRT and Pickering GO Station to the site, as well as the increased DRT and GO train service in the future, it is expected that many of the auto site trips will switch to transit trips.

The resulting site trip generation for horizon years 2028 and 2033/2038/2043 are presented in **Table 5-3** and **Table 5-4**, respectively.

Table 5-3: Site Generated Trips (Horizon Year 2028)

| Land Use | Basis/Parameter | A.M. Peak Hour | | P.M. Peak Hour | |
|---------------------------------|-------------------------------------|----------------|-----|--------------------|-----|
| (ITE Code) | Basis/Parameter | In | Out | In | Out |
| | ITE Trip Rate (per unit) | 0.27 | | 0.32 | |
| Multifamily Housing (High-Rise) | ITE Splits | 26% | 74% | 62% | 38% |
| (222) | Base Trips | 41 | 116 | 116 | 71 |
| 500 | Internal Trips | -1 | -1 | -53 | -25 |
| 583 units | Non-Auto Trips | -9 | -37 | -17 | -4 |
| | Auto Trips | 31 | 78 | 45 | 42 |
| | ITE Trips Rate (per 1000 sq.ft.) | 3.53 | | T = 7.67X + 118.86 | |
| Shopping Plaza | ITE Splits | 62% | 38% | 48% | 52% |
| (821) | Base Trips | 112 | 69 | 246 | 267 |
| 51,351 sq. ft. GFA | Internal Trips | -1 | -1 | -25 | -53 |
| , | Non-Auto Trips | -6 | -3 | -11 | -13 |
| | Auto Trips | 106 | 65 | 210 | 201 |
| | 137 | 143 | 255 | 243 | |

Table 5-4: Site Generated Trips (Horizon Years 2033, 2038, and 2043)

| Land Use | Decis/December | A.M. Pea | ak Hour | P.M. Peak Hour | |
|---------------------------------|------------------------------------|----------|---------|-----------------------|-----|
| (ITE Code) | Basis/Parameter | In | Out | In | Out |
| | ITE Trip Rate (per unit) | 0.27 | | 0.32 | |
| Multifamily Housing (High-Rise) | ITE Splits 26° | | 74% | 62% | 38% |
| (222) | Base Trips | 370 | 1052 | 1044 | 640 |
| 5 004 mits | Internal Trips | -7 | -11 | -90 | -32 |
| 5,264 units | Non-Auto Trips | -98 | -385 | -315 | -85 |
| | Auto Trips | 264 | 656 | 640 | 523 |
| | ITE Trip Rate (per 1000 sq.ft.) | 0.84 | | T = 7.67X + 118.86 | |
| Shopping Plaza | ITE Splits | 62% | 38% | 48% | 52% |
| (821) | Base Trips | 155 | 95 | 318 | 344 |
| 70,877 sq. ft. GFA | Internal Trips | -11 | -7 | -32 | -90 |
| | Non-Auto Trips | -14 | -9 | -29 | -28 |
| | Auto Trips | 130 | 79 | 258 | 227 |
| | 395 | 735 | 897 | 750 | |

5.2 TRIP DISTRIBUTION AND ASSIGNMENT

To inform the trip assignment of the proposed development, information about the general trip distribution is required. The distribution represents the proportion of trips to and away from the site in any given direction. In this assessment, trip distribution was calculated using the TTS trip origin and destination data. Trips are grouped under cardinal directions based on the relative angle between trip origin and destination.

Trip distribution data for the site's home-based TAZ's (1039, 1040, 1041, and 1043) are summarized in **Table 5-5**. A summary of the TTS queries can be found in **Appendix G**.

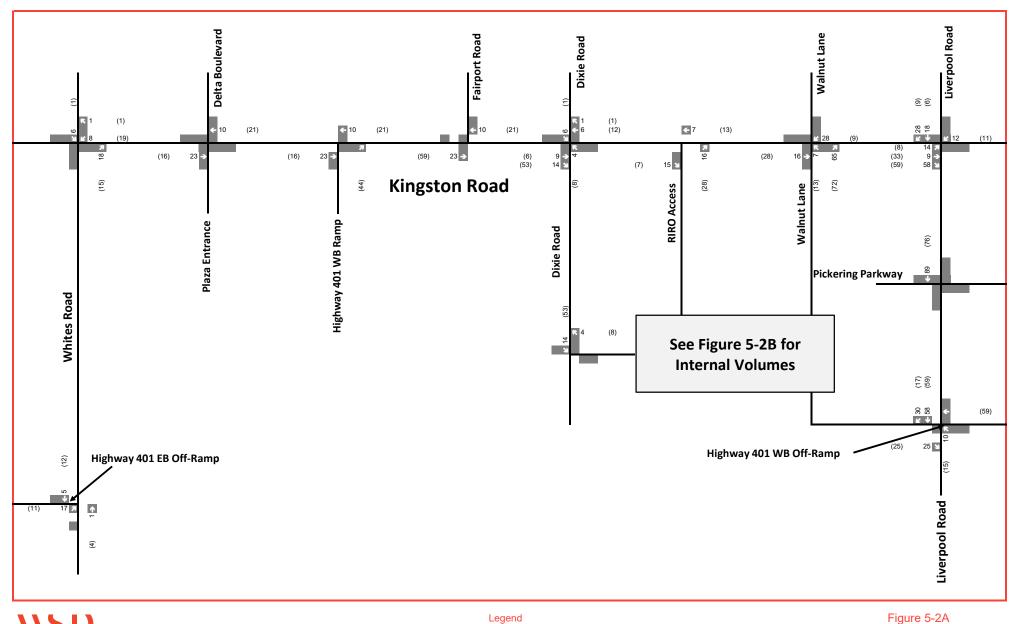
Note that 'internal' refers to local trips within the home planning district (i.e. City of Pickering – PD 20 in the TTS), while 'external' refers to trips made outside the home planning district.

Table 5-5: TTS Trip Distribution

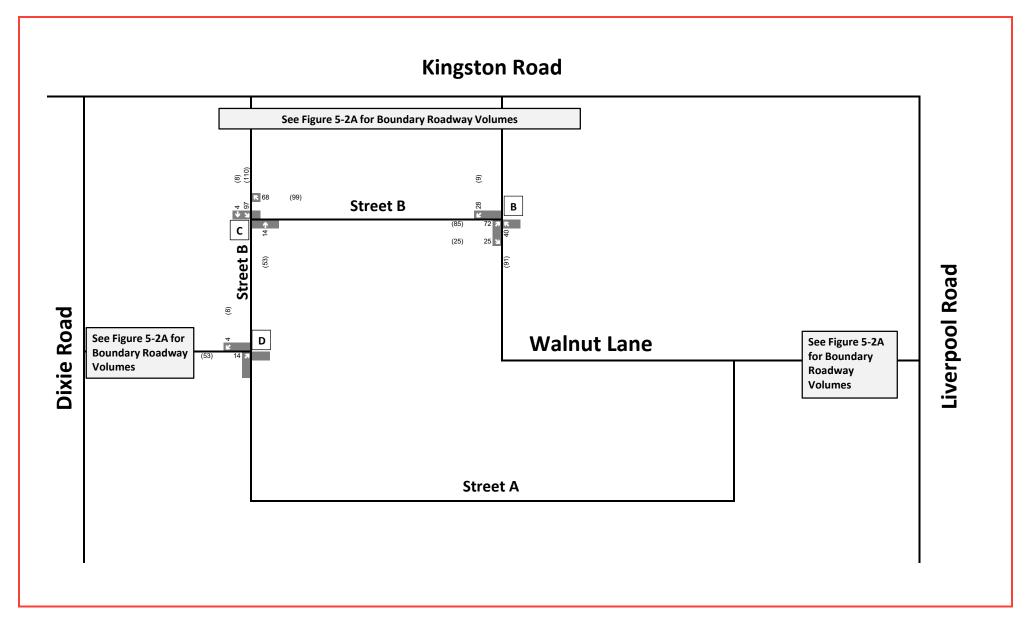
| Time Period | NW | N | NE | Е | SE | S | SW | W |
|-------------|----------|-------|------|-------|-------|-------|------|-------|
| | Internal | | | | | | | |
| AM (IN) | 0.0% | 59.4% | 0.0% | 7.0% | 11.2% | 0.0% | 0.0% | 0.0% |
| AM (OUT) | 0.0% | 10.6% | 1.3% | 0.3% | 6.2% | 3.6% | 5.0% | 3.3% |
| PM (IN) | 0.0% | 6.5% | 0.3% | 1.5% | 7.8% | 1.4% | 2.7% | 1.9% |
| PM (OUT) | 0.0% | 6.3% | 1.3% | 12.5% | 12.8% | 11.6% | 3.9% | 3.3% |
| External | | | | | | | | |
| AM (IN) | 0.0% | 0.0% | 0.0% | 22.5% | 0.0% | 0.0% | 0.0% | 0.0% |
| AM (OUT) | 14.3% | 0.0% | 9.0% | 10.3% | 0.0% | 0.0% | 8.9% | 27.4% |
| PM (IN) | 20.1% | 0.0% | 3.1% | 8.3% | 0.0% | 0.0% | 5.9% | 40.5% |
| PM (OUT) | 0.0% | 0.0% | 7.1% | 27.2% | 0.0% | 0.0% | 9.1% | 5.1% |

Using the TTS trip distribution data above, in conjunction with the most logical path for vehicles to travel based on the future lane configuration, the site generated trips were assigned to the road network.

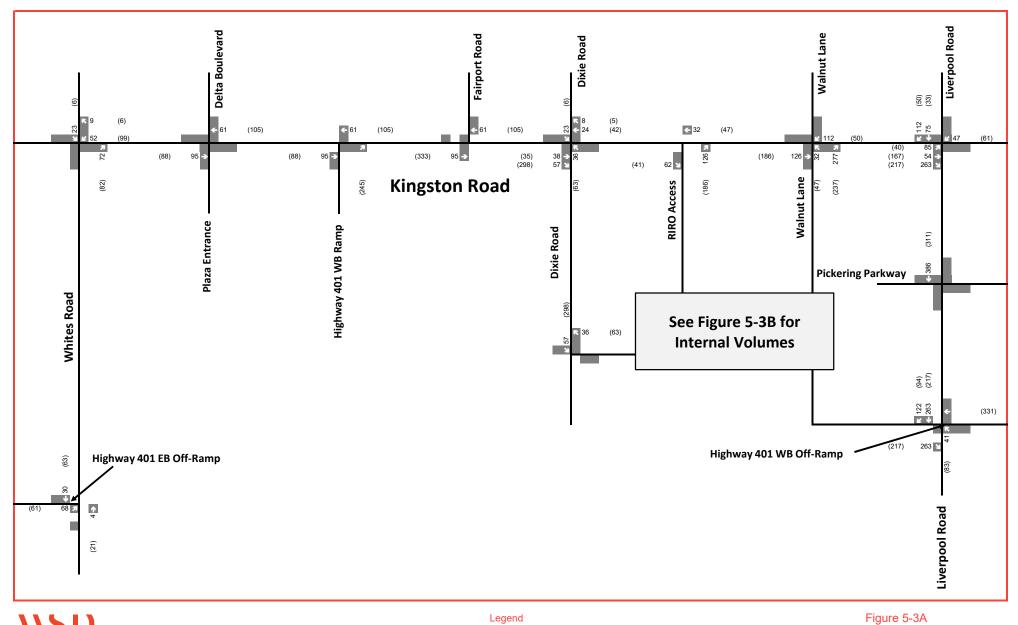
The resulting assignment for the 2028 horizon site traffic volumes is shown in **Figure 5-2**. The resulting assignment for the 2033, 2038 and 2043 horizon site traffic volumes is shown in **Figure 5-3**.



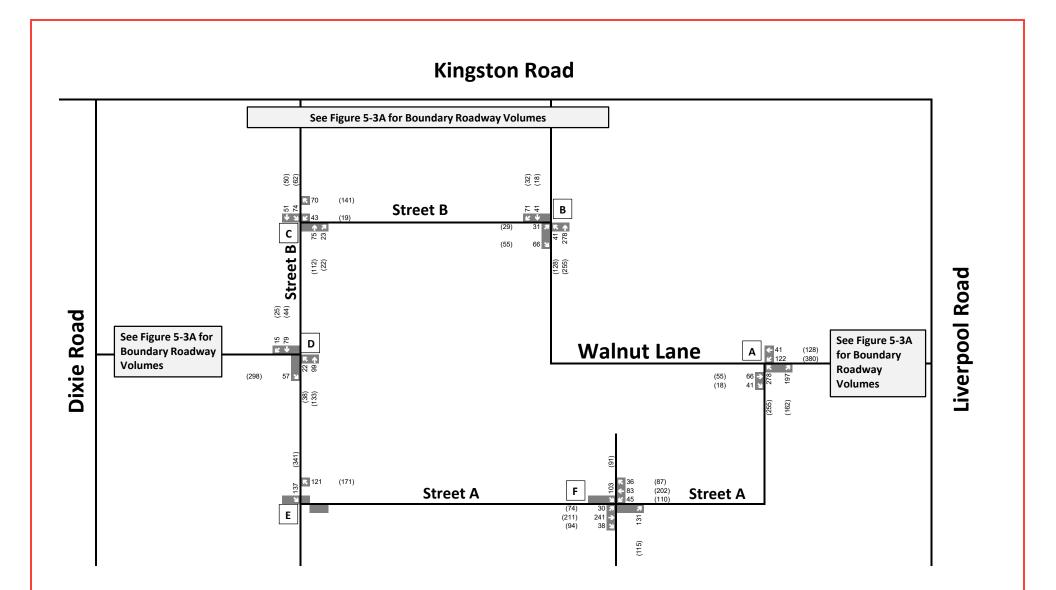












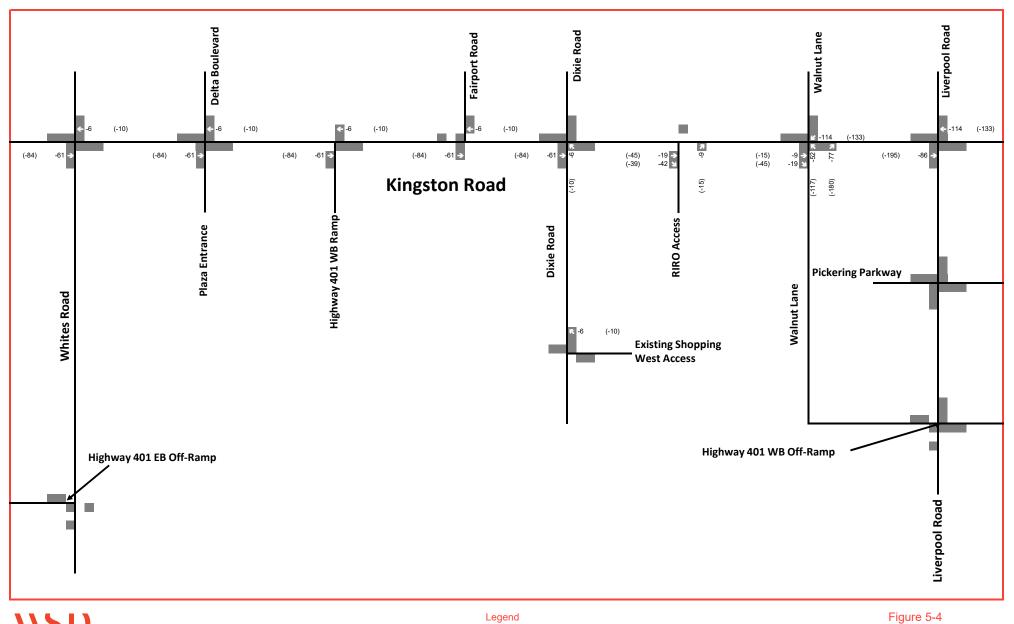


5.3 EXISTING SITE TRAFFIC

As mentioned previously, the site is currently occupied by a shopping centre with various retail tenants. With the construction of the proposed development, the current land uses will be removed. To account for this removal, the existing traffic associated with the current land uses need to be removed from the traffic analysis as well. The existing site trips to be removed from the 2028 (phase 1) horizon year were estimated based on an approximate trip generation of the removed buildings. The existing site trips to be removed from the 2033 (full-build out) horizon year and forward were determined from the traffic counts at the existing driveway accesses. The resulting net site traffic with the removal of existing site traffic is summarized in **Table 5-6**. The existing site traffic is presented in **Figure 5-4**. The net site traffic between the site generated site traffic and the existing site traffic is presented in **Figure 5-5** for the 2028 horizon and **Figure 5-6** for the 2033, 2038, and 2043 horizons.

Table 5-6: Existing Site Trips

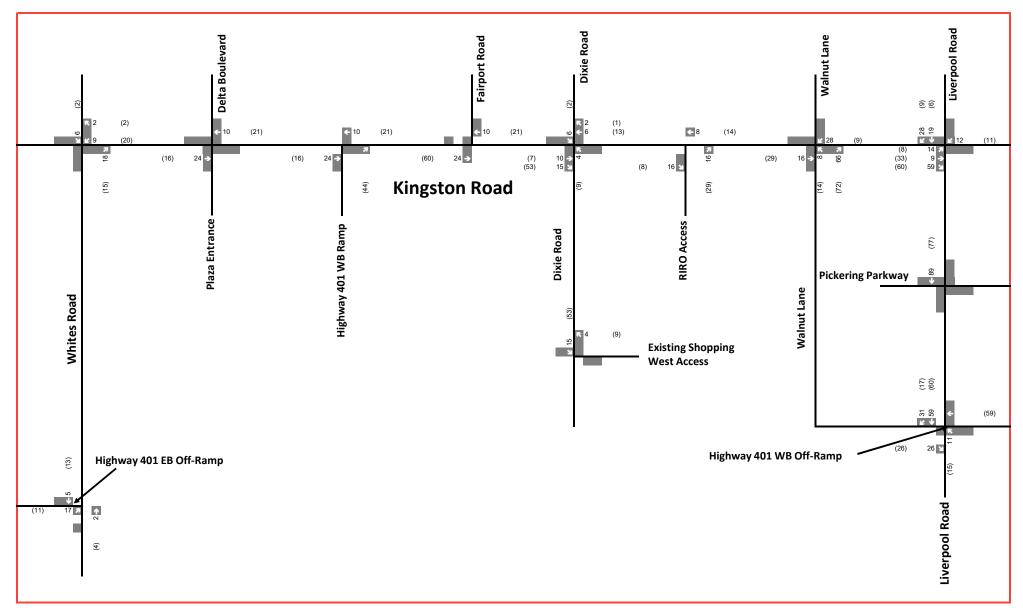
| | A.M. Pe | ak Hour | P.M. Peak Hour | | |
|-------------------------------|---------|----------|----------------|----------|--|
| | Inbound | Outbound | Inbound | Outbound | |
| Existing Site Trips | 238 | 164 | 327 | 424 | |
| 2028 Site Trips | 137 | 143 | 255 | 243 | |
| 2033/2038/2043 Site Trips | 395 | 735 | 897 | 750 | |
| 2028 Net Site Trips | 97 | 117 | 160 | 147 | |
| 2033/2038/2043 Net Site Trips | 157 | 571 | 570 | 326 | |



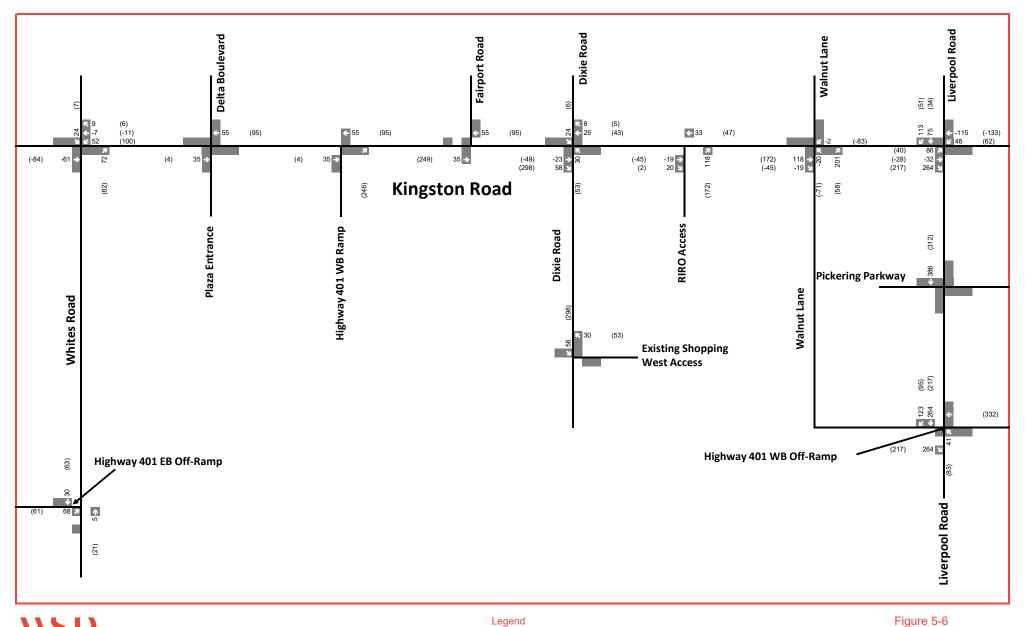


Legend

A.M. Peak Hour Traffic Volumes P.M. Peak Hour Traffic Volumes Existing Site Traffic (to be removed)









6 PROPOSED SITE LAYOUT

6.1 PUBLIC ROADS

The proposed site plan includes two public roads within the site:

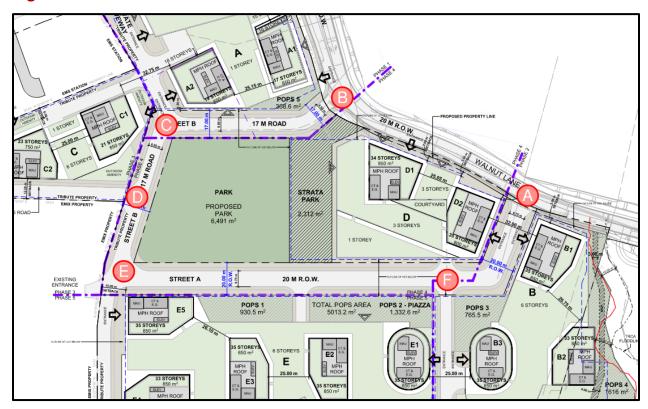
- Street A, which has a right-of-way (ROW) width of 20 metres; and
- Street B, which has a ROW width of 17 metres.

With a wider ROW, Street A is intended to accommodate the functions of a new primary street per the City's Draft Urban Design Guidelines for the area. It is expected that this road will be further extended to the west (up to Dixie Road) upon the redevelopment of the adjacent property. Street A can also be extended northeast of Walnut Lane in order to serve as an access to the lands on the other side of Walnut Lane when they are redeveloped.

6.2 INTERNAL INTERSECTION CONTROLS

There are several internal intersections within the proposed site plan. The six internal intersections have been identified as intersections A to F, as shown in **Figure 6-1**. The estimated volumes of these internal intersections under 2043 future total conditions are provided in **Figure 7-4**.

Figure 6-1: Internal Intersections



To determine the control type of the internal intersections, the all-way stop warrant methodology outlined in Ontario Traffic Manual (OTM) Book 5 was used. According to OTM Book 5, an all-way stop is warranted at the intersection of two local roads under three conditions. Firstly, the total number of vehicles at all intersection approaches must be greater than 200 vehicles. Secondly, the minor street volumes must be greater than 75 vehicles. Finally, the volume split between the minor and major street volumes must be at least 30 to 70, or 25 to 75 for 3-legged intersections. Based on these three conditions, the internal intersections were assessed. The results are presented in **Table 6-1**.

Table 6-1: Internal Intersection All-Way Stop Warrant

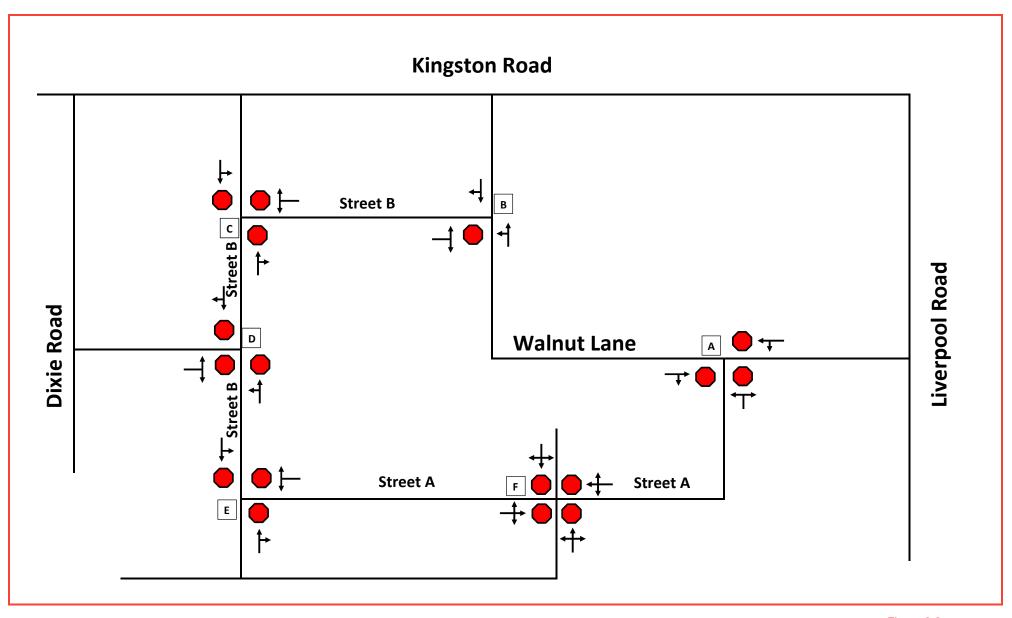
| Internal | Condition 1 | Condition 2 (Minor | Condition 3 | All-way Stop |
|--------------|----------------|--------------------|----------------|--------------|
| Intersection | (Total Volume) | Street Volume) | (Volume Split) | warranted? |
| Α | Yes | Yes | Yes | Yes |
| В | Yes | Yes | No | No |
| С | Yes | Yes | Yes | Yes |
| D | Yes | Yes | Yes | Yes |
| E | Yes | Yes | Yes | Yes |
| F | Yes | Yes | Yes | Yes |

As shown in **Table 6-1**, all of the internal intersections except for intersection B are warranted for all-way stop control. Therefore, intersection B is recommended to be a two-way stop-controlled intersection, while the remaining internal intersections were initially assessed as all-way stop-controlled intersections.

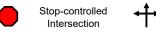
As indicated in **Section 7.2**, intersection A operates above capacity as an all-way stop control intersection under future total 2033 conditions. As such, the signalization of this intersection was considered. Based on the favourable traffic operations of this location as a signalized intersection, it is recommended that intersection A be signalized. This intersection is approximately 220 metres from the signalized intersection of Kingston Road & Walnut Lane, which is an acceptable intersection spacing for signalization on a minor road. Additionally, the signalized intersection can also serve the future redevelopment of the properties northeast of the intersection.

Figure 6-2 illustrates the recommended control type for the internal intersections.

Given the recommended provision of all-way stop control at almost all of the internal intersections and the short distances between the intersections, mid-block pedestrian crossings are not recommended at any location within the development.







6.3 SITE PLAN REVIEW

This section reviews the ability for fire trucks, waste collection vehicles, and loading trucks to access each of the buildings. The phasing plans dated December 10, 2024 and ground floor site plan dated December 17, 2024 were used in the site plan review. The proposed site was reviewed using AutoTURN 11.0 turning template software to simulate the required design vehicles.

6.3.1 FIRE ROUTE ASSESSMENT

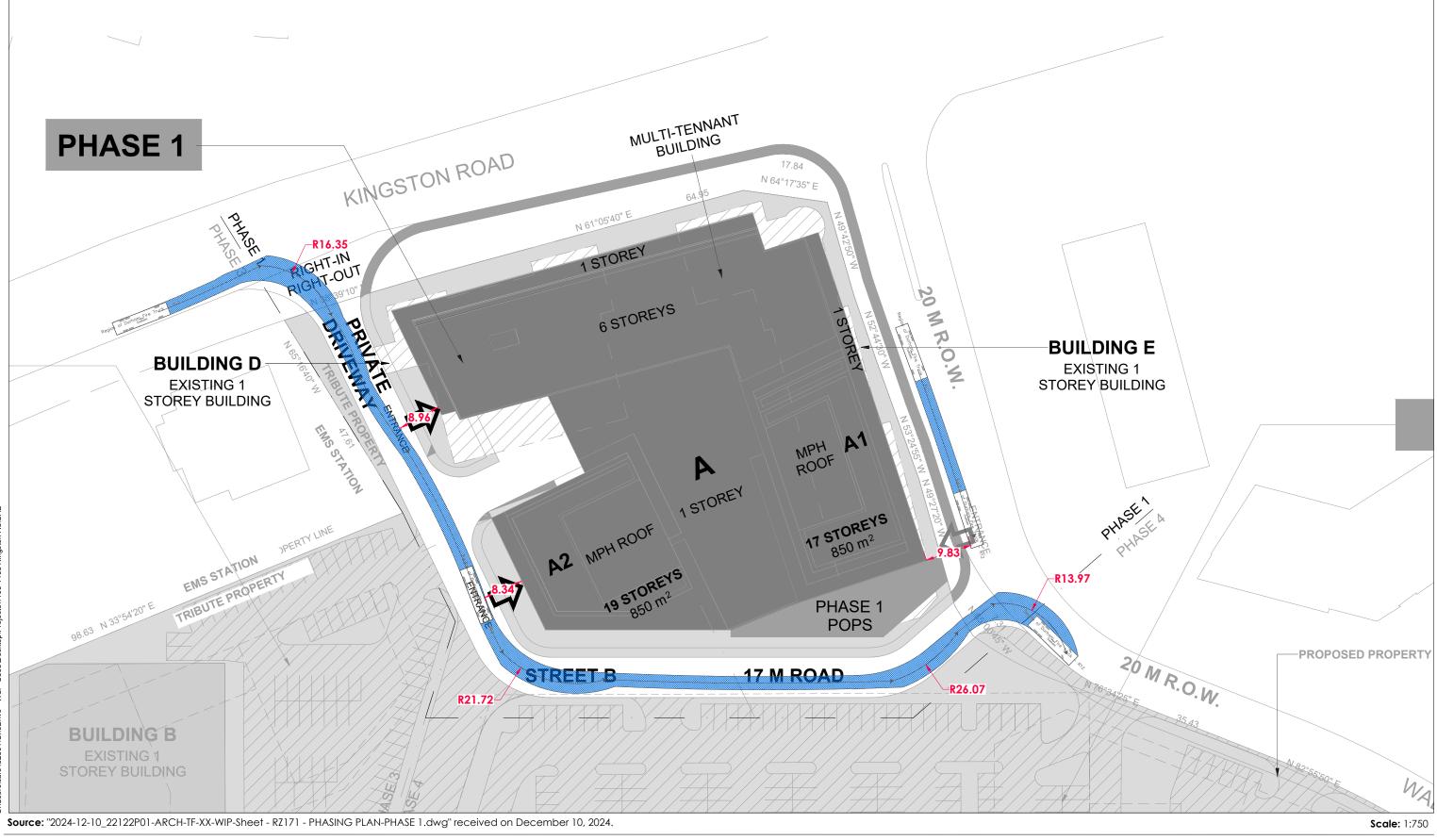
A fire route assessment was completed for each phase. As stated within the Fire Code Article 3.2.5.4., the space between the fire truck and the primary access to the building must be no less than 3 metres and no more than 15 metres.

A standard City of Pickering fire truck was used to test the fire truck maneuvers. As illustrated in **Figure 6-3** to **Figure 6-7**, the fire truck is able to maneuver to and from locations that are within the acceptable distance range to the primary entrances for each building.

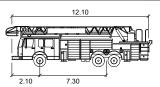
6.3.2 LOADING SPACE REVIEW

Each of the loading spaces that are intended to be used for waste collection were tested using Durham Region's front-loader and rear-packer garbage trucks. **Figure 6-8** to **Figure 6-13** illustrate the maneuvers of the front-loader garbage truck, while **Figure 6-14** to **Figure 6-19** illustrate the maneuvers of the rear-packer garbage truck.

To assess the ability for the loading spaces to be used for moving and deliveries, each of them were tested using either a TAC medium single unit (MSU) truck or a TAC light single unit (LSU) truck, depending on the dimensions of the loading space. **Figure 6-20** to **Figure 6-27** illustrate the maneuvers of the MSU truck, while **Figure 6-28** to **Figure 6-34** illustrate the maneuvers of the LSU truck.



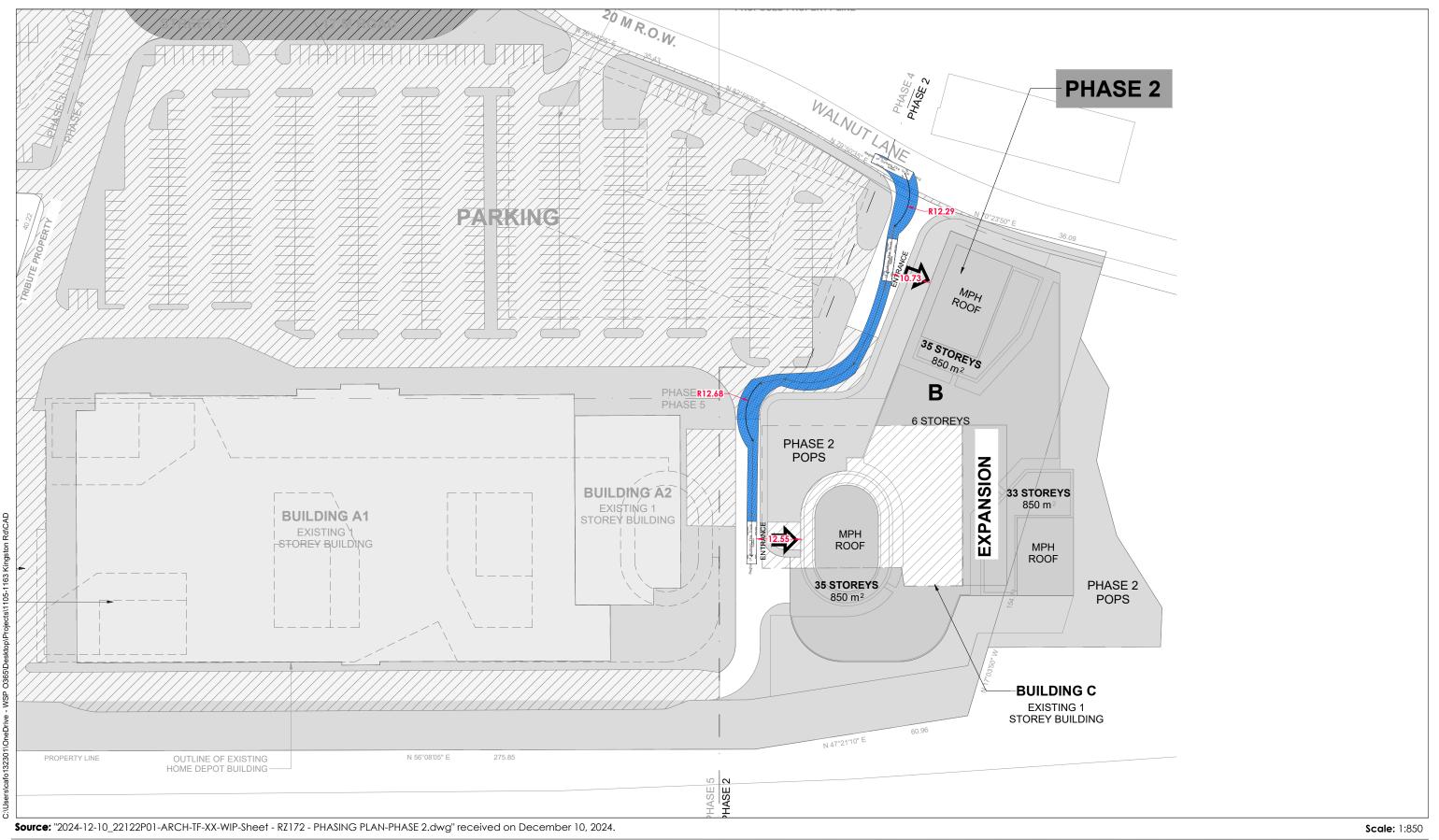
WSD



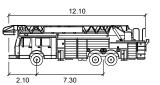
Region of Durham Fire Truck - R12

Width : 2.75
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 37.5

Figure 6-3 Fire Truck Circulation - Phase 1 1105-1163 Kingston Road, Pickering







Region of Durham Fire Truck - R12

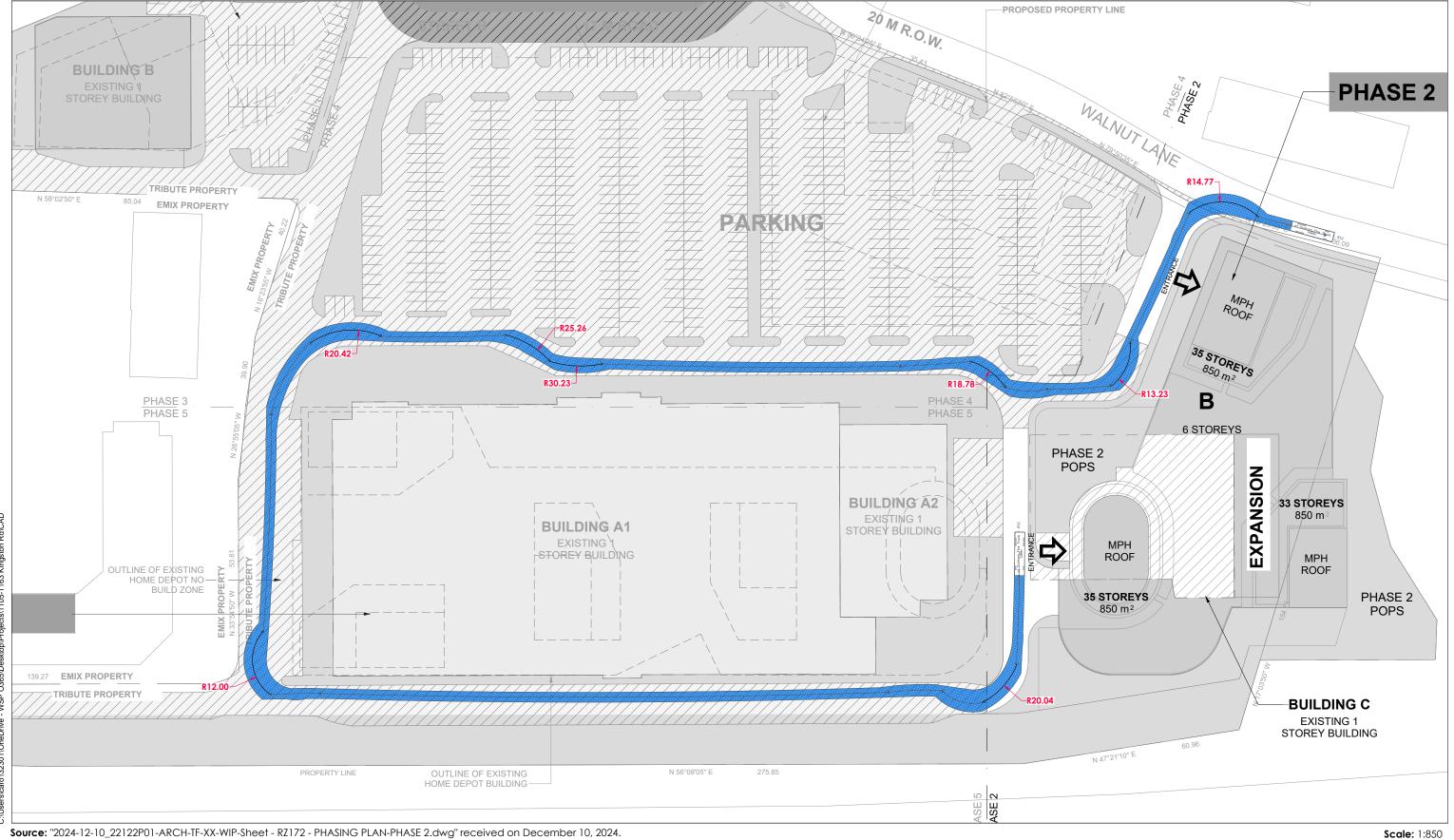
 Width
 : 2.75

 Track
 : 2.50

 Lock to Lock Time
 : 6.0

 Steering Angle
 : 37.5

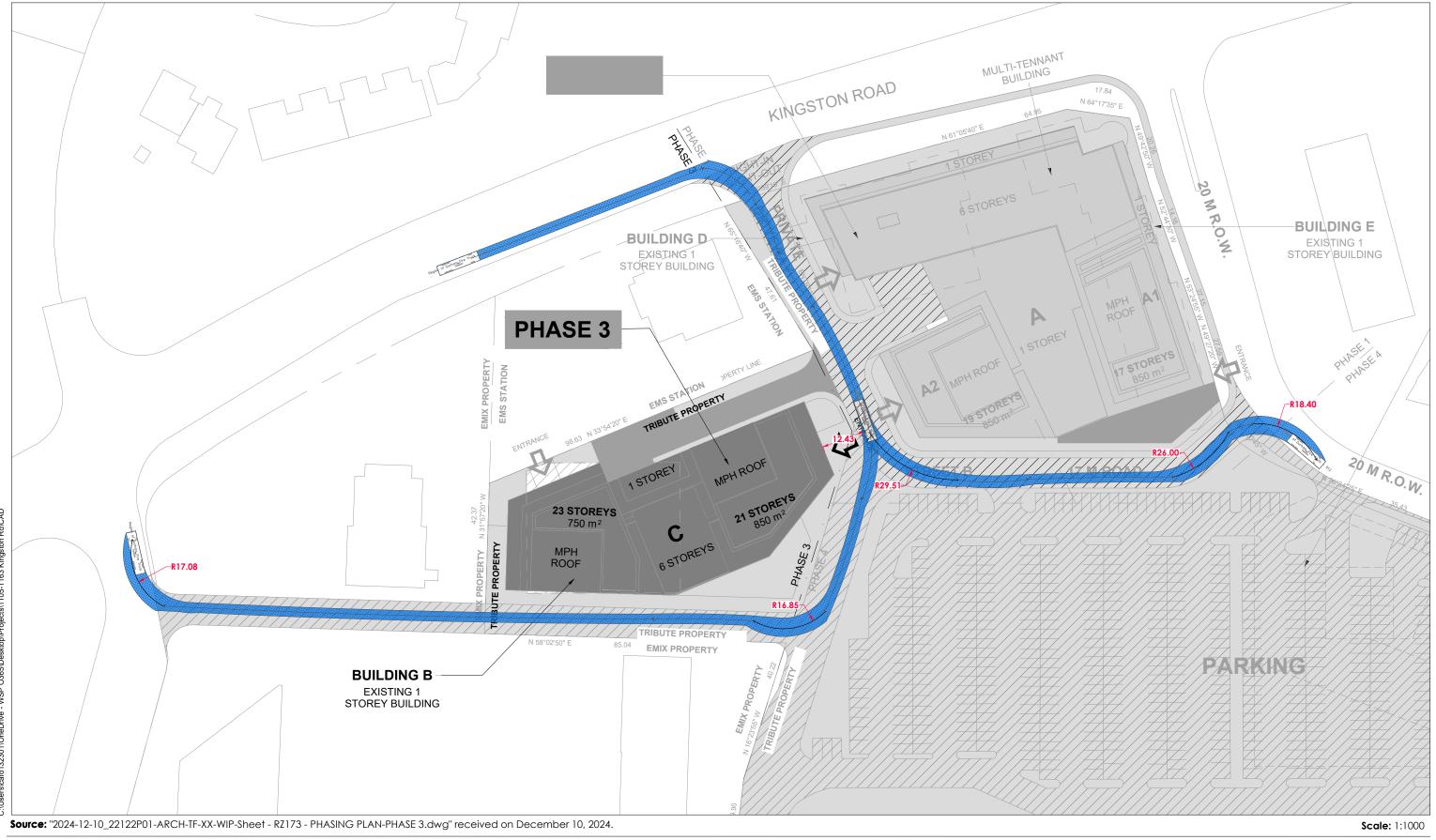
Figure 6-4A Fire Truck Circulation - Phase 2 - Inbound 1105-1163 Kingston Road, Pickering



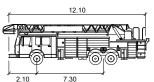
Region of Durham Fire Truck - R12

Width
Track
Lock to Lock Time
Steering Angle 2.75 2.50 6.0 37.5

Figure 6-4B Fire Truck Circulation - Phase 2 - Outbound 1105-1163 Kingston Road, Pickering



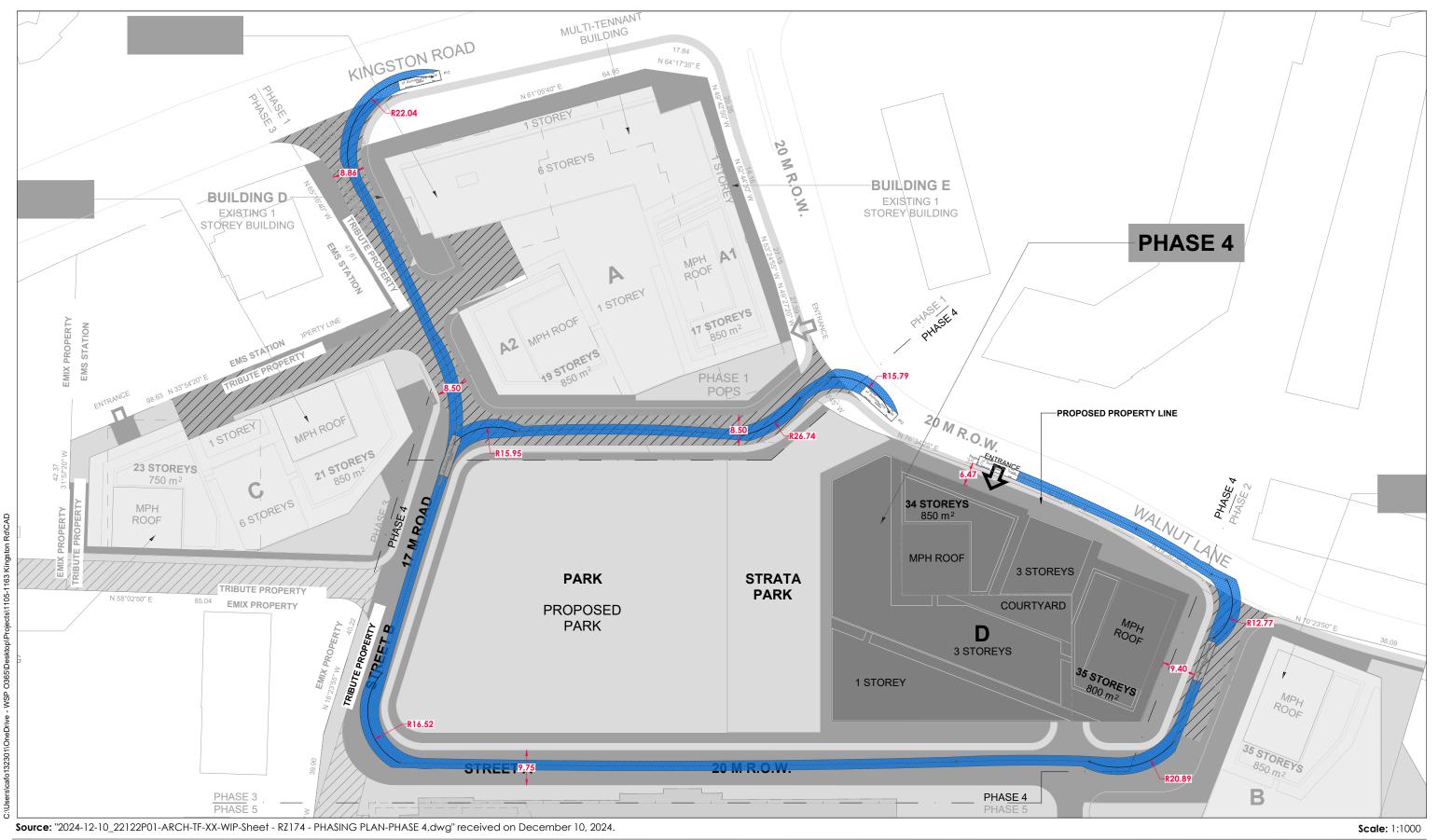




Region of Durham Fire Truck - R12

Width : 2.75
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 37.5

Figure 6-5 Fire Truck Circulation - Phase 3 1105-1163 Kingston Road, Pickering



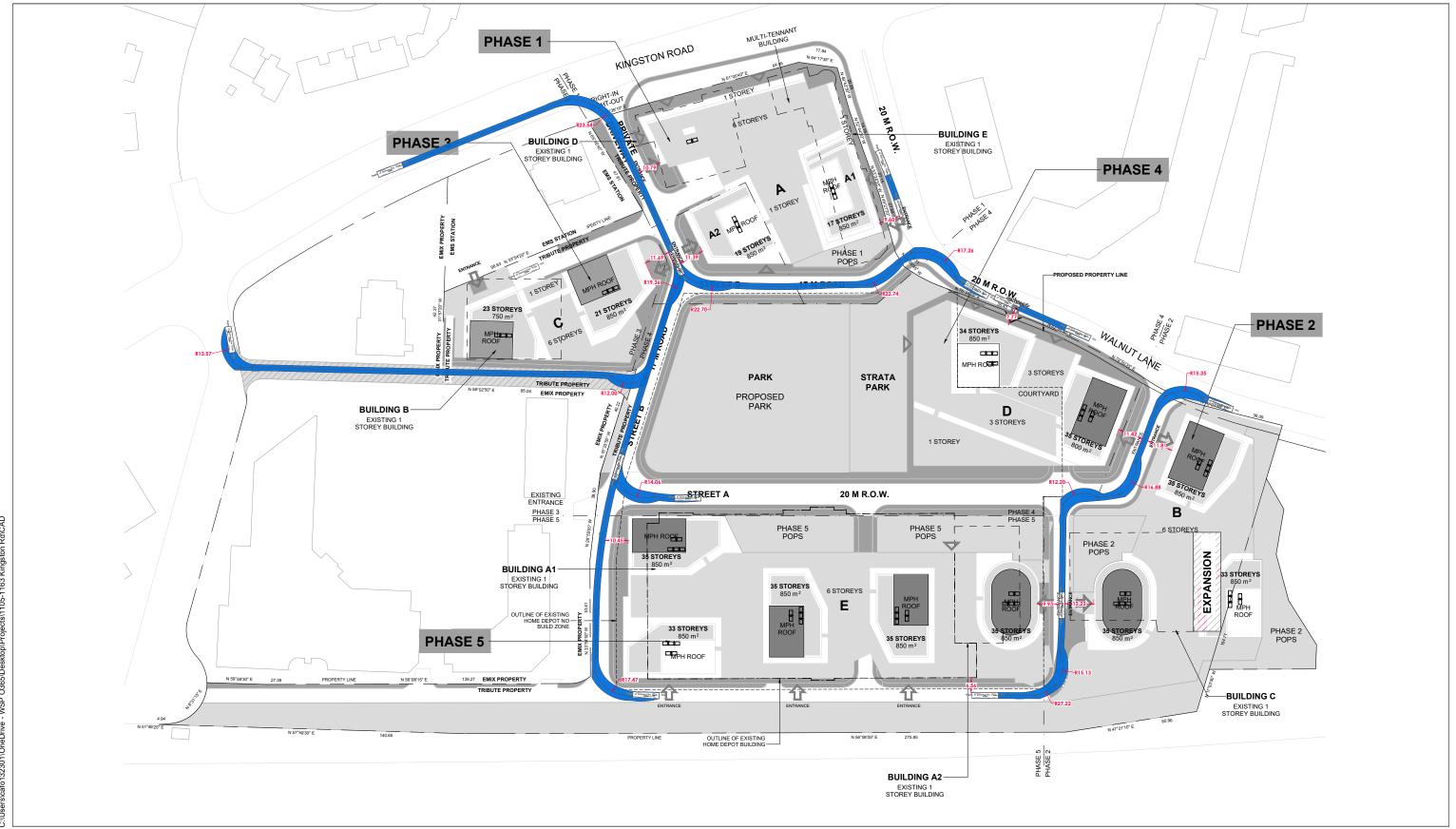
****S|)

12.10

Region of Durham Fire Truck - R12

Width : 2.75
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 37.5

Figure 6-6 Fire Truck Circulation - Phase 4 1105-1163 Kingston Road, Pickering



Source: "2024-12-10_22122P01-ARCH-TF-XX-WIP-Sheet - RZ176 - PHASING PLAN-ULTIMATE PHASE.dwg" received on December 10, 2024.

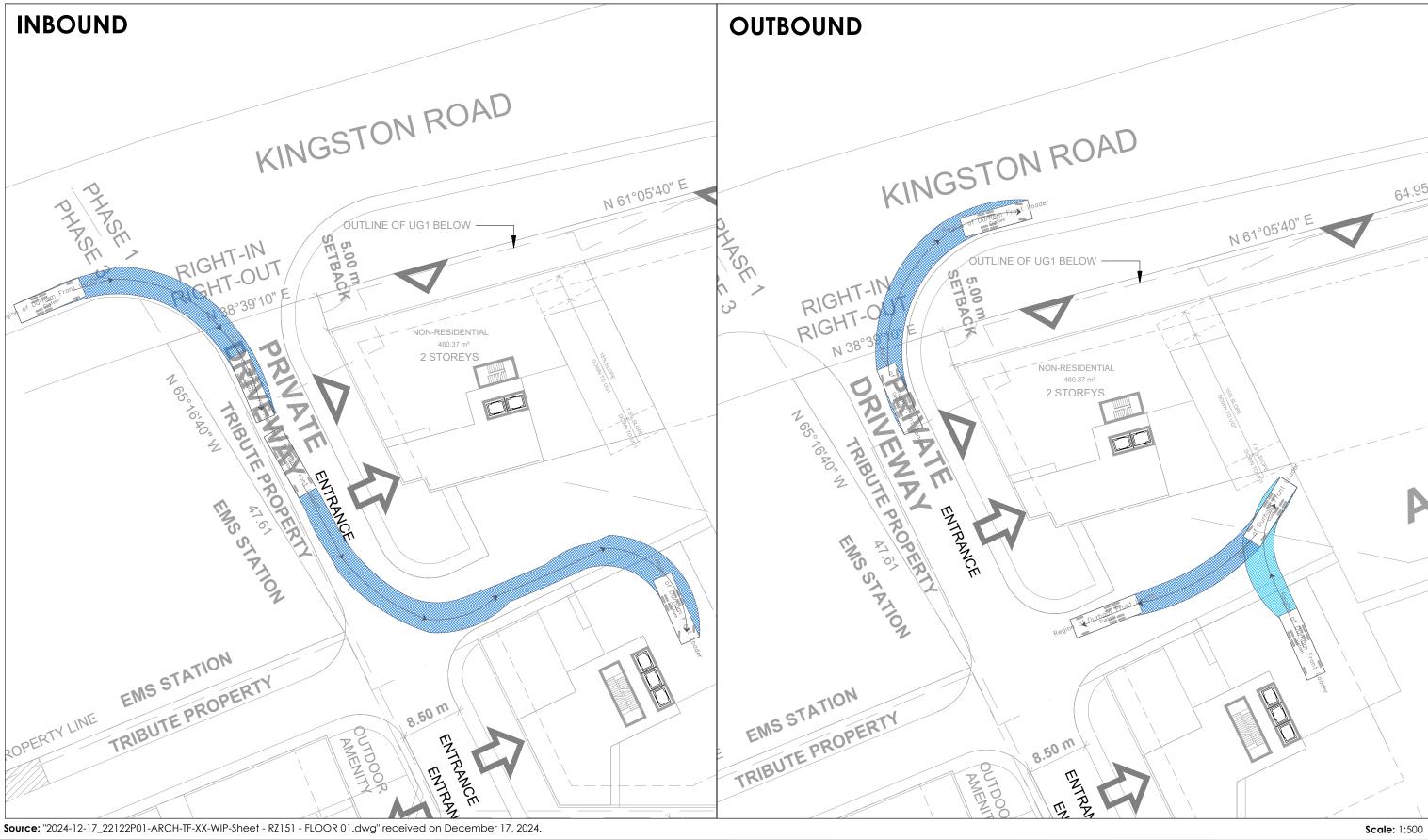
Region of Durham Fire Truck - R12

Width : 2.75
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 37.5

Figure 6-7 Fire Truck Circulation - Ultimate 1105-1163 Kingston Road, Pickering

wsp-1105-1163 Kingston Rd-20241218.dwg_7-Ultimate fire

Scale: 1:1650

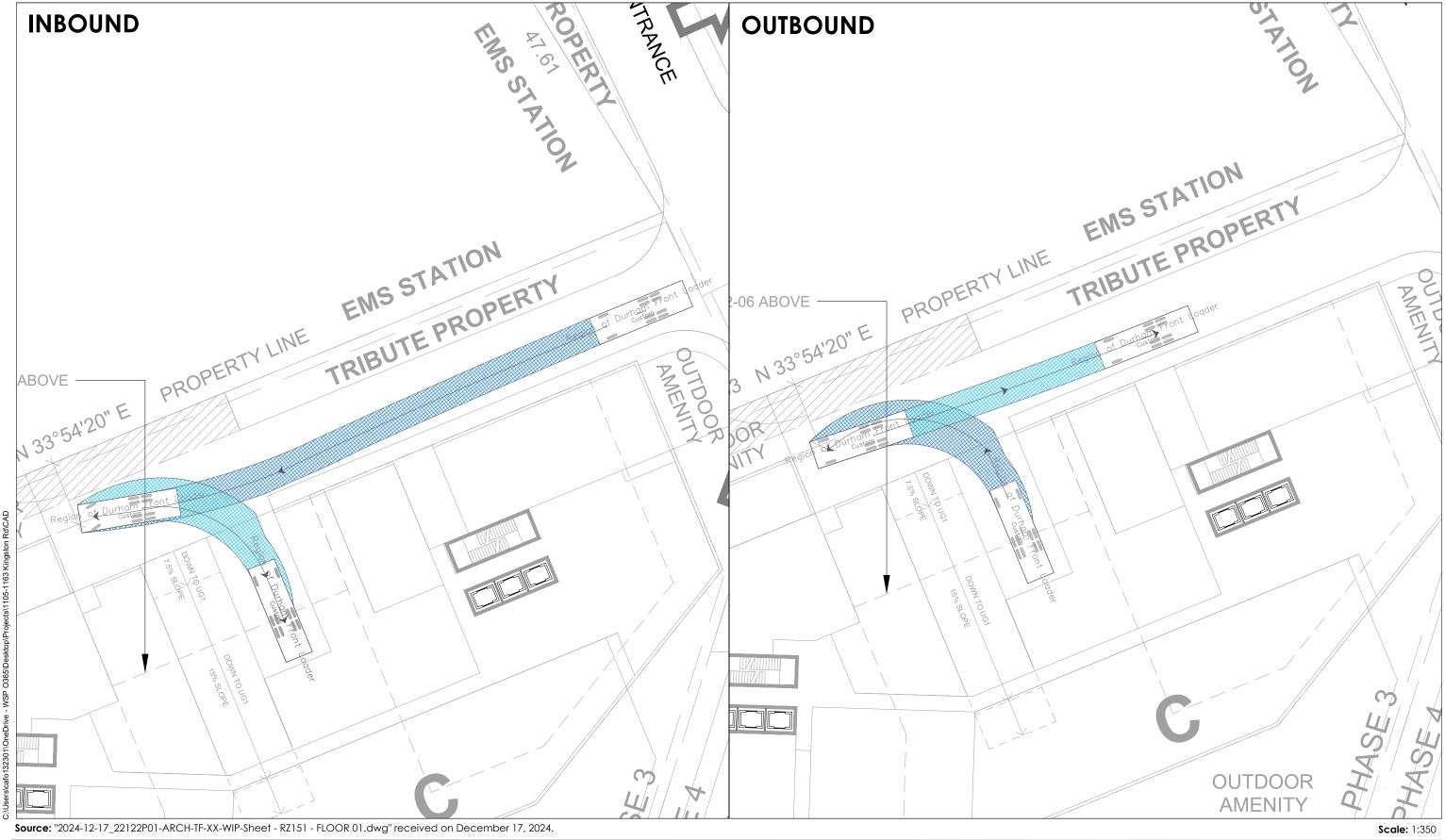


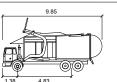




Region of Durham Front Loader

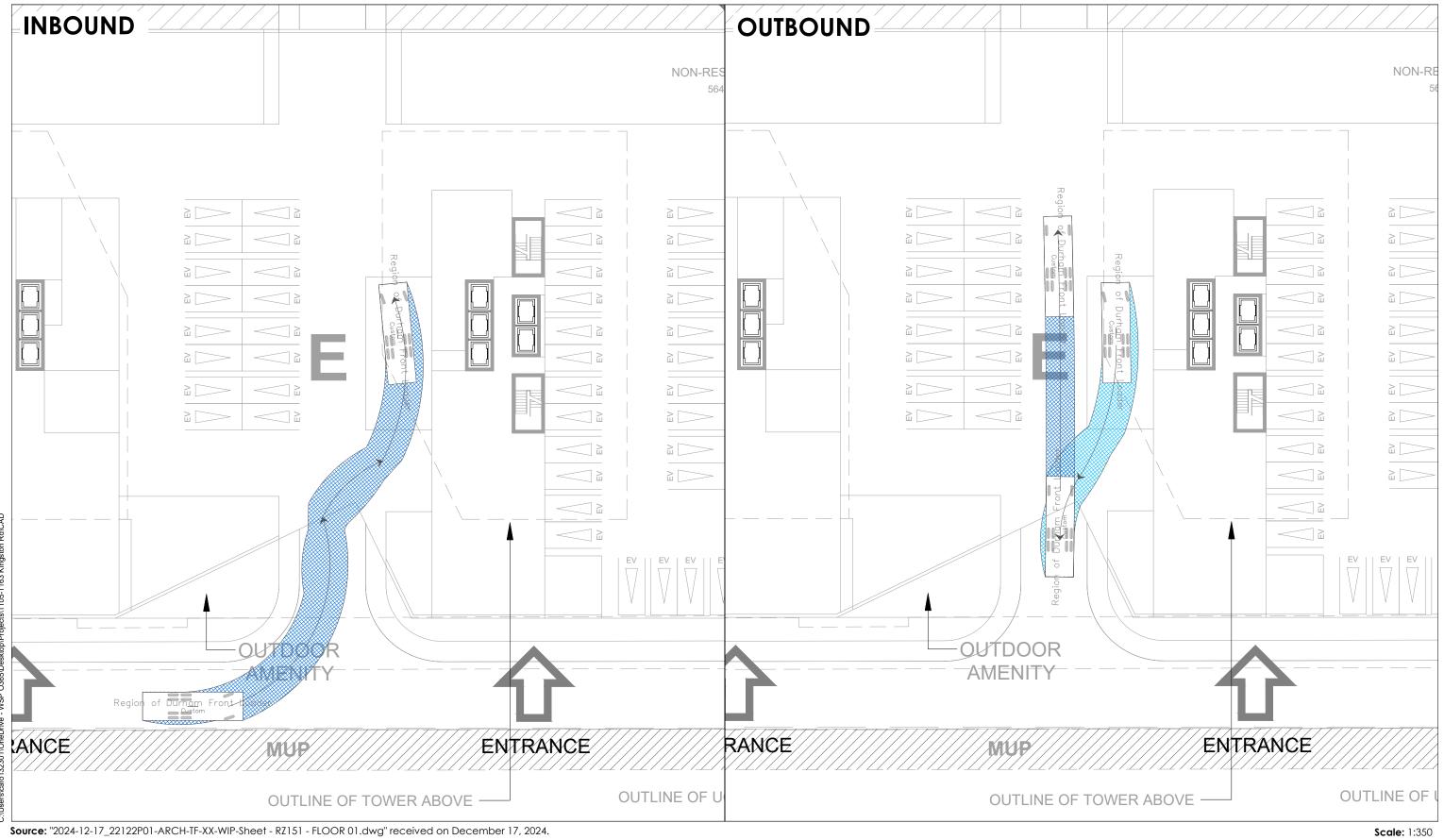
Figure 6-8 Front Loader Garbage Truck Turning Maneuver - Building A 1105-1163 Kingston Road, Pickering

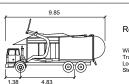




Region of Durham Front Loade

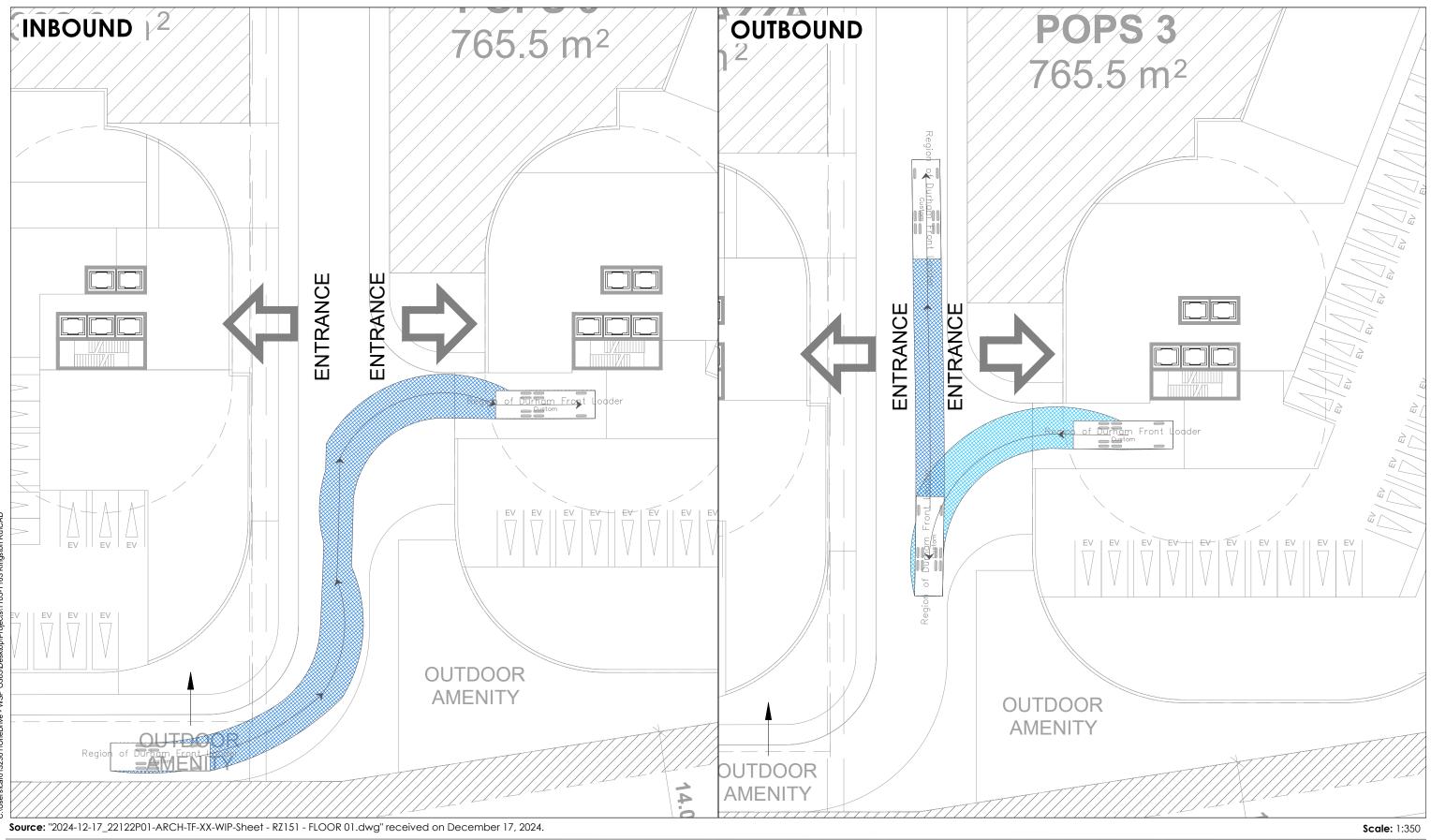
Figure 6-9 Front Loader Garbage Truck Turning Maneuver - Building C 1105-1163 Kingston Road, Pickering

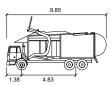




Region of Durham Front Loader

Figure 6-10 Front Loader Garbage Truck Turning Maneuver - Building E 1105-1163 Kingston Road, Pickering



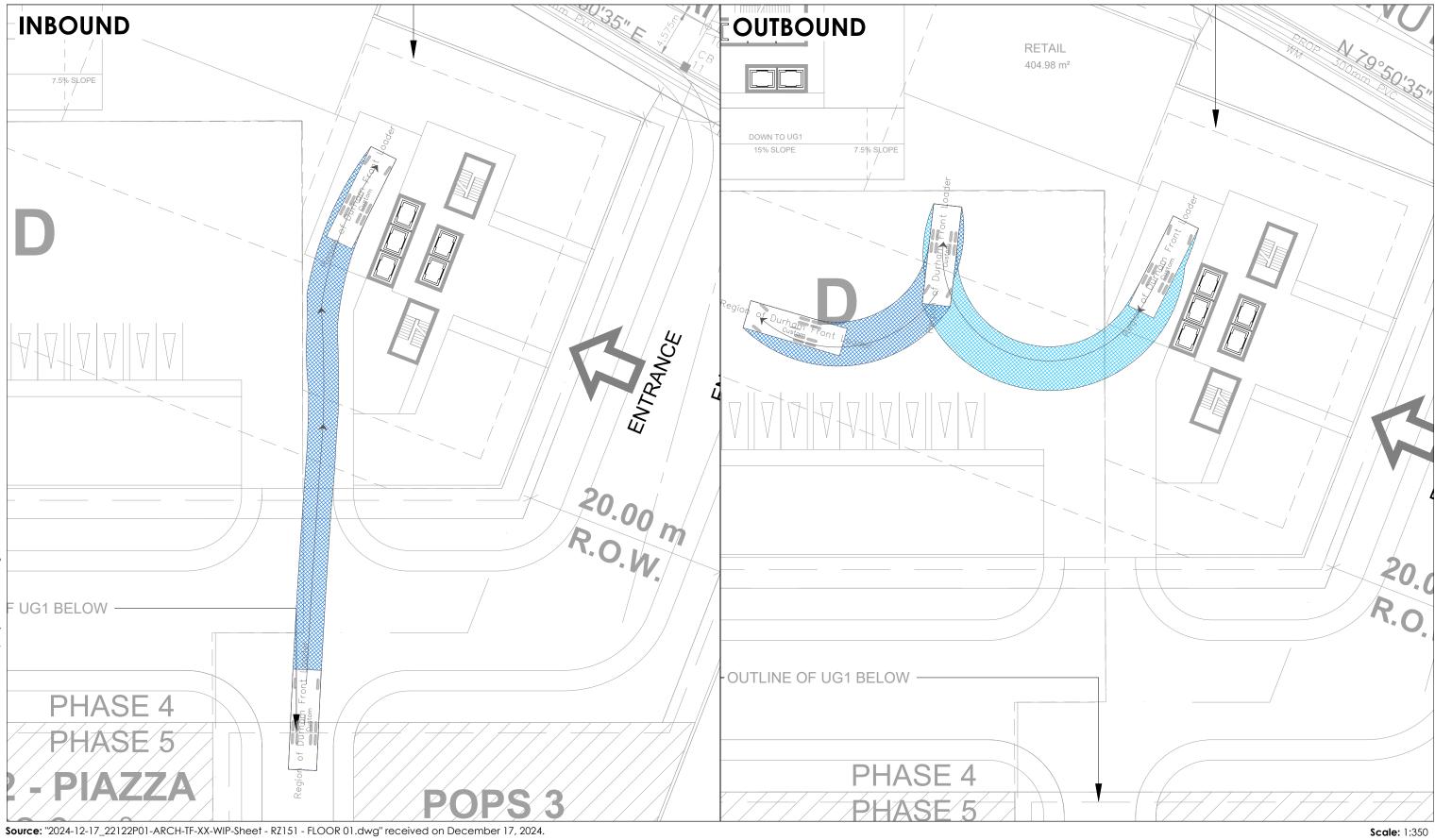


Region of Durham Front Loader

meters

dth : 2.77
ack : 2.50
ck to Lock Time : 6.0
eering Angle : 24.8

Figure 6-11 Front Loader Garbage Truck Turning Maneuver - Building B 1105-1163 Kingston Road, Pickering

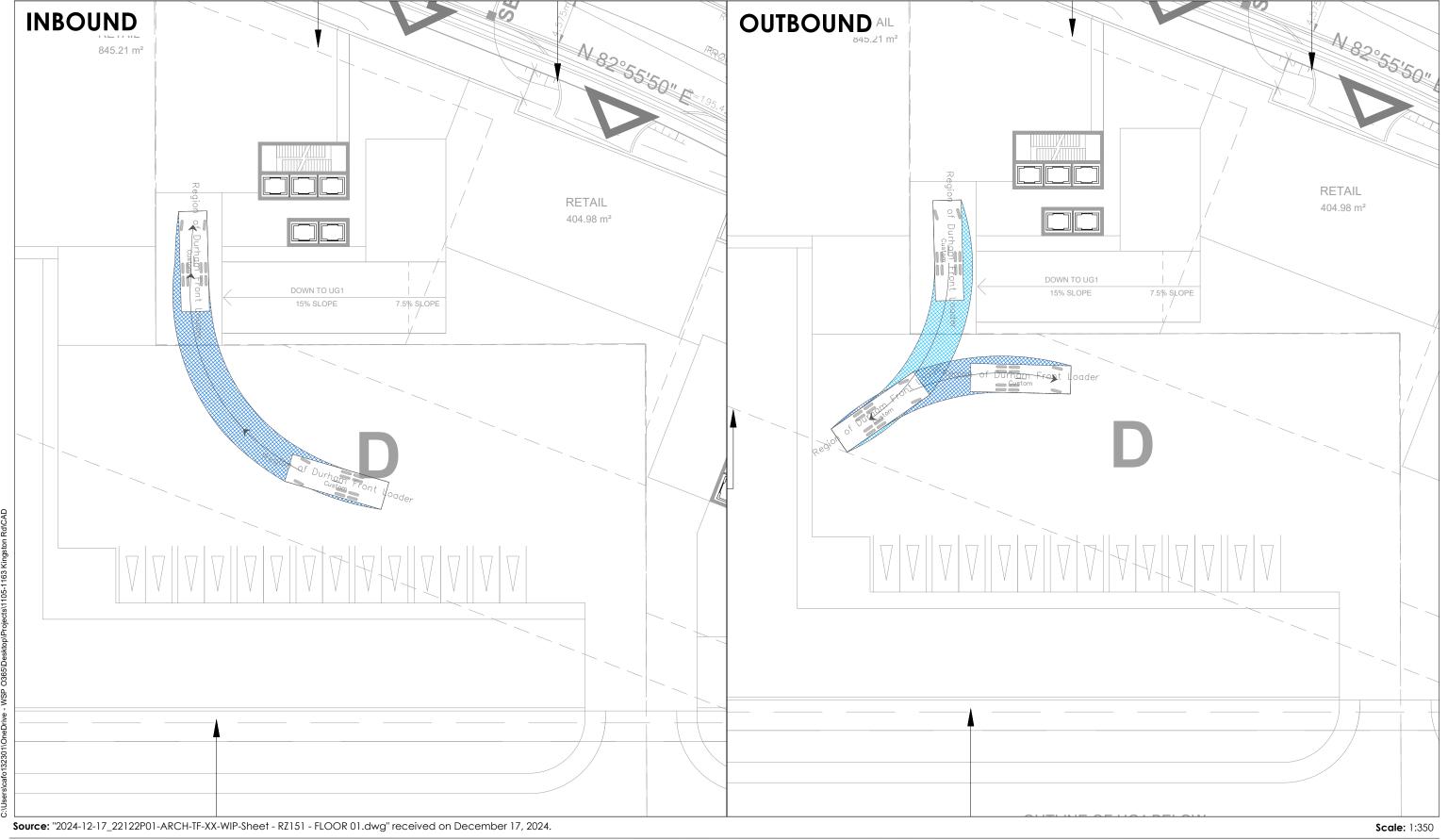




Region of Durham Front Loader

Midth : 2.77
Frack : 2.50
.ock to Lock Time : 6.0
Steering Angle : 24.8

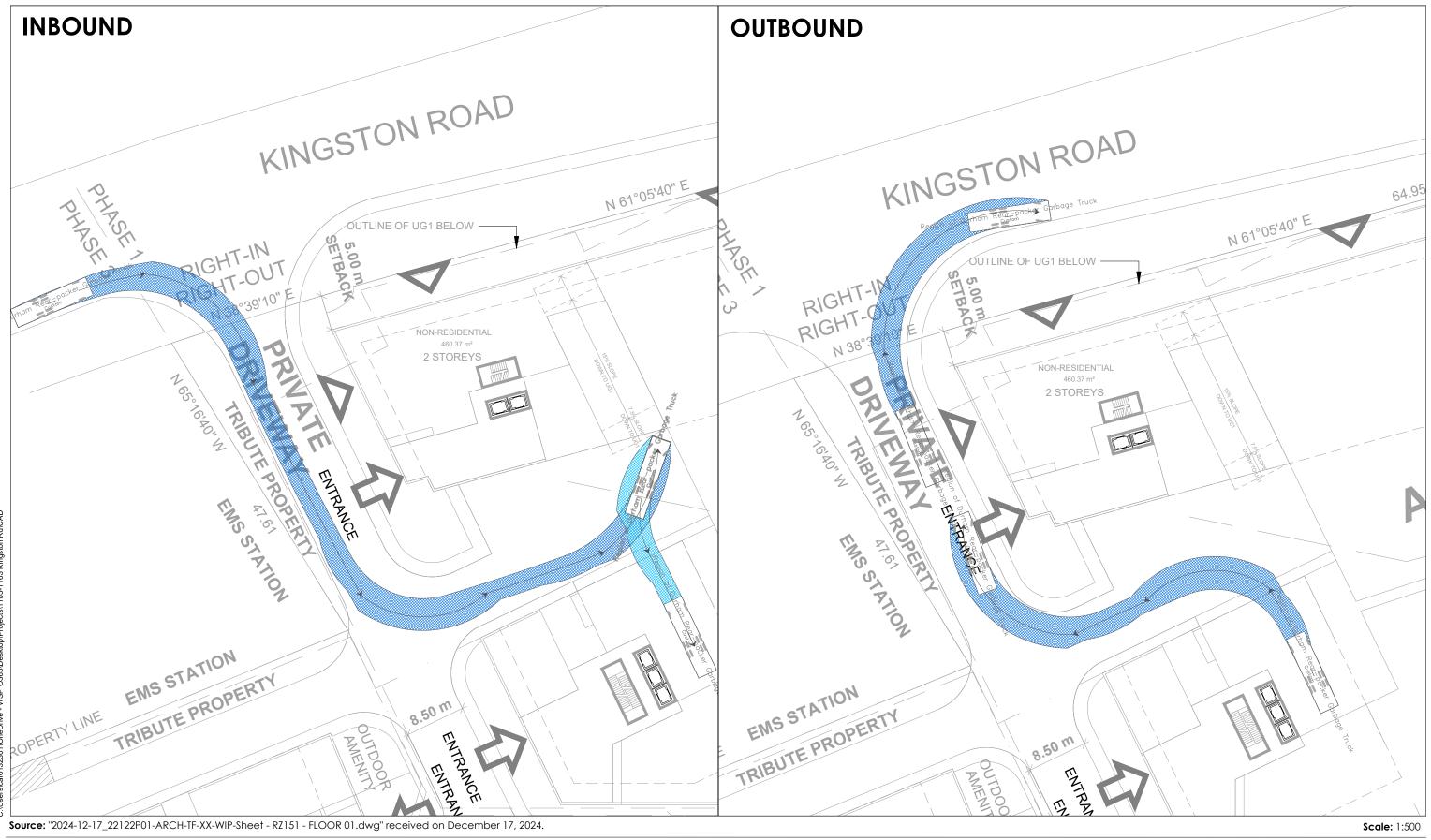
Figure 6-12 Front Loader Garbage Truck Turning Maneuver - Building D - Loading space 1 1105-1163 Kingston Road, Pickering





Region of Durham Front Loader

Figure 6-13
Front Loader Garbage Truck Turning Maneuver - Building D - Loading space 2
1105-1163 Kingston Road, Pickering





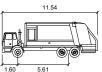
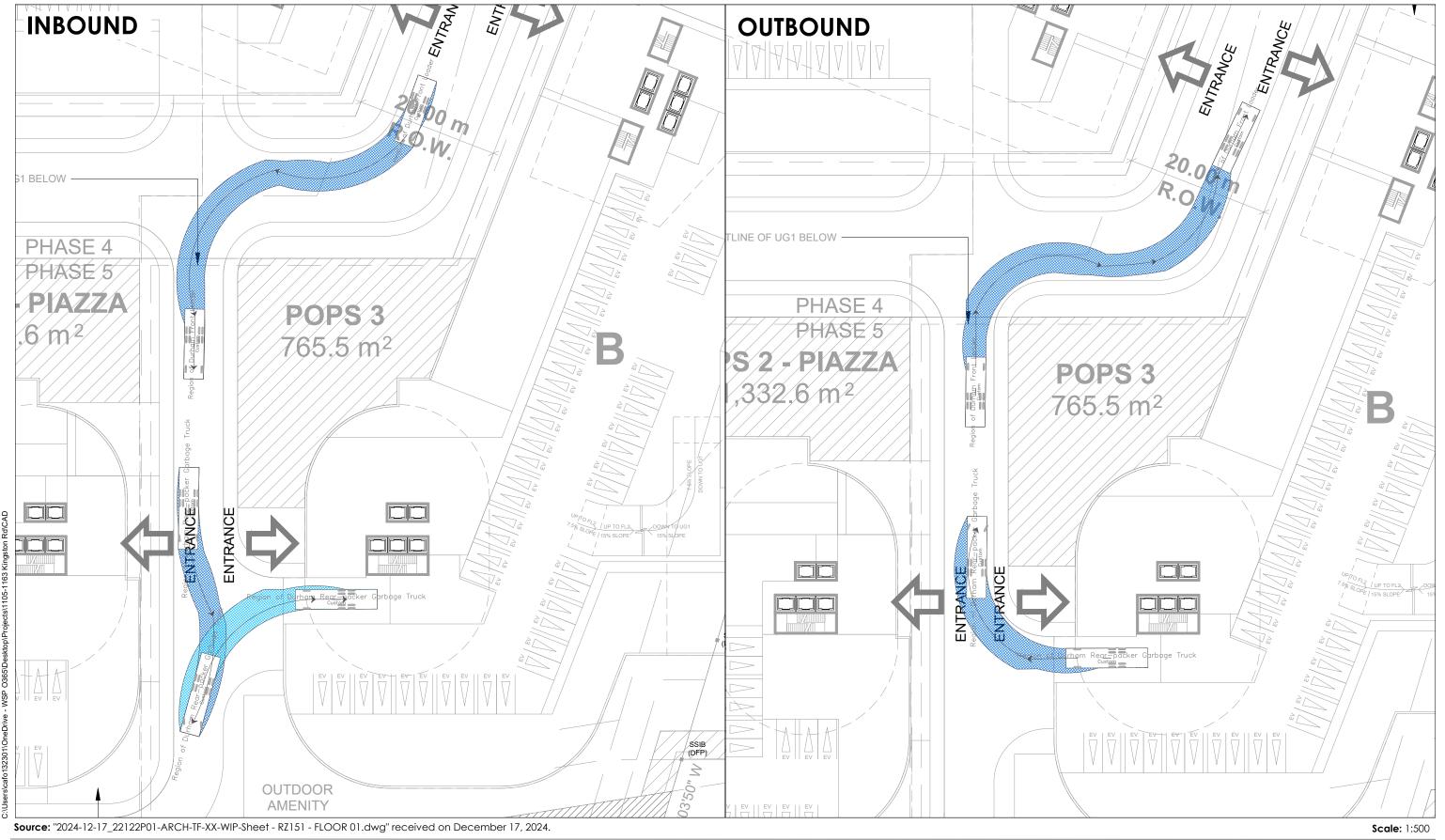


Figure 6-14 Rear Packer Garbage Truck Turning Maneuver - Building A 1105-1163 Kingston Road, Pickering





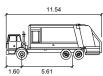
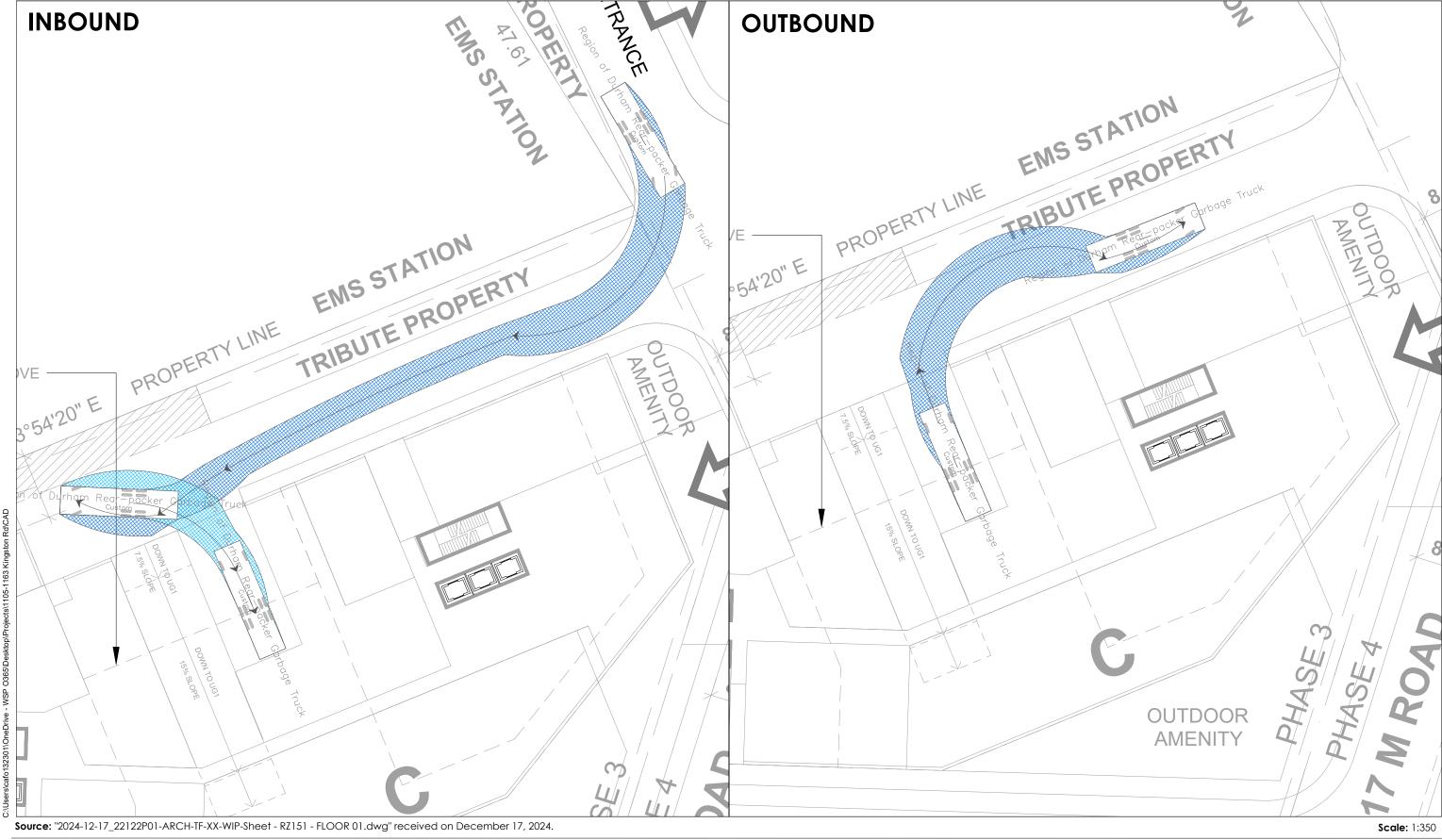


Figure 6-15 Rear Packer Garbage Truck Turning Maneuver - Building B 1105-1163 Kingston Road, Pickering





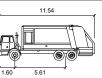
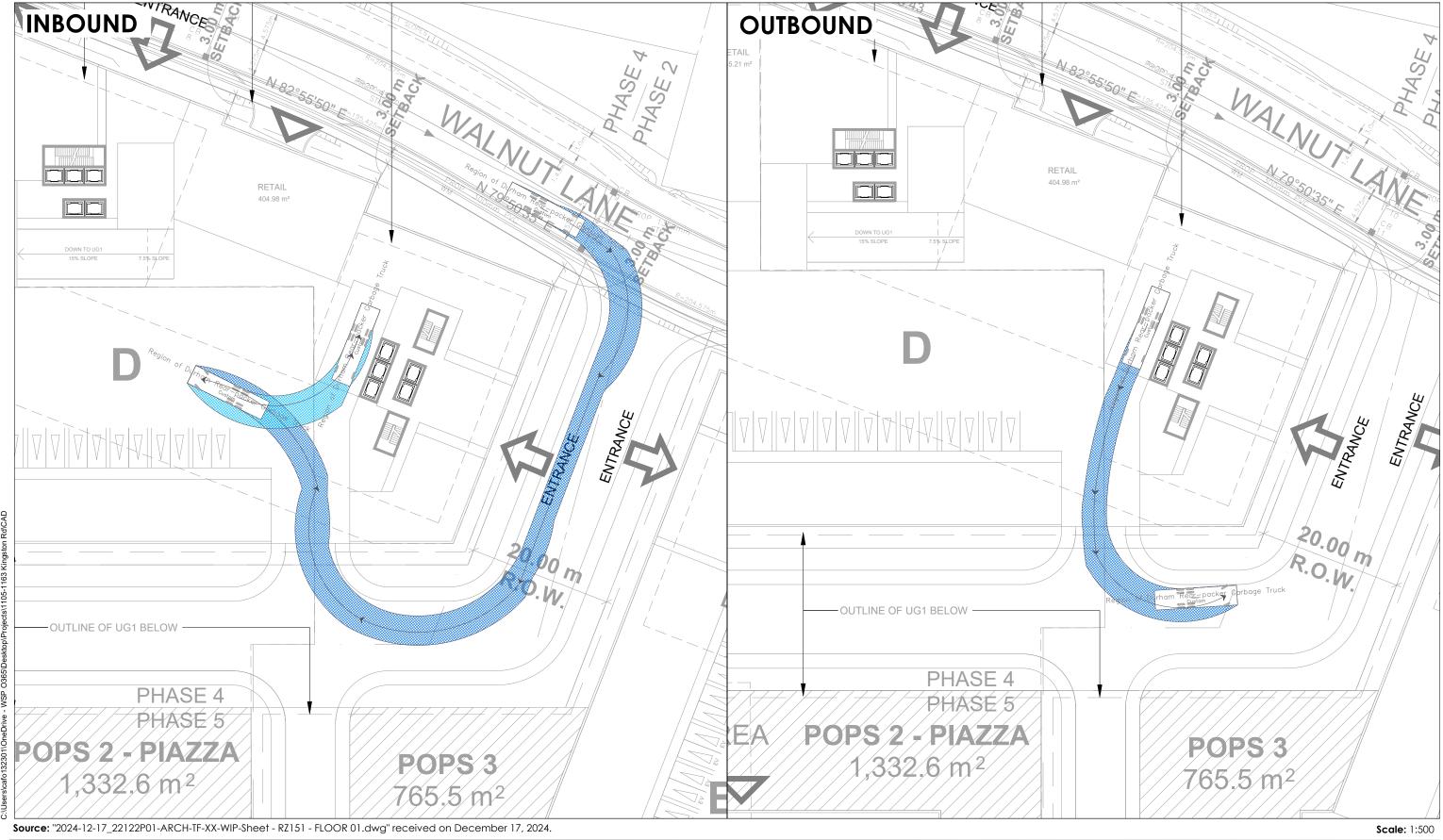


Figure 6-16 Rear Packer Garbage Truck Turning Maneuver - Building C 1105-1163 Kingston Road, Pickering





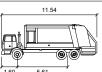
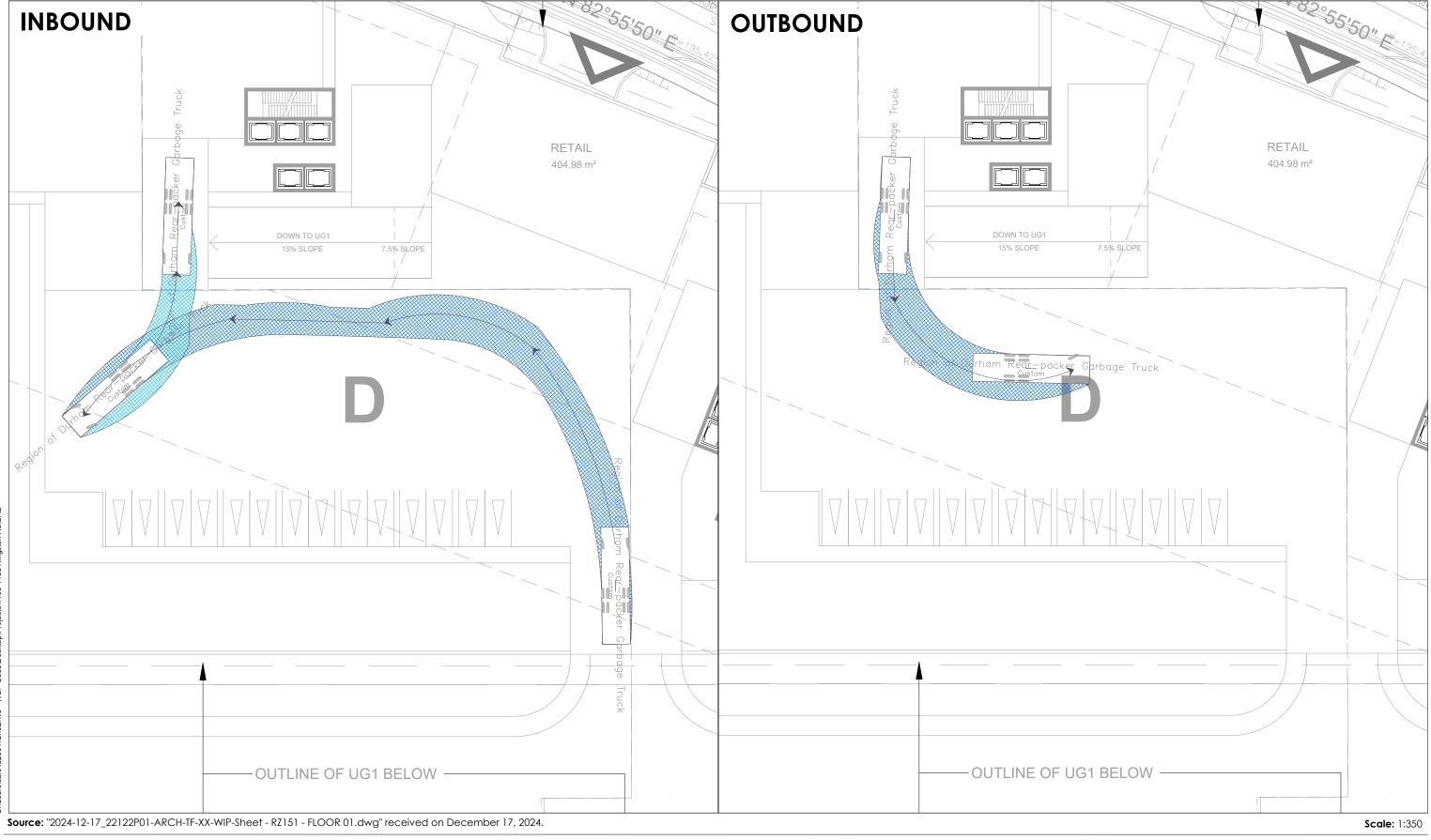
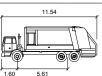


Figure 6-17 Rear Packer Garbage Truck Turning Maneuver - Building D - Loading Space 1 1105-1163 Kingston Road, Pickering

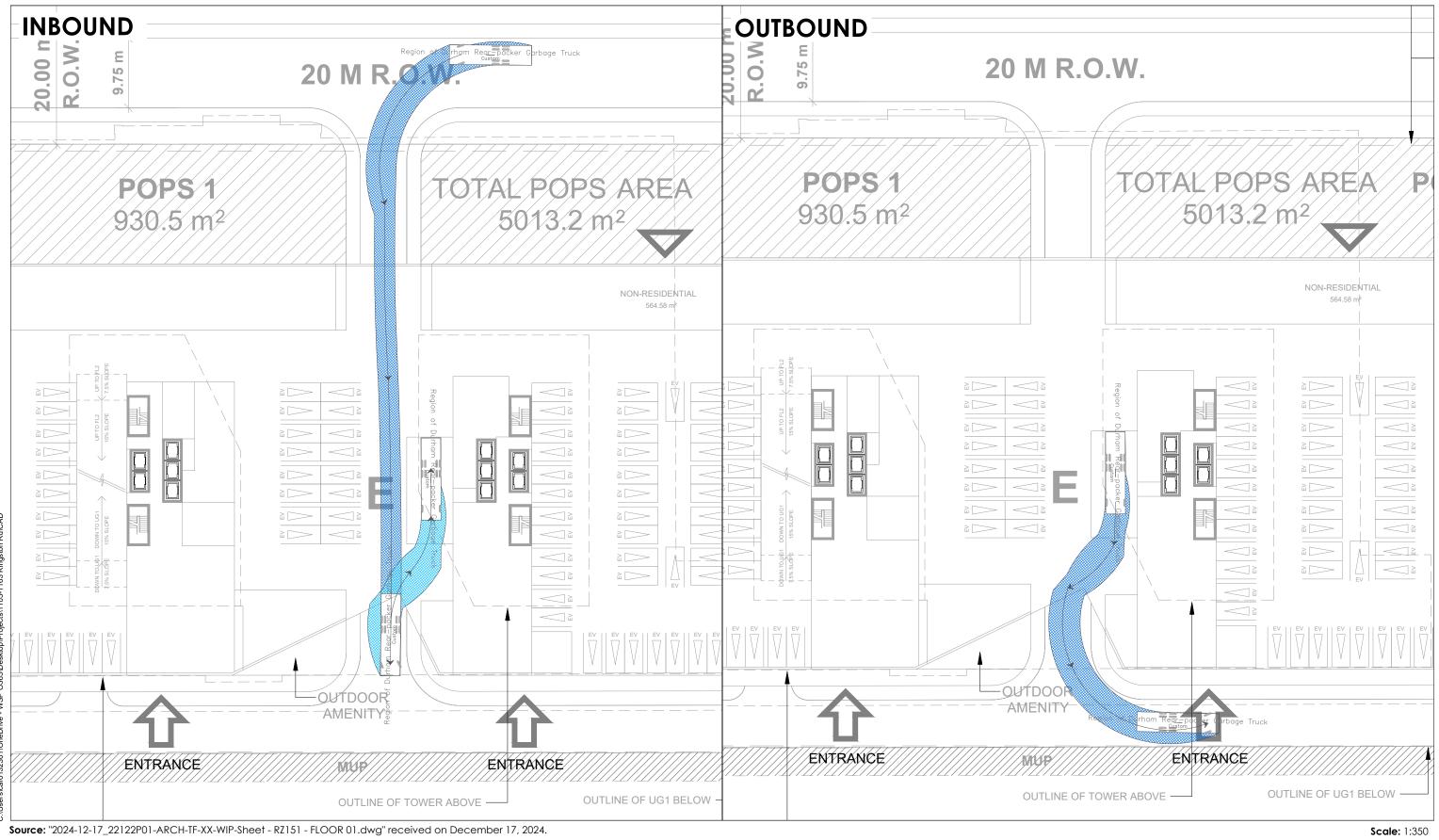


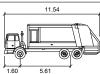
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Region of Durham Rear-packer Garbage Truck

Figure 6-18
Rear Packer Garbage Truck Turning Maneuver - Building D - Loading Space 2
1105-1163 Kingston Road, Pickering





Region of Durham Rear-packer Garbage Truck

Figure 6-19 Rear Packer Garbage Truck Turning Maneuver - Building E 1105-1163 Kingston Road, Pickering

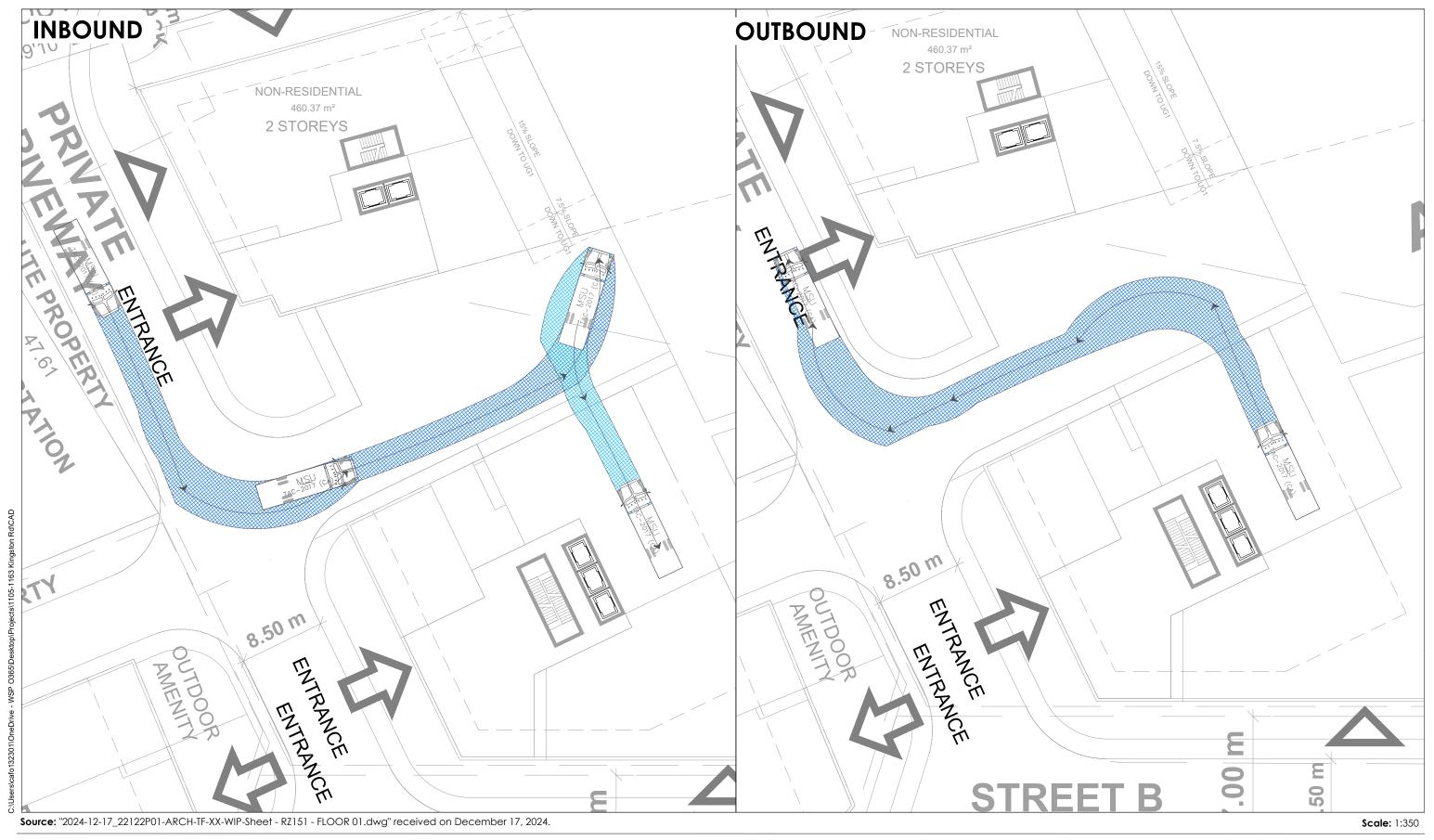




Figure 6-20 MSU Loading Truck Turning Maneuver - Building A 1105-1163 Kingston Road, Pickering

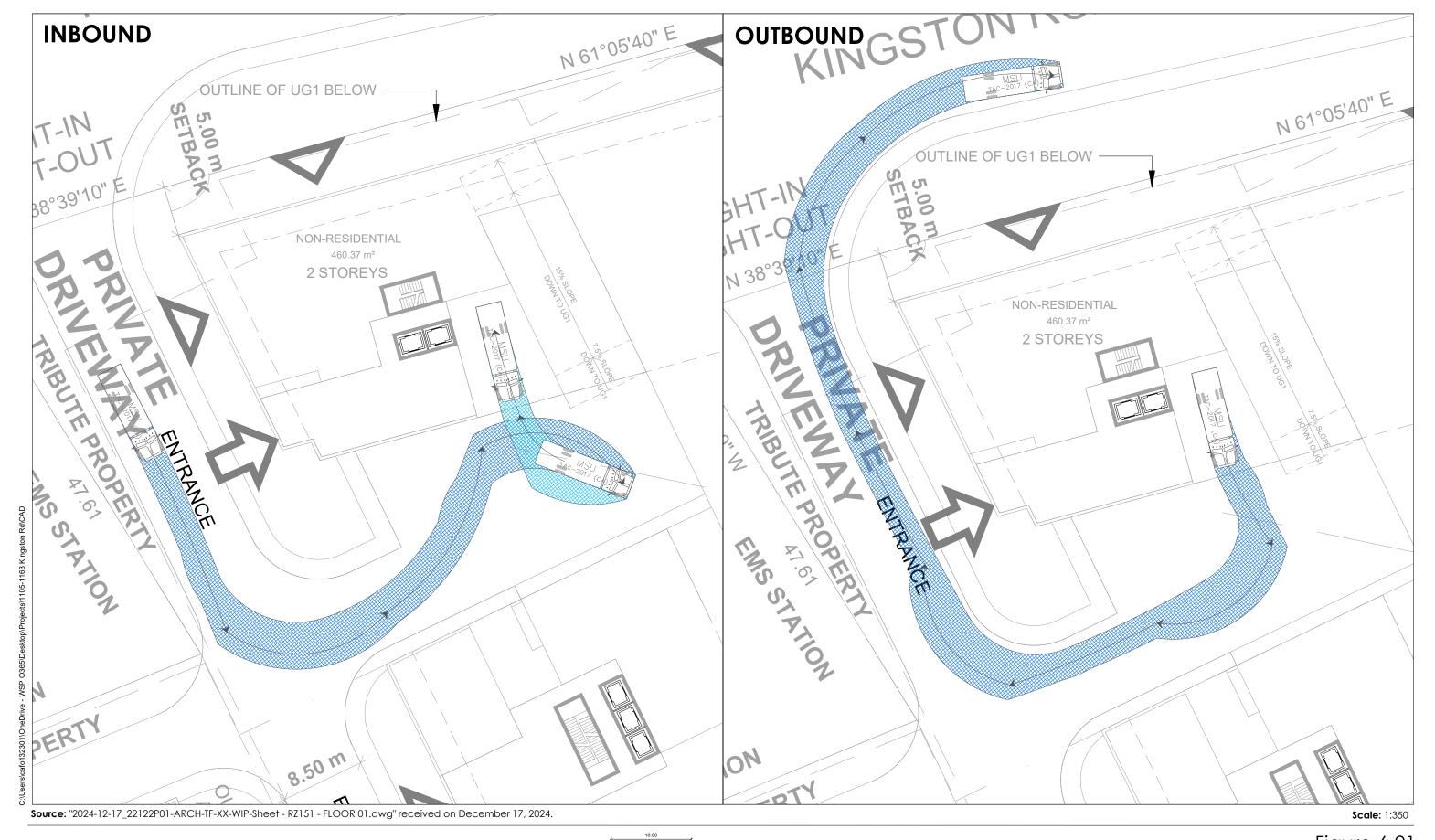


Figure 6-21 MSU Loading Truck Turning Maneuver - Building A - Retail Space 1 1105-1163 Kingston Road, Pickering

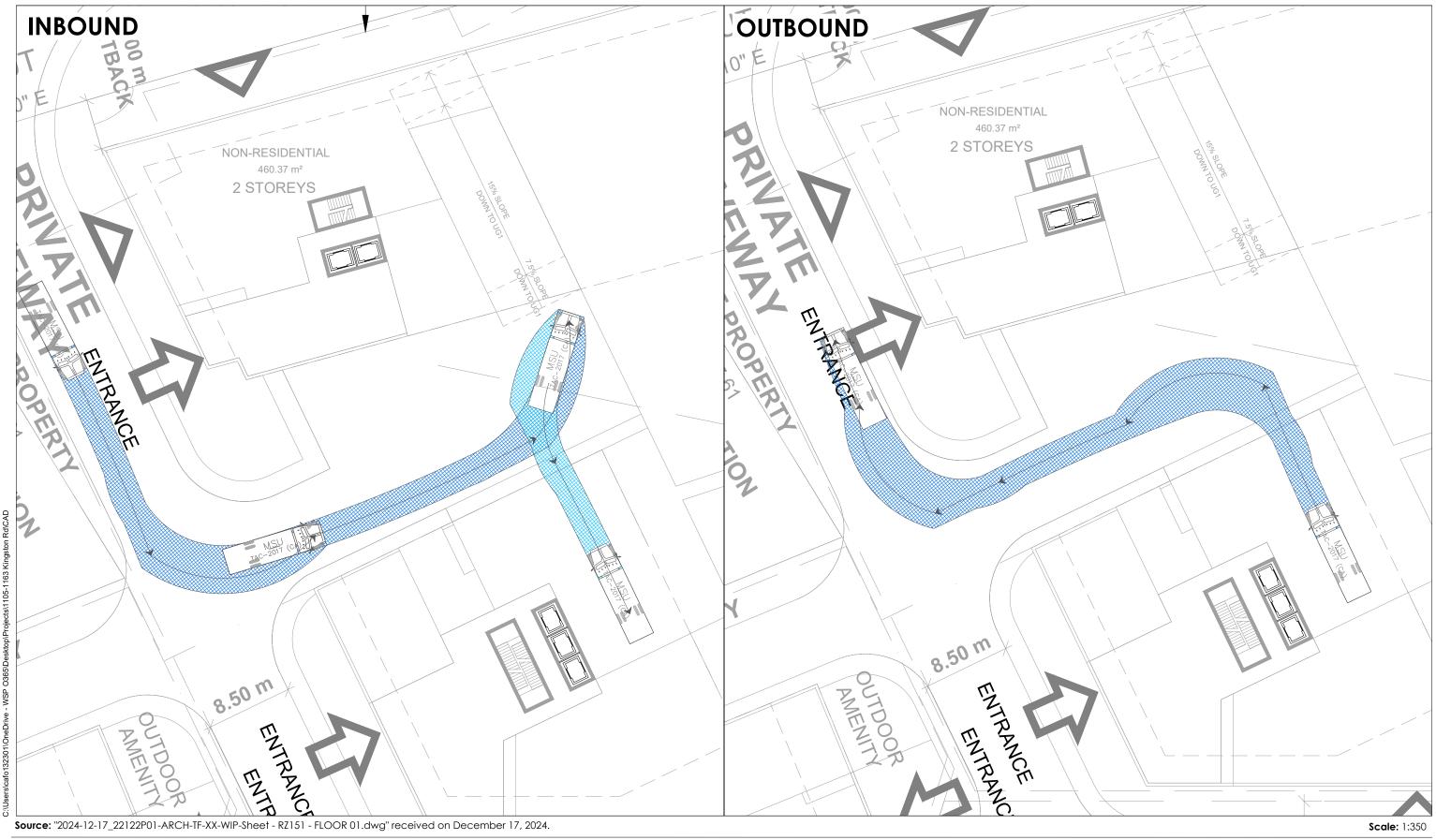
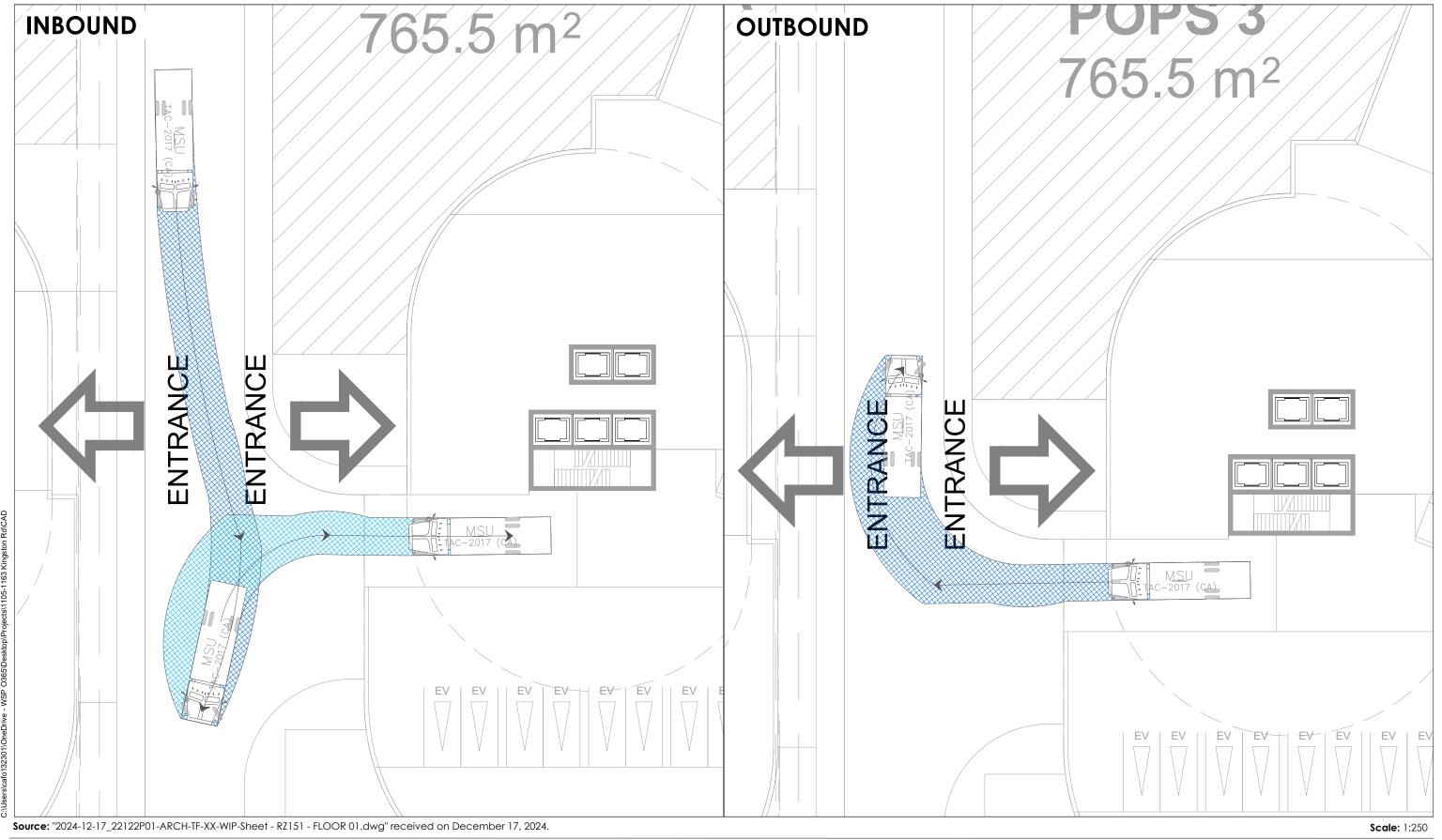






Figure 6-22 MSU Loading Truck Turning Maneuver - Building A - Retail Space 2 1105-1163 Kingston Road, Pickering



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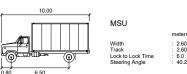
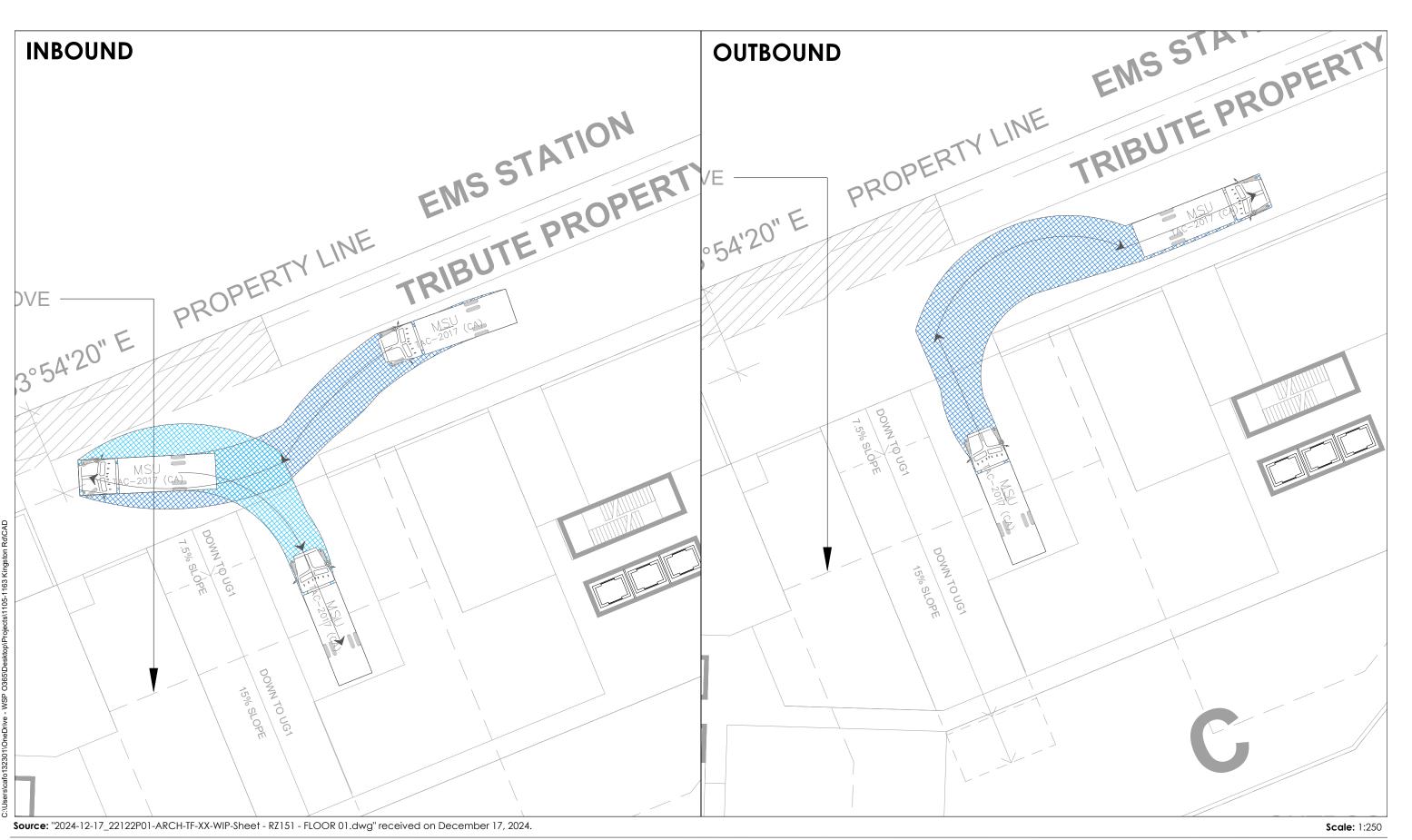


Figure 6-23 MSU Loading Truck Turning Maneuver - Building B 1105-1163 Kingston Road, Pickering



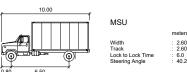
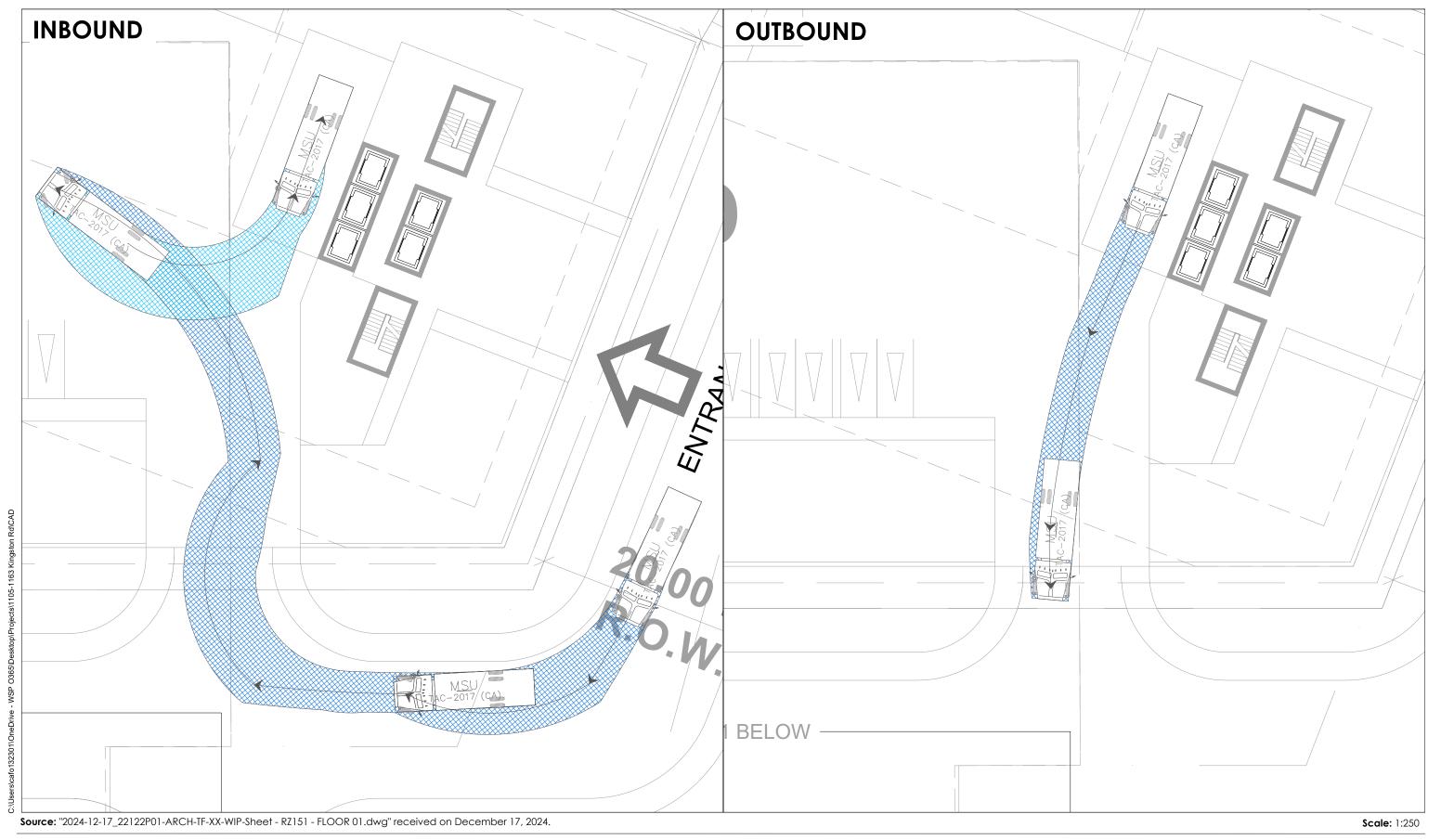


Figure 6-24 MSU Loading Truck Turning Maneuver - Building C 1105-1163 Kingston Road, Pickering



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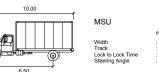
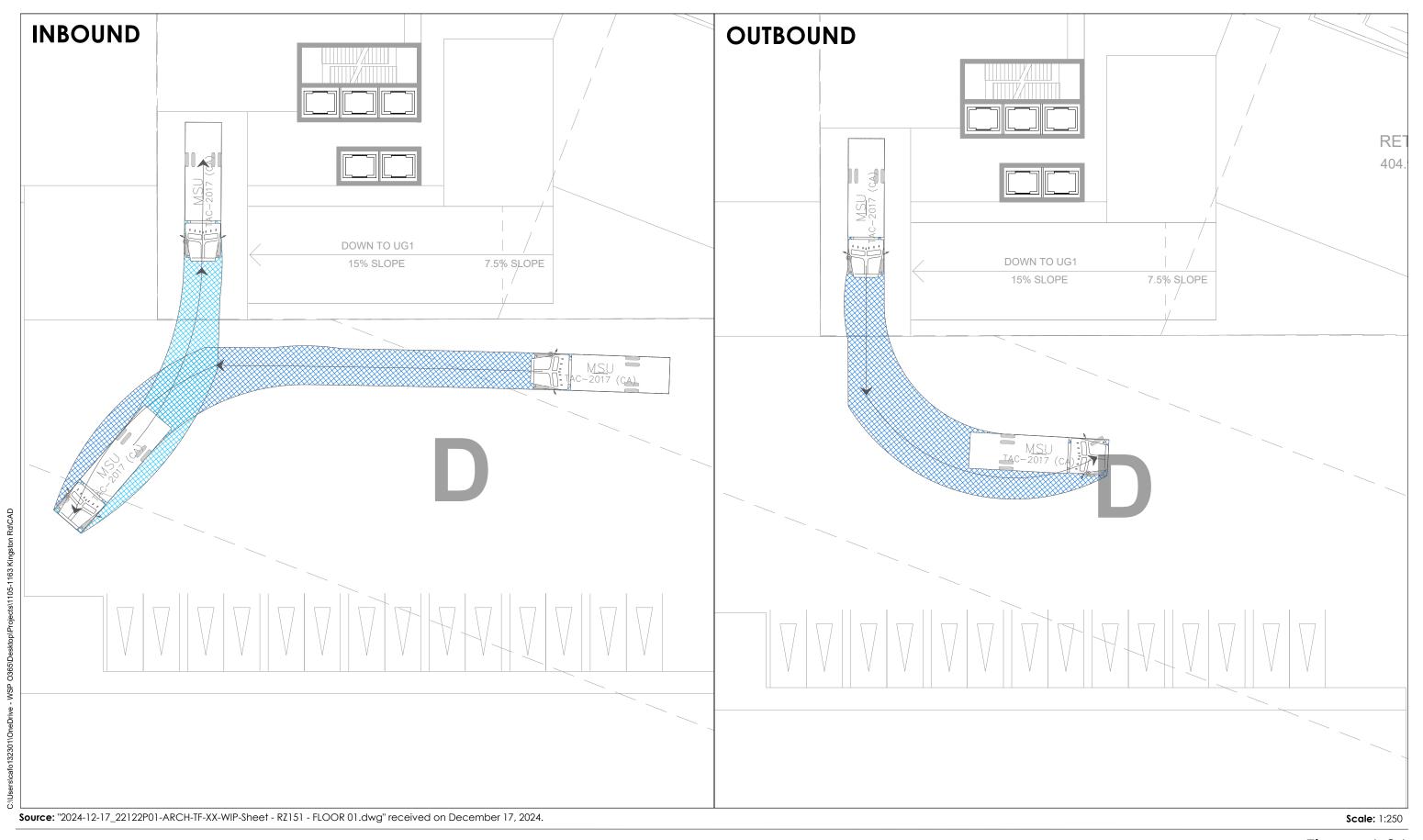
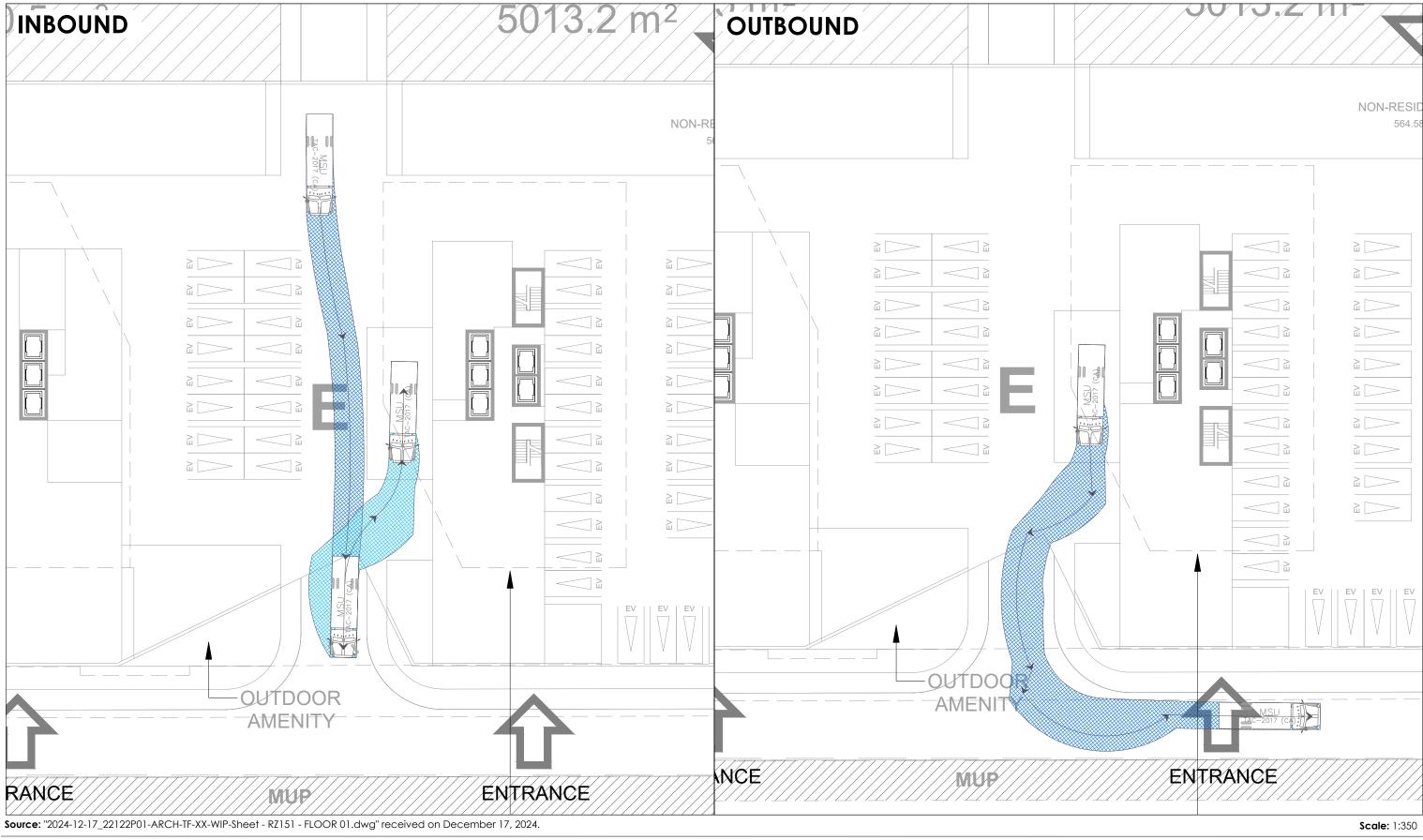


Figure 6-25 MSU Loading Truck Turning Maneuver - Building D - Loading Space 1 1105-1163 Kingston Road, Pickering



MSU
Width : Track Lock to Lock Time : Steering Angle :

Figure 6-26 MSU Loading Truck Turning Maneuver - Building D - Loading Space 2 1105-1163 Kingston Road, Pickering



WSD

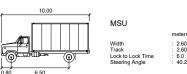
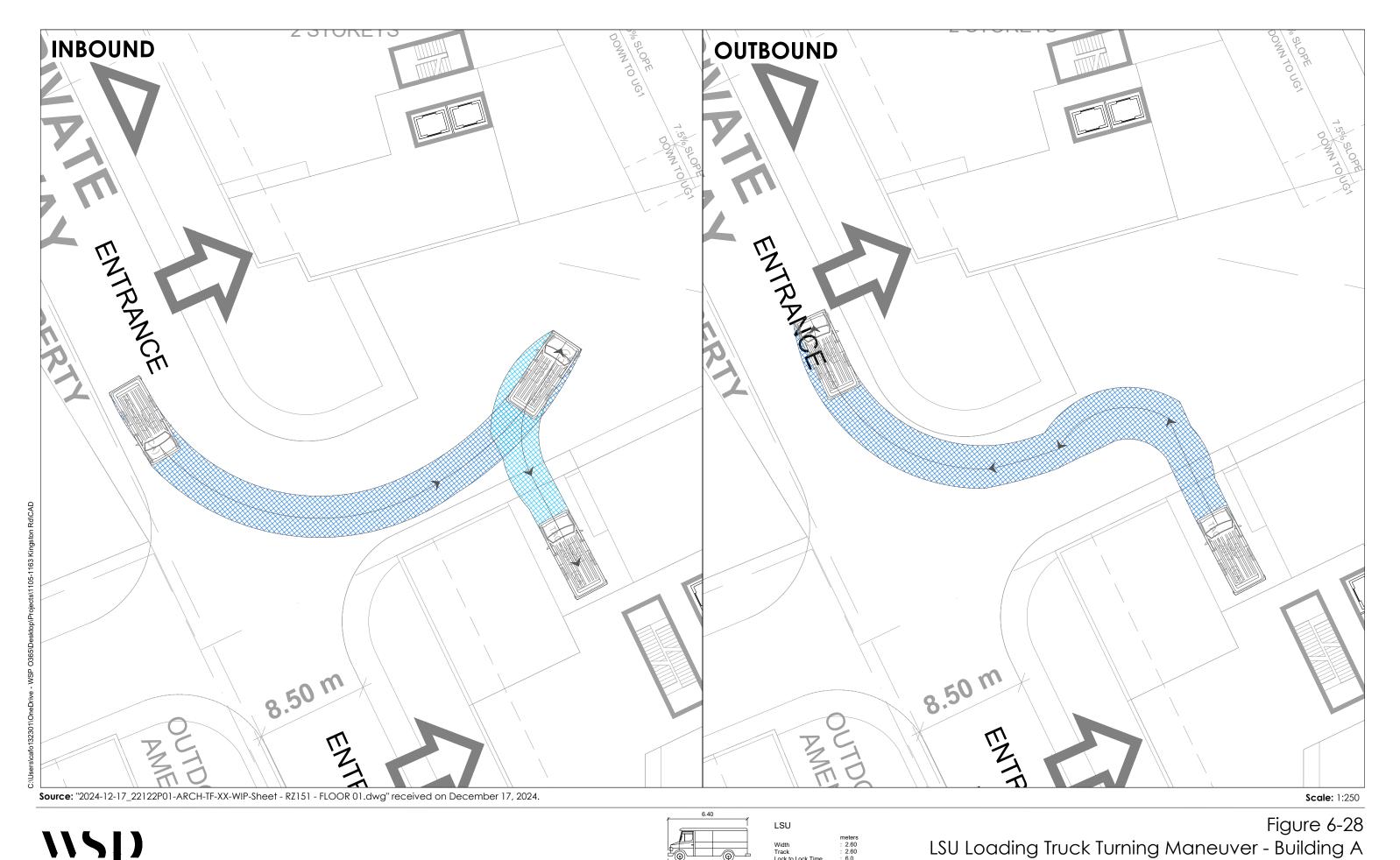
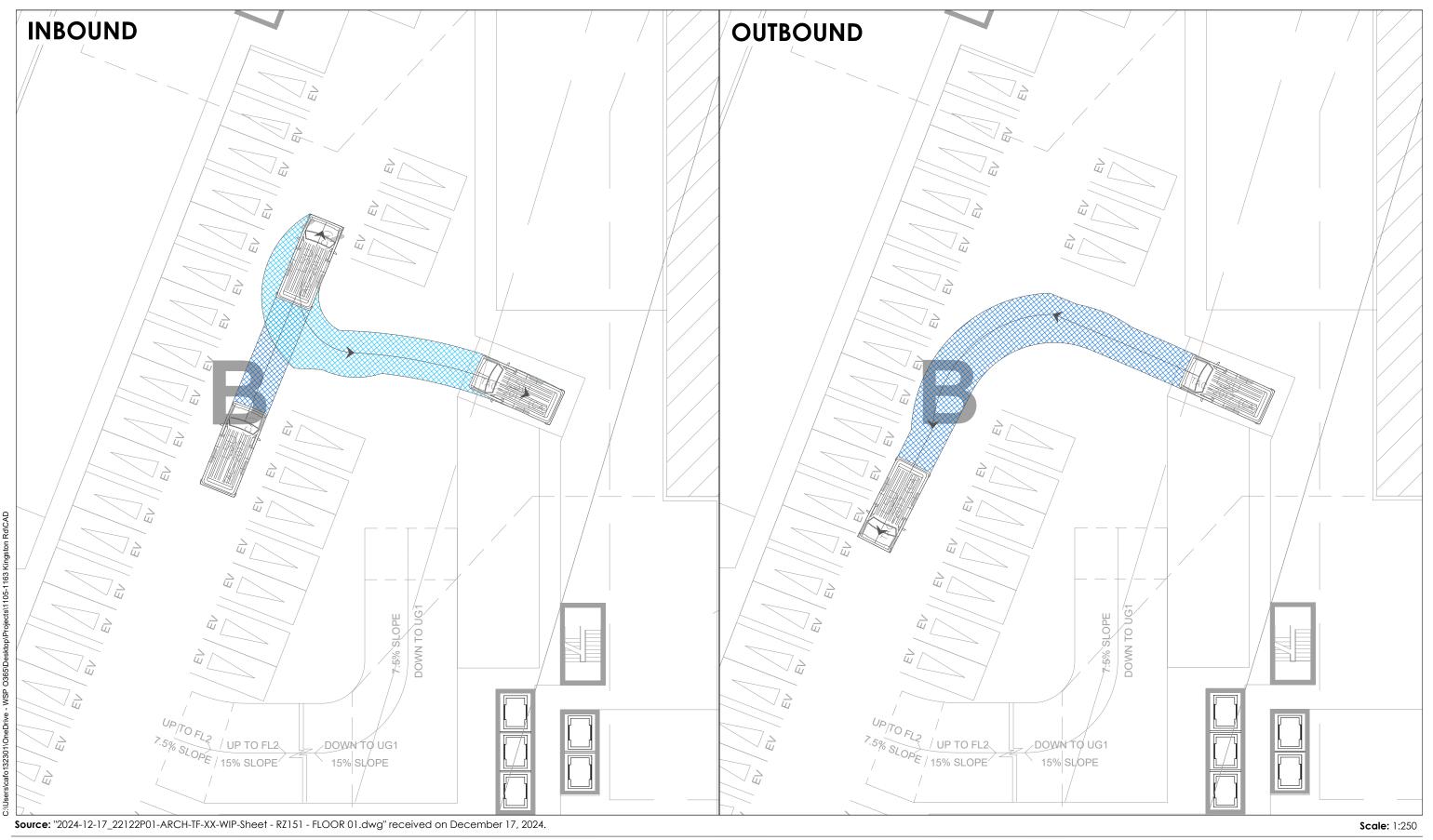


Figure 6-27 MSU Loading Truck Turning Maneuver - Building E 1105-1163 Kingston Road, Pickering



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meters : 2.60 : 2.60 : 6.0 : 40.3

****\$|

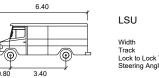
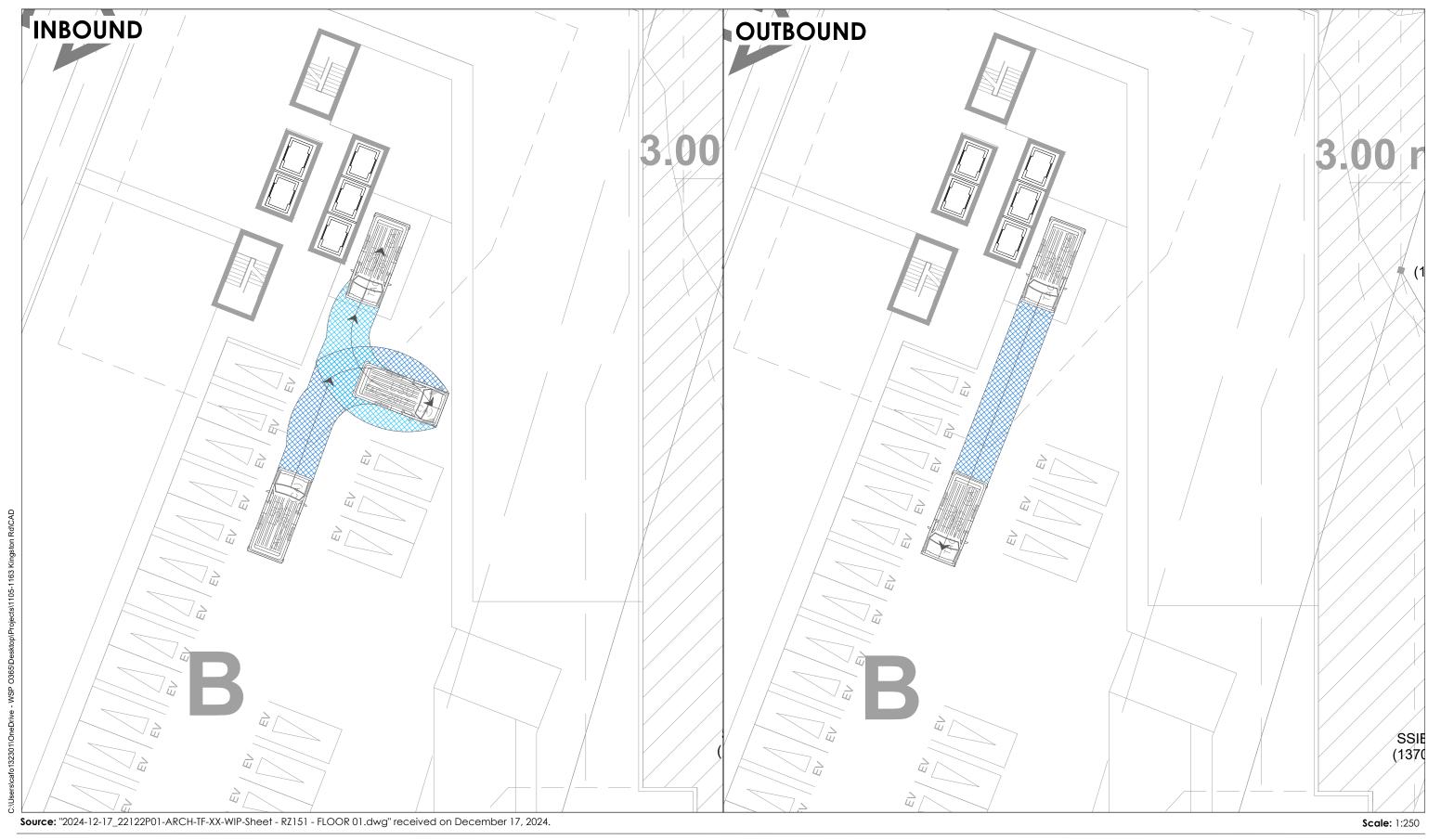


Figure 6-29 LSU Loading Truck Turning Maneuver - Building B - Loading Space 1 1105-1163 Kingston Road, Pickering



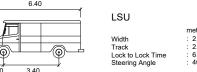
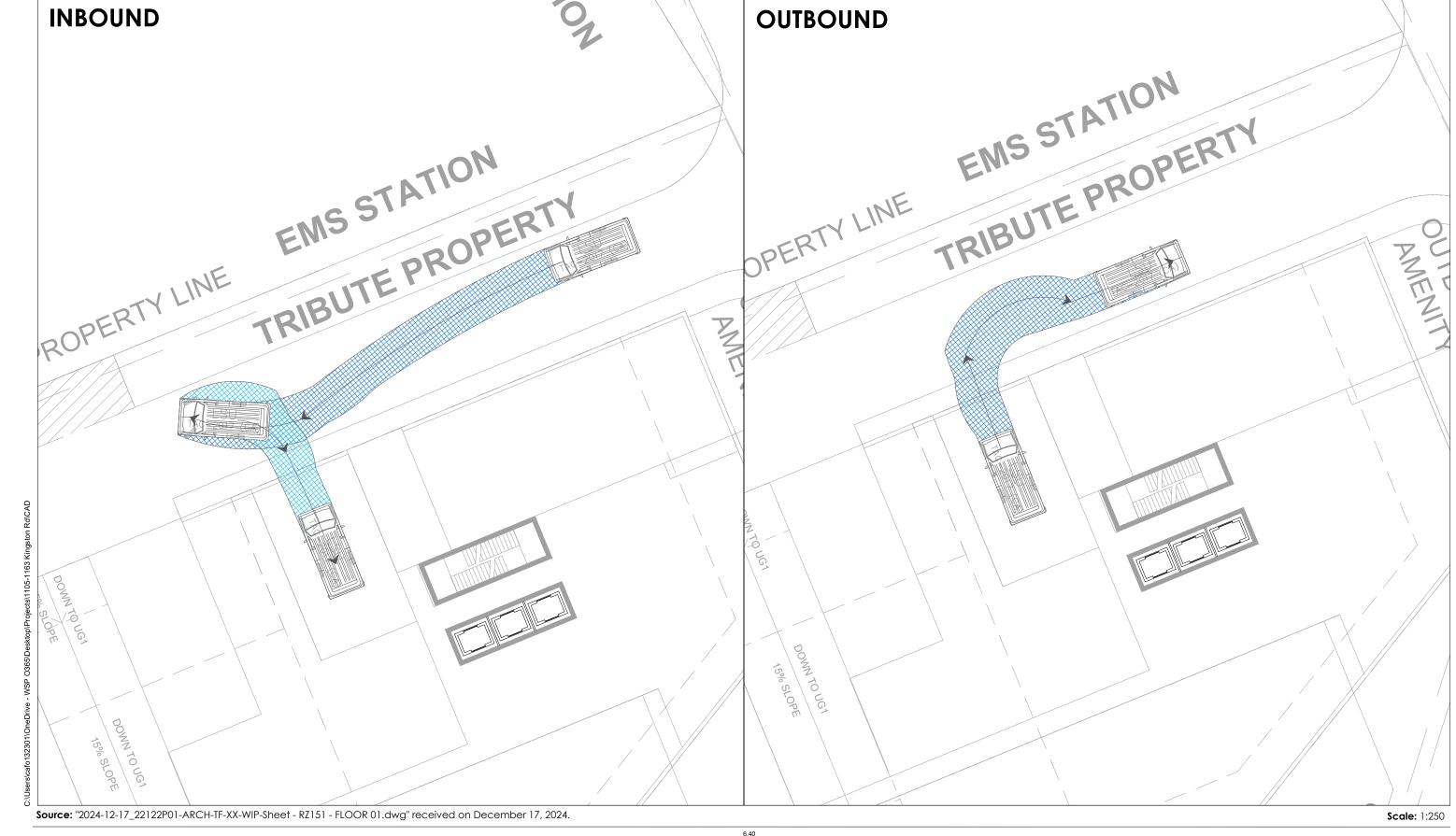
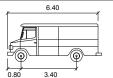


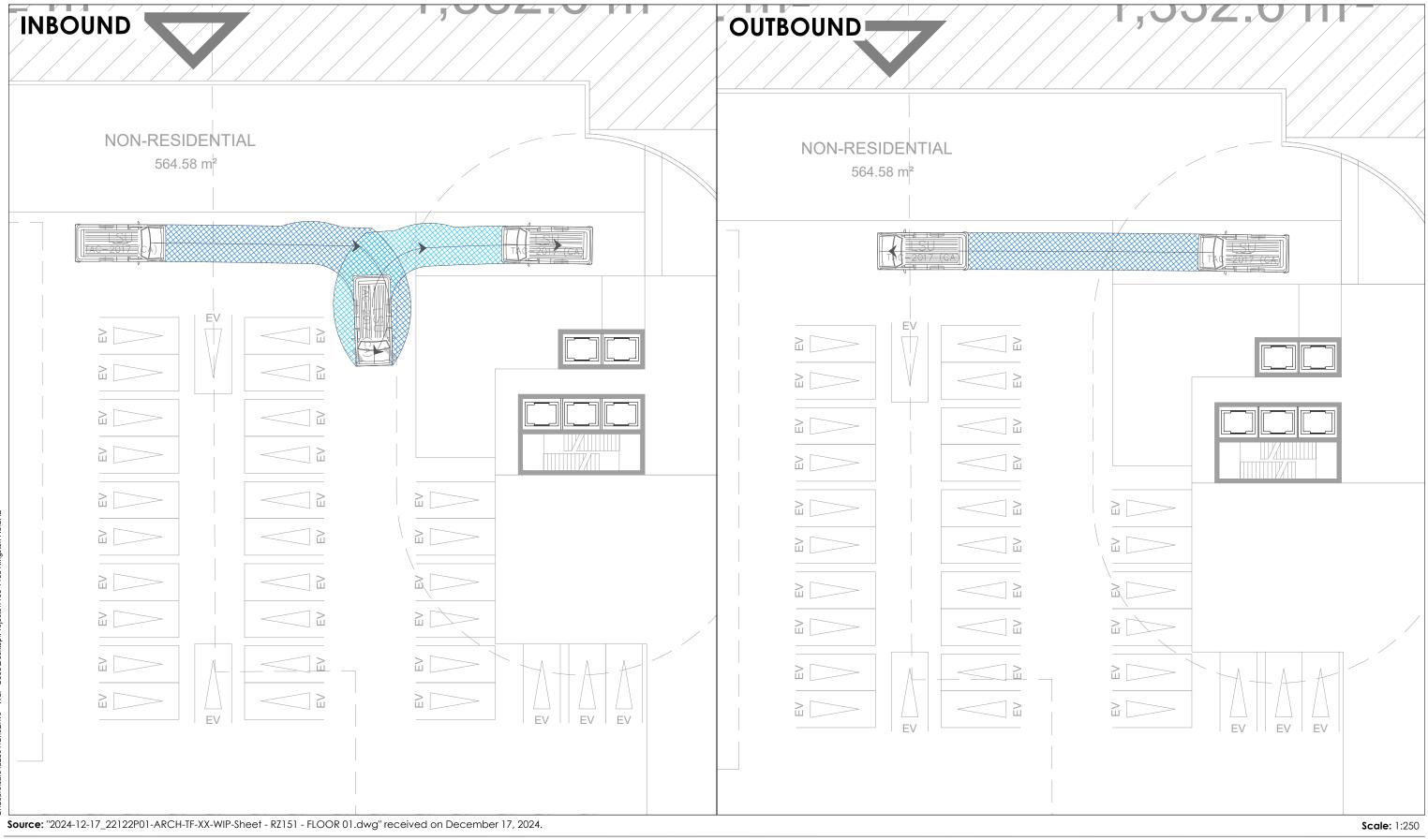
Figure 6-30 LSU Loading Truck Turning Maneuver - Building B - Loading Space 2 1105-1163 Kingston Road, Pickering





Width
Track
Lock to Lock Time
Steering Angle

Figure 6-31 LSU Loading Truck Turning Maneuver - Building C 1105-1163 Kingston Road, Pickering



WSD

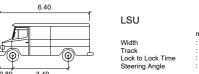
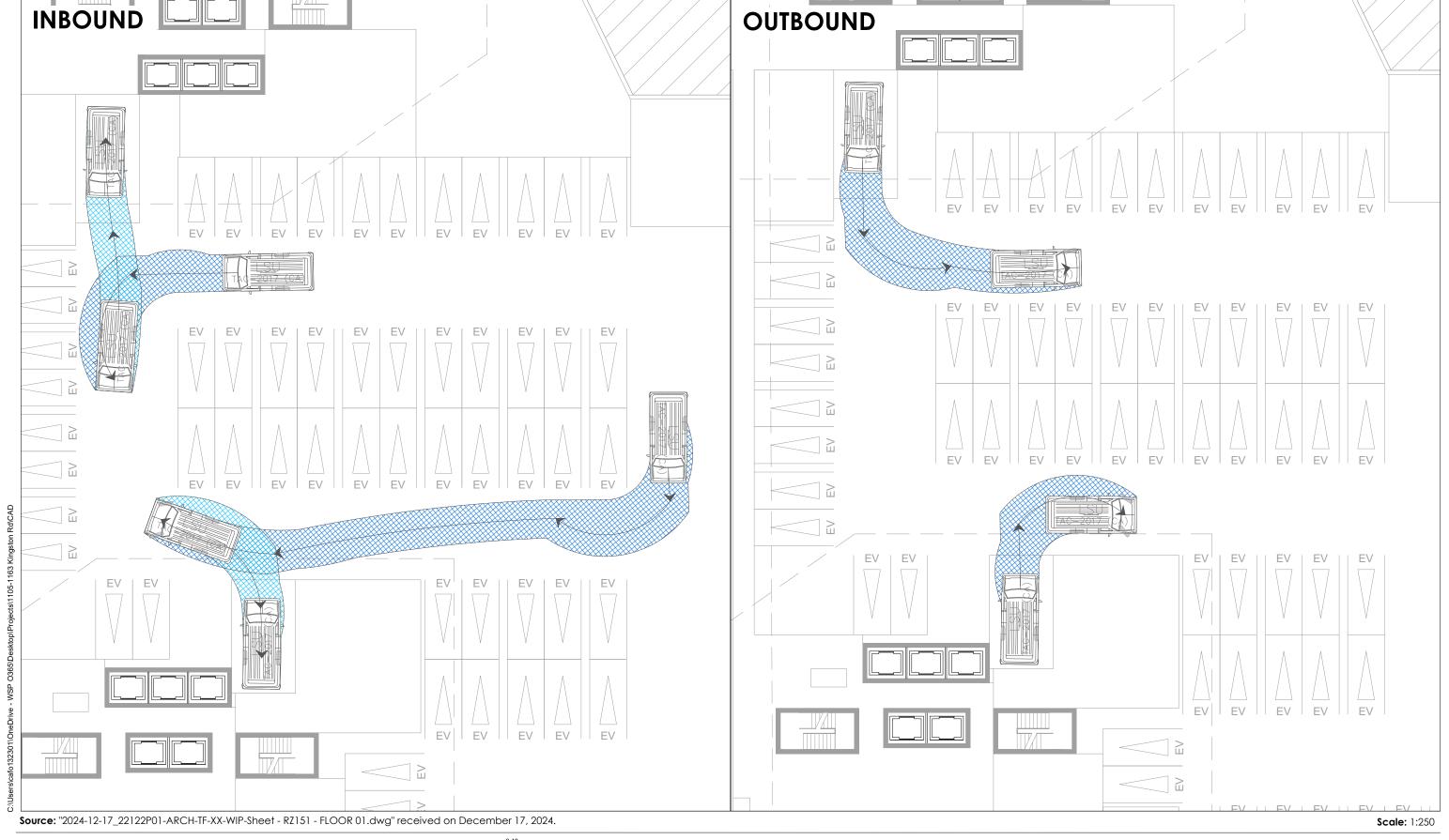


Figure 6-32 LSU Loading Truck Turning Maneuver - Building E - Loading Space 1 1105-1163 Kingston Road, Pickering



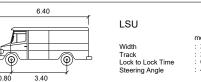
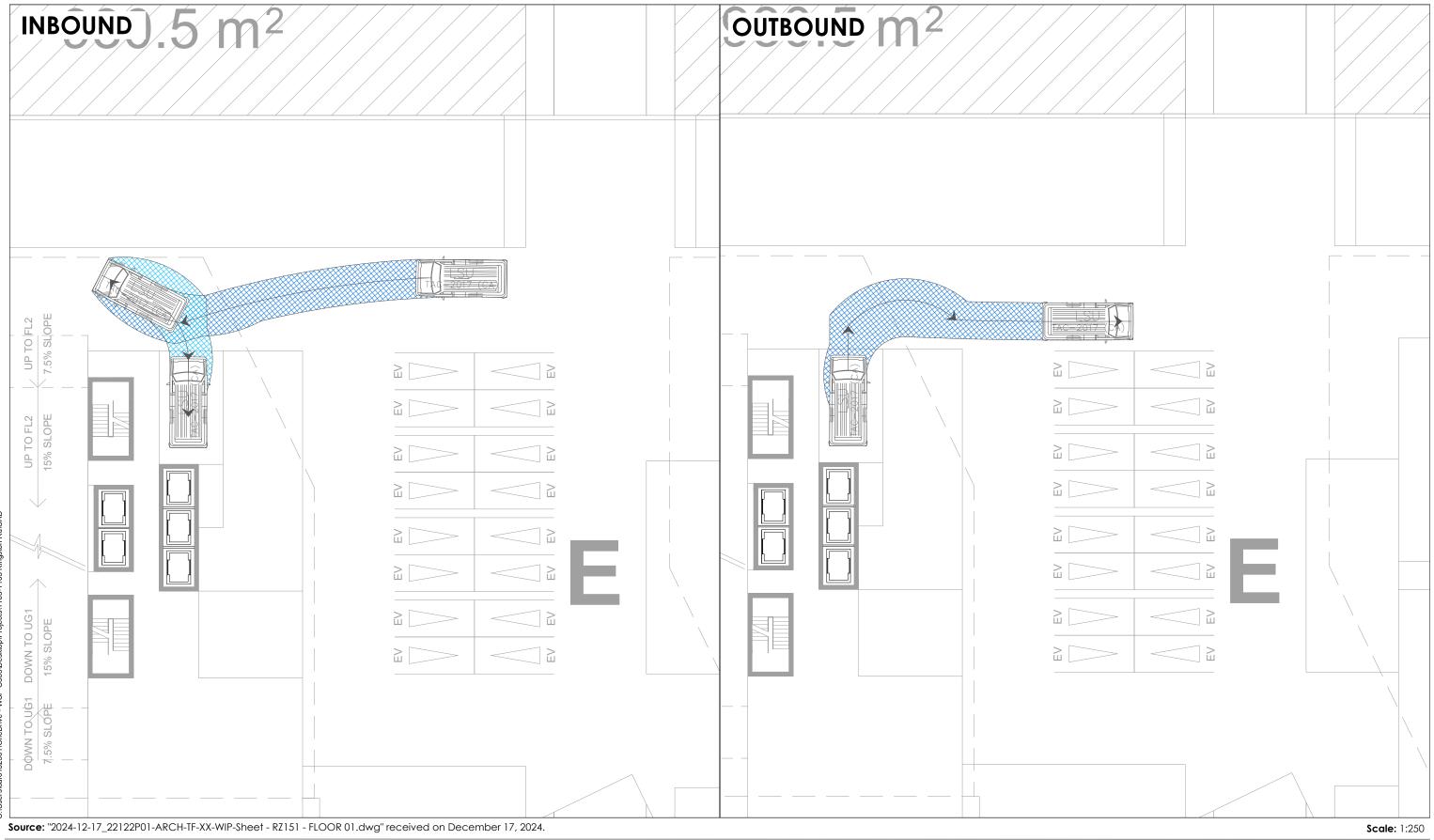


Figure 6-33 LSU Loading Truck Turning Maneuver - Building E - Loading Spaces 2 and 3 1105-1163 Kingston Road, Pickering



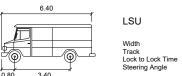


Figure 6-34 LSU Loading Truck Turning Maneuver - Building E - Loading Space 4 1105-1163 Kingston Road, Pickering

7 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic volumes were developed by superimposing the corresponding future background volumes and site-generated traffic volumes.

This section of the report documents the future total traffic assessments for each of the horizon years.

7.1 2028 FUTURE TOTAL

The traffic operations were analyzed based on the resulting 2028 future total traffic forecasts shown in **Figure 7-1**. The resulting levels of service are outlined in **Table 7-1** and the details related to intersection operations provided in **Appendix H-1**.

The results indicate that the 2028 future total conditions slightly changed from the future background conditions as a result of the additional site traffic, with all intersections continuing to operate at an acceptable LOS. It should be noted that, by the 2028 horizon year, the proposed development is only partially complete (phase 1 only), where the full build out will occur for the 2033 horizon year,

There are also several movements operating at critical or over-capacity. This is expected considering that these movements were critical and approaching capacity in the future background scenarios. To resolve these over-capacity movements, a PHF sensitivity scenario was analyzed in **Table 7-2**, for any intersections with over-capacity movements. In 2028 future total, this includes Liverpool Road & Kingston Road, Kingston Road & Walnut Lane, Kingston Road & Dixie Road, Kingston Road & Highway 401 WB Ramps and Kingston Road & Whites Road. It should also be noted that some of the critical and over-capacity movements are expected to improve once the existing site trips are fully removed when the development is fully built in the 2033 horizon year.

The RIRO site driveway access at Kingston Road and the site access at Dixie Road both operate well within capacity and with an acceptable LOS during both peak hours.

Table 7-1: 2028 Future Total Intersection Operations

| | Weekday | Weekday A.M. Peak Hour Weekday P.M. Peak Ho | | | | | |
|---|--------------------------|---|-----------|---|--|--|--|
| | Overall | Critical | Overall | Critical | | | |
| Intersection | LOS | Movement | LOS | Movement | | | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | |
| | Seconds) Ratio) | | Seconds) | Ratio) | | | |
| | Signalized Intersections | | | | | | |
| Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp | B (17) | | C (27) | | | | |
| Liverpool Road & Pickering Parkway | B (16) | | C (30) | | | | |
| Liverpool Road & Kingston Road | C (34) | | D (50) | EB-T (1.09) WB-L (0.90) | | | |
| Kingston Road & Walnut Lane | C (35) | | D (49) | EB-T (1.01) WB-L (1.08) NB-L (1.07) | | | |
| Kingston Road & Dixie Road | C (27) | WB-L (1.04) | C (34) | EB-L (0.90) | | | |
| Kingston Road & Fairport Road | B (18) | | C (33) | EB-L (0.92) | | | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (55) | EB-TR (1.05) WB-L (1.03) | | | |
| Kingston Road & Delta Boulevard | C (33) | | D (38) | EB-L (0.93) EB-TR (0.92) WB-L (0.93) NB-L (0.93) | | | |
| Kingston Road & Whites Road | C (32) | | D (50) | EB-L (1.00) EB-T (1.04) NB-R (0.90) | | | |
| Whites Road & Highway 401 EB Off-Ramp | C (21) | | C (27) | | | | |
| | Uns | signalized Intersecti | ons | | | | |
| Street B & Kingston Road (RIRO Site Access) | A (10) | NB-R (0.04) | B (12) | NB-R (0.18) | | | |
| Dixie Road & Shopping Plaza Entrance | A (9) | WB-LR (0.09) | A (10) | WB-LR (0.25) | | | |

| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|--------------------|-----------|------------------|------------------------|------------------|--|
| | Overall | Critical | Overall | Critical | |
| Intersection | LOS | Movement | LOS | Movement | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | |
| | Seconds) | Ratio) | Seconds) | Ratio) | |
| Intersection B | | | | | |
| (Walnut Lane & | B (13) | EB-LR (0.20) | C (24) | EB-LR (0.39) | |
| Street B) | | | | | |
| Intersection C | A (8) | SB-TL (0.13) | A (8) | SB-LT (0.16) | |
| (Street B) | A (0) | 3D-1L (0.13) | A (6) | 3B-L1 (0.10) | |
| Intersection D | | | | | |
| (Street B & | A (7) | NB-TL (0.02) | A (8) | EB-LR (0.17) | |
| Shopping Plaza | A (1) | ND-12 (0.02) | Α (0) | LD-Lit (0.17) | |
| Entrance) | | | | | |
| Intersection E | | | | | |
| (Street B & Street | A (7) | SB-TL (0.05) | A (7) | SB-TL (0.05) | |
| A) | | | | | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

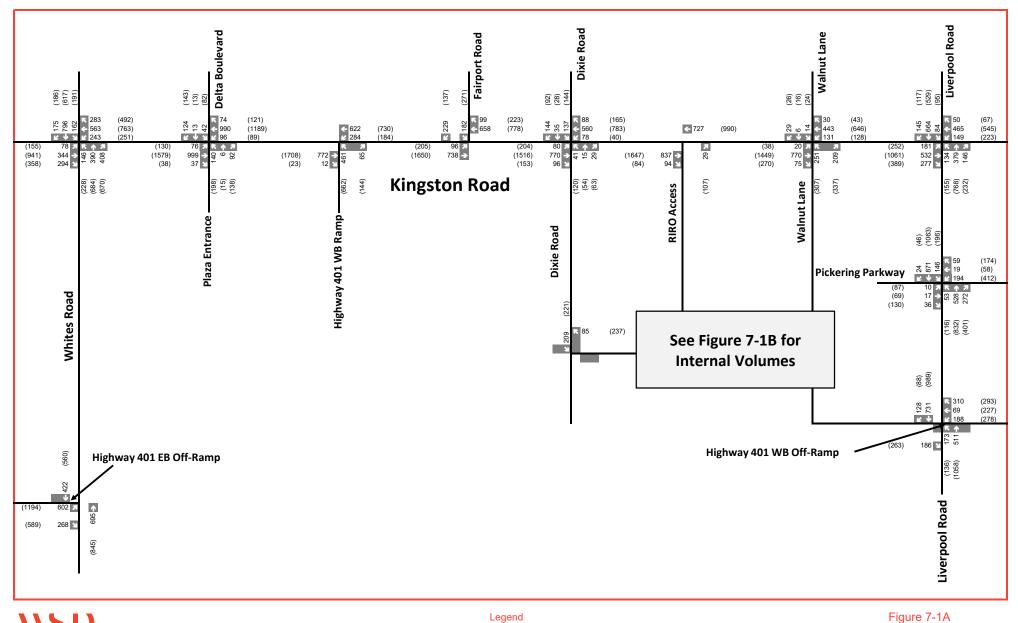
Table 7-2: 2028 Future Total Intersection Operations – PHF Sensitivity Analysis

| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|------------------|-----------|----------------------|------------------------|------------------|--|
| | Overall | Overall Critical | | Critical | |
| Intersection | LOS | Movement | LOS | Movement | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | |
| | Seconds) | Ratio) | Seconds) | Ratio) | |
| | Si | gnalized Intersectio | ns | | |
| Liverpool Road & | | | D (42) | ED T (0.00) | |
| Kingston Road | | | D (42) | EB-T (0.99) | |
| Kingston Road & | | | | EB-T (0.93) | |
| Walnut Lane | | | D (39) | WB-L (0.99) | |
| Walliut Lalle | | | | NB-L (0.98) | |
| Kingston Road & | C (25) | WD I (0.05) | C (24) | EB-T (0.94) | |
| Dixie Road | C (25) | WB-L (0.95) | C (34) | WB-L (0.95) | |
| Kingston Road & | | | | ED T (0.05) | |
| Highway 401 WB | | | D (42) | EB-T (0.95) | |
| Ramps | | | | WB-L (0.95) | |
| Kingston Road & | | | D (44) | EB-L (0.92) | |
| Whites Road | | | D (41) | WB-T (0.94) | |
| | | | | | |

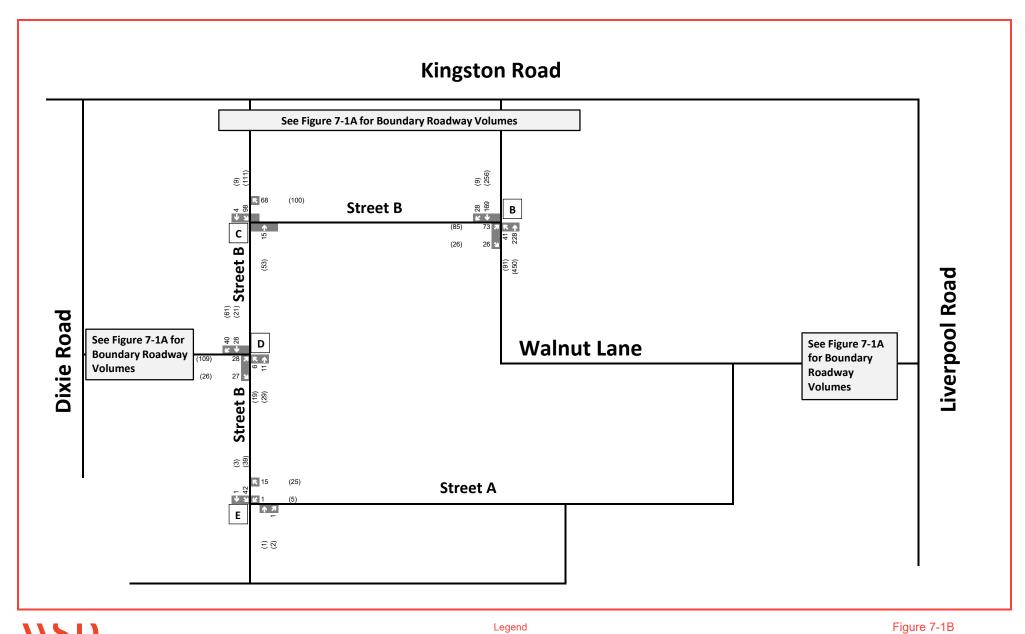
For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.









Legend

A queueing analysis for the study intersections is presented in **Table 7-3**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix H-1**.

Table 7-3: 2028 Future Total Intersection Queue Lengths

| | Lane | Available | 50 th Percen | tile Queues (m) | |
|-------------------------------|----------|-----------|--|-----------------|--|
| Intersection | Movement | Storage | [95 th Percentile Queues (m)] | | |
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| Liverness | EBR | N/A | 54 | 75 | |
| Liverpool Road & Walnut | WBL | 203 | 44 | 71 | |
| | WBT | 203 | 44 | 73 | |
| Lane / | WBR | 125 | 23 | 66 | |
| Highway | NBL | 50 | 18 | 20 | |
| 401 WB Off- | NBT | 348 | 25 | 87 | |
| Ramp | SBT | 138 | 33 | 86 | |
| ramp | SBR | 38 | 2 | 9 | |
| | EBL | 59 | 7 | 32 | |
| | EBT | 59 | 8 | 17 | |
| | WBL | 57 | 30 | 53 | |
| Liverpool | WBT | 305 | 10 | 19 | |
| Road & | WBR | 62 | 0 | 16 | |
| Pickering | NBL | 54 | 6 | 41 | |
| Parkway | NBT | 138 | 54 | 116 | |
| 1 arkway | NBR | 76 | 20 | 54 | |
| | SBL | 133 | 22 | 67 | |
| | SBT | 234 | 85 | 173 | |
| | SBR | 36 | 0 | 0 | |
| | EBL | 221 | 76 | 62 | |
| | EBT | 671 | 54 | 186 | |
| | EBR | 98 | 37 | 87 | |
| Liverneel | WBL | 237 | 74 | 106 | |
| Liverpool Road & | WBT | 372 | 73 | 94 | |
| Koad & Kingston | WBR | 117 | 0 | 0 | |
| Road | NBL | 186 | 32 | 43 | |
| Noau | NBT | 234 | 50 | 122 | |
| | NBR | 52 | 15 | 37 | |
| | SBL | 49 | 21 | 27 | |
| | SBT | 325 | 91 | 81 | |
| | SBR | 61 | 14 | 11 | |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|----------|----------------------|----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 12 | 15 |
| | EBT | 105 | 140 [112] | 301 [154] |
| Kingston | WBL | 159 | 61 | 83 |
| Road & | WBT | 671 | 70 | 22 |
| Walnut | NBL | 63 | 82 [61] | 153 [94] |
| Lane | NBR | 101 | 17 | 116 [69] |
| | SBL | 19 | 7 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 84 |
| | EBT | 872 | 92 | 284 |
| Kingston | WBL | 129 | 53 | 24 |
| Kingston Road & | WBT | 167 | 72 | 146 |
| Dixie Road | NBL | 13 | 19 [10] | 49 [32] |
| DIXIE ROAU | NBT | 100 | 12 | 35 |
| | SBL | 16 | 50 [34] | 58 [39] |
| | SBT | 212 | 26 | 22 |
| Vingoton | EBL | 238 | 48 | 51 |
| Kingston Road & | EBT | 400 | 7 | 249 |
| Fairport | WBT | 872 | 88 | 35 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 55 | 333 [290] |
| Road & | WBL | 135 | 112 | 101 |
| Highway | WBT | 400 | 73 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 25 |
| | EBL | 39 | 40 [22] | 39 [37] |
| | EBT | 199 | 162 | 138 |
| Kingston | WBL | 121 | 43 | 48 |
| Road & | WBT | 245 | 181 | 103 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 24 |

| Intersection | Lane | Available Storage | 50 th Percentile Queues (m) [95 th Percentile Queues (m)] | | |
|---------------------|----------|----------------------|--|----------------------|--|
| , | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| | EBL | 153 | 43 | 89 | |
| | EBT | 274 | 56 | 196 | |
| | EBR | 123 | 67 | 91 | |
| | WBL | 87 | 101 [71] | <mark>96</mark> [66] | |
| Kingston | WBT | 199 | 93 | 81 | |
| Road & | WBR | 35 | 70 [37] | 134 [42] | |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] | |
| Road | NBT | 135 | 39 | 68 | |
| | NBR | 35 | 58 [46] | 207 [129] | |
| | SBL | 89 | 46 | 68 | |
| | SBT | 361 | 81 | 62 | |
| | SBR | 47 | 20 | 17 | |
| Whites | EBL | 272 | 83 | 133 | |
| Road & Highway | EBR | 225 | 19 | 125 | |
| 401 EB Off- | NBT | 162 | 58 | 100 | |
| Ramp | SBT | 293 | 33 | 61 | |
| Street B & | EBT | 191 | 0 | 0 | |
| Kingston Road (RIRO | WBT | 129 | 0 | 0 | |
| Site Access) | NBR | 97 | 1 | 19 | |
| Dixie Road | WBL | 193 | 2 | 10 | |
| & Shopping Plaza | NBT | 107 | 0 | 0 | |
| Entrance | SBT | 44 | 4 | 8 | |

As a result of adding the phase 1 site traffic, some of the queues under 2028 future total conditions have increased in comparison to the future background conditions. A majority of the movements where the queues exceeding their storage length were present in the future background scenarios with the exception of one movement, the northbound right turn at Kingston Road & Walnut Lane in the p.m. peak hour.

For the northbound right-turn at Kingston Road & Walnut Lane in the p.m. peak hours, it is expected that queues will exceed the storage length in the 95th percentile queues, but not in the 50th percentile queues. As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

7.2 2033 FUTURE TOTAL

The traffic operations were analyzed based on the resulting 2033 future total traffic forecasts shown in **Figure 7-2**. The resulting levels of service are outlined in **Table 7-4** and the details related to the intersection operations provided in **Appendix H-2**.

By 2033, it is expected that the entire proposed development will by built and operational. Therefore, when compared to the 2028 future total, the volumes are higher, and conditions are more constrained. The Synchro results for 2033 future total scenario indicate that all intersections operate at an acceptable LOS, with some critical movements in the a.m. peak hour and several critical and over-capacity movements in the p.m. peak hour. These capacity issues will be resolved in a PHF sensitivity scenario analyzed in **Table 7-5**. The PHF scenario continues to show that all movements can operate within capacity.

For Walnut Lane & Street A (Intersection A), the results show that the intersection is operating at well above capacity with all-way stop control. Therefore, this intersection was also assessed as a signalized intersection. Signalization improves the operation of the intersection movements significantly, where all movements can now operate within capacity. Therefore, it is recommended that this intersection be signalized. This intersection is approximately 220 metres from the signalized intersection of Kingston Road & Walnut Lane, which is an acceptable intersection spacing for signalization on a minor road. Additionally, the signalized intersection can also serve the future redevelopment of the properties northeast of the intersection.

Table 7-4: 2033 Future Total Intersection Operations

| | | <u>-</u> | | |
|---------------|-----------|--------------------|------------------------|-------------------|
| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | |
| | Overall | Critical | Overall | Critical Movement |
| Intersection | LOS | Movement | LOS | (Volume/Capacity |
| | (Delay in | (Volume/Capacity | (Delay in | Ratio) |
| | Seconds) | Ratio) | Seconds) | Ratio |
| | | Signalized Interse | ctions | |
| Liverpool | | | | ED D (4.04) |
| Road & | 0 (07) | EB-R (0.91) | 5 (46) | EB-R (1.04) |
| Walnut Lane / | C (27) | SB-T (0.89) | D (48) | WB-T (1.05) |
| Highway 401 | | (3.2.7) | | SB-T (1.03) |
| WB Off-Ramp | | | | |
| Liverpool | | | | |
| Road & | B (16) | | C (26) | |
| Pickering | _ (:•) | | (=0) | |
| Parkway | | | | |
| Liverpool | | EB-L (0.99) | | EB-T (1.05) |
| Road & | D (44) | EB-R (0.98) | E (56) | EB-R (0.96) |
| Kingston | _ () | WB-L (1.02) | _ (00) | WB-L (1.07) |
| Road | | 110 2 (1.02) | | 112 2 (1.07) |

| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|--|---|--|---|---|--|
| Intersection | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) | |
| Kingston Road & Walnut Lane | C (27) | | D (37) | EB-T (0.96) | |
| Kingston Road & Dixie Road | C (25) | WB-L (1.04) | D (38) | EB-L (0.90) EB-T (0.96) | |
| Kingston Road & Fairport Road | B (18) | | C (34) | EB-L (0.92) EB-T (0.88) | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (52) | EB-TR (1.04) WB-L (1.03) | |
| Kingston Road & Delta Boulevard | C (33) | | D (37) | EB-L (0.93) EB-TR (0.91) WB-L (0.93) NB-L (0.93) | |
| Kingston Road & Whites Road | C (32) | WB-L (0.94) | D (52) | EB-L (1.00) EB-T (0.99) WB-L (1.08) NB-R (0.97) | |
| Whites Road & Highway 401 EB Off- Ramp | C (21) | | C (28) | - | |
| Intersection A (Street A & Walnut Lane) (with signalization) | C (28) | | D (42) | WB-T (0.92) NB-L (0.96) | |
| | T | Unsignalized Inters | ections | | |
| Kingston Road & Street B (RIRO Site Access) | B (10) | NB-R (0.17) | C (23) | NB-R (0.58) | |
| Dixie Road & Shopping Plaza Entrance | A (9) | WB-LR (0.11) | A (10) | WB-LR (0.30) | |

| | Weekday | y A.M. Peak Hour | Weekd | ay P.M. Peak Hour |
|---|---|--|---|---|
| Intersection | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) |
| Intersection A (Street A & Walnut Lane) (with AWSC) | C (23) | NB-LR (0.76) | F (166) | WB-TL (1.30) |
| Intersection B (Walnut Lane & Street B) | B (14) | EB-LR (0.21) | C (22) | EB-LR (0.30) |
| Intersection C (Street B) | A (8) | SB-TL (0.17) | A (8) | SB-LT (0.16) |
| Intersection D (Street B & Shopping Plaza Entrance) | A (8) | NB-TL (0.14) | B (11) | EB-LR (0.49) |
| Intersection E (Street B & Street A) | A (8) | SB-TL (0.18) | B (12) | SB-TL (0.48) |
| Intersection F (Street Driveways & Street A) | B (12) | EB-LTR (0.45) | C (17) | WB-LTR (0.63) |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

Table 7-5: 2033 Future Total Intersection Operations – PHF Sensitivity Analysis

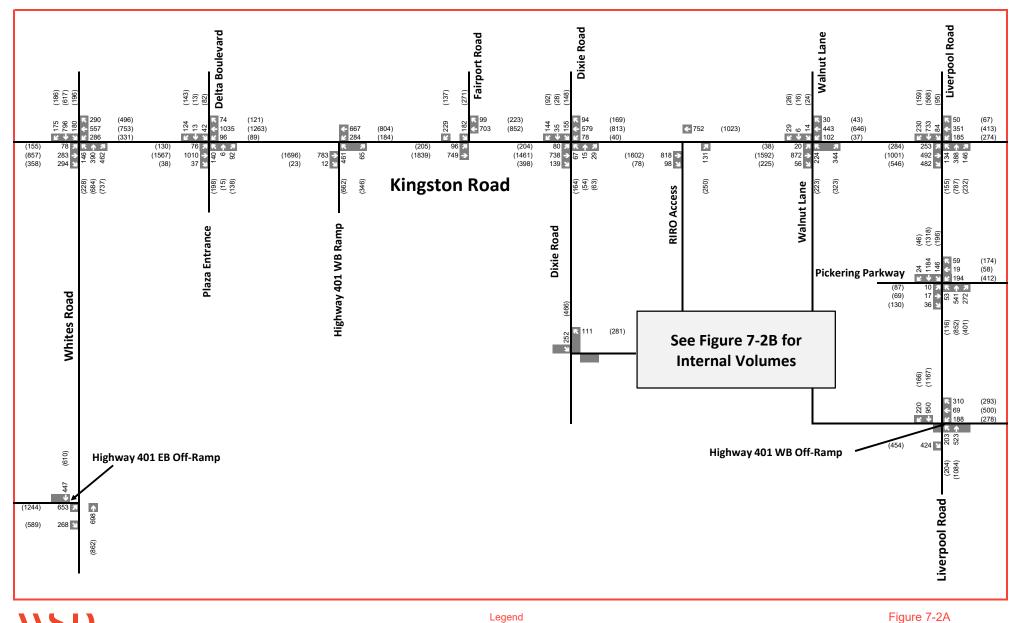
| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | |
|------------------|------------------|----------------------|------------------------|------------------|
| | Overall Critical | | Overall | Critical |
| Intersection | LOS | Movement | LOS | Movement |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity |
| | Seconds) | Ratio) | Seconds) | Ratio) |
| | Si | gnalized Intersectio | ns | |
| Liverpool Road & | | | | EB-R (0.97) |
| Walnut Lane / | | | D (38) | WB-T (0.97) |
| Highway 401 WB | | | D (30) | SB-T (0.94) |
| Off-Ramp | | | | 30-1 (0.34) |
| Liverpool Road & | D (30) | EB-L (0.93) | D (49) | EB-T (0.97) |
| Kingston Road | D (39) | WB-L (0.94) | D (49) | WB-L (0.98) |

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

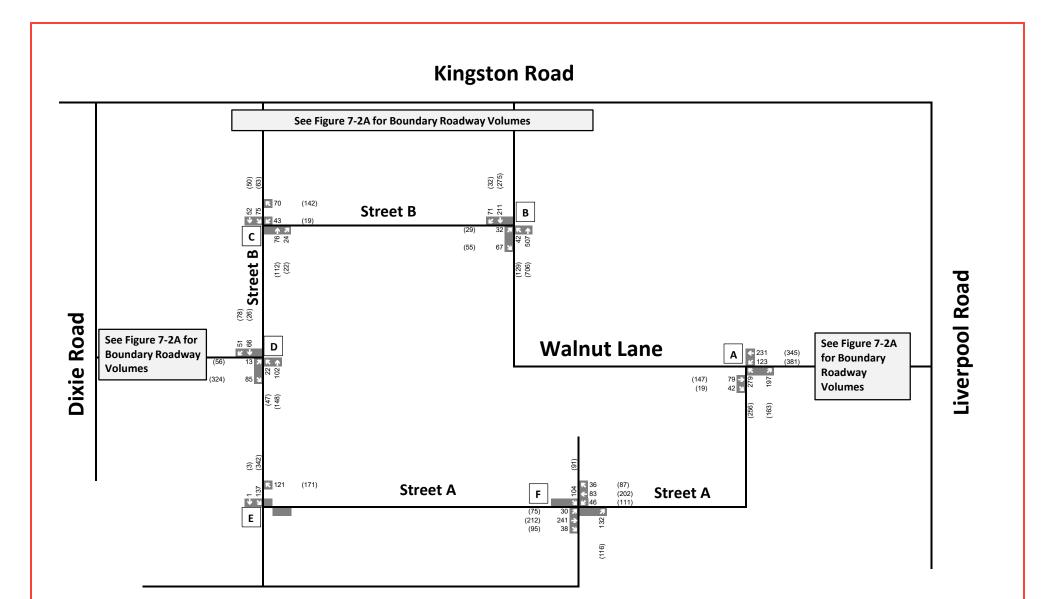
| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|--------------------------------------|-----------|------------------|------------------------|---|--|
| | Overall | verall Critical | | Critical | |
| Intersection | LOS | Movement | LOS | Movement | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | |
| | Seconds) | Ratio) | Seconds) | Ratio) | |
| Kingston Road & Dixie Road | C (24) | WB-L (0.95) | | | |
| Kingston Road & Highway 401 WB Ramps | | | D (40) | EB-T (0.94) WB-L (0.95) | |
| Kingston Road & Whites Road | | | D (43) | EB-L (0.92) EB-T (0.91) WB-L (0.99) | |

For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.









A queueing analysis for the study intersections is presented in **Table 7-6**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix H-2**.

Table 7-6: 2033 Future Total Intersection Queue Lengths

| | Lane | Available | | tile Queues (m) | |
|-------------------------------|----------|-----------|--|-----------------|--|
| Intersection | Movement | Storage | [50 th Percentile Queues (m)] | | |
| | | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| Livernool | EBR | N/A | 153 | 164 | |
| Liverpool Road & Walnut | WBL | 203 | 44 | 72 | |
| | WBT | 203 | 44 | 194 | |
| Lane / | WBR | 125 | 23 | 66 | |
| Highway | NBL | 50 | 30 | 35 | |
| 401 WB Off- | NBT | 348 | 17 | 52 | |
| Ramp | SBT | 138 | 99 | 120 | |
| ιταπη | SBR | 38 | 10 | 22 | |
| | EBL | 59 | 7 | 32 | |
| | EBT | 59 | 8 | 17 | |
| | WBL | 57 | 30 | 53 | |
| Liverneel | WBT | 305 | 10 | 19 | |
| Liverpool Road & | WBR | 62 | 0 | 16 | |
| Pickering | NBL | 54 | 6 | 43 | |
| Parkway | NBT | 138 | 36 | 73 | |
| raikway | NBR | 76 | 20 | 54 | |
| | SBL | 133 | 22 | 61 | |
| | SBT | 234 | 75 | 128 | |
| | SBR | 36 | 0 | 0 | |
| | EBL | 221 | 123 | 88 | |
| | EBT | 671 | 64 | 183 | |
| | EBR | 98 | 164 [31] | 160 [139] | |
| 1 | WBL | 237 | 97 | 140 | |
| Liverpool | WBT | 372 | 55 | 70 | |
| Road & | WBR | 117 | 0 | 0 | |
| Kingston Road | NBL | 186 | 32 | 43 | |
| Roau | NBT | 234 | 51 | 125 | |
| | NBR | 52 | 15 | 38 | |
| | SBL | 49 | 21 | 27 | |
| | SBT | 325 | 103 | 87 | |
| | SBR | 61 | 18 | 16 | |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|----------|----------------------|----------------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 13 | 14 |
| | EBT | 105 | 139 [96] | 317 [280] |
| Kingston | WBL | 159 | 43 | 20 |
| Road & | WBT | 671 | 68 | 47 |
| Walnut | NBL | 63 | 75 [54] | 97 [59] |
| Lane | NBR | 101 | 63 | 109 [66] |
| | SBL | 19 | 8 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 68 |
| | EBT | 872 | 93 | 351 |
| Kingston | WBL | 129 | 54 | 27 |
| Kingston Road & | WBT | 167 | 50 | 103 |
| Dixie Road | NBL | 13 | 28 [16] | 65 [44] |
| DIXIE ROAU | NBT | 100 | 12 | 35 |
| | SBL | 16 | 56 [38] | 59 [39] |
| | SBT | 212 | 26 | 22 |
| Kingston | EBL | 238 | 43 | 55 |
| Kingston Road & | EBT | 400 | 3 | 282 |
| Fairport | WBT | 872 | 94 | 44 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 58 | 329 [286] |
| Road & | WBL | 135 | 107 | 101 |
| Highway | WBT | 400 | 90 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 71 [35] |
| | EBL | 39 | <mark>41</mark> [21] | 38 |
| | EBT | 199 | 163 | 148 |
| Kingston | WBL | 121 | 45 | 48 |
| Road & | WBT | 245 | 188 | 218 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 26 |

| Intersection | Lane | Available Storage | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | |
|---------------------|----------|----------------------|--|----------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 153 | 43 | 89 |
| | EBT | 274 | 46 | 170 |
| | EBR | 123 | 67 | 93 |
| | WBL | 87 | 129 [80] | 144 [101] |
| Kingston | WBT | 199 | 91 | 83 |
| Road & | WBR | 35 | 64 [47] | 138 [37] |
| Whites | NBL | 72 | 50 | <mark>83</mark> [43] |
| Road | NBT | 135 | 39 | 68 |
| | NBR | 35 | 63 [36] | 189 [157] |
| | SBL | 89 | 50 | 70 |
| | SBT | 361 | 81 | 62 |
| | SBR | 47 | 20 | 17 |
| Whites | EBL | 272 | 88 | 142 |
| Road & Highway | EBR | 225 | 19 | 131 |
| 401 EB Off- | NBT | 162 | 60 | 103 |
| Ramp | SBT | 293 | 37 | 67 |
| Street B & | EBT | 191 | 0 | 0 |
| Kingston Road (RIRO | WBT | 129 | 0 | 0 |
| Site Access) | NBR | 97 | 5 | 27 |
| Dixie Road | WBL | 193 | 3 | 10 |
| & Shopping Plaza | NBT | 107 | 0 | 0 |
| Centre | SBT | 44 | 5 | 11 |

The queueing analysis indicates that the queues have increased slightly when compared to the 2028 future total queues due to the larger number of site trips present in 2033. The same movements exceed their queues in the 2033 future total scenario as in the 2028 future total scenario, except for the eastbound right-turn movement at Liverpool Road & Kingston Road. Although this movement exceeds the storage length for the 95th percentile queue, since Kingston Road has two eastbound through lanes, spillover from the right-turn lane is not expected to cause significant delays for the through movement.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

7.3 2038 FUTURE TOTAL

The traffic operations were analyzed based on the resulting 2038 future total traffic forecasts shown in **Figure 7-3**. The resulting levels of service are outlined in **Table 7-7** and the details related to the intersection operations provided in **Appendix H-3**.

Given our recommendation for Walnut Lane & Street A (Intersection A) to be signalized based on the traffic operations under 2033 future total conditions (see **Section 7.2**), this intersection has been solely assessed as signalized under 2038 future total conditions.

The Synchro results for the 2038 future total scenario indicate that it operates similarly to the 2033 future total scenario with all intersections continuing to operate at an acceptable LOS, several critical and over-capacity movements in the a.m. and p.m. peak hour. These capacity issues will be resolved in a PHF sensitivity scenario analyzed in **Table 7-8**. The PHF scenario continues to show that all movements can operate within capacity.

Table 7-7: 2038 Future Total Intersection Operations

| | Weekda | y A.M. Peak Hour | Weekda | Weekday P.M. Peak Hour | | | |
|---|-----------------------------|---|-----------------------------|---|--|--|--|
| Intersection | Overall LOS (Delay in | Critical Movement (Volume/Capacity | Overall LOS (Delay in | Critical Movement (Volume/Capacity | | | |
| | Seconds) | Ratio) | Seconds) | Ratio) | | | |
| | Signalized Intersections | | | | | | |
| Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp | C (27) | EB-R (0.91) SB-T (0.90) | D (50) | EB-R (1.04) WB-T (1.05) SB-T (1.05) | | | |
| Liverpool Road & Pickering Parkway | В (16) | | C (26) | - | | | |
| Liverpool Road & Kingston Road | D (44) | EB-L (0.99) EB-R (0.99) WB-L (1.02) | E (56) | EB-T (1.05) EB-R (0.96) WB-L (1.07) | | | |
| Kingston Road & Walnut Lane | C (27) | | D (37) | EB-T (0.96) | | | |
| Kingston Road & Dixie Road | C (25) | WB-L (1.04) | D (38) | EB-L (0.90) EB-T (0.96) | | | |
| Kingston Road & Fairport Road | B (18) | | C (34) | EB-L (0.92) EB-T (0.88) | | | |
| Kingston Road & Highway 401 WB Ramps | C (29) | | D (52) | EB-TR (1.04) WB-L (1.03) | | | |
| Kingston Road & C (33) | | | D (37) | EB-L (0.93) EB-TR (0.91) WB-L (0.93) NB-L (0.93) | | | |

| | Weekda | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|--|---|--|---|--|--|
| Intersection | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) | Overall LOS (Delay in Seconds) | Critical Movement (Volume/Capacity Ratio) | |
| Kingston Road & Whites Road | C (32) | WB-L (0.94) | D (52) | EB-L (1.00) EB-T (0.99) WB-L (1.08) NB-R (0.97) | |
| Whites Road & Highway 401 EB Off-Ramp | C (21) | | C (28) | | |
| Intersection A (Street A & Walnut Lane) | C (28) | NB-L (0.92) | D (42) | WB-T (0.92) NB-L (0.96) | |
| | Uns | signalized Intersection | ons | | |
| Street B & Kingston Road (RIRO Site Access) | B (10) | NB-R (0.17) | C (23) | NB-R (0.58) | |
| Dixie Road & Shopping Plaza Centre | A (9) | WB-LR (0.11) | A (10) | WB-LR (0.30) | |
| Intersection B (Walnut Lane & Street B) | C (14) | EB-LR (0.21) | C (22) | EB-LR (0.30) | |
| Intersection C (Street B) | A (8) | SB-TL (0.17) | A (8) | SB-LT (0.16) | |
| Intersection D (Street B & Shopping Plaza Centre) | A (8) | NB-TL (0.16) | B (11) | EB-LR (0.49) | |
| Intersection E (Street B & Street A) | A (8) | SB-TL (0.18) | B (12) | SB-TL (0.48) | |
| Intersection F (Building Driveways & Street A) | B (12) | EB-LTR (0.45) | C (17) | WB-LTR (0.63) | |

For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

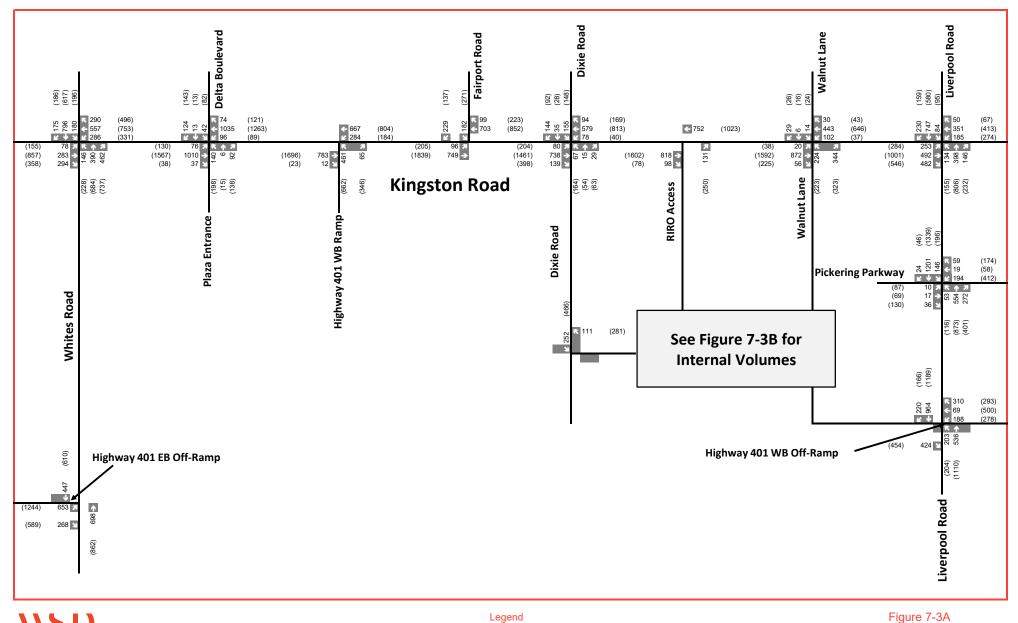
² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Table 7-8: 2038 Future Total Intersection Operations – PHF Sensitivity Analysis

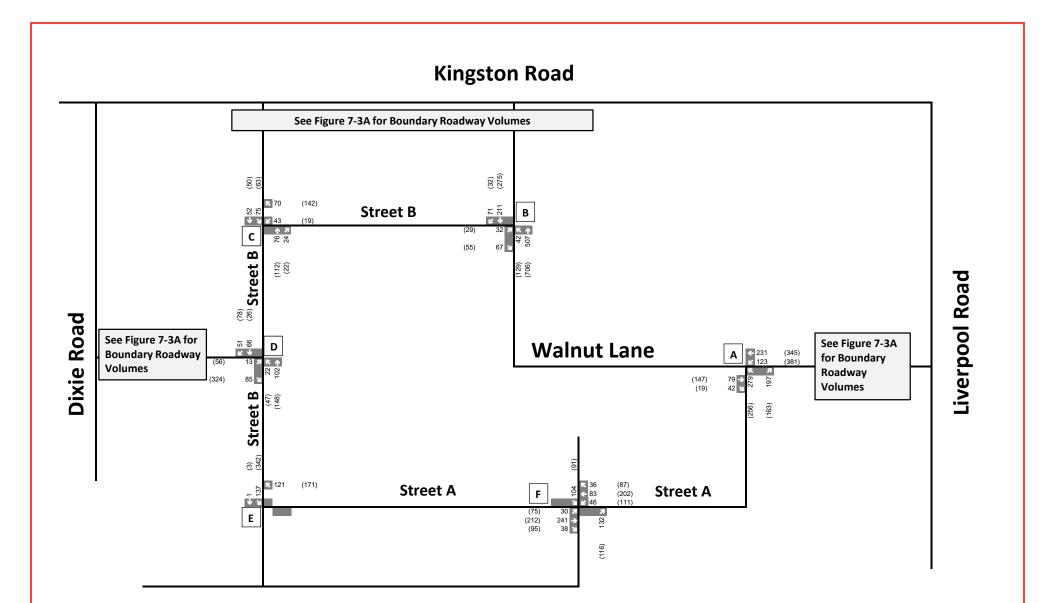
| | Weekda | y A.M. Peak Hour | Weekday P.M. Peak Hour | |
|------------------|-----------|----------------------|------------------------|------------------|
| | Overall | Critical | Overall | Critical |
| Intersection | LOS | Movement | LOS | Movement |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity |
| | Seconds) | Seconds) Ratio) | | Ratio) |
| | Si | gnalized Intersectio | ns | |
| Liverpool Road & | | | | EB-R (0.97) |
| Walnut Lane / | | | D (39) | WB-T (0.97) |
| Highway 401 WB | | D (. | D (39) | SB-T (0.96) |
| Off-Ramp | | | | 30-1 (0.90) |
| Liverpool Road & | D (39) | EB-L (0.93) | D (49) | EB-T (0.97) |
| Kingston Road | D (39) | WB-L (0.94) | D (49) | WB-L (0.98) |
| Kingston Road & | C (24) | WB-L (0.95) | | |
| Dixie Road | C (24) | WD-L (0.93) | | |
| Kingston Road & | | | | EB-T (0.94) |
| Highway 401 WB | | | D (40) | WB-L (0.95) |
| Ramps | | | | WD-L (0.93) |
| Kingston Road & | | | D (43) | EB-L (0.92) |
| Whites Road | | | | EB-T (0.91) |
| Willes Kodu | | | | WB-L (0.99) |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.









A queueing analysis for the study intersections is presented in **Table 7-9**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix H-3**.

Table 7-9: 2038 Future Total Intersection Queue Lengths

| 1 able 1-9. 2030 | | Available | 95 th Percentile Queues (m) | | |
|-------------------------------|----------|-----------|--|----------------|--|
| Intersection | Lane | Storage | [50 th Percentile Queues (m)] | | |
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| Liverpool Road & Walnut | EBR | N/A | 153 | 164 | |
| | WBL | 203 | 44 | 72 | |
| | WBT | 203 | 44 | 194 | |
| Lane / | WBR | 125 | 23 | 66 | |
| Highway | NBL | 50 | 30 | 35 | |
| 401 WB Off- | NBT | 348 | 17 | 54 | |
| Ramp | SBT | 138 | 102 | 124 | |
| ιταπρ | SBR | 38 | 10 | 22 | |
| | EBL | 59 | 7 | 32 | |
| | EBT | 59 | 8 | 17 | |
| | WBL | 57 | 30 | 53 | |
| Liverpeel | WBT | 305 | 10 | 19 | |
| Liverpool Road & | WBR | 62 | 0 | 16 | |
| Pickering | NBL | 54 | 6 | 43 | |
| Parkway | NBT | 138 | 37 | 75 | |
| raikway | NBR | 76 | 20 | 55 | |
| | SBL | 133 | 22 | 62 | |
| | SBT | 234 | 76 | 131 | |
| | SBR | 36 | 0 | 0 | |
| | EBL | 221 | 123 | 88 | |
| | EBT | 671 | 64 | 183 | |
| | EBR | 98 | 137 [31] | 160 [139] | |
| Liverneel | WBL | 237 | 97 | 140 | |
| Liverpool Road & | WBT | 372 | 55 | 70 | |
| | WBR | 117 | 0 | 0 | |
| Kingston Road | NBL | 186 | 32 | 43 | |
| | NBT | 234 | 53 | 129 | |
| | NBR | 52 | 15 | 39 | |
| | SBL | 49 | 21 | 27 | |
| | SBT | 325 | 105 | 89 | |
| | SBR | 61 | 18 | 16 | |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] | |
|--------------------|----------|----------------------|----------------|-------------------------------------|--|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | |
| | EBL | 107 | 13 | 14 | |
| | EBT | 105 | 139 [96] | 317 [280] | |
| Kingston | WBL | 159 | 43 | 20 | |
| Road & | WBT | 671 | 68 | 47 | |
| Walnut | NBL | 63 | 75 [54] | <mark>97</mark> [59] | |
| Lane | NBR | 101 | 63 | [109] 66 | |
| | SBL | 19 | 8 | 13 | |
| | SBT | 156 | 9 | 13 | |
| | EBL | 184 | 44 | 68 | |
| | EBT | 872 | 93 | 351 | |
| Kingston | WBL | 129 | 54 | 27 | |
| Kingston Road & | WBT | 167 | 51 | 103 | |
| | NBL | 13 | 28 [16] | 65 [44] | |
| Dixie Road | NBT | 100 | 12 | 35 | |
| | SBL | 16 | 56 [38] | 59 [39] | |
| | SBT | 212 | 26 | 22 | |
| Vingoton | EBL | 238 | 43 | 55 | |
| Kingston Road & | EBT | 400 | 3 | 282 | |
| Fairport | WBT | 872 | 94 | 44 | |
| Road | SBL | 16 | 69 [49] | 101 [73] | |
| Noau | SBR | 256 | 21 | 17 | |
| Kingston | EBT | 245 | 58 | 329 [286] | |
| Road & | WBL | 135 | 107 | 101 | |
| Highway | WBT | 400 | 90 | 6 | |
| 401 WB | NBL | 193 | 77 | 115 | |
| Ramps | NBR | 52 | 12 | <mark>71</mark> [35] | |
| | EBL | 39 | 41 [22] | 38 | |
| | EBT | 199 | 163 | 148 | |
| Kingston | WBL | 121 | 45 | 48 | |
| Road & | WBT | 245 | 188 | 218 | |
| Delta | NBL | 107 | 57 | 99 | |
| Boulevard | NBT | 107 | 16 | 27 | |
| | SBL | 146 | 21 | 36 | |
| | SBT | 146 | 21 | 26 | |

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|------------------------|----------|----------------------|----------------|-------------------------------------|
| intersection | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 153 | 43 | 89 |
| | EBT | 274 | 46 | 170 |
| | EBR | 123 | 67 | 93 |
| | WBL | 87 | 129 [80] | 144 [101] |
| Kingston | WBT | 199 | 91 | 83 |
| Road & | WBR | 35 | 64 [47] | 138 [37] |
| Whites | NBL | 72 | 50 | 83 [43] |
| Road | NBT | 135 | 39 | 68 |
| | NBR | 35 | 63 [36] | 189 [157] |
| | SBL | 89 | 50 | 70 |
| | SBT | 361 | 81 | 62 |
| | SBR | 47 | 20 | 17 |
| Whites | EBL | 272 | 88 | 142 |
| Road & | EBR | 225 | 19 | 131 |
| Highway 401 EB Off- | NBT | 162 | 60 | 103 |
| Ramp | SBT | 293 | 37 | 67 |
| Street B & | EBT | 191 | 0 | 0 |
| Kingston | WBT | 129 | 0 | 0 |
| Road (RIRO Access) | NBL | 97 | 5 | 27 |
| Dixie Road | WBL | 193 | 3 | 10 |
| & Shopping Plaza | NBT | 107 | 0 | 0 |
| Centre | SBT | 44 | 5 | 11 |

The queueing analysis indicates that the queues very similar when compared to the 2033 future total queues. Overall, a majority of the movements that exceed their queues in the 2038 future total scenario are the same as the 2033 future total scenario.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

7.4 2043 FUTURE TOTAL

The traffic operations were analyzed based on the resulting 2043 future total traffic forecasts shown in **Figure 7-4**. The resulting levels of service are outlined in **Table 7-10** and the details related to the intersection operations provided in **Appendix H-4**.

Given our recommendation for Walnut Lane & Street A (Intersection A) to be signalized based on the traffic operations under 2033 future total conditions (see **Section 7.2**), this intersection has been solely assessed as signalized under 2043 future total conditions.

The Synchro results for the 2043 future total scenario indicate that it operates similarly to the 2038 future total scenario with all intersections continuing to operate at an acceptable LOS, several critical movements and over-capacity movements in the a.m. and p.m. peak hour.

Table 7-10: 2043 Future Total Intersection Operations

| Weekday A.M. Peak Hour Weekday P.M. Peak Hour | | | | | | | | |
|---|-----------|------------------------------|--------------------|-------------------|--|--|--|--|
| | Overall | Critical | Overall | | | | | |
| Intersection | LOS | Movement | LOS | Critical Movement | | | | |
| 11116136611011 | (Delay in | (Volume/Capacity | | (Volume/Capacity | | | | |
| | Seconds) | | (Delay in Seconds) | Ratio) | | | | |
| | | Ratio) gnalized Intersection | | • | | | | |
| Liverneel Deed 9 | Siţ | gnanzeu miersechoi | | | | | | |
| Liverpool Road & | | ED D (0.04) | | EB-R (1.04) | | | | |
| Walnut Lane / | C (28) | EB-R (0.91) | D (52) | WB-T (1.05) | | | | |
| Highway 401 WB | , , | SB-T (0.91) | | SB-T (1.07) | | | | |
| Off-Ramp | | | | , , | | | | |
| Liverpool Road & | B (16) | | C (26) | | | | | |
| Pickering Parkway | , , | ED 1 (0.00) | | ED T (4.05) | | | | |
| Liverpool Road & | D (44) | EB-L (0.99) | F (50) | EB-T (1.05) | | | | |
| Kingston Road | D (44) | EB-R (0.99) | E (56) | EB-R (0.96) | | | | |
| | | WB-L (1.02) | | WB-L (1.07) | | | | |
| Kingston Road & | C (27) | | D (37) | EB-T (0.96) | | | | |
| Walnut Lane | · (=-/ | | - (0.) | , , | | | | |
| Kingston Road & | C (25) | WB-L (1.04) | D (38) | EB-L (0.90) | | | | |
| Dixie Road | 0 (20) | 112 = (110 1) | 2 (00) | EB-T (0.96) | | | | |
| Kingston Road & | B (18) | | C (34) | EB-L (0.92) | | | | |
| Fairport Road | B (10) | | 0 (04) | EB-T (0.88) | | | | |
| Kingston Road & | | | | EB-TR (1.04) | | | | |
| Highway 401 WB | C (29) | | D (52) | WB-L (1.03) | | | | |
| Ramps | | | | WD-L (1.03) | | | | |
| | | | | EB-L (0.93) | | | | |
| Kingston Road & | C (22) | | D (27) | EB-TR (0.91) | | | | |
| Delta Boulevard | C (33) | | D (37) | WB-L (0.93) | | | | |
| | | | | NB-L (0.93) | | | | |
| | | | | EB-L (1.00) | | | | |
| Kingston Road & | C (22) | WD L (0.04) | D (E0) | EB-T (0.99) | | | | |
| Whites Road | C (32) | WB-L (0.94) | D (52) | WB-L (1.08) | | | | |
| | | | | NB-R (0.97) | | | | |
| Whites Road & | | | | | | | | |
| Highway 401 EB | C (21) | | C (28) | | | | | |
| Off-Ramp | ` ′ | | ` ′ | | | | | |
| Intersection A | | | | MD T (0.00) | | | | |
| (Street A & Walnut | C (28) | NB-L (0.92) | D (42) | WB-T (0.92) | | | | |
| Lane) | | , | ` ′ | NB-L (0.96) | | | | |
| | l . | l . | l | | | | | |

| | Weekday | y A.M. Peak Hour | Weekday P.M. Peak Hour | | |
|---|---|--|------------------------|---|--|
| Intersection | Overall LOS (Delay in Seconds) | LOS Movement Delay in (Volume/Capacity | | Critical Movement (Volume/Capacity Ratio) | |
| | | signalized Intersection | Seconds) ons | | |
| Street B & Kingston Road (RIRO Site Access) | B (10) | NB-R (0.17) | C (23) | NB-R (0.58) | |
| Dixie Road & Shopping Plaza Entrance | A (9) | WB-LR (0.11) | A (10) | WB-LR (0.30) | |
| Intersection B (Walnut Lane & Street B) | B (14) | EB-LR (0.21) | C (22) | EB-LR (0.30) | |
| Intersection C (Street B) | A (8) | SB-TL (0.17) | A (8) | SB-LT (0.16) | |
| Intersection D (Street B & Shopping Plaza Entrance) | A (8) | NB-TL (0.16) | B (11) | EB-LR (0.49) | |
| Intersection E (Street B & Street A) | A (8) | SB-TL (0.18) | B (12) | SB-TL (0.48) | |
| Intersection F (Building Driveways & Street A) | B (12) | EB-LTR (0.45) | C (17) | WB-LTR (0.63) | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

As mentioned previously, to resolve these capacity issues, a PHF sensitivity scenario will be analyzed. This includes four intersections: Liverpool Road & Walnut Lane / Highway 401 WB Ramp, Liverpool Road & Kingston Road, Kingston Road & Highway 401 WB Ramps, and Kingston Road & Whites Road.

The sensitivity analysis results are shown in **Table 7-11.** The sensitivity results show that with a PHF of 1.00, although some critical movements remain, these intersections operate within capacity. Since all intersections can operate within capacity, the road network can accommodate the site trips generated by the proposed development under 2043 future total conditions with this adjustment.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.

Considering that 2043 future total is the worst-case scenario, it can be assumed that, if the road network can accommodate the proposed development under 2043 future total conditions, that it can accommodate all of the previous horizon years as well.

Table 7-11: 2043 Future Total Intersection Operations – PHF Sensitivity Analysis

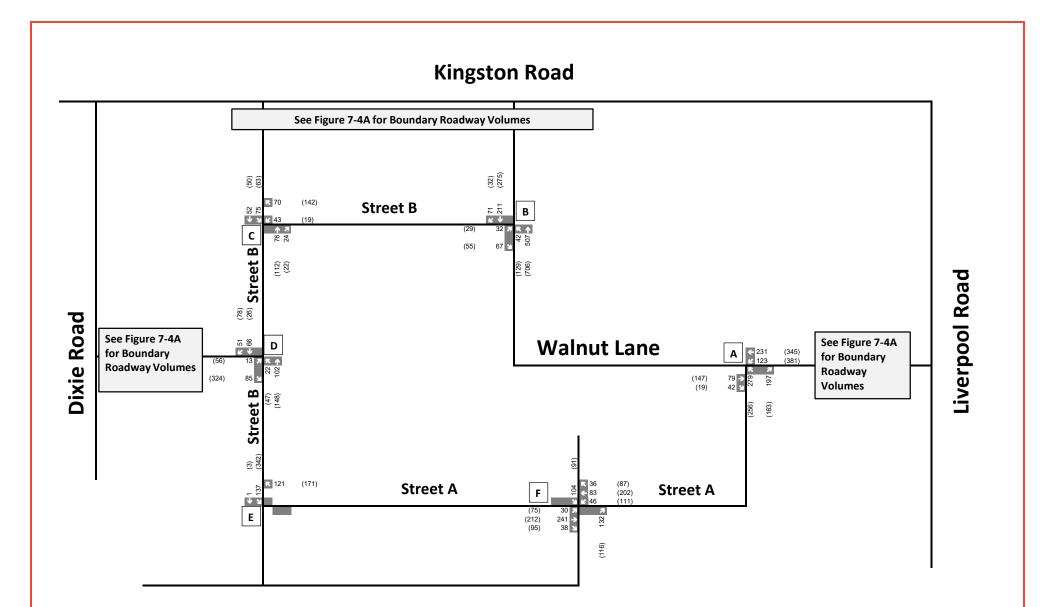
| | Weekday | y A.M. Peak Hour | Weekday | y P.M. Peak Hour | | | |
|------------------|-----------|----------------------|-----------|------------------|--|--|--|
| | Overall | erall Critical | | Critical | | | |
| Intersection | LOS | Movement | LOS | Movement | | | |
| | (Delay in | (Volume/Capacity | (Delay in | (Volume/Capacity | | | |
| | Seconds) | Ratio) | Seconds) | Ratio) | | | |
| | Si | gnalized Intersectio | ns | | | | |
| Liverpool Road & | | | | EB-R (0.97) | | | |
| Walnut Lane / | | | D (40) | WB-T (0.97) | | | |
| Highway 401 WB | | | D (40) | SB-T (0.98) | | | |
| Off-Ramp | | | | 30-1 (0.90) | | | |
| Liverpool Road & | D (39) | EB-L (0.93) | D (49) | EB-T (0.97) | | | |
| Kingston Road | D (39) | WB-L (0.94) | D (49) | WB-L (0.98) | | | |
| Kingston Road & | C (24) | WB-L (0.95) | | | | | |
| Dixie Road | O (24) | VVD-L (0.93) | | <u></u> | | | |
| Kingston Road & | | | | EB-T (0.94) | | | |
| Highway 401 WB | | | D (40) | WB-L (0.95) | | | |
| Ramps | | | | ` * | | | |
| Kingston Road & | | | | EB-L (0.92) | | | |
| Whites Road | | | D (43) | EB-T (0.91) | | | |
| Willies Nodu | | | | WB-L (0.99) | | | |

¹ For signalized intersections, the level of service is based on the overall delay of the intersection. Critical v/c ratios are only listed for through or shared through/turning movements with values over 0.85. Critical v/c ratios are only listed for exclusive movements with values of 0.90.

² For unsignalized intersections, the level of service is based on the critical movement, which is the movement with the highest delay.









Legend

P.M. Peak Hour Traffic Volumes A queueing analysis for the study intersections is presented in **Table 7-12**. The 50th percentile queue lengths are shown only for movements with 95th percentile queue lengths exceeding the available storage. Detailed queue results for all intersections and individual movements are provided in **Appendix H-4**.

Table 7-12: 2043 Future Total Intersection Queue Lengths

| Intersection | Lane | Available Storage | | tile Queues (m) tile Queues (m)] |
|------------------------|----------|----------------------|-----------------|-------------------------------------|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBR | N/A | 153 | 164 |
| Liverpool | WBL | 203 | 44 | 72 |
| Road & | WBT | 203 | 44 | 194 |
| Walnut | WBR | 125 | 24 | 66 |
| Lane / | NBL | 50 | 30 | 35 |
| Highway 401 WB Off- | NBT | 348 | 17 | 56 |
| Ramp | SBT | 138 | 104 | 127 |
| Namp | SBR | 38 | 9 | 22 |
| | EBL | 59 | 7 | 32 |
| | EBT | 59 | 8 | 17 |
| | WBL | 57 | 30 | 53 |
| l is company | WBT | 305 | 10 | 19 |
| Liverpool | WBR | 62 | 0 | 16 |
| Road & | NBL | 54 | 6 | 43 |
| Pickering Parkway | NBT | 138 | 38 | 77 |
| raikway | NBR | 76 | 20 | 56 |
| | SBL | 133 | 22 | 63 |
| | SBT | 234 | 76 | 135 |
| | SBR | 36 | 0 | 0 |
| | EBL | 221 | 123 | 88 |
| | EBT | 671 | 64 | 183 |
| | EBR | 98 | 137 [31] | 160 [139] |
| 1 | WBL | 237 | 97 | 140 |
| Liverpool Road & | WBT | 372 | 55 | 70 |
| | WBR | 117 | 0 | 0 |
| Kingston Road | NBL | 186 | 32 | 43 |
| Nuau | NBT | 234 | 54 | 133 |
| | NBR | 52 | 15 | 40 |
| | SBL | 49 | 21 | 27 |
| | SBT | 325 | 107 | 91 |
| | SBR | 61 | 19 | 16 |

| Intersection | Lane Movement | Available Storage | | tile Queues (m) tile Queues (m)] |
|--------------------|------------------|----------------------|----------------------|-------------------------------------|
| | MOVEILLELLE | (m) | A.M. Peak Hour | P.M. Peak Hour |
| | EBL | 107 | 13 | 14 |
| | EBT | 105 | 139 [96] | 317 [280] |
| Kingston | WBL | 159 | 42 | 20 |
| Road & | WBT | 671 | 68 | 47 |
| Walnut | NBL | 63 | 75 [54] | <mark>97</mark> [59] |
| Lane | NBR | 101 | 63 | [109] 66 |
| | SBL | 19 | 8 | 13 |
| | SBT | 156 | 9 | 13 |
| | EBL | 184 | 44 | 68 |
| | EBT | 872 | 93 | 351 |
| V:n mat a m | WBL | 129 | 54 | 27 |
| Kingston | WBT | 167 | 51 | 103 |
| Road & Dixie Road | NBL | 13 | 28 [16] | 65 [44] |
| Dixie Roau | NBT | 100 | 12 | 35 |
| | SBL | 16 | 56 [38] | 59 [39] |
| | SBT | 212 | 26 | 22 |
| Vinaston | EBL | 238 | 43 | 55 |
| Kingston Road & | EBT | 400 | 3 | 282 |
| Fairport | WBT | 872 | 94 | 44 |
| Road | SBL | 16 | 69 [49] | 101 [73] |
| Noau | SBR | 256 | 21 | 17 |
| Kingston | EBT | 245 | 58 | 329 [286] |
| Road & | WBL | 135 | 107 | 101 |
| Highway | WBT | 400 | 90 | 6 |
| 401 WB | NBL | 193 | 77 | 115 |
| Ramps | NBR | 52 | 12 | 71 |
| | EBL | 39 | <mark>41</mark> [22] | 38 |
| | EBT | 199 | 163 | 148 |
| Kingston | WBL | 121 | 45 | 48 |
| Road & | WBT | 245 | 188 | 218 |
| Delta | NBL | 107 | 57 | 99 |
| Boulevard | NBT | 107 | 16 | 27 |
| | SBL | 146 | 21 | 36 |
| | SBT | 146 | 21 | 26 |

| Intersection | Lane | Available Storage | 95 th Percentile Queues (m) [50 th Percentile Queues (m)] | | | |
|------------------------|----------|----------------------|--|-----------------|--|--|
| | Movement | (m) | A.M. Peak Hour | P.M. Peak Hour | | |
| | EBL | 153 | 43 | 89 | | |
| | EBT | 274 | 46 | 170 | | |
| | EBR | 123 | 67 | 93 | | |
| | WBL | 87 | 129 [80] | 144 [101] | | |
| Kingston | WBT | 199 | 91 | 83 | | |
| Road & | WBR | 35 | 64 | 138 [37] | | |
| Whites | NBL | 72 | 50 | 83 [43] | | |
| Road | NBT | 135 | 39 | 68 | | |
| | NBR | 35 | 63 [36] | 189 [157] | | |
| | SBL | 89 | 50 | 70 | | |
| | SBT | 361 | 81 | 62 | | |
| | SBR | 47 | 20 | 17 | | |
| Whites | EBL | 272 | 88 | 142 | | |
| Road & | EBR | 225 | 19 | 131 | | |
| Highway 401 EB Off- | NBT | 162 | 60 | 103 | | |
| Ramp | SBT | 293 | 37 | 67 | | |
| Street B & | EBT | 191 | 0 | 0 | | |
| Kingston | WBT | 129 | 0 | 0 | | |
| Road | NBL | 97 | 5 | 27 | | |
| Dixie Road | WBL | 193 | 3 | 10 | | |
| & Shopping Plaza | NBT | 107 | 0 | 0 | | |
| Entrance | SBT | 44 | 5 | 11 | | |

The 2043 future total queueing analysis indicates that the queues very similar to the 2038 future total queues. Overall, the same movements exceed their queues in the 2043 future total scenario as the 2038 future total scenario, with no new queueing issues.

As discussed, the 95th percentile queue lengths are typically reached only a few times during peak periods; therefore, the impact of the queues would be limited as long as the 50th percentile (average) queue lengths are within the available storage lengths.

8 PARKING ASSESSMENT

8.1 VEHICLE PARKING

The development is proposing to supply a total of 4,192 vehicle parking spaces.

Per the Pickering City Centre Zoning By-Law 7553/17², the following parking supply rates are required for the site:

- Apartment Residents: minimum of 0.80 parking spaces per unit;
- Visitors: minimum of 0.15 parking spaces per unit; and
- Retail: minimum of 3.5 spaces per 100 sq.m. GFA.

It is expected that the retail uses will largely service the residents; therefore, they are expected to generate lower parking demands compared to the by-law requirements. Regardless, as a conservative approach, it was assumed that the parking demand will be equal to the by-law requirements.

The By-law also provides a shared parking formula that can be used to calculate the required parking for multi-use developments such as this site. The relevant weekday shared parking formulas per Table 2 of the by-law (reproduced in **Table 8-1**) were used to calculate the site's parking requirement, with resident demand being assumed to be 100% during all periods of the day. As no formulas were provided for the daycare use, it was conservatively assumed to also be 100% during all periods of the day.

Table 8-1: Pickering City Centre Zoning By-law 7553/17 Weekday Shared Parking Formula

| Type of Use | Percentage of Peak Period (Weekday) | | | | | | |
|-----------------------------|-------------------------------------|-------|-----------|---------|--|--|--|
| Type of ose | Morning | Noon | Afternoon | Evening | | | |
| Food Store/Personal Service | 65% | 90% | 90% | 90% | | | |
| Shop/Retail Store | 0576 | 90 /6 | 90 /6 | 90 /8 | | | |
| Residential - Visitors | 20% | 20% | 60% | 100% | | | |

The parking supply requirements are provided in **Table 8-2**. As the details necessary to calculate the daycare parking requirement (number of employees and classrooms) are not currently known, the minimum retail parking rate has also been applied to the daycare component for the purpose of this preliminary analysis.

² While the site's location is just west of the area for which by-law 7553/17 applies, it is our opinion that the parking standards from this by-law should be applied to the site given its comparable land uses, density, and proximity to higher-order transit.

Table 8-2: Vehicle Parking Calculation – Pickering City Centre Zoning By-Law

| Land Use | Min. Parking Land Use Density Requirement | | Peak Parking | | _ | Formula Adju Zoning By-law | | Α | djusted P | arking Deman | d | | | | |
|----------|--|-------------------------------|-----------------|--------------|-------|-------------------------------|--------|---------|-----------|--------------|---------|---------|------|-----------|---------|
| | · | (By-law 7553-17) | - | <u>-</u> | - | - | Demand | Morning | Noon | Afternoon | Evening | Morning | Noon | Afternoon | Evening |
| Resident | 5,264 units | 0.80 spaces/unit | 4,212 | 100% | 100% | 100% | 100% | 4,212 | 4,212 | 4,212 | 4,212 | | | | |
| Visitor | 5,264 units | 0.15 spaces/unit | 790 | 20% | 20% | 60% | 100% | 158 | 158 | 474 | 790 | | | | |
| Retail | 6,585 m² | 3.5 spaces/100 m ² | 231 | 65% | 90% | 90% | 90% | 151 | 208 | 208 | 208 | | | | |
| | | | | | | | Total: | 4,578 | 4,578 | 4,894 | 5,210 | | | | |
| | Total Non-adjusted Parking Requirement: 5,233 Total Adjusted Parking Requirement | | | Requirement: | 5,210 | | | | | | | | | | |

Table 8-3: Vehicle Parking Calculation – Proposed Parking Rates

| Land Use | Min. Parking Land Use Density Requirement | | Peak Parking | | | | Adjusted Parking Demand | | | | | | | | |
|----------|---|-------------------------------|-----------------|------------------|------------------|------------------|-------------------------|--------------|-------------|--------------|---------|---------|------|-----------|---------|
| | _ | (By-law 7553-17) | _ | (By-law 7553-17) | (By-law 7553-17) | (By-law 7553-17) | Demand | Morning | Noon | Afternoon | Evening | Morning | Noon | Afternoon | Evening |
| Resident | 5,264 units | 0.60 spaces/unit | 3,159 | 100% | 100% | 100% | 100% | 3,159 | 3,159 | 3,159 | 3,159 | | | | |
| Visitor | 5,264 units | 0.15 spaces/unit | 795 | 20% | 20% | 60% | 100% | 159 | 159 | 477 | 795 | | | | |
| Retail | 6,585 m ² | 3.3 spaces/100 m ² | 218 | 65% | 90% | 90% | 90% | 142 | 197 | 197 | 197 | | | | |
| | | | | | | | Total: | 3,460 | 3,515 | 3,833 | 4,151 | | | | |
| | Total Non-adjusted | l Parking Requirement: | 4,172 | | | | То | tal Adjusted | d Parking F | Requirement: | 4,151 | | | | |

As shown above, the unadjusted parking requirement is 5,233 spaces and the adjusted parking requirement is 5,210 spaces.

However, for the nearby development at 1786-1790 Liverpool Road, the City approved site-specific zoning by-law 8023/23 which permitted a minimum apartment resident parking supply of 0.55 spaces per unit and a minimum non-residential parking supply of 3.3 spaces per 100 m² GFA.

Based on this nearby approval, it is proposed that the development provide a minimum apartment resident parking supply of 0.60 spaces per unit (higher than the nearby approved development) and a minimum supply of 3.3 spaces per 100 m² GFA for each of the non-residential uses (equivalent to the nearby approved development). With these proposed rates applied to the subject development, as shown in **Table 8-3**, the unadjusted parking requirement becomes 4,172 spaces and the adjusted parking requirement would become 4,151 spaces, both of which fall below the proposed parking supply of 4,192 spaces. Therefore, it is our opinion that a sufficient parking supply has been provided for the site.

8.2 ACCESSIBLE PARKING

Based on the City's Traffic and Parking By-Law 6604/05, accessible parking spaces should be calculated based on the visitor and non-residential parking supply. Assuming that a total of 1,010 visitor and non-residential parking spaces (residential visitor, retail, and daycare spaces) are provided, the by-law requires 11 Type A and 11 Type B accessible spaces.

The requirement of 11 Type A and 11 Type B accessible spaces will be met in a future site plan approval application submission.

8.3 BICYCLE PARKING

As per the City Centre Zoning By-law 7553/17, **Table 8-4** summarizes the bicycle parking requirements for the site. In total, 2,639 bicycle parking spaces are required for the development.

Table 8-4: Bicycle Parking Requirements

| Land Use | Density | Minimum Bicycle Parking Rate | Bicycle Parking Requirement |
|-------------|----------------------|--|--------------------------------|
| Residential | 5,264 units | 0.5 spaces/unit | 2,632 |
| Retail | 6,585 m ² | greater of 2 or 1.0 space/1,000 m ² | 7 |
| | | Total: | 2,639 |

The requirement of 2,639 bicycle parking spaces will be met in a future site plan approval application submission.

9 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management (TDM) is a general concept under which various transportation strategies are considered to increase the efficiency of the transportation system through the management of travel demands across all available modes of transportation. It treats mobility as a means to an end itself and emphasizes the movement of people and goods rather than the movement of vehicles. TDM initiatives generally discourage single-occupant vehicle travel and encourage more effective use of various alternative modes and strategies such as walking, cycling, public transit, and ridesharing/carpooling in order to reduce traffic congestion in the road network.

An effective TDM program is successful at reducing peak hour roadway demand. This section of the report details the wider measures already implemented and/or planned by the Region of Durham and/or the City of Pickering, and the specific TDM initiatives that are proposed for the subject development.

There are several planned transit and multimodal improvements that will play a key role in the mobility in the study area. Multi modal transportation facilities planned for the study area include the future Durham-Scarborough BRT and several transit service options, cycle network improvements, and pedestrian amenities, as previously discussed in detail in **Sections 3.4 and 3.5**. Furthermore, the site is located approximately 1 km away from the Pickering GO station which provides residents convenient transit options for long-distance travel/commute trips.

This section outlines some of the TDM components that could be incorporated into the proposed development to facilitate the reduction of trips to and from the study area by single-occupant vehicles. In the context of a new subdivision development, TDM initiatives provide essential elements to a progressive transportation plan that promotes and maintains an efficient and functional transportation system in and around the study area.

9.1 DEVELOPMENT OF SITE SPECIFIC TDM STRATEGY

9.1.1 PRESTO TRANSIT CARDS

Durham Region Transit (DRT) currently uses the Presto card as the electronic fare option. The Presto card is also accepted on GO Transit and all other transit agencies in the Greater Toronto Area. The Presto card is an alternative to buying bus tickets or having the correct change to ride the DRT.

To encourage transit use, the occupants of the development should be provided a Presto Card with pre-loaded funds to incentivize new residents to try and become familiar with the local transit network.

It is recommended that the developer provide all initial occupants with a Presto transit card loaded with a minimum of \$50 (one card per unit).

9.1.2 BICYCLE PARKING

With the planned cycle tracks on Kingston Road and cycling facilities on Liverpool Road, providing on-site cycling amenities such as bicycle parking will encourage residents to cycle. As discussed in **Section 8.3**, the City of Pickering's City Centre Zoning By-Law 7553/17 requires 2,639 bicycle parking spaces at the subject site.

The proposed development will provide at least 2,639 bicycle parking spaces in order to meet the by-law requirements. Additionally, it is recommended that bicycle repair stations be provided in the bicycle parking areas (one per building) in order to allow residents to do maintenance and minor repairs on their bicycles.

9.1.3 UNBUNDLING OF PARKING

All resident parking spaces will be provided as 'unbundled parking", and unit purchasers will have the option to decide whether to purchase a parking space or not. Based on the recent trend observed at several sites in the GTA, it appears this strategy has become a very effective in reducing the parking demand requirements and consequently a number of auto trips generated by the site.

The practice of unbundled parking is an important and standard TDM strategy for medium and high-density residential developments. This TDM measure allows potential residents the option to purchase their unit separately from the parking space at a reduced cost. The reduced cost should reflect the realistic and actual cost of the parking space to provide reasonable incentives and encourage purchasers to consider an unbundled parking option. This, in turn, promotes residents to explore alternative transportation options aside from single occupancy driving. Furthermore, it will also allow residents of larger units to purchase more than one space, if desired. As a result, the likelihood of oversupplying parking spaces for the development is reduced.

9.1.4 ON-SITE MOBILITY ALTERNATIVES INFORMATION

To help facilitate non-auto trips, it is important to provide transportation information to new residents so that they can view and understand their travel options before establishing new travel habits. This will increase the chance that new residents incorporate these alternatives in their travel patterns after moving into the development.

Information regarding transit availability and schedules, available cycling facilities and connections, as well as other non-auto travel options would be made available on-site in a convenient and logical location, and/or be included as part of the welcome package to new residents of the development to inform them of the alternative modes of transportation available to them.

The developer will provide information about transportation options to new residents in an information package that will include items such as:

 Existing transit services, including a Durham Region Transit system map, a GO system map, route navigators for each area transit route (including GO bus and rail), and seven-day schedules for nearby stops for each of these routes. Information will be provided by the Region and the Municipality and will also include relevant fare and incentive-based information such as the preloaded Presto card provided by the developer.

- A map of the surrounding area with sidewalks and bicycle facilities, a copy of the Durham Region Cycle Tours Map, cycling and pedestrian safety tips, and information on active transportation events (such as Bike to Work Day and CAN-BIKE cycling lessons). This information would also be provided by the Region and Municipality.
- Carpooling information, including information on Smart Commute and how one can join through their employer.

The Region requires the developer to develop and distribute to all initial occupants an information package including transit maps, schedules, fares, bicycle route maps and any other relevant local transit information. Costs associated with the information package will be the responsibility of the developer.

9.1.5 TRANSPORTATION INTERACTIVE DISPLAY

In the past, interactive displays were recommended to be provided within the lobby or elevators of residential and commercial buildings to provide residents and visitors with an array of information including transportation. These could include the expected arrival time for the next bus on each route by using real-time transit data that can be obtained from the Region.

However, given the widespread adoption of smartphones, it is expected that many residents will use transit applications on their phones to obtain live information about bus transit arrival times. Therefore, an interactive display is not recommended as a required TDM measure. However, should the condominium corporation wish to include an interactive display for their use, they can program transportation information on the unit. As such, where possible the developer should include the appropriate electronic connections within the common area (lobby or elevator) where such a display can be installed by the Condominium Corporation.

9.1.6 RIDESHARE SERVICES, HOME-DELIVERY SERVICES, REMOTE WORKING

In recent years, more and more people are shifting to the use of private transportation companies (PTC) such as Uber and Lyft to reach their destinations. Moreover, during the Covid-19 pandemic, there has been a significant increase in reliance on homedelivery services, including food and grocery delivery services. It is anticipated that this type of services will continue to be widely used even after the pandemic. This also apply to remote work, which will likely continue to be a viable option for many people. These types of technological trends and the continued high cost of car ownership will continue to reduce the demand for parking spaces.

9.2 SITE TDM SUMMARY

It is recommended that the owner/developer complete the following as part of a site TDM strategy:

A. Presto Card

• It is recommended that the developer provide all initial occupants with a Presto transit card loaded with a minimum of \$50 (1 card per unit).

B. Bicycle Parking & Facilities

- The development will provide at least 2,639 bicycle parking spaces which meets the City's by-law requirement.
- It is recommended that bicycle repair stations be provided in the bicycle parking areas (one per building) in order to allow residents to do maintenance and minor repairs on their bicycles.

C. Unbundling of Parking Spaces

 Unbundling of residential parking spaces from unit sales should be implemented such that only residents requiring parking spaces purchase them, thus reducing demand.

D. Information Package

- Provide a package of transportation information to new residents at the time of purchase.
- Costs associated with the information package will be the responsibility of the developer.

The estimated costs of the TDM measures are summarized in **Table 9-1**.

Table 9-1 TDM Cost Summary for Proposed Development

| Measure | Quantity | Unit Cost | Total Cost | Comments/Assumptions |
|------------------------------------|----------------------------|-----------|------------|--|
| Presto Card | 5,264 | \$50 | \$263,200 | One card per unit at a minimum of \$50 per card |
| Bicycle parking spaces | 2,639 | | | Cost is included in construction cost. |
| Bicycle Repair Station | 5 (one per building) | \$2,000 | \$10,000 | \$2,000 per station, as quoted on Greenspoke website³ for their "Freestanding Bike Repair Post" |
| Unbundling of Parking Spaces | N/A | | | No cost associated with this measure |
| Information Package | 5,264 | \$10 | \$52,640 | Package of transportation information provided to new residents at the time of purchase |
| - | TOTAL | | \$325,840 | |

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³ https://gogreenspoke.com/products/repair-post/

10 RESPONSES TO COMMENTS

Transportation comments received in response to the pre-submission application have been reproduced in **blue** below, with our responses provided below each comment.

10.1 CITY OF PICKERING, CITY DEVELOPMENT (JULY 31, 2024)

Comment 22: All public and private streets (proposed through Phase 1 and the future build-out within the larger landholdings) are to be designed in accordance with the Intensification Plan and Draft Urban Design Guidelines. The proposed public street layout varies from what is shown in the Intensification Plan. The rationale for the proposed public road stems from the fact that the Intensification Plan seeks the provision of a new and improved road network for multiple modes of transportation, providing access to multiple development blocks, park space, and serving as right of ways (conduits) for underground municipal infrastructure, integrated with secondary network of private streets and laneways. The Intensification Plan illustrates the future east-west public street to the north, with the proposed public park to the south of the proposed right-of-way (ROW). The applicant has shown the proposed public ROW as part of Phase 3, which staff would prefer connections from Walnut Lane to be introduced as part of Phase 1, in keeping with the Intensification Plan.

Response: Since the pre-submission, revisions were made to the proposed internal road network, please refer to the revised plans (including the phasing plans for each phase). While the full extent of the public roadways within the site are intended to be built as part of Phase 4, there will be road connections from all of the buildings to both Walnut Lane and Dixie Road in all phases using a combination of both new public and private roadways and existing drive aisles within the site and the neighbouring property to the west.

For example, as part of Phase 1, the following road connections will be available for the new building:

- Direct right-in/right-out access to Kingston Road;
- Access to Walnut Lane through a portion of Public Street B; and
- Access to Dixie Road through the existing drive aisles.

Comment 23: Phase 3 of the proposed Phasing Plan illustrates a 20 metre east-west public ROW, which is proposed to connect south from Walnut Lane to Dixie Road. Although staff acknowledge for conceptual purposes this illustrates a street connection as shown within the Intensification Plan, the proposal cannot identify development and infrastructure outside of its development limits. Please identify that the proposed ROW proposed outside of the property owner's limits is for conceptual purposes to illustrate a potential future road connection.

Further, consideration should be given on the termination of the proposed eastwest public ROW to the western property limits, should the lands to the west not develop at a concurrent timeline of the subject lands. The termination of the public ROW should be appropriately designed to accommodate turning movements of emergency and waste removal vehicles, and consideration should be provided for both interim and future connections to the adjacent lands. Staff have had communication with the adjacent landowner lands the west, and concerns were expressed in relation to the proposed road pattern, and how this may impact existing cross-use access easements, and access between the two properties. The applicant is requested to engage in discussion with the adjacent landowner to the west with regards to the concerns.

Response: The development plans has been revised to show the existing driveway connections to Dixie Road (covered under existing access easements), which are intended to be maintained until such time as new connections are constructed as part of the future redevelopment of the neighbouring property to the west.

Comment 24: The DUDG within Figure 85 identifies a new primary street (public) connecting Walnut Lane to the west, two secondary streets which connect Walnut Lane to the south to a service street, and to the east. Section 4.5.1 of the DUDG identifies that Primary Streets shall have a distinctive urban character and should be designed as complete streets with consideration given to the needs of pedestrians, cyclists, transit users and drivers. Travel lanes should be designed with a minimum width of 3.5 metres and should be provided in both directions of travel, and should be designed to prioritize public transit facilities, such as stops, shelters and dedicated lanes. The applicant is referred to the cross section as illustrated in Figure 91 of the DUDG. Secondary Streets are shown as medium or low-capacity roads that act as local connectors, taking on more neighbourhood-oriented scale and character while creating links between local destinations and surrounding neighbourhood areas, the applicant is directed to Section 4.5.2 of the DUDG for further policy direction.

Response: In the revised plans, Public Street A has been designed with a 20-metre right-of-way in order to accommodate the intended functions of the new primary street per the DUDG.

Comment 25: Accessible paths of travel shall be provided through the site including pedestrian connections to street networks, public transit, POPS and other outdoor amenity spaces.

Response: Sidewalks are provided along the proposed public and private streets in order to fulfill this function.

Comment 26: Please indicate which proposed ROWs are to be subject to easements in favour of lands to the west. Staff will require these easements be secured as part of the conditions of approval. In accordance with Section 2.4 Grading and Access of the DUDG, the guidelines identify that access off Kingston Road shall be minimized. Accesses should be developed with a coordinated approach across landowners to ensure that clear accessways are maintained, no properties are landlocked, and all lots have viable connections back to public roads.

Response: The development plans has been revised to show the existing driveway connections to Dixie Road (covered under existing access easements), which are intended to be maintained until such time as new connections are constructed as part of the future redevelopment of the neighbouring property to the west.

Comment 27: Staff are concerned that the parking rates proposed for residential units and visitors may not be sufficient to support the development. The submitted Traffic Impact Study (TIS) provides 0.6 spaces per residential unit and 0.5 spaces per visitor parking spaces. The proposed parking rates are considerably less than the City Centre Zoning By-law 7553/17, which provides a residential parking rate of 0.8 spaces per unit.

The TIS justifies the reduced rate by identifying that City File A 07/22 located at 1786-1790 Liverpool Road, consisting of a 48-storey building with 594 residential units and 190 square metres of commercial space, provides a parking supply of 0.55 spaces per unit and a non-residential parking supply of 3.3 spaces per 100 square metres of GFA. However, staff are of the opinion that these parking ratios may not be appropriate for the subject development proposal due to the difference in scale of the developments, and given the subject lands are located outside of the City Centre and is not within convenient walking distance to the GO Station.

Response: Generally, the per-unit demand for parking decreases as the density of a site increases, especially when complementary uses (such as commercial uses) are included in the site. As such, this development's substantially larger scale (with 5,264 units and 6,585 m² of commercial space) would, if anything, result in a lower parking demand rate than that of the 1786-1790 Liverpool Road development.

While this site is not as close to the Pickering GO Station as 1786-1790 Liverpool Road, it is still within a walkable distance of approximately 1 km (about 13 minutes of walking) from the station. Additionally, this site is closer to the Kingston Road corridor, which will soon have a BRT line and cycle tracks running along it.

Therefore, WSP maintains the opinion that this proposed development is likely to have a similar or lower parking demand than the approved nearby development at 1786-1790 Liverpool Road.

Comment 28: Please submit a Parking Justification Study with the next submission to support the proposed parking rates and shared parking formula. Please submit a Terms of Reference to be reviewed and approved by the City.

Response: Please refer to the response to comment 27 above and to Section 8.1 of this report.

Comment 29: Staff note that there does not appear to be any surface/at-grade parking to support the proposed daycare facility, commercial, and retail uses, as well as the proposed park space. Staff advise that an appropriate amount of surface parking for these uses should be incorporated, particularly from an accessibility perspective. Section 2.5.1 of the DUDG identifies to achieve a vibrant district and to minimize the need for parking lots that have greater impacts on the pedestrian realm, on-street parking is encouraged on public and private roads in

strategic locations. These includes destinations such as community facilities, parks and grade-retailed retail uses.

Response: The development is no longer proposed to include a daycare facility. It is anticipated that some lay-by parking will be provided along the proposed streets to serve the retail uses and park spaces. The exact quantity and locations of these spaces are to be determined at a later stage.

10.2 CITY OF PICKERING, ENGINEERING SERVICES (AUGUST 9, 2024)

Transportation & Traffic Comments

Comment 2: Show the roads to be constructed for each phase and provide the lane configurations for each phase of development.

Response: Please refer to the phasing plans for the roads to be constructed in each phase. All internal intersections are to be designed with a single lane in each approach.

Comment 3: The layout of the internal existing roads for Phase 1 works appears to be different than the existing site road layout conditions. Review and confirm the layout of the internal street or proposed layout. Provide an explanation as how the access near the bend of Phase 1 Park to the site parking will be provided. Also, provide suitable signage as required at the bend. Provide existing pavement /proposed widths for review.

Response: The phasing plan for Phase 1 has been revised to clearly indicate the new road construction and to better align with existing accesses.

Comment 4: Correct the spelling of Dunbarton Road as it is incorrectly spelled as Dunbar Road in the first paragraph on page 17.

Response: Noted, this has been corrected in this report.

Comment 5: As per the Walnut Lane Extension Environmental Assessment recommendations, the intersection of Walnut Lane and Kingston Road will not allow northbound through movement. Use the latest detailed design for Walnut Lane, and revise all the traffic volume assignments, traffic analysis, and the overall report accordingly on Section 3.2 and Figure 3-6.

Response: The traffic volume forecasting in this report has been revised to not include any volumes on the northbound through movement at Kingston Road & Walnut Lane.

Comment 6: The detailed design for Walnut Lane shows two northbound through lanes and one dedicated northbound left-turn lane at the intersection of Liverpool Road and Highway 401 WB Off-Ramp / Walnut Lane. Use the latest detailed design for the Walnut Lane extension and revise the traffic analysis and report accordingly on Section 3.3.

Response: For the 2028 horizon, the traffic analysis has been revised to model the intersection of Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp in accordance with the detailed design for Walnut Lane (with two northbound through

lanes and one northbound left-turn lane). For the 2033 and later horizons, it is assumed that a third northbound through lane will be added to the intersection as part of the Region's widening of Liverpool Road, as detailed in Section 3.3 of this report.

Comment 7: Include a review of the City's 2021 Integrated Transportation Master Plan for the planned active transportation network improvements in Section 3.5.

Response: Section 3.5 of this report has been revised to include the nearby active transportation network improvements proposed in the City's Integrated Transportation Master Plan.

Comment 8: The internal roadway network at Intersection B shows that there will not be any eastbound left-turn traffic. Confirm and provide an explanation why there is no eastbound left turning volumes assigned and update Figure 8-1 according.

Response: The internal site traffic assignment has been revised to include volumes for the eastbound left-turn movement at intersection B.

Comment 9: On Figure 8-2, it shows that there will be westbound left and right turns allowed at the internal road network intersection labelled C. However, Figure 8-1 has not estimated any traffic volume for the westbound left-turn movement. Please confirm and provide an explanation for why this is.

Response: The internal site traffic assignment has been revised to include volumes for the westbound left-turn movement at intersection C.

Comment 10: In Section 8.2, confirm if a traffic control warrant was performed for the intersection of Dixie Road and the proposed east-west 20m ROW wide roadway analyzed. Provide an explanation for why this intersection was not part of the traffic analysis and confirm if it should be included in the traffic analysis.

Response: The development plans has been revised to show the existing driveway connections to Dixie Road (covered under existing access easements), which are intended to be maintained until such time as new connections are constructed as part of the future redevelopment of the neighbouring property to the west. The intersection of the existing driveway with Dixie Road has been added to the traffic analysis; no traffic control changes have been considered for this intersection given its interim state and its close proximity to Kingston Road.

Comment 11: Provide a pavement marking and signage plan (including traffic controls) and ensure the curb radius and cross-sections dimensions such as pavement, sidewalk, MUP, and public right-of-way widths are included.

Response: A pavement marking and signage plan is to be prepared at a later stage.

Comment 12: Ensure the proposed sidewalks are designed as per the crosssection requirements from the City's standard design drawings.

Response: Noted.

Comment 13: Ensure the site plan and all associated design drawings reflect the latest detailed design for Walnut Lane.

Response: Noted.

Comment 14: Show the existing and future right-in/right-out access as per the traffic impact study Figure 3-3 on all site plan and associated design drawings.

Response: The site plan has been revised to note that the private driveway access off of Kingston Road is to remain right-in/right-out.

Comment 15: Confirm if pedestrian crossing facilities are needed as per the requirements in the OTM Book 15.

Response: Given the recommended provision of all-way stop control at almost all of the internal intersections (warranted per OTM Book 5 as indicated in Section 6.2 of this report) and the short distances between the intersections, mid-block pedestrian crossings are not recommended at any location within the development.

Comment 16: Clearly label on the site plans which roads are public and which roads are private and their limits. Also confirm the Dixie Road right-of-way north and south of Kingston Road as it seems narrow at this location.

Response: It is proposed that the entirety of Street A and Street B (as indicated on the plan) be public roads, with all other internal roadways being private. No changes to Dixie Road are proposed as part of this development.

Comment 17: Provide a parking plan for any proposed on-street parking.

Response: An on-street parking plan is to be prepared at a later stage.

10.3 REGION OF DURHAM (OCTOBER 17, 2024)

Comment: The project, consisting of 14 towers across 6 buildings (3 residential and 3 mixed-use), will be executed in 4 phases. The TIS report should detail the anticipated start dates and trip generation estimates for each phase, incorporating these into background traffic scenarios.

Response: Given the large scale of this development and the existing retail uses, it is not possible to provide specific dates for each phase. Therefore, it has been conservatively assumed that the first phase will be constructed by the 2028 horizon and that all subsequent phases will be constructed by the 2033 horizon. It is acknowledged that this study will need to be updated as part of each phase's SPA application, at which point these assumptions will be revised.

Comment: The Study is to include a site visit to observe existing infrastructure and operations for all travel modes. Key observations are to be included in the report, including any observed operational or safety issues. Observations of existing traffic operations (ex., queue lengths) should be used to validate the existing conditions Synchro analysis results.

Response: A site visit was undertaken in September 2023 in order to observe the existing infrastructure throughout the study area. Additionally, weekday peak hour video recordings from the turning movement counts at the intersections of Liverpool Road & Kingston Road, Kingston Road & Walnut Lane, and Kingston Road & Dixie Road have

been reviewed to identify any operational and safety issues. The observations from the site visit and video recordings have been incorporated into this report; no safety issues have been identified.

Comment: There is no discussion on whether the proposed access points will be operational from the outset or introduced in phases. Please provide these details.

Response: Please refer to the phasing plans for full details on when access points will be constructed.

Comment: Subsequent phases will require updated studies to reassess assumptions, findings, and design improvements. The TIS must specifically note the need for these follow-up studies.

Response: A note to this effect has been added to the conclusions of this report.

Comment: Section 3.3 proposes a left/U-turn lane at Liverpool Road and Kingston Road. The Region notes that left/U-turn movements will be permitted with the implementation of the BRT.

Response: Noted.

Comment: Section 4 indicates that queue lengths will exceed capacity during peak hours for 2028 and 2033 scenarios. Provide actionable recommendations to address these issues to prevent queue spill-back in all future scenarios.

Response: Proposed traffic signal timings have been optimized to improve traffic operations, including queueing. It should be noted that the indicated future queueing results are conservative as the future scenarios assume a peak hour factor (PHF) of 0.92. In reality, as traffic conditions become more congested, PHFs tend to approach 1.00 as traffic becomes more evenly spread out. Therefore, the actual queues under future conditions are expected to be shorter than indicated.

Comment: The Study discusses queue lengths using both the 50th and 95th percentiles, noting that while 95th percentile queue lengths exceed available storage at some locations, the 50th percentile does not, suggesting that the impact is limited. However, relying on the 50th percentile to determine storage adequacy is problematic, particularly during peak times. During peak periods, when capacity and safety issues are most critical due to high volumes, any overflow that exceeds storage can cause operational disruptions and safety hazards. Therefore, it is recommended that queue length requirements for storage be based on the 95th percentile to ensure that the road network can accommodate traffic volumes during these peak periods without causing spill-back that could block through lanes.

Response: While 95th percentile queue lengths are an appropriate standard for designing storage lanes on new roadways, applying this approach to existing roads in urban areas is not practical as it is generally not feasible to make geometric changes to such roads. Additionally, in urban conditions such as in the area of this site, queue spillbacks do not represent a safety concern as drivers expect to encounter queued vehicles in through lanes, especially in proximity to signalized intersections. Finally, a spillback of a left-turn queue onto a through lane typically does not cause operational

disruptions and delays to through vehicles given that queue spillbacks occur at the end of the green phase and in the next cycle's advanced left-turn phases, allowing for the spillback to be cleared before the start of the green phases for through movements.

Comment: There is an inconsistency between the Study's recommendation to prohibit the northbound through movement at Walnut Lane / Kingston Road and the traffic analysis, which does not enforce this in the model. Section 7 and associated figures incorrectly show through movements at Walnut Lane and Kingston Road. This should be corrected to restrict northbound through traffic from Walnut Lane.

Response: The traffic analysis in this report has been revised to remove the northbound through movement at Kingston Road & Walnut Lane.

Comment: Section 8.2 - The proposed spacing of the side street connection to Dixie Road south leg is acceptable however, Dixie Road's south leg should be evaluated for realignment to minimize or remove the negative offset where feasible.

Response: The development plans has been revised to show the existing driveway connections to Dixie Road (covered under existing access easements), which are intended to be maintained until such time as new connections are constructed as part of the future redevelopment of the neighbouring property to the west. Any potential changes to the alignment of Dixie Road should be considered as part of the redevelopment of the neighbouring property.

Comment: Section 9 should outline the developer's commitments to implementing proposed TDM measures.

Response: Further information regarding the developer's commitments to implementing the proposed TDM measures, including the estimated costs of the TDM measures, is included in Section 9 of this report.

Comment: It is highly recommended that the TIS recognize the existing school north of Walnut Lane, which could draw additional traffic from the development, especially during peak school hours. Given the high-density character of the development, there may be a need for new educational facilities in the area. The TIS should discuss this in the report.

Response: The generated quantity of residential site trips, as determined based on surveyed rates provided by the Institute of Transportation Engineers and mode splits based on data from the Transportation Tomorrow Survey and other studies, encompass all expected home-based trips, including trips to and from schools. As a school has not been proposed within the development site, it is currently unknown which schools will serve the development and whether school buses will be used to transport students. Therefore, it is not possible to specifically assign school trips in the traffic analysis.

Comment: For the 76,951 square foot shopping centre trip generation, the Study utilized the average rate which amounted to 262 total vehicle trips generated during the PM peak hour. However, ITE guidance recommends using the fitted curve equation, which results in 468 trips. Given the significant discrepancy,

please update the analysis to use the fitted curve equation for a more accurate trip generation estimate of the shopping centre.

Response: Section 5.1 of this report has been updated to use the fitted curve equation for the p.m. peak hour trip generation for the retail use; no fitted curve equation is available for the a.m. peak hour.

Comment: The Region is agreeable to using a 130 second cycle length.

Response: Noted.

Comment: Fully protected left turn phases require a minimum 2 second all-red phase. Please update the model.

Response: The modelling has been updated accordingly.

Comment: Operation of the EBR at Walnut & Liverpool - Along with operating as an overlap with the NBL, it will also operate with its own phase 4 (split from phase 8 WB). This will be to activate when there is no demand to the NBL. We recommend using delay on the stop bar detector.

Response: Per the PHM-125 drawing prepared for the intersection of Liverpool Road & Walnut Lane / Highway 401 WB Off-Ramp as part of the Walnut Lane detailed design, the eastbound approach is to be equipped with Type 3 signal heads, which only allow for fully-protected right-turns. As such, the only movements that can occur simultaneously to the eastbound right-turn are the northbound left-turn and through movements. Therefore, the most efficient signal phasing arrangement is to have the eastbound right-turn phase occur alongside the northbound left-turn phase, with the detectors on both of those lanes serving to call and extend the phase.

Comment: Adding a NBL advance at Kingston Road and Walnut Lane will require a ATCC cabinet with the BRT construction. 16 channel cabinets will not accommodate the side street advances with the transit and bike phases. The current plan for the BRT does not include an ATCC cabinet at this intersection. A sensitivity analysis should show the impact of not having the NBL advance under future conditions including the NBL storage requirements.

Response: Noted. Given this constraint, the modelling has been revised to no longer include a northbound left-turn phase at Kingston Road & Walnut Lane.

Comment: Additional transportation planning comments are provided for the proposed development:

The applicant should demonstrate how they support active transportation options for residents within the site. Adding cycling facilities, e.g., bike lanes to/from Kingston Road, in addition to bicycle parking (inside/outside) would go a long way to support more sustainable modes of transportation; and

Please identify on a future Site Plan where the bicycle parking spaces are being offered inside the proposed buildings.

Response: As indicated on the Walnut Lane detailed design drawings, a multi-use pathway will be built along Walnut Lane between Kingston Road and Liverpool Road.

The locations of bicycle parking spaces will be identified at the SPA stage.

11 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis contained in this report, our conclusions and recommendations are as follows:

- The proposed development is expected to produce:
 - 2028 a.m. peak hour 137 inbound and 143 outbound vehicle trips;
 - 2028 p.m. peak hour 255 inbound and 243 outbound vehicle trips;
 - 2033/2038/2043 a.m. peak hour 395 inbound and 735 outbound vehicle trips;
 and
 - 2033/2038/2043 p.m. peak hour 897 inbound and 750 outbound vehicle trips.
- The trips associated with the proposed development can readily be accommodated by the road network in all four horizons (following the application of a higher PHF at certain constrained intersections) with the following signal timing improvements:
 - In order to accommodate the combination of background traffic growth, lane configuration changes due to the BRT, and the addition of protected left-turn phases, the cycle length should be increased to 130 seconds at all study intersections along Kingston Road during the p.m. peak hour and at the intersections along Kingston Road between Whites Road and Fairport Road during the a.m. peak hour;
 - An eastbound right-turn phase (overlapping with the existing northbound left-turn phase) should be added during the p.m. peak hour at the intersection of Kingston Road & Liverpool Road; and
 - Various signal phase splits optimizations should be made throughout the study network.
- The proposed parking supply meet the needs of the development.
- All-way stop control is recommended for almost all of the internal intersections, as indicated in **Section 6.1**.
- A summary of the development's recommended TDM strategy is provided in Section 9.2.

Given the large scale of this development, it is acknowledged that updates to this study will be required as part of the SPA application for each phase in order to reassess assumptions, findings, and design improvements.

APPENDIX

A TRAFFIC DATA

Turning Movement Count
Location Name: LIVERPOOL RD & HWY 401 WB RAMPS
Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaakidis

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1 K9 CANADA

| | | | | | | | | | | | | | | Turn | ing Mo | veme | t Coun | t (5 . L | IVERP | OOL RD & HW | Y 401 WB F | RAMPS | 5) | | | | | | | | | | | |
|----------------------|--------------|--------------------|-------------|-------------|------------|----------------|--------------|-------------|-------------------|--------------------|-----------------|------------|----------------|---------------|-------------|-------------|------------------|-------------------|-------|----------------|--------------------|--------------|-------------|----------------------|------------|----------------|--------------|-------------|---------------------------------|---------------|--------------------|---------------------|------------------------|------|
| Start Time | | | LIVE | RPOOL I | RD | | | | | E Appr WB 401 O | oach FF RAME | | | | | | LIVER | proach POOL RE | , | | | | WESTS | Approach DE DRIVI | EWAY | | HWY 4 | | Approach RAMP (NB LIVERPOOL) | нм | SW App VT 401 W | proach B ON RAMP | int. Total (15 min) | |
| Start faire | Right N:W | Bear Right N:SW | Thru N:S | UTum N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Bear Left E:SW | Left E:S | UTum E:E | Peds E: | Approach Total | Right S:SE | Thru S:N | Left S:W | Hard Lef S:SW | S:S | | Approach Total | Hard Right W:SW | Right W:S | Left W:N | W:W | Peds W: | Approach Total | UTum SESE | Peds SE: | Approach Total | UTum SW:SW | Peds SW: | Approach Total | | |
| 07:30:00 | 0 | 106 | 83 | 0 | 0 | 189 | 39 | 0 | 0 | 43 | 0 | 3 | 82 | 91 | 95 | -1. | 0 | 1 | 0 | 188 | 2 | - 1 | 3 | 0 | 2 | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 465 | |
| 07:45:00 | 0 | 119 | 154 | 0 | 0 | 273 | 66 | 0 | 0 | 53 | 0 | 2 | 119 | 80 | 99 | 2 | 0 | 0 | 0 | 181 | 1 | 2 | 2 | 0 | 1 | 5 | 0 | 2 | 0 | 0 | 1 | 0 | 578 | |
| 08:00:00 | 0 | 93 | 140 | 0 | 0 | 233 | 71 | 0 | 0 | 50 | 0 | 4 | 121 | 77 | 138 | 2 | 0 | 0 | 0 | 217 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 573 | |
| 08:15:00 | 0 | 89 | 151 | 0 | 0 | 240 | 86 | 0 | 0 | 43 | 0 | 3 | 129 | 86 | 168 | 3 | 1 | 0 | 0 | 258 | 0 | -1 | 1 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 629 | 2245 |
| 08:30:00 | 0 | 81 | 138 | 0 | 0 | 219 | 74 | 0 | 1 | 43 | 0 | 6 | 118 | 80 | 157 | 2 | 0 | 2 | 0 | 241 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 6 | 0 | 0 | 1 | 0 | 580 | 2360 |
| 08:45:00 | 0 | 72 | 151 | 0 | 0 | 223 | 107 | 2 | 0 | 52 | 0 | 1 | 161 | 74 | 167 | 1 | 0 | .0 | 0 | 242 | 1 | 0 | 2 | 0 | 4 | 3 | 0 | 1 | 0 | 0 | 4 | .0 | 629 | 2411 |
| 09:00:00 | 1 | 91 | 121 | 0 | 0 | 213 | 89 | 1 | 0 | 53 | 0 | 2 | 143 | 58 | 137 | 2 | 0 | 1 | 0 | 198 | 2 | 4 | 4 | 0 | 1 | 10 | 9 | 2 | 0 | 0 | 1 | 0 | 564 | 2402 |
| 09:15:00 ***BREAK | 0 | 82 | 125 | 0 | 0 | 207 | 84 | 0 | 0 | 40 | 0 | 1 | 124 | 67 | 145 | 2 | 0 | 0 | 0 | 214 | 1 | 2 | 4 | 0 | 2 | 7 | 0 | 1.1 | 0 | 0 | 5 | 0 | 552 | 2325 |
| 16:00:00 | 0 | 109 | 189 | 0 | 0 | 298 | 86 | 2 | 2 | 49 | 0 | 2 | 139 | 103 | 210 | 4 | 0 | 1 | 0 | 318 | 2 | 1 | 12 | 0 | 3 | 15 | ò | 2 | 0 | 0 | 4 | .0 | 770 | 1 |
| 16:15:00 | 2 | 116 | 196 | 0 | 0 | 314 | 98 | 5 | 0 | 63 | 0 | 7 | 166 | 132 | 221 | 5 | 0 | 0 | 0 | 358 | 6 | 5 | 8 | 0 | 5 | 19 | 0 | 7 | 0 | 0 | 5 | 0 | 857 | |
| 16:30:00 | 0 | 130 | 195 | 0 | 11 | 325 | 92 | 2 | 1 | 47 | 0 | 4 | 142 | 133 | 224 | 8 | 0 | 0 | 0 | 365 | 3 | 5 | 8 | 0 | 4 | 16 | 0 | 4 | 0 | 0 | 5 | 0 | 848 | |
| 16:45:00 | 0 | 102 | 193 | 0 | 0 | 295 | 99 | 1 | 0 | 52 | 0 | 3 | 152 | 113 | 268 | 6 | 0 | 0 | 0 | 387 | 2 | -1 | 7 | 0 | 4 | 10 | 0 | 3 | .0 | 0 | 7 | 0 | 844 | 3319 |
| 17:00:00 | 0 | 120 | 212 | 0 | 0 | 332 | 107 | 2 | 0 | 76 | 0 | 4 | 185 | 105 | 258 | 3 | 0 | 0 | 0 | 366 | 5 | 7 | 8 | 0 | 5 | 20 | 0 | 4 | 0 | 0 | 6 | 0 | 903 | 3452 |
| 17:15:00 | 1 | 105 | 233 | 0 | 0 | 339 | 106 | 2 | 3 | 85 | 0 | 7 | 196 | 125 | 278 | 8 | 0 | 0 | 0 | 411 | 4 | 3 | 11 | 0 | 6 | 18 | 0 | 8 | 0 | 0 | 6 | 0 | 964 | 3559 |
| 17:30:00 | 1 | 102 | 249 | 0 | 0 | 352 | 93 | 3 | 0 | 65 | 0 | 1 | 161 | 86 | 251 | 8 | 0 | 0 | 0 | 345 | 4 | 5 | 10 | 0 | 2 | 19 | 0 | 1 | 0 | 0 | 2 | 0 | 877 | 3588 |
| 17:45:00 | 0 | 103 | 227 | 0 | 0 | 330 | 92 | 3 | 0 | 60 | 0 | 4 | 155 | 70 | 251 | 4 | 0 | 0 | 0 | 325 | 2 | 2 | 14 | 0 | 6 | 18 | 0 | 4 | 0 | 0 | 8 | 0 | 828 | 3572 |
| Grand Total | 5 | 1620 | 2757 | 0 | 1 | 4382 | 1389 | 23 | 7 | 874 | 0 | 54 | 2293 | 1480 | 3067 | 61 | 1 | 5 | 0 | 4614 | 35 | 40 | 97 | 0 | 48 | 172 | 0 | 55 | 0 | 0 | 55 | 0 | 11461 | |
| Approach% | 0.1% | 37% | 62.9% | 0% | | | 60.6% | 1% | 0.3% | 38.1% | 0% | | - | 321% | 66.5% | 1.3% | 0% | 0.1% | | | 20.3% | 23.3% | 56.4% | 0% | | | 0% | | | 0% | | - 14 | | - |
| Totals % | 0% | 14.1% | 24.1% | 0% | | 38.2% | 12.1% | 0.2% | 0.1% | 7.6% | 0% | | 20% | 129% | 26.8% | 0.5% | 0% | 0% | | 40.3% | 0.3% | 0.3% | 0.8% | 0% | | 1.5% | 0% | | 0% | 0% | | 0% | 1.25 | 2 |
| Heavy | 0 | 23 | 62 | 0 | | (7. | 19 | 1 | 1 | 8 | 0 | | • | 81 | 66 | 3 | 0 | 0 | | - | 2 | 2 | 0 | 0 | | 7 | 0 | | - | 0 | | | | |
| Heavy % | 0% | 1.4% | 22% | 0% | | 7. | 1.4% | 4.3% | 14.3% | 0.9% | 0% | | 4 | 5.5% | 2.2% | 4.9% | 0% | 0% | | - | 5.7% | 5% | 0% | 0% | | - | 0% | | - | 0% | | | | - |
| Bioycles | 0 | 1 | 4 | 0 | | | 0 | 0 | 0 | 0 | 0 | | | 1 | 13 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | | 71 | 0 | | - | 0 | | | | |
| Bicycle % | 0% | 0.1% | 0.1% | 0% | | | 0% | 0% | 0% | 0% | 0% | | (*) | 0.1% | 0.4% | 0% | 0% | 0% | | | 0% | 0% | 0% | 0% | | | 0% | | | 0% | | | | |

Turning Movement Count Location Name: LIVERPOOL RD & HWY 401 WB RAMPS Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaakids

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1 K9 CANADA

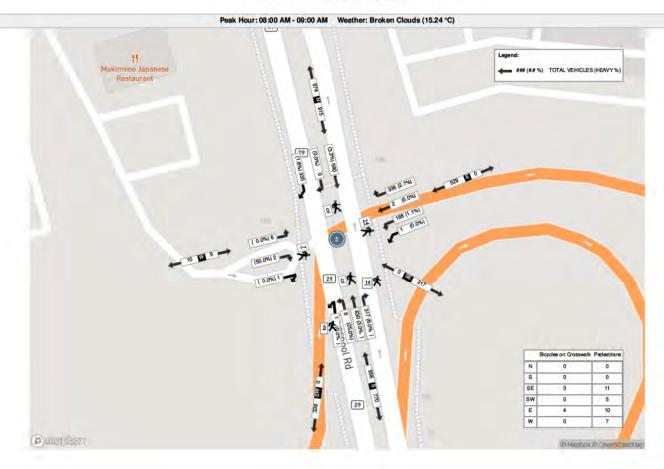
| | | | | | | | | | | | | | Peak I | Hour: 0 | 8:00 AI | M - 09: | MA OC | Weath | er: Br | oken Clouds (| 15.24 °C) | | | | | | | | | | | | |
|------------------------|-------|------------|-------|-------------------|---------|----------------|-------|------|-----------|--------------------|------------------|------|----------------|---------|---------|---------|---------|--------|--------|----------------|------------|-------|-------|----------|-------|----------------|------|-------|-------------------------------|------|---------|-----------------------|-----------------------|
| Start Time | | | LIVE | Approaci RPOOL | h RD | | | | | E Appr WB 401 O | roach FF RAME | , | | | | | SAPP | OOL RD | | | | | WESTS | Approach | EWAY | | HWY | SE A | pproach AMP (NB LIVERPOOL) | | SWA | pproach WB ON RAMP | int. Tota (15 min) |
| | Right | Bear Right | Thru | UTum | Peds | Approach Total | Right | Thru | Bear Left | Left | UTum | Peds | Approach Total | Right | Thru | Left | Hard Le | t UTum | Peds | Approach Total | Hard Right | Right | Left | UTum | Peds | Approach Total | UTum | Peds | Approach Total | UTum | Peds | Approach Total | |
| 08:00:00 | 0 | 93 | 140 | 0 | 0 | 233 | 71 | 0 | 0 | 50 | 0 | 4 | 121 | 77 | 138 | 2 | 0 | 0 | 0 | 217 | 0 | 0 | 2 | 0 | -1- | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 573 |
| 08:15:00 | 0 | 89 | 151 | 0 | 0 | 240 | 96 | 0 | 0 | 43 | 0 | 3 | 129 | 86 | 168 | 3 | -1 | 0 | 0 | 258 | 0 | 1 | 1 | 0 | 1. | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 629 |
| 08:30:00 | 0 | 81 | 138 | 0 | 0 | 219 | 74 | 0 | 1 | 43 | 0 | 6 | 118 | 80 | 157 | 2 | 0 | 2 | 0 | 241 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 6 | . 0 | 0 | 1 | 0 | 580 |
| 08:45:00 | 0 | 72 | 151 | 0 | 0 | 223 | 107 | 2 | 0 | 52 | 0 | 1 | 161 | 74 | 167 | 1 | 0 | 0 | 0 | 242 | 1 | 0 | 2 | 0 | 4 | 3 | 0 | 11-1 | 0 | 0 | 4 | 0 | 629 |
| Grand Total | 0 | 335 | 580 | 0 | 0 | 915 | 338 | 2 | 1 | 188 | 0 | 14 | 529 | 317 | 630 | 8 | 1 | 2 | 0 | 958 | 1 | 2 | 6 | 0 | 7 | 9 | 0 | 14 | 0 | 0 | 5 | 0 | 2411 |
| Approach% | 0% | 36.6% | 63.4% | 0% | | | 63.9% | 0.4% | 0.2% | 35.5% | 0% | | - | 33.1% | 65.8% | 0.8% | 0.1% | 0.2% | | | 11.1% | 22.2% | 66.7% | 0% | | | 0% | | | 0% | | - | |
| Totals % | 0% | 13.9% | 24.1% | 0% | | 38% | 14% | 0.1% | 0% | 7.8% | 0% | | 21.9% | 13.1% | 26.1% | 0.3% | 0% | 0.1% | | 39.7% | 0% | 0.1% | 0.2% | 0% | | 0.4% | 0% | | 0% | 0% | | 0% | |
| PHF | 0 | 0.9 | 0.96 | 0 | | 0.95 | 0.79 | 0.25 | 0.25 | 0.9 | 0 | | 0.82 | 0.92 | 0.94 | 0.67 | 0.25 | 0.25 | | 0.93 | 0.25 | 0.5 | 0.75 | 0 | | 0.75 | 0 | | 0 | 0 | | 0 | |
| Heavy | 0 | 6 | 19 | 0 | - | 25 | 9 | 0 | 0 | 2 | 0 | | 11 | 19 | 19 | 2 | 0 | 0 | | 40 | 0 | 1 | 0 | 0 | | 1 | 0 | | 0 | 0 | ******* | 0 | |
| Heavy % | 0% | 1.8% | 3.3% | 0% | | 2.7% | 2,7% | 0% | 0% | 1,1% | 0% | | 2.1% | 6% | 3% | 25% | 0% | 0% | | 4.2% | 0% | 50% | 0% | 0% | | 11.1% | 0% | | 0% | 0% | | 0% | |
| Lights | 0 | 329 | 561 | 0 | ~ | 890 | 329 | 2 | 1 | 186 | 0 | | 518 | 298 | 611 | 6 | 1 | 2 | | 918 | 1 | 1 | 6 | 0 | ***** | 8 | 0 | | 0 | 0 | | 0 | |
| Lights % | 0% | 98.2% | 96.7% | 0% | | 97.3% | 97.3% | 100% | 100% | 98.9% | 0% | | 97.9% | 94% | 97% | 75% | 100% | 100% | | 95.8% | 100% | 50% | 100% | 0% | | 88.9% | 0% | | 0% | 0% | | 0% | |
| Single-Unit Trucks | 0 | 5 | 6 | 0 | | 11 | 4 | 0 | 0 | 1 | 0 | | 5 | 10 | 7 | 1 | 0 | 0 | | 18 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| Single-Unit Trucks % | 0% | 1.5% | 1% | 0% | | 1.2% | 1.2% | 0% | 0% | 0.5% | 0% | | 0.9% | 3.2% | 1.1% | 12.5% | 0% | 0% | | 1.9% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Buses | 0 | 0 | 13 | 0 | | 13 | 2 | 0 | 0 | 1 | 0 | | 3 | 1 | 11 | 0 | 0 | 0 | | 12 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| Buses % | 0% | 0% | 22% | 0% | | 1.4% | 0.6% | 0% | 0% | 0.5% | 0% | | 0.6% | 0.3% | 1.7% | 0% | 0% | 0% | | 1.3% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Articulated Trucks | 0 | 1 | 0 | 0 | | 1 | 3 | 0 | 0 | 0 | 0 | | 3 | 8 | 1 | 1 | 0 | 0 | | 10 | 0 | 1 | 0 | 0 | | 1 | 0 | | 0 | 0 | | 0 | |
| Articulated Trucks % | 0% | 0.3% | 0% | 0% | | 0.1% | 0.9% | 0% | 0% | 0% | 0% | | 0.6% | 2.5% | 0.2% | 12.5% | 0% | 0% | | 1% | 0% | 50% | 0% | 0% | | 11.1% | 0% | | 0% | 0% | | 0% | |
| Pedestrians | | | - | - | 0 | - | - | 1 | 4 | - | | 10 | | | | | - | - | 0 | 100 | | - | - | | 7 | | | 11 | | - | 5 | | 1.6 |
| Pedestrians% | | | | | 0% | | - | | | | | 25% | | 4 | | - | | | 0% | | | | | | 17.5% | | | 27.5% | | G | 125% | | |
| Bloycles on Crosswalk | | | | | 0 | - | | - | | | - | 4 | ~ | | | | | | 0 | 12 | | | | | 0 | - | - | 3 | 1. | 9 | 0 | | |
| Bicycles on Crosswalk% | 7 | 7. | 8 | | 0% | | ₹. | 7 | | 1 | 7 | 10% | | + | * | - | | | 0% | | - | | | | 0% | | 7.5 | 7.5% | | 1.5 | 0% | | 1.7 |
| Bicycles on Road | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 4 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | - | 0 | 0 | ~ | 1.5 |
| Bicycles on Road% | | | - | - | 0% | | | | | | | 0% | | | | - | | | 0% | | | | | | 0% | | - | 0% | | - | 0% | | |

Turning Movement Count Location Name: LIVERPOOL RD & HWY 401 WB RAMPS Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaakids

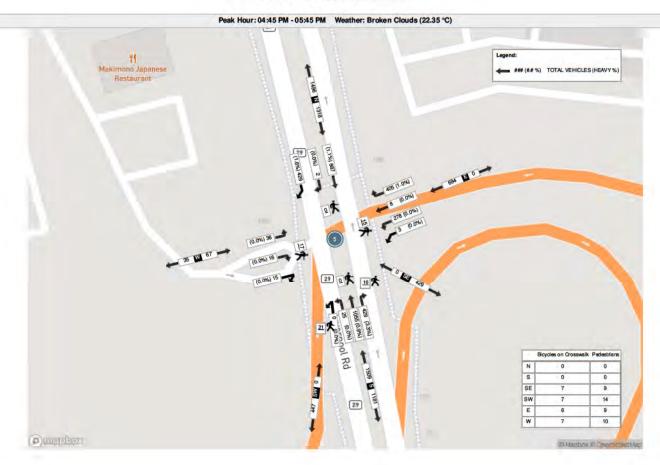
BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1 K9 CANADA

| | | | | | | | | | | | | | Peak I | lour: 0 | 4:45 PM | A - 05: | 15 PM | Weath | her: Br | oken Clouds (2 | 22.35 °C) | | | | | | | | | | | | |
|------------------------|-------|------------|-------|-------------------|---------|----------------|-------|------|-----------|-------------------|-------------------|------|----------------|---------|---------|---------|-----------|-----------------|---------|----------------|------------|-------|-------|----------------------|--------|----------------|------|-------------------|--------------------------------|------|--------|----------------------|------------------------|
| Start Time | | | LIVE | Approact RPOOL | n RD | | | | | E App WB 401 0 | oroach OFF RAM | IP . | | | | | S App | roach OOL RD | | 7 | | | WESTS | Approach DE DRIVE | EWAY | | HWY | SEA 401 WBON F | pproach IAMP (NB LIVERPOOL) | | SW Ap | proach /B ON RAMP | int. Total (15 min) |
| | Right | Bear Right | Thru | UTum | Peds | Approach Total | Right | Thru | Bear Left | Left | UTum | Peds | Approach Total | Right | Thru | Left | Hard Left | UTun | n Peds | Approach Total | Hard Right | Right | Left | UTum | Peds | Approach Total | UTum | Peds | Approach Total | UTum | Peds | Approach Total | |
| 16:45:00 | 0 | 102 | 193 | 0 | 0 | 295 | 99 | 1 | 0 | 52 | 0 | 3 | 152 | 113 | 268 | 8 | 0 | 0 | 0 | 387 | 2 | 1 | 7 | 0 | 4 | 10 | 0 | 3 | 0 | 0 | 7 | 0 | 844 |
| 17:00:00 | 0 | 120 | 212 | 0 | 0 | 332 | 107 | 2 | 0 | 76 | 0 | 4 | 185 | 105 | 258 | 3 | 0 | 0 | 0 | 366 | 5 | 7 | 8 | 0 | 5 | 20 | 0 | 4 | 0 | 0 | 6 | 0 | 903 |
| 17:15:00 | 1 | 105 | 233 | 0 | 0 | 339 | 106 | 2 | 3 | 85 | 0 | 7 | 196 | 125 | 278 | 8 | 0 | 0 | 0 | 411 | 4 | 3 | 11 | 0 | 6 | 18 | 0 | 8 | . 0 | 0 | 6 | 0 | 964 |
| 17:30:00 | 1 | 102 | 249 | 0 | 0 | 352 | 93 | 3 | 0 | 65 | 0 | 1 | 161 | 86 | 251 | 8 | 0 | 0 | 0 | 345 | 4 | 5 | 10 | 0 | 2 | 19 | 0 | - 1 | 0 | 0 | 2 | 0 | 877 |
| Grand Total | 2 | 429 | 887 | 0 | 0 | 1318 | 405 | 8 | 3 | 278 | 0 | 15 | 694 | 429 | 1055 | 25 | 0 | 0 | 0 | 1509 | 15 | 16 | 36 | 0 | 17 | 67 | 0 | 16 | 0 | 0 | 21 | 0 | 3588 |
| Approach% | 0.2% | 32.5% | 67.3% | 0% | | | 58.4% | 1.2% | 0.4% | 40.1% | 0% | | | 28.4% | 69.9% | 1.7% | 0% | 0% | | • | 22.4% | 23.9% | 53.7% | 0% | | | 0% | | | 0% | | - | - |
| Totals % | 0.1% | 12% | 24.7% | 0% | | 36.7% | 11.3% | 0.2% | 0.1% | 7.7% | 0% | | 19.3% | 12% | 29.4% | 0.7% | 0% | 0% | | 42.1% | 0.4% | 0.4% | 1% | 0% | | 1.9% | 0% | | 0% | 0% | | 0% | 4.4 |
| PHF | 0.5 | 0.89 | 0.89 | 0 | | 0.94 | 0.95 | 0.67 | 0.25 | 0.82 | 0 | | 0.89 | 0.86 | 0.95 | 0.78 | 0 | 0 | | 0.92 | 0.75 | 0.57 | 0.82 | 0 | | 0.84 | 0 | | 0 | 0 | | 0 | |
| Heavy | 0 | 7 | 10 | 0 | | 17 | 4 | 0 | 0 | 0 | 0 | | 4 | 14 | 9 | 0 | 0 | 0 | | 23 | 0 | 0 | 0 | 0 | ****** | 0 | 0 | | 0 | 0 | ****** | 0 | |
| Heavy % | 0% | 1.6% | 1,1% | 0% | | 1.3% | 1% | 0% | 0% | 0% | 0% | | 0.6% | 3.3% | 0.9% | 0% | 0% | 0% | | 1.5% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Lights | 2 | 422 | 877 | 0 | | 1301 | 401 | 8 | 3 | 278 | 0 | | 690 | 415 | 1046 | 25 | 0 | 0 | | 1486 | 15 | 16 | 36 | 0 | ***** | 67 | 0 | | 0 | 0 | | 0 | |
| Lights % | 100% | 98.4% | 98.9% | 0% | | 98.7% | 99% | 100% | 100% | 100% | .0% | | 99.4% | 96.7% | 99.1% | 100% | 0% | 0% | | 98.5% | 100% | 100% | 100% | 0% | | 100% | 0% | | 0% | 0% | | 0% | |
| Single-Unit Trucks | 0 | 5 | 4 | 0 | | 9 | 3 | 0 | 0 | 0 | 0 | | 3 | 4 | 2 | 0 | 0 | 0 | | 6 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| Single-Unit Trucks % | 0% | 1.2% | 0.5% | 0% | | 0.7% | 0.7% | 0% | 0% | 0% | 0% | | 0.4% | 0.9% | 0.2% | 0% | 0% | 0% | | 0.4% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Buses | 0 | 1 | 6 | 0 | | 7 | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 7 | 0 | 0 | 0 | | 8 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| Buses % | 0% | 0.2% | 0.7% | 0% | | 0.5% | 0% | 0% | 0% | 0% | 0% | | 0% | 0.2% | 0.7% | 0% | 0% | 0% | | 0.5% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Articulated Trucks | 0 | -1 | 0 | Ó | | 1 | 1 | 0 | 0 | 0 | 0 | | 1 | 9 | 0 | 0 | 0 | 0 | | 9 | 0 | Ó | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| Articulated Trucks % | 0% | 0.2% | 0% | 0% | | 0.1% | 0.2% | 0% | 0% | 0% | 0% | | 0.1% | 2.1% | 0% | 0% | 0% | 0% | | 0.6% | 0% | 0% | 0% | 0% | | 0% | 0% | | 0% | 0% | | 0% | |
| Pedestrians | - | - | 4 | | 0 | 4 | | - | - | | - 4 | 9 | 1 | | - | - | - | - | 0 | 12 | 4 | | 4 | - | 10 | - | - | 9 | | - | 14 | | |
| Pedestrians% | - | | | | 0% | | - | | | | | 13% | | | | | - | | 0% | | | | | | 14.5% | | | 13% | | Gel | 20.3% | | |
| Bloycles on Crosswalk | | | | | 0 | 2 | - | | | - | | 6 | | | - | | - | | 0 | 12 | | | | - | 7 | | | 7 | | - | 7 | | |
| Bicycles on Crosswalk% | | 8 | 17 | 8 | 0% | | 7 | | 15 | 7 | 18 | 8.7% | | | - | 3. | - 5 | - | 0% | | - | | | - | 10.1% | | 1 | 10.1% | | 7 | 10.1% | | |
| Bloydes on Road | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | .0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | | 0 | 0 | | 1.5 |
| Biovoles on Road% | | - | | | 0% | | | - | - | | | 0% | | | - | | - | | 0% | | | | | | 0% | | - | 0% | | | 0% | | |









Turning Movement Count Location Name: LIVERPOOL RD & PICKERING PKWY Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaaakkiis

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1K9 CANADA

| | | | | | | | | | 1 | Turning | Movem | ent Count (3. | LIVERPO | OOL RD | & PICI | CERING | PKWY |) | | | | | | | | |
|-------------|---------------|-------------|-------------|-------------|------------|----------------|--------------|-------------|-------------|-------------|------------|----------------|--------------|-------------|-------------|-------------|------------|----------------|--------------|-------------|-------------|-------------|--------------|----------------|------------------------|---------|
| Start Time | | | ı | N Approac | h RD | | | | PI | E Approso | ch PKWY | | 7 | | | S Approac | h .RD | | | | | W Appro | ach CCESS | | Int. Total (15 min) | Int. To |
| Start Time | Flight N:W | Thru N:S | Left N;E | UTum N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | UTum E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | UTum S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | UTum W:W | Peds W: | Approach Total | | |
| 07:30:00 | 4 | 155 | 29 | 0 | 4 | 188 | .11 | 4 | 29 | 0 | 3 | 44 | 20 | 107 | 3 | 0 | 0 | 130 | 2 | 0 | 2 | 0 | .1. | 4 | 366 | |
| 07:45:00 | 4 | 218 | 36 | 0 | 3 | 258 | 15 | 1 | 61 | 0 | 2 | 77 | 36 | 123 | 8 | 0 | 0 | 167 | 4 | 1 | 2 | 0 | 1. | 7 | 509 | |
| 08:00:00 | 10 | 180 | 26 | 1 | 1 | 217 | 11 | 3 | 55 | 0 | 2 | 69 | 42 | 163 | 9 | 0 | 0 | 214 | 7 | 2 | 0 | 0 | 2 | 9 | 509 | |
| 08:15:00 | 5 | 176 | 33 | 1 | 2 | 215 | 16 | 1 | 57 | 2 | 3 | 76 | 71 | 179 | 9 | 0 | 0 | 259 | 5 | 1 | 4 | 0 | 5 | 10 | 560 | 194 |
| 08:30:00 | 4 | 153 | 25 | 2 | 1 | 184 | 14 | 5 | 53 | 0 | 5 | 72 | 56 | 161 | 8 | 0 | 0 | 225 | 10 | 6 | 3 | 0 | 0 | 19 | 500 | 207 |
| 08:45:00 | 11 | 165 | 47 | 3 | 4 | 226 | 13 | 6 | 46 | 1 | 2 | 66 | 87 | 182 | 17 | 0 | 0 | 286 | 12 | 4 | 2 | 0 | 3 | 18 | 596 | 216 |
| 09:00:00 | 4 | 174 | 41 | 0 | 0 | 219 | 16 | 7 | 36 | 0 | 1 | 59 | 58 | 159 | 14 | 0 | 0 | 231 | 9 | 6 | 1 | 0 | 2 | 16 | 525 | 218 |
| 09:15:00 | 11 | 161 | 31 | 0 | 4 | 203 | 16 | 6 | 42 | 0 | 4 | 64 | 53 | 155 | 18 | 0 | 0 | 226 | 15 | 6 | 6 | 0 | 4 | 27 | 520 | 214 |
| 16:00:00 | 15 | 192 | 29 | 0 | 4 | 236 | 34 | 15 | 77 | 0 | 8 | 126 | 78 | 196 | 26 | 2 | 0 | 302 | 36 | 8 | 20 | 0 | 6 | 64 | 728 | 10 |
| 16:15:00 | 7 | 210 | 42 | 3 | 10 | 262 | 37 | .8 | 86 | 0 | 9 | 131 | 75 | 237 | 26 | 0 | 0 | 338 | 23 | 8 | 13 | 0 | 7 | 44 | 775 | - |
| 16:30:00 | 14 | 189 | 40 | 1 | 4 | 244 | 26 | 10 | 106 | 0 | 3 | 142 | 72 | 230 | 27 | 0 | 0 | 329 | 33 | 5 | 21 | 0 | 3 | 59 | 774 | |
| 16:45:00 | 16 | 196 | 43 | 0 | 5 | 255 | 50 | 13 | 80 | 0 | 8 | 143 | 85 | 253 | 30 | 0 | 1 | 368 | 28 | 16 | 21 | 0 | 5 | 65 | 831 | 310 |
| 17:00:00 | 9 | 195 | 44 | 1 | 7 | 249 | 53 | 17 | 112 | 0 | 3 | 182 | 91 | 253 | 25 | 0 | 0 | 369 | 40 | 10 | 22 | 0 | 4 | 72 | 872 | 325 |
| 17:15:00 | 12 | 198 | 51 | 2 | 0 | 263 | 46 | 16 | 115 | 0 | 10 | 177 | 117. | 258 | 27 | 0 | 0 | 402 | 30 | 15 | 18 | 0 | 9 | 63 | 905 | 338 |
| 17:30:00 | 12 | 238 | 44 | 0 | 6 | 294 | 42 | 13 | 82 | 0 | 5 | 137 | 94 | 232 | 30 | 0 | 0 | 356 | 34 | 23 | 24 | 0 | 7 | 81 | 868 | 347 |
| 17:45:00 | 13 | 224 | 52 | 0 | 8 | 289 | 33 | 12 | 89 | 1 | 3 | 135 | 96 | 249 | 24 | 0 | 0 | 369 | 26 | 21 | 23 | 0 | 1 | 70 | 863 | 350 |
| Grand Total | 151 | 3024 | 613 | 14 | 63 | 3802 | 433 | 137 | 1126 | 4 | 71 | 1700 | 1131 | 3137 | 301 | 2 | 1 | 4571 | 314 | 132 | 182 | 0 | 60 | 628 | 10701 | 14 |
| Approach% | 4% | 79.5% | 16.1% | 0.4% | | | 25.5% | 8.1% | 66.2% | 0.2% | | | 24.7% | 68.6% | 6.6% | 0% | | | 50% | 21% | 29% | 0% | | | | - |
| Totals % | 1.4% | 28.3% | 5.7% | 0.1% | | 35.5% | 4% | 1.3% | 10.5% | 0% | | 15.9% | 10.6% | 29.3% | 2.8% | 0% | | 42.7% | 2.9% | 1.2% | 1.7% | 0% | | 5.9% | 1.0 | |
| Heavy | 2 | 51 | 10 | 0 | | 7 | 51 | 2 | 30 | 0 | | | 19 | 65 | 1 | 0 | | + | 1 | 2 | 0 | 0 | | * | | |
| Heavy % | 1.3% | 1.7% | 1.6% | 0% | | - | 11.8% | 1.5% | 2.7% | 0% | | | 1.7% | 2.1% | 0.3% | 0% | | | 0.3% | 1.5% | 0% | 0% | | | | |
| Bicycles | 0 | 2 | 0 | 0 | | * 1 | 0 | 0 | 1 | 0 | | 11.7 | 1 | 10 | 2 | 0 | | | 0 | 0 | 0 | 0 | | 3.0 | 10 Pm | X |
| Blovde % | 0% | 0.1% | 0% | 09/ | | | 0% | 0% | 0.1% | DO! | | | 0.1% | 0.3% | 0.7% | nev | | | 09% | 0% | 09% | 0% | | | | |

Turning Movement Count Location Name: LIVERPOOL RD & PICKERING PKWY Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaaakklis

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1K9 CANADA

| | | | | | | | | Peak | Hour: | 08:15 A | M - 09:1 | 5 AM Weath | ner: Bro | cen Clo | uds (1 | 5.24 °C) | | | | | | | | | |
|------------------------|-------|-------|-------|------------|---------|----------------|-------|------|-------|-----------|------------|----------------|----------|---------|--------|-----------|---------|----------------|-------|------|-------|----------|-------------|----------------|---------|
| Start Time | | | J. | N Approach | h RD | | | | Р | E Approac | oh PKWY | | | | L | S Approac | h RD | | | | L | W Approa | ich CESS | | Int. To |
| | Right | Thru | Left | UTum | Peds | Approach Total | Right | Thru | Left | UTum | Peds | Approach Total | Right | Thru | Left | UTum | Peds | Approach Total | Right | Thru | Left | UTum | Peds | Approach Total | |
| 08:15:00 | 5 | 176 | 33 | 1 | 2 | 215 | 16 | 1 | 57 | 2 | 3 | 76 | 71 | 179 | 9 | 0 | 0 | 259 | 5 | 1.1 | 4 | 0 | 5 | 10 | 56 |
| 08:30:00 | 4 | 153 | 25 | 2 | 1 | 184 | 14 | 5 | 53 | 0 | 5 | 72 | 56 | 161 | 8 | 0 | 0 | 225 | 10 | 6 | 3 | 0 | 0 | 19 | 50 |
| 08:45:00 | 11 | 165 | 47 | 3 | 4 | 226 | 13 | 6 | 46 | 1 | 2 | 66 | 87 | 182 | 17 | 0 | 0 | 286 | 12 | 4 | 2 | 0 | 3 | 18 | 55 |
| 09:00:00 | 4 | 174 | 41 | 0 | 0 | 219 | 16 | 7 | 36 | 0 | 1 | 59 | 58 | 159 | 14 | 0 | 0 | 231 | 9 | 6 | 1 | 0 | 2 | 16 | 52 |
| Grand Total | 24 | 668 | 146 | 6 | 7 | 844 | 59 | 19 | 192 | 3 | 11 | 273 | 272 | 681 | 48 | 0 | 0 | 1001 | 36 | 17 | 10 | 0 | 10 | 63 | 21 |
| Approach% | 2.8% | 79.1% | 17.3% | 0.7% | | | 21.6% | 7% | 70.3% | 1.1% | | | 272% | 68% | 4.8% | 0% | | | 57.1% | 27% | 15.9% | 0% | | | |
| Totals % | 1.1% | 30.6% | 6.7% | 0.3% | | 38.7% | 2.7% | 0.9% | 8.8% | 0.1% | | 12.5% | 12.5% | 31.2% | 2.2% | 0% | | 45.9% | 1.7% | 0.8% | 0.5% | 0% | | 2.9% | |
| PHF | 0.55 | 0.95 | 0.78 | 0.5 | | 0.93 | 0.92 | 0.68 | 0.84 | 0.38 | | 0.9 | 0.78 | 0.94 | 0.71 | 0 | | 0.88 | 0.75 | 0.71 | 0.63 | 0 | | 0.83 | |
| Heavy | 1 | 12 | 4 | 0 | | 17 | 13 | 0 | 8 | 0 | | 21 | 9 | 19 | 0 | 0 | | 28 | 0 | 0 | 0 | 0 | | 0 | |
| Heavy % | 4.2% | 1.8% | 2.7% | 0% | | 2% | 22% | 0% | 4.2% | 0% | | 7.7% | 3.3% | 2.8% | 0% | 0% | | 2.8% | 0% | 0% | 0% | 0% | | 0% | |
| Lights | 23 | 656 | 142 | 6 | | 827 | 46 | 19 | 184 | 3 | | 252 | 263 | 662 | 48 | 0 | | 973 | 36 | 17 | 10 | 0 | | 63 | |
| Lights % | 95.8% | 98.2% | 97.3% | 100% | | 98% | 78% | 100% | 95.8% | 100% | | 92.3% | 96.7% | 97.2% | 100% | 0% | | 97.2% | 100% | 100% | 100% | 0% | | 100% | |
| Single-Unit Trucks | 1 | 4 | 2 | 0 | | 7 | 1 | 0 | 5 | 0 | | 6 | 2 | 8 | 0 | 0 | | 10 | 0 | 0 | 0 | 0 | | 0 | |
| Single-Unit Trucks % | 4.2% | 0.6% | 1.4% | 0% | | 0.8% | 1.7% | 0% | 2.6% | 0% | | 2.2% | 0.7% | 1.2% | 0% | 0% | | 1% | 0% | 0% | 0% | 0% | | 0% | |
| Buses | 0 | 8 | 2 | 0 | | 10 | 12 | 0 | 3 | 0 | | 15 | 6 | 9 | 0 | 0 | | 15 | 0 | 0 | 0 | 0 | | 0 | |
| Buses % | 0% | 1.2% | 1.4% | 0% | | 1.2% | 20.3% | 0% | 1.6% | 0% | | 5.5% | 22% | 1.3% | 0% | 0% | | 1.5% | 0% | 0% | 0% | 0% | | 0% | |
| Articulated Trucks | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 2 | 0 | 0 | | 3 | 0 | 0 | 0 | 0 | | 0 | |
| Articulated Trucks % | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0.4% | 0.3% | 0% | 0% | | 0.3% | 0% | 0% | 0% | 0% | | 0% | |
| Pedestrians . | | * | | | 7 | | | | * | | 10 | 2 | | | 16. | | 0 | | | | | * | 10 | 1.5 | |
| Pedestrians% | | | | - | 25% | | - 3 | | | 3 | 35.7% | | - | - | | 10 | 0% | | | 157 | | | 35.7% | | |
| Bicycles on Crosswalk | 4 | 11 | 110 | 3-1 | 0 | | | | 0. | .0. | 1 | - | - | - | - | - | 0 | | - | | * | 170 | 0 | | |
| licycles on Crosswalk% | | * | | - | 0% | | | | ~ | - | 3.6% | | | - | - | | 0% | | | * | | | 0% | | |
| Bicycles on Road | 0 | 1 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Bicycles on Road% | . 5 | | 7 | 7 | 0% | | | | | 9 | 0% | | 9 | 9 | - | 19 | 0% | | 7 | | | | 0% | | |

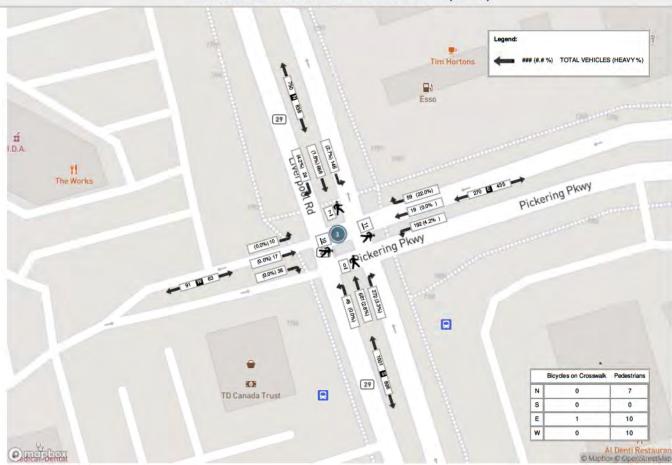
Turning Movement Count Location Name: LIVERPOOL RD & PICKERING PKWY Date: Wed, Jun 08, 2022 Deployment Lead: Tasos Issaaakklis

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1K9 CANADA

| | | | | | | | | Peal | k Hour: | 05:00 P | M - 06:0 | 00 PM Weath | ner: Brol | ken Clo | uds (2 | 2.35 °C | ý. | | | | | | | | |
|------------------------|-------|-------|-------|----------|------------|----------------|-------|------|---------|-----------|------------|----------------|-----------|---------|--------|-----------|---------|----------------|-------|-------|-------|-----------|----------|----------------|------------------|
| Start Time | | | | N Approa | ch L RD | | | | Р | E Approac | oh PKWY | | | | 1 | S Approac | h RD | | | | L | W Approac | h ESS | | Int. To (15 m |
| | Right | Thru | Left | UTum | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTum | Peds | Approach Total | Right | Thru | Left | UTum | Peds | Approach Total | - |
| 17:00:00 | 9 | 195 | 44 | 1 | 7 | 249 | 53 | 17 | 112 | 0 | 3 | 182 | 91 | 253 | 25 | 0 | 0 | 369 | 40 | 10 | 22 | 0 | 4 | 72 | 872 |
| 17:15:00 | 12 | 198 | 51 | 2 | 0 | 263 | 46 | 16 | 115 | 0 | 10 | 177 | 117 | 258 | 27 | 0 | 0 - | 402 | 30 | 15 | 18 | 0 | 9 | 63 | 905 |
| 17:30:00 | 12 | 238 | 44 | 0 | 6 | 294 | 42 | 13 | 82 | 0 | 5 | 137 | 94 | 232 | 30 | 0 | 0 | 356 | 34 | 23 | 24 | 0 | 7 | 81 | 868 |
| 17:45:00 | 13 | 224 | 52 | 0 | 8 | 289 | 33 | 12 | 89 | 1. | 3 | 135 | 96 | 249 | 24 | 0 | 0 | 369 | 26 | 21 | 23 | 0 | 1 | 70 | 863 |
| Grand Total | 46 | 855 | 191 | 3 | 21 | 1095 | 174 | 58 | 398 | 1 | 21 | 631 | 398 | 992 | 106 | 0 | 0 | 1496 | 130 | 69 | 87 | 0 | 21 | 286 | 3508 |
| Approach% | 42% | 78.1% | 17.4% | 0.3% | | | 27.6% | 92% | 63.1% | 0.2% | | -,- | 26.6% | 66.3% | 7.1% | 0% | | 10 | 45.5% | 24.1% | 30.4% | 0% | | | |
| Totals % | 1.3% | 24.4% | 5.4% | 0.1% | | 31.2% | 5% | 1.7% | 11.3% | 0% | | 18% | 11.3% | 28.3% | 3% | 0% | | 42.6% | 3.7% | 2% | 2.5% | 0% | | 8.2% | - |
| PHF | 0.88 | 0.9 | 0.92 | 0.38 | | 0.93 | 0.82 | 0.85 | 0.87 | 0.25 | | 0.87 | 0.85 | 0.96 | 0.88 | 0 | | 0.93 | 0.81 | 0.75 | 0.91 | 0 | | 0.88 | / 6 |
| Heavy | 0 | 8 | 1 | 0 | | 9 | 8 | 0 | 7 | 0 | | 15 | 2 | 11 | 0 | 0 | | 13 | 0 | 0 | 0 | 0 | | 0 | |
| Heavy % | 0% | 0.9% | 0.5% | 0% | | 0.8% | 4.6% | 0% | 1.8% | 0% | | 2.4% | 0.5% | 1.1% | 0% | 0% | | 0.9% | 0% | 0% | 0% | 0% | | 0% | |
| Lights | 46 | 847 | 190 | 3 | | 1086 | 166 | 58 | 391 | 1 | | 616 | 396 | 981 | 106 | 0 | | 1483 | 130 | 69 | 87 | 0 | | 286 | |
| Lights % | 100% | 99.1% | 99.5% | 100% | | 99.2% | 95.4% | 100% | 98.2% | 100% | | 97.6% | 99.5% | 98.9% | 100% | 0% | | 99.1% | 100% | 100% | 100% | 0% | | 100% | 4 |
| Single-Unit Trucks | 0 | 5 | 0 | 0 | | 5 | 0 | 0 | 2 | 0 | | 2 | 1 | 6 | 0 | 0 | | 7 | 0 | 0 | 0 | 0 | | 0 | 2. |
| Single-Unit Trucks % | 0% | 0.6% | 0% | 0% | | 0.5% | 0% | 0% | 0.5% | 0% | | 0.3% | 0.3% | 0.6% | 0% | 0% | | 0.5% | 0% | 0% | 0% | 0% | | 0% | |
| Buses | 0 | 2 | 1 | 0 | | 3 | 8 | 0 | 5 | 0 | | 13 | 0 | 5 | 0 | 0 | | 5 | 0 | 0 | 0 | 0 | | 0 | - |
| Buses % | 0% | 0.2% | 0.5% | 0% | | 0.3% | 4.6% | 0% | 1.3% | 0% | | 2.1% | 0% | 0.5% | 0% | 0% | | 0.3% | 0% | 0% | 0% | 0% | | 0% | |
| Articulated Trucks | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 1 | 0 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | |
| Articulated Trucks % | 0% | 0.1% | 0% | 0% | | 0.1% | 0% | 0% | 0% | 0% | | 0% | 0.3% | 0% | 0% | 0% | | 0.1% | 0% | 0% | 0% | 0% | | 0% | |
| Pedestrians | | | | | 19 | 3 | | | * | 3 | 16 | * | 1 | | | €1 | 0 | | | | | 1.5 | 15 | | |
| Pedestrians% | - | | 17 | 1.7 | 30.2% | | | 7 | | | 25.4% | | - | - | - | - | 0% | | 1 | 1. | | | 23.8% | | |
| Bicycles on Crosswalk | - | | 341 | - | 2 | 10.7 | | - | | | 5 | | - | • | - | • | 0 | - | | (*) | 15 | 17 | 6 | | |
| Bicycles on Crosswalk% | | * | - | - | 3.2% | | - 5 | | | * | 7.9% | | - | - | - | - | 0% | | 1 | | | | 9.5% | | * |
| Bicycles on Road | 0 | 1 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | - | |
| Bicycles on Road% | - | 9 | - | - | 0% | | 9 | 7 | | | 0% | | | - | - | - | 0% | | 4 | 1.9 | | 9 | 0% | | |

BA Group 300 45 ST. CLAIR AVE W TORONTO ONTARIO, M4V 1K9 CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Broken Clouds (15.24 °C)







(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19

| Groups Printed- | Cars - | Trucks - I | - leavies | Cvclists |
|-----------------|--------|------------|-----------|----------|
|-----------------|--------|------------|-----------|----------|

| | | | | . . | | | | | | Cars - Truc | xs - nea | | | | Т | | | | | | ı |
|----------------------|----------|------------|----------|------------|------------|----------|------------|------------|----------|-------------|----------|------------|----------|-----------------|------------|----------|------------|-----------|---------|------------|--------------|
| | | | iverpool | | | | | (ingston | | | | | iverpool | | | | | ingston F | | | |
| | | | rom Nor | | | | | From Ea | | | - | | rom Sou | | | | | rom We | | | |
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 7 | 156 | 11 | 6 | 180 | 3 | 69 | 22 | 10 | 104 | 17 | 63 | 34 | 8 | 122 | 44 | 49 | 7 | 11 | 111 | 517 |
| 07:15 AM | 13 | 125 | 11 | 8 | 157 | 11 | 78 | 29 | 13 | 131 | 17 | 58 | 32 | 7 | 114 | 34 | 64 | 18 | 6 | 122 | 524 |
| 07:30 AM | 13 | 178 | 11 | 5 | 207 | 9 | 104 | 28 | 13 | 154 | 25 | 85 | 48 | 7 | 165 | 69 | 51 | 21 | 8 | 149 | 675 |
| 07:45 AM | 26 | 186 | 17 | 7 | 236 | 7 | 109 | 42 | 8 | 166 | 30 | 90 | 46 | 20 | 186 | 61 | 80 | 26 | 22 | 189 | 777 |
| Total | 59 | 645 | 50 | 26 | 780 | 30 | 360 | 121 | 44 | 555 | 89 | 296 | 160 | 42 | 587 | 208 | 244 | 72 | 47 | 571 | 2493 |
| 00 00 414 | 00 | 470 | 45 | | 000 | | 400 | 00 | 40 | 450 | 00 | 404 | 50 | | 404 | | 00 | 40 | • | 4.40 | 740 |
| 08:00 AM 08:15 AM | 28 22 | 179 130 | 15 14 | 4 4 | 226 170 | 4 6 | 108 107 | 30 40 | 10 | 152 163 | 30 29 | 104 74 | 53 57 | 4 5 | 191 165 | 55 43 | 69 104 | 13 29 | 6 7 | 143 183 | 712 681 |
| 08:30 AM | 22 27 | 130 | 24 | 8 | 170 | 16 | 107 | 40 37 | 10 14 | 168 | 30 | 95 | 65 | 3 | 193 | 43 62 | 104 | 30 | 10 | 206 | 757 |
| 08:45 AM | 21 24 | 134 | 24 12 | 6 | 176 | 10 | 115 | 37 40 | 11 | 176 | 38 | 95 97 | 82 | 3 | 220 | 62 63 | 104 | 32 | 4 | 206 | 757 796 |
| Total | 101 | 574 | 65 | 22 | 762 | 36 | 431 | 147 | 45 | 659 | 127 | 370 | 257 | <u>5_</u> 15 | 769 | 223 | 402 | 104 | 27 | 756 | 2946 |
| Total | 101 | 3/4 | 03 | 22 | 702 | 30 | 431 | 147 | 43 | 039 | 121 | 370 | 231 | 13 | 709 | 223 | 402 | 104 | 21 | 750 | 2940 |
| 09:00 AM | 27 | 133 | 20 | 2 | 182 | 13 | 123 | 26 | 12 | 174 | 39 | 96 | 76 | 7 | 218 | 57 | 124 | 22 | 10 | 213 | 787 |
| 09:15 AM | 28 | 120 | 22 | 5 | 175 | 9 | 124 | 30 | 7 | 170 | 43 | 79 | 46 | 4 | 172 | 55 | 148 | 29 | 10 | 242 | 759 |
| ' | | | | | , | | | | | | | | | | , | | | | | ' | |
| Total | 55 | 253 | 42 | 7 | 357 | 22 | 247 | 56 | 19 | 344 | 82 | 175 | 122 | 11 | 390 | 112 | 272 | 51 | 20 | 455 | 1546 |
| | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 24 | 105 | 25 | 6 | 160 | 16 | 127 | 37 | 20 | 200 | 60 | 156 | 83 | 5 | 304 | 77 | 255 | 36 | 6 | 374 | 1038 |
| 04:15 PM | 18 | 92 | 13 | 7 | 130 | 20 | 132 | 57 | 15 | 224 | 53 | 153 | 71 | 13 | 290 | 84 | 250 | 65 | 15 | 414 | 1058 |
| 04:30 PM | 24 | 109 | 21 | 5 | 159 | 17 | 122 | 46 | 21 | 206 | 56 | 180 | 81 | 8 | 325 | 73 | 208 | 57 | 12 | 350 | 1040 |
| 04:45 PM | 28 | 103 | 20 | 5 | 156 | 11 | 162 | 48 | 13 | 234 | 64 | 172 | 83 | 7 | 326 | 76 | 258 | 49 | 5 | 388 | 1104 |
| Total | 94 | 409 | 79 | 23 | 605 | 64 | 543 | 188 | 69 | 864 | 233 | 661 | 318 | 33 | 1245 | 310 | 971 | 207 | 38 | 1526 | 4240 |
| 05:00 PM | 27 | 100 | 24 | _ | 100 | 4.4 | 100 | F 2 | 20 | 200 | 63 | 200 | 0.5 | 7 | 264 | 76 | 242 | 40 | 7 | 226 | 1001 |
| 05:00 PM 05:15 PM | 37 24 | 120 90 | 21 23 | 5 6 | 183 143 | 14 14 | 122 136 | 52 56 | 20 18 | 208 224 | 63 64 | 209 161 | 85 79 | 7 11 | 364 315 | 76 71 | 213 252 | 40 49 | 7 11 | 336 383 | 1091 1065 |
| 05:30 PM | 14 | 113 | 26 | 4 | 157 | 22 | 124 | 45 | 11 | 202 | 66 | 194 | 79 76 | 6 | 342 | 87 | 229 | 54 | 6 | 376 | 1003 |
| 05:45 PM | 28 | 96 | 18 | 9 | 151 | 17 | 132 | 57 | 18 | 202 | 66 | 156 | 76 81 | 6 | 309 | 73 | 246 | 62 | 6 | 387 | 1077 |
| Total | 103 | 419 | 88 | 24 | 634 | 67 | 514 | 210 | 67 | 858 | 259 | 720 | 321 | 30 | 1330 | 307 | 940 | 205 | 30 | 1482 | 4304 |
| . • • • • | | | 00 | | 00.1 | ٥. | 0 | | 0. | 000 | | 0 | 0 | 00 | .000 | | 0.0 | _00 | | | |
| 06:00 PM | 26 | 97 | 29 | 3 | 155 | 10 | 115 | 48 | 11 | 184 | 61 | 160 | 70 | 9 | 300 | 69 | 230 | 52 | 19 | 370 | 1009 |
| 06:15 PM | 32 | 87 | 23 | 3 | 145 | 15 | 132 | 60 | 10 | 217 | 74 | 156 | 76 | 7 | 313 | 72 | 241 | 51 | 12 | 376 | 1051 |
| Grand Total | 470 | 2484 | 376 | 108 | 3438 | 244 | 2342 | 830 | 265 | 3681 | 925 | 2538 | 1324 | 147 | 4934 | 1301 | 3300 | 742 | 193 | 5536 | 17589 |
| Apprch % | 13.7 | 72.3 | 10.9 | 3.1 | | 6.6 | 63.6 | 22.5 | 7.2 | | 18.7 | 51.4 | 26.8 | 3 | | 23.5 | 59.6 | 13.4 | 3.5 | | |
| Total % | 2.7 | 14.1 | 2.1 | 0.6 | 19.5 | 1.4 | 13.3 | 4.7 | 1.5 | 20.9 | 5.3 | 14.4 | 7.5 | 0.8 | 28.1 | 7.4 | 18.8 | 4.2 | 1.1 | 31.5 | |
| Cars | 463 | 2465 | 371 | 108 | 3407 | 244 | 2275 | 816 | 265 | 3600 | 868 | 2491 | 1278 | 147 | 4784 | 1270 | 3198 | 736 | 193 | 5397 | 17188 |
| % Cars | 98.5 | 99.2 | 98.7 | 100 | 99.1 | 100 | 97.1 | 98.3 | 100 | 97.8 | 93.8 | 98.1 | 96.5 | 100 | 97 | 97.6 | 96.9 | 99.2 | 100 | 97.5 | 97.7 |
| Trucks | 2 | 14 | 4 | 0 | 20 | 0 | 14 | 4 | 0 | 18 | 3 | 14 | 14 | 0 | 31 | 13 | 41 | 4 | 0 | 58 | 127 |
| % Trucks | 0.4 | 0.6 | 1.1 | 0 | 0.6 | 0 | 0.6 | 0.5 | 0 | 0.5 | 0.3 | 0.6 | 1.1 | 0 | 0.6 | 1 | 1.2 | 0.5 | 0 | 1 | 0.7 |

(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19

Page No : 2

Groups Printed- Cars - Trucks - Heavies - Cyclists

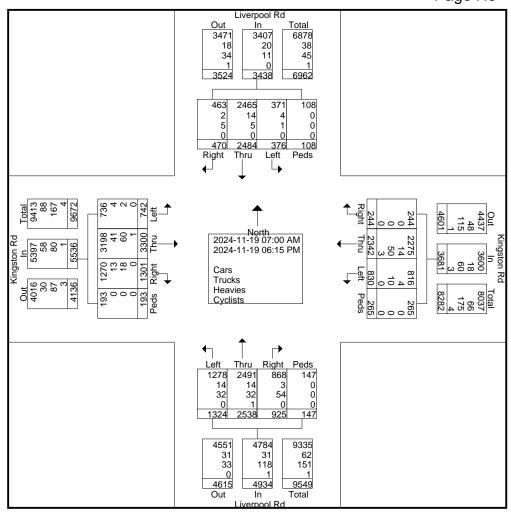
| | | Li | iverpool | Rd | | | K | ingston I | ₹d | | | Ĺi | verpool | Rd | | | Ki | ngston F | ₹d | | |
|------------|-------|------|----------|------|------------|-------|------|-----------|------|------------|-------|------|---------|------|------------|-------|------|----------|------|------------|------------|
| | | F | rom Nor | th | | | F | rom Ea | st | | | F | rom Sou | ıth | | | F | rom Wes | st | | |
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Heavies | 5 | 5 | 1 | 0 | 11 | 0 | 50 | 10 | 0 | 60 | 54 | 32 | 32 | 0 | 118 | 18 | 60 | 2 | 0 | 80 | 269 |
| % Heavies | 1.1 | 0.2 | 0.3 | 0 | 0.3 | 0 | 2.1 | 1.2 | 0 | 1.6 | 5.8 | 1.3 | 2.4 | 0 | 2.4 | 1.4 | 1.8 | 0.3 | 0 | 1.4 | 1.5 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 5 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19



(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19

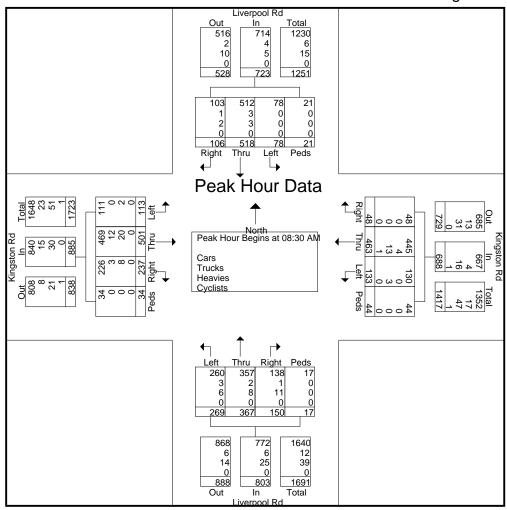
| | | | verpool I | | | | | ingston f | | | | | verpool rom Sou | | | | | ingston f | | | |
|-------------------|-------------|-----------|-----------|---------|------------|-------|------|-----------|------|------------|-------|------|--------------------|------|------------|-------|------|-----------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | | | | | | • | | ' | | ' | • | | • | | | | • | • | | | |
| Peak Hour for Ent | ire Interse | ection Be | gins at 0 | 8:30 AM | Ι. | | | | | | | | | | | | | | | | |
| 08:30 AM | 27 | 131 | 24 | 8 | 190 | 16 | 101 | 37 | 14 | 168 | 30 | 95 | 65 | 3 | 193 | 62 | 104 | 30 | 10 | 206 | 757 |
| 08:45 AM | 24 | 134 | 12 | 6 | 176 | 10 | 115 | 40 | 11 | 176 | 38 | 97 | 82 | 3 | 220 | 63 | 125 | 32 | 4 | 224 | 796 |
| 09:00 AM | 27 | 133 | 20 | 2 | 182 | 13 | 123 | 26 | 12 | 174 | 39 | 96 | 76 | 7 | 218 | 57 | 124 | 22 | 10 | 213 | 787 |
| 09:15 AM | 28 | 120 | 22 | 5 | 175 | 9 | 124 | 30 | 7 | 170 | 43 | 79 | 46 | 4 | 172 | 55 | 148 | 29 | 10 | 242 | 759 |
| Total Volume | 106 | 518 | 78 | 21 | 723 | 48 | 463 | 133 | 44 | 688 | 150 | 367 | 269 | 17 | 803 | 237 | 501 | 113 | 34 | 885 | 3099 |
| % App. Total | 14.7 | 71.6 | 10.8 | 2.9 | | 7 | 67.3 | 19.3 | 6.4 | | 18.7 | 45.7 | 33.5 | 2.1 | | 26.8 | 56.6 | 12.8 | 3.8 | | |
| PHF | .946 | .966 | .813 | .656 | .951 | .750 | .933 | .831 | .786 | .977 | .872 | .946 | .820 | .607 | .913 | .940 | .846 | .883 | .850 | .914 | .973 |
| Cars | 103 | 512 | 78 | 21 | 714 | 48 | 445 | 130 | 44 | 667 | 138 | 357 | 260 | 17 | 772 | 226 | 469 | 111 | 34 | 840 | 2993 |
| % Cars | 97.2 | 98.8 | 100 | 100 | 98.8 | 100 | 96.1 | 97.7 | 100 | 96.9 | 92.0 | 97.3 | 96.7 | 100 | 96.1 | 95.4 | 93.6 | 98.2 | 100 | 94.9 | 96.6 |
| Trucks | 1 | 3 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 4 | 1 | 2 | 3 | 0 | 6 | 3 | 12 | 0 | 0 | 15 | 29 |
| % Trucks | 0.9 | 0.6 | 0 | 0 | 0.6 | 0 | 0.9 | 0 | 0 | 0.6 | 0.7 | 0.5 | 1.1 | 0 | 0.7 | 1.3 | 2.4 | 0 | 0 | 1.7 | 0.9 |
| Heavies | 2 | 3 | 0 | 0 | 5 | 0 | 13 | 3 | 0 | 16 | 11 | 8 | 6 | 0 | 25 | 8 | 20 | 2 | 0 | 30 | 76 |
| % Heavies | 1.9 | 0.6 | 0 | 0 | 0.7 | 0 | 2.8 | 2.3 | 0 | 2.3 | 7.3 | 2.2 | 2.2 | 0 | 3.1 | 3.4 | 4.0 | 1.8 | 0 | 3.4 | 2.5 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |

(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19

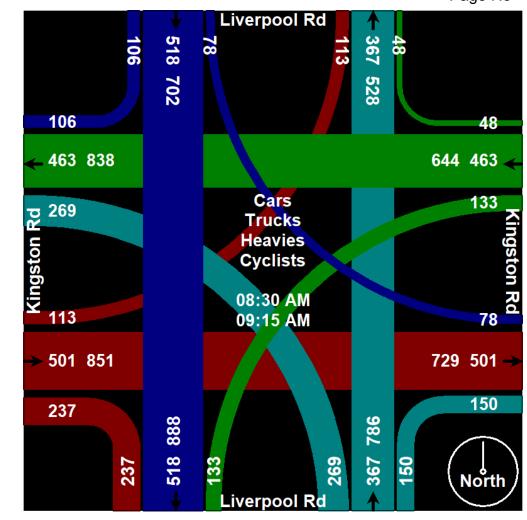


(416) 840-6619

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File Name: Liverpool Road at Kingston Road

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(416) 840-6619

Your Traffic Count Specialist

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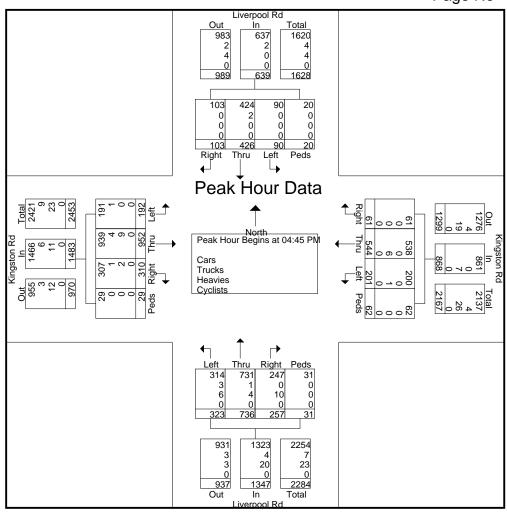
| | | | verpool F | | | | | ingston F | | | | | verpool rom Sou | | | | | ingston rom We | | | |
|-------------------|-------------|-----------|------------|---------|------------|-------|------|-----------|------|------------|-------|------|--------------------|------|------------|-------|------|-------------------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | is From 0 | 4:00 PM | to 06:15 | PM - Pe | eak 1 of 1 | • | • | | | | | • | • | | | • | | • | | | |
| Peak Hour for Ent | ire Interse | ection Be | gins at 04 | 4:45 PM | l . | | | | | | | | | | | | | | | | |
| 04:45 PM | 28 | 103 | 20 | 5 | 156 | 11 | 162 | 48 | 13 | 234 | 64 | 172 | 83 | 7 | 326 | 76 | 258 | 49 | 5 | 388 | 1104 |
| 05:00 PM | 37 | 120 | 21 | 5 | 183 | 14 | 122 | 52 | 20 | 208 | 63 | 209 | 85 | 7 | 364 | 76 | 213 | 40 | 7 | 336 | 1091 |
| 05:15 PM | 24 | 90 | 23 | 6 | 143 | 14 | 136 | 56 | 18 | 224 | 64 | 161 | 79 | 11 | 315 | 71 | 252 | 49 | 11 | 383 | 1065 |
| 05:30 PM | 14 | 113 | 26 | 4 | 157 | 22 | 124 | 45 | 11 | 202 | 66 | 194 | 76 | 6 | 342 | 87 | 229 | 54 | 6 | 376 | 1077 |
| Total Volume | 103 | 426 | 90 | 20 | 639 | 61 | 544 | 201 | 62 | 868 | 257 | 736 | 323 | 31 | 1347 | 310 | 952 | 192 | 29 | 1483 | 4337 |
| % App. Total | 16.1 | 66.7 | 14.1 | 3.1 | | 7 | 62.7 | 23.2 | 7.1 | | 19.1 | 54.6 | 24 | 2.3 | | 20.9 | 64.2 | 12.9 | 2 | | |
| PHF | .696 | .888 | .865 | .833 | .873 | .693 | .840 | .897 | .775 | .927 | .973 | .880 | .950 | .705 | .925 | .891 | .922 | .889 | .659 | .956 | .982 |
| Cars | 103 | 424 | 90 | 20 | 637 | 61 | 538 | 200 | 62 | 861 | 247 | 731 | 314 | 31 | 1323 | 307 | 939 | 191 | 29 | 1466 | 4287 |
| % Cars | 100 | 99.5 | 100 | 100 | 99.7 | 100 | 98.9 | 99.5 | 100 | 99.2 | 96.1 | 99.3 | 97.2 | 100 | 98.2 | 99.0 | 98.6 | 99.5 | 100 | 98.9 | 98.8 |
| Trucks | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 1 | 4 | 1 | 0 | 6 | 12 |
| % Trucks | 0 | 0.5 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.9 | 0 | 0.3 | 0.3 | 0.4 | 0.5 | 0 | 0.4 | 0.3 |
| Heavies | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 7 | 10 | 4 | 6 | 0 | 20 | 2 | 9 | 0 | 0 | 11 | 38 |
| % Heavies | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 | 0.5 | 0 | 0.8 | 3.9 | 0.5 | 1.9 | 0 | 1.5 | 0.6 | 0.9 | 0 | 0 | 0.7 | 0.9 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19

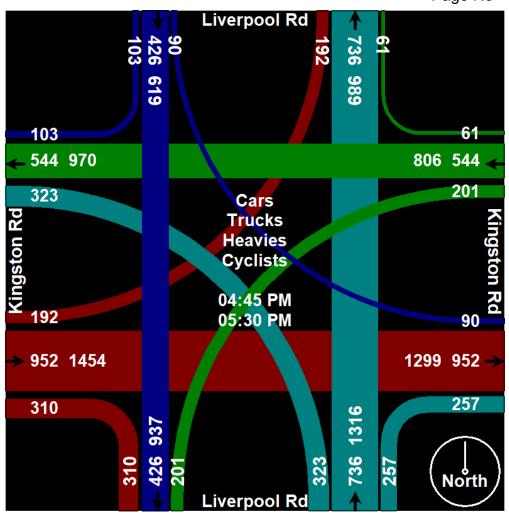


(416) 840-6619

Your Traffic Count Specialist

File Name: Liverpool Road at Kingston Road

Site Code : 00000000 Start Date : 2024-11-19



Email: nhyree@gmail.com
Phone: (416) 840-6619 Fax: (416) 840-5297
"Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

Site Code : 00000000 Start Date : 01/10/2023

Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

| | | | Valnut L | | | | K | ingston | Rd | Cars - Truc | <u>къ - пеа</u> | 1 | Valnut L | | | | | ingston F | | | |
|-------------|----------|--------|----------|------|------------|----------|---------|----------|------|-------------|-----------------|--------|----------|---------|------------|----------|-----------|-----------|------|------------|------------|
| | | | rom Nor | | | | | rom Ea | | | | | rom Sou | | | | i | rom We | | | |
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 6 | 0 | 3 | 0 | 9 | 1 | 79 | 7 | 0 | 87 | 2 | 0 | 4 | 0 | 6 | 0 | 64 | 0 | 1 | 65 | 167 |
| 07:15 AM | 7 | 0 | 3 | 1 | 11 | 3 | 95 | 17 | 0 | 115 | 1 | 1 | 1 | 1 | 4 | 0 | 86 | 2 | 1 | 89 | 219 |
| 07:30 AM | 10 | 1 | 4 | 1 | 16 | 1 | 114 | 18 | 1 | 134 | 1 | 0 | 3 | 0 | 4 | 1 | 94 | 3 | 1 | 99 | 253 |
| 07:45 AM | 8 | 1 | 4 | 0 | 13 | 4 | 119 | 20 | 1_ | 144 | 9 | 0 | 8 | 1_ | 18 | 1 | 123 | 1_ | 1_ | 126 | 301 |
| Total | 31 | 2 | 14 | 2 | 49 | 9 | 407 | 62 | 2 | 480 | 13 | 1 | 16 | 2 | 32 | 2 | 367 | 6 | 4 | 379 | 940 |
| 08:00 AM | 12 | 4 | 8 | 1 | 25 | 4 | 130 | 15 | 0 | 149 | 8 | 1 | 4 | 0 | 13 | 5 | 141 | 3 | 1 | 150 | 337 |
| 08:15 AM | 8 | 2 | 5 | 0 | 15 | 4 | 127 | 33 | 1 | 165 | 12 | 2 | 12 | 1 | 27 | 3 | 155 | 1 | 0 | 159 | 366 |
| 08:30 AM | 10 | 1 | 4 | 1 | 16 | 7 | 125 | 29 | 1 | 162 | 14 | 1 | 12 | 2 | 29 | 2 | 174 | 5 | 3 | 184 | 391 |
| 08:45 AM | 6 | 0 | 2 | 0 | 8 | 9 | 138 | 36 | 0 | 183 | 18 | 4 | 11 | 0 | 33 | 6 | 189 | 5 | 1 | 201 | 425 |
| Total | 36 | 7 | 19 | 2 | 64 | 24 | 520 | 113 | 2 | 659 | 52 | 8 | 39 | 3 | 102 | 16 | 659 | 14 | 5 | 694 | 1519 |
| 09:00 AM | 4 | 0 | 1 | 2 | 7 | 5 | 128 | 52 | 1 | 186 | 15 | 1 | 12 | 3 | 31 | 6 | 210 | 3 | 2 | 221 | 445 |
| 09:15 AM | 9 | 5 | 7 | 1 | 22 | 9 | 132 | 26 | 0 | 167 | 30 | 0 | 17 | 3 | 50 | 5 | 189 | 7 | 3 | 204 | 443 |
| Total | 13 | 5 | 8 | 3 | 29 | 14 | 260 | 78 | 1 | 353 | 45 | 1 | 29 | 6 | 81 | 11 | 399 | 10 | 5 | 425 | 888 |
| 04:00 PM | 4 | 2 | 5 | 2 | 13 | 9 | 204 | 51 | 2 | 266 | 42 | 4 | 24 | 1_ | 71 | 13 | 324 | 5 | 2 | 344 | 694 |
| 04:15 PM | 6 | 5 | 12 | 1 | 24 | 7 | 179 | 40 | 2 | 228 | 50 | 7 | 25 | 5 | 87 | 17 | 287 | 9 | 3 | 316 | 655 |
| 04:30 PM | 9 | 4 | 3 | 2 | 18 | 5 | 189 | 34 | 1 | 229 | 41 | 10 | 27 | 2 | 80 | 11 | 372 | 8 | 2 | 393 | 720 |
| 04:45 PM | 7 | 5 | 10 30 | 0 | 22 | 14 | 187 | 42 | 2 | 245 | 38 | 7 | 35 | 3 11 | 83 | 15 | 363 | 8 | 5 | 391 | 741 |
| Total | 26 | 16 | 30 | 5 | 77 | 35 | 759 | 167 | 7 | 968 | 171 | 28 | 111 | 11 | 321 | 56 | 1346 | 30 | 12 | 1444 | 2810 |
| 05:00 PM | 3 | 6 | 4 | 1 | 14 | 12 | 192 | 44 | 1 | 249 | 56 | 0 | 22 | 0 | 78 | 10 | 356 | 15 | 5 | 386 | 727 |
| 05:15 PM | 7 | 1 | 7 | 2 | 17 | 9 | 193 | 46 | 1 | 249 | 45 | 2 | 33 | 2 | 82 | 9 | 311 | 7 | 2 | 329 | 677 |
| 05:30 PM | 4 | 4 | 5 | 1 | 14 | 8 | 183 | 47 | 0 | 238 | 35 | 4 | 30 | 1 | 70 | 12 | 336 | 8 | 3 | 359 | 681 |
| 05:45 PM | 3 | 4 | 14 30 | 0 | 21 | 7 | 155 | 35 | 1 | 198 | 43 | 5 | 16 | 3 | 67 | 10 | 309 | 8 | 4 | 331 | 617 |
| Total | 17 | 15 | 30 | 4 | 66 | 36 | 723 | 172 | 3 | 934 | 179 | 11 | 101 | 6 | 297 | 41 | 1312 | 38 | 14 | 1405 | 2702 |
| 06:00 PM | 5 | 2 | 7 | 0 | 14 | 8 | 187 | 44 | 0 | 239 | 43 | 4 | 26 | 0 | 73 | 10 | 270 | 9 | 3 | 292 | 618 |
| 06:15 PM | 6 | 5 | 9 | 0 | 20 | 8 | 143 | 36 | 0 | 187 | 46 | 3 | 19 | 1 | 69 | 11 | 261 | 7 | 0 | 279 | 555 |
| Grand Total | 134 | 52 | 117 | 16 | 319 | 134 | 2999 | 672 | 15 | 3820 | 549 | 56 | 341 | 29 | 975 | 147 | 4614 | 114 | 43 | 4918 | 10032 |
| Apprch % | 42 | 16.3 | 36.7 | 5 | _ | 3.5 | 78.5 | 17.6 | 0.4 | | 56.3 | 5.7 | 35 | 3 | _ | 3 | 93.8 | 2.3 | 0.9 | | |
| Total % | 1.3 | 0.5 | 1.2 | 0.2 | 3.2 | 1.3 | 29.9 | 6.7 | 0.1 | 38.1 | 5.5 | 0.6 | 3.4 | 0.3 | 9.7 | 1.5 | 46 | 1.1 | 0.4 | 49 | 2012 |
| Cars | 131 | 52 | 117 | 16 | 316 | 129 | 2902 | 667 | 15 | 3713 | 545 | 56 | 339 | 29 | 969 | 146 | 4512 | 114 | 43 | 4815 | 9813 |
| % Cars | 97.8 | 100 | 100 | 100 | 99.1 | 96.3 | 96.8 | 99.3 | 100 | 97.2 | 99.3 | 100 | 99.4 | 100 | 99.4 | 99.3 | 97.8 | 100 | 100 | 97.9 | 97.8 |
| Trucks | 2 1.5 | 0 0 | 0 0 | 0 | 2 0.6 | 5 3.7 | 31 1 | 5 0.7 | 0 | 41 1.1 | 4 | 0 0 | 2 0.6 | 0 | 6 0.6 | 1 0.7 | 38 0.8 | 0 0 | 0 | 39 0.8 | 88 0.9 |
| % Trucks | 1.5 | U | U | U | 0.6 | 3.7 | 1 | 0.7 | U | 1.1 | 0.7 | U | 0.0 | U | 0.6 | 0.7 | ۵.8 | U | U | 0.8 | 0.9 |

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"Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

Site Code : 00000000 Start Date : 01/10/2023

Page No : 2

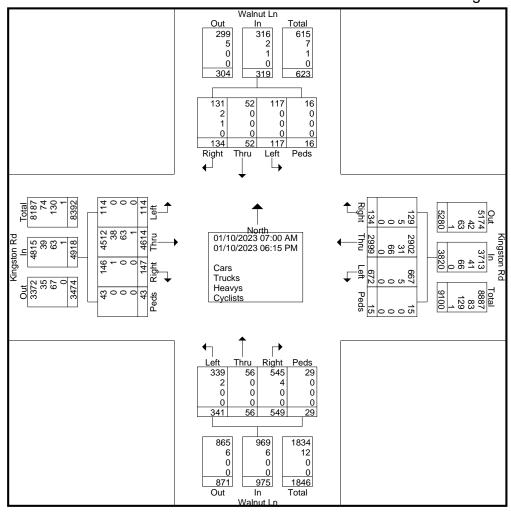
Groups Printed- Cars - Trucks - Heavys - Cyclists

| | | | Walnut L | .n | | | K | ingston | Rd | | | , | Walnut L | .n | | | K | ingston | Rd | | |
|------------|-------|------|----------|------|------------|-------|------|---------|------|------------|-------|------|----------|------|------------|-------|------|---------|------|------------|------------|
| | | | rom No | rth | | | | From Ea | st | | | F | rom Sou | ıth | | | F | rom We | st | | |
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Heavys | 1 | 0 | 0 | 0 | 1 | 0 | 66 | 0 | 0 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 63 | 130 |
| % Heavys | 0.7 | 0 | 0 | 0 | 0.3 | 0 | 2.2 | 0 | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 1.4 | 0 | 0 | 1.3 | 1.3 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Email: nhyree@gmail.com Phone: (416) 840-6619 Fax: (416) 840-5297 "Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

Site Code : 00000000 Start Date : 01/10/2023



Email: nhyree@gmail.com Phone: (416) 840-6619 Fax: (416) 840-5297 "Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

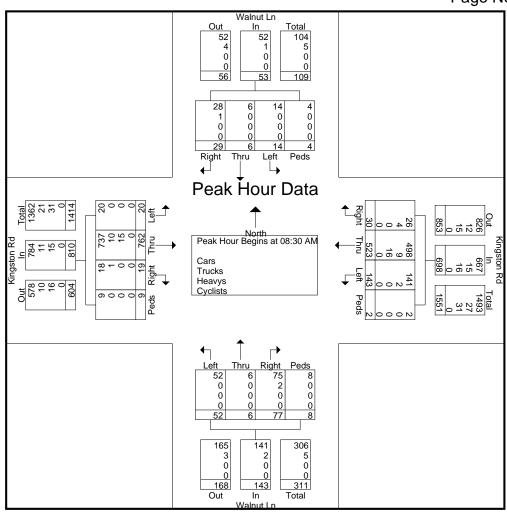
Site Code : 00000000 Start Date : 01/10/2023

| | | | Valnut L | | | | | ingston I | | | | | Valnut L | | | | | ingston F | | | |
|-------------------|-------------|-----------|-----------|---------|------------|-------|------|-----------|------|------------|-------|------|----------|------|------------|-------|------|-----------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | is From 0 | 7:00 AM | to 09:15 | AM - Pe | eak 1 of 1 | • | • | | | | • | • | | | • | • | | • | | | |
| Peak Hour for Ent | ire Interse | ection Be | gins at 0 | 8:30 AM | 1 | | | | | | | | | | | | | | | | |
| 08:30 AM | 10 | 1 | 4 | 1 | 16 | 7 | 125 | 29 | 1 | 162 | 14 | 1 | 12 | 2 | 29 | 2 | 174 | 5 | 3 | 184 | 391 |
| 08:45 AM | 6 | 0 | 2 | 0 | 8 | 9 | 138 | 36 | 0 | 183 | 18 | 4 | 11 | 0 | 33 | 6 | 189 | 5 | 1 | 201 | 425 |
| 09:00 AM | 4 | 0 | 1 | 2 | 7 | 5 | 128 | 52 | 1 | 186 | 15 | 1 | 12 | 3 | 31 | 6 | 210 | 3 | 2 | 221 | 445 |
| 09:15 AM | 9 | 5 | 7 | 1 | 22 | 9 | 132 | 26 | 0 | 167 | 30 | 0 | 17 | 3 | 50 | 5 | 189 | 7 | 3 | 204 | 443 |
| Total Volume | 29 | 6 | 14 | 4 | 53 | 30 | 523 | 143 | 2 | 698 | 77 | 6 | 52 | 8 | 143 | 19 | 762 | 20 | 9 | 810 | 1704 |
| % App. Total | 54.7 | 11.3 | 26.4 | 7.5 | | 4.3 | 74.9 | 20.5 | 0.3 | | 53.8 | 4.2 | 36.4 | 5.6 | | 2.3 | 94.1 | 2.5 | 1.1 | | |
| PHF | .725 | .300 | .500 | .500 | .602 | .833 | .947 | .688 | .500 | .938 | .642 | .375 | .765 | .667 | .715 | .792 | .907 | .714 | .750 | .916 | .957 |
| Cars | 28 | 6 | 14 | 4 | 52 | 26 | 498 | 141 | 2 | 667 | 75 | 6 | 52 | 8 | 141 | 18 | 737 | 20 | 9 | 784 | 1644 |
| % Cars | 96.6 | 100 | 100 | 100 | 98.1 | 86.7 | 95.2 | 98.6 | 100 | 95.6 | 97.4 | 100 | 100 | 100 | 98.6 | 94.7 | 96.7 | 100 | 100 | 96.8 | 96.5 |
| Trucks | 1 | 0 | 0 | 0 | 1 | 4 | 9 | 2 | 0 | 15 | 2 | 0 | 0 | 0 | 2 | 1 | 10 | 0 | 0 | 11 | 29 |
| % Trucks | 3.4 | 0 | 0 | 0 | 1.9 | 13.3 | 1.7 | 1.4 | 0 | 2.1 | 2.6 | 0 | 0 | 0 | 1.4 | 5.3 | 1.3 | 0 | 0 | 1.4 | 1.7 |
| Heavys | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 15 | 31 |
| % Heavys | 0 | 0 | 0 | 0 | 0 | 0 | 3.1 | 0 | 0 | 2.3 | 0 | 0 | 0 | 0 | 0 | 0 | 2.0 | 0 | 0 | 1.9 | 1.8 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Email: nhyree@gmail.com Phone: (416) 840-6619 Fax: (416) 840-5297 "Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

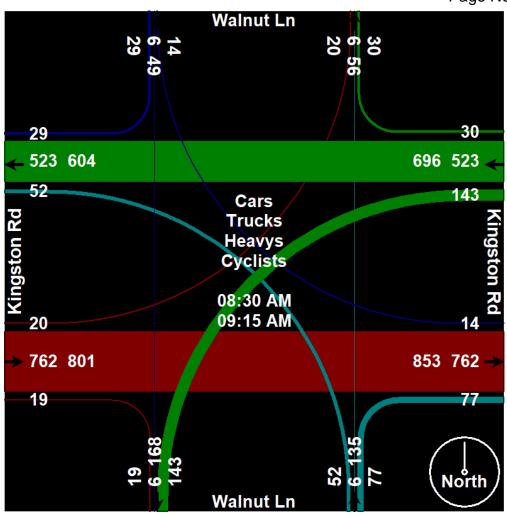
Site Code : 00000000 Start Date : 01/10/2023



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File Name: Kingston Road at Walnut Lane

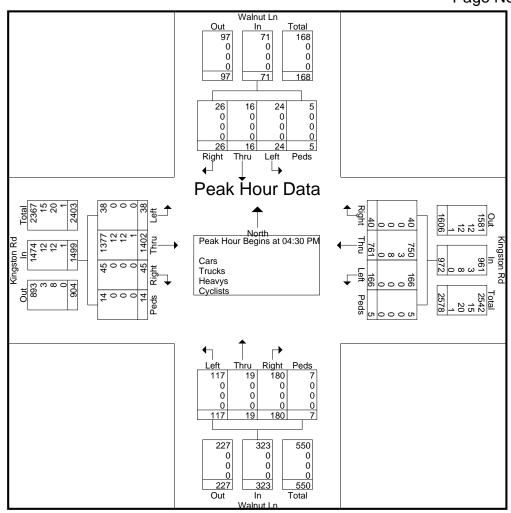
Site Code : 00000000 Start Date : 01/10/2023

| | | | Valnut L | | | | | ingston From Ea | | | | | Nalnut L | | | | | ingston I rom We | | | |
|------------------|--------------|-----------|-----------|-----------|------------|-------|------|--------------------|------|------------|-------|------|----------|------|------------|-------|------|---------------------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | sis From 0 | 4:00 PM | to 06:15 | 5 PM - Pe | eak 1 of 1 | | | | | · | | | | | | | | | | | _ |
| Peak Hour for En | tire Interse | ection Be | gins at 0 |)4:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 9 | 4 | 3 | 2 | 18 | 5 | 189 | 34 | 1 | 229 | 41 | 10 | 27 | 2 | 80 | 11 | 372 | 8 | 2 | 393 | 720 |
| 04:45 PM | 7 | 5 | 10 | 0 | 22 | 14 | 187 | 42 | 2 | 245 | 38 | 7 | 35 | 3 | 83 | 15 | 363 | 8 | 5 | 391 | 741 |
| 05:00 PM | 3 | 6 | 4 | 1 | 14 | 12 | 192 | 44 | 1 | 249 | 56 | 0 | 22 | 0 | 78 | 10 | 356 | 15 | 5 | 386 | 727 |
| 05:15 PM | 7 | 1_ | 7 | 2 | 17 | 9 | 193 | 46 | 1 | 249 | 45 | 2 | 33 | 2 | 82 | 9 | 311 | 7 | 2 | 329 | 677 |
| Total Volume | 26 | 16 | 24 | 5 | 71 | 40 | 761 | 166 | 5 | 972 | 180 | 19 | 117 | 7 | 323 | 45 | 1402 | 38 | 14 | 1499 | 2865 |
| % App. Total | 36.6 | 22.5 | 33.8 | 7 | | 4.1 | 78.3 | 17.1 | 0.5 | | 55.7 | 5.9 | 36.2 | 2.2 | | 3 | 93.5 | 2.5 | 0.9 | | |
| PHF | .722 | .667 | .600 | .625 | .807 | .714 | .986 | .902 | .625 | .976 | .804 | .475 | .836 | .583 | .973 | .750 | .942 | .633 | .700 | .954 | .967 |
| Cars | 26 | 16 | 24 | 5 | 71 | 40 | 750 | 166 | 5 | 961 | 180 | 19 | 117 | 7 | 323 | 45 | 1377 | 38 | 14 | 1474 | 2829 |
| % Cars | 100 | 100 | 100 | 100 | 100 | 100 | 98.6 | 100 | 100 | 98.9 | 100 | 100 | 100 | 100 | 100 | 100 | 98.2 | 100 | 100 | 98.3 | 98.7 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 15 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0.8 | 0.5 |
| Heavys | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 20 |
| % Heavys | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 | 0 | 0 | 0.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0.8 | 0.7 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0.0 |

Email: nhyree@gmail.com Phone: (416) 840-6619 Fax: (416) 840-5297 "Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

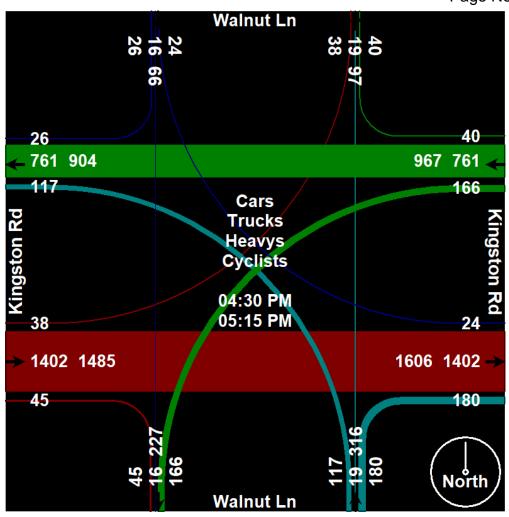
Site Code : 00000000 Start Date : 01/10/2023



Email: nhyree@gmail.com Phone: (416) 840-6619 Fax: (416) 840-5297 "Your Traffic Count Specialist"

File Name: Kingston Road at Walnut Lane

Site Code : 00000000 Start Date : 01/10/2023



Email: nhyree@gmail.com
Phone: (416) 840-6619 Fax: (416) 840-5297
"Your Traffic Count Specialist"

File Name: Kingston Road at Dixie Road

Site Code : 00000000 Start Date : 01/10/2023

Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

| | | | Dixie Ro | - | | | K | ingston I From Ea | ₹d | Odis Truc | 7100 | | Dixie Ro | - | | | | ingston F rom Wes | st | | |
|--------------------|----------|----------|-----------|--------|------------|-----------|------------|----------------------|--------|------------|----------|---------|-----------|------|------------|-----------|-------------|----------------------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 27 | 1 | 8 | 0 | 36 | 12 | 73 | 5 | 0 | 90 | 2 | 0 | 6 | 0 | 8 | 7 | 57 | 4 | 0 | 68 | 202 |
| 07:15 AM | 35 | 0 | 15 | 0 | 50 | 7 | 91 | 4 | 0 | 102 | 1 | 1 | 8 | 0 | 10 | 3 | 71 | 9 | 0 | 83 | 245 |
| 07:30 AM | 41 | 3 | 17 | 0 | 61 | 12 | 109 | 6 | 1 | 128 | 1 | 3 | 3 | 0 | 7 | 8 | 79 | 4 | 1 | 92 | 288 |
| 07:45 AM | 41 | 5 | 19 | 1 | 66 | 10 | 112 | 9 | 1 | 132 | 2 | 2 | 14 | 1_ | 19 | 15 | 122 | 17 | 3 | 157 | 374 |
| Total | 144 | 9 | 59 | 1 | 213 | 41 | 385 | 24 | 2 | 452 | 6 | 6 | 31 | 1 | 44 | 33 | 329 | 34 | 4 | 400 | 1109 |
| 08:00 AM | 57 | 3 | 12 | 1 | 73 | 19 | 121 | 9 | 1 | 150 | 5 | 4 | 12 | 0 | 21 | 15 | 131 | 24 | 0 | 170 | 414 |
| 08:15 AM | 46 | 4 | 25 | 1 | 76 | 10 | 121 | 15 | 1 | 147 | 6 | 1 | 6 | 0 | 13 | 13 | 138 | 30 | 0 | 181 | 417 |
| 08:30 AM | 41 | 6 | 28 | 0 | 75 | 13 | 122 | 15 | 0 | 150 | 5 | 2 | 10 | 1 | 18 | 12 | 157 | 17 | 0 | 186 | 429 |
| 08:45 AM | 41 | 10 | 35 | 3 | 89 | 16 | 118 | 19 | 2 | 155 | 7 | 7 | 7 | 0 | 21 | 25 | 184 | 29 | 0 | 238 | 503 |
| Total | 185 | 23 | 100 | 5 | 313 | 58 | 482 | 58 | 4 | 602 | 23 | 14 | 35 | 1 | 73 | 65 | 610 | 100 | 0 | 775 | 1763 |
| 09:00 AM | 37 | 8 | 27 | 2 | 74 | 17 | 110 | 22 | 0 | 149 | 12 | 3 | 5 | 2 | 22 | 22 | 194 | 17 | 2 | 235 | 480 |
| 09:15 AM | 25 | 11 | 27 | 1 | 64 | 15 | 119 | 22 | 0 | 156 | 5 | 3 | 15 | 1 | 24 | 22 | 192 | 17 | 1 | 232 | 476 |
| Total | 62 | 19 | 54 | 3 | 138 | 32 | 229 | 44 | 0 | 305 | 17 | 6 | 20 | 3 | 46 | 44 | 386 | 34 | 3 | 467 | 956 |
| 04:00 PM | 33 | 6 | 25 | 2 | 66 | 28 | 188 | 16 | 2 | 234 | 19 | 7 | 27 | 0 | 53 | 18 | 301 | 47 | 1 | 367 | 720 |
| 04:15 PM | 22 | 7 | 27 | 0 | 56 | 32 | 167 | 10 | 0 | 209 | 15 | 12 | 28 | 2 | 57 | 35 | 270 349 | 44 | 1 | 350 | 672 |
| 04:30 PM | 33 | 4 | 34 | 0 1 | 71 | 34 | 181 | 10 | 3 | 228 | 15 | 12 | 31 | 5 | 63 | 25 | | 52 | 1 | 427 | 789 |
| 04:45 PM | 16 | 12 29 | 25 111 | 3 | 54 247 | 32 126 | 184 720 | 10 46 | 1 6 | 227 898 | 24 73 | 9 40 | 24 110 | 7 | 57 | 22 100 | 338 1258 | 46 189 | 14 | 407 | 745 |
| Total | 104 | 29 | 111 | 3 | 247 | 126 | 720 | 46 | б | 898 | 73 | 40 | 110 | 1 | 230 | 100 | 1258 | 189 | 4 | 1551 | 2926 |
| 05:00 PM | 20 | 6 | 29 | 0 | 55 | 36 | 177 | 11 | 2 | 226 | 15 | 18 | 27 | 1 | 61 | 32 | 317 | 55 | 2 | 406 | 748 |
| 05:15 PM | 23 | 6 | 31 | 0 | 60 | 33 | 189 | 9 | 1 | 232 | 9 | 15 | 29 | 0 | 53 | 21 | 286 | 51 | 0 | 358 | 703 |
| 05:30 PM | 30 | 9 | 24 | 0 | 63 | 30 | 174 | 15 | 0 | 219 | 16 | 10 | 20 | 3 | 49 | 31 | 329 | 42 | 3 | 405 | 736 |
| 05:45 PM | 26 | 16 | 32 | 0 | 74 | 18 | 137 | 17 | 1 | 173 | 12 | 10 | 27 | 0 | 49 | 37 | 282 | 53 | 0 | 372 | 668 |
| Total | 99 | 37 | 116 | 0 | 252 | 117 | 677 | 52 | 4 | 850 | 52 | 53 | 103 | 4 | 212 | 121 | 1214 | 201 | 5 | 1541 | 2855 |
| 06:00 PM | 18 | 12 | 21 | 1 | 52 | 44 | 163 | 22 | 2 | 231 | 14 | 15 | 25 | 0 | 54 | 24 | 264 | 43 | 0 | 331 | 668 |
| 06:15 PM | 24 | 8 | 19 | 0 | 51 | 23 | 129 | 9 | 1 | 162 | 12 | 13 | 28 | .1 | 54 | 35 | 252 | 35 | .1 | 323 | 590 |
| Grand Total | 636 | 137 | 480 | 13 | 1266 | 441 | 2785 | 255 | 19 | 3500 | 197 | 147 | 352 | 17 | 713 | 422 | 4313 | 636 | 17 | 5388 | 10867 |
| Apprch % | 50.2 | 10.8 | 37.9 | 1 | 44.5 | 12.6 | 79.6 | 7.3 | 0.5 | 20.5 | 27.6 | 20.6 | 49.4 | 2.4 | 0.5 | 7.8 | 80 | 11.8 | 0.3 | 40.5 | |
| Total % | 5.9 | 1.3 | 4.4 | 0.1 | 11.6 | 4.1 | 25.6 | 2.3 | 0.2 | 32.2 | 1.8 | 1.4 | 3.2 | 0.2 | 6.6 | 3.9 | 39.7 | 5.9 | 0.2 | 49.6 | 40040 |
| Cars | 629 | 137 | 475 | 13 | 1254 | 437 | 2692 | 252 | 19 | 3400 | 195 | 147 | 346 | 17 | 705 | 418 | 4224 | 630 | 17 | 5289 | 10648 |
| % Cars | 98.9 | 100 | 99 | 100 | 99.1 | 99.1 | 96.7 | 98.8 | 100 | 97.1 | 99 | 100 | 98.3 | 100 | 98.9 | 99.1 | 97.9 | 99.1 | 100 | 98.2 | 98 |
| Trucks % Trucks | 7 1.1 | 0 0 | 1 0.2 | 0 | 8 0.6 | 3 0.7 | 27 1 | 2 0.8 | 0 | 32 0.9 | 2 1 | 0 0 | 5 | 0 | 7 1 | 4 0.9 | 30 0.7 | 6 0.9 | 0 | 40 0.7 | 87 0.8 |
| % ITUCKS | 1.1 | U | 0.2 | U | 0.6 | 0.7 | ı | 0.8 | U | 0.9 | 1 | U | 1.4 | U | 1 | 0.9 | 0.7 | 0.9 | U | 0.7 | 0.8 |

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File Name: Kingston Road at Dixie Road

Site Code : 00000000 Start Date : 01/10/2023

Page No : 2

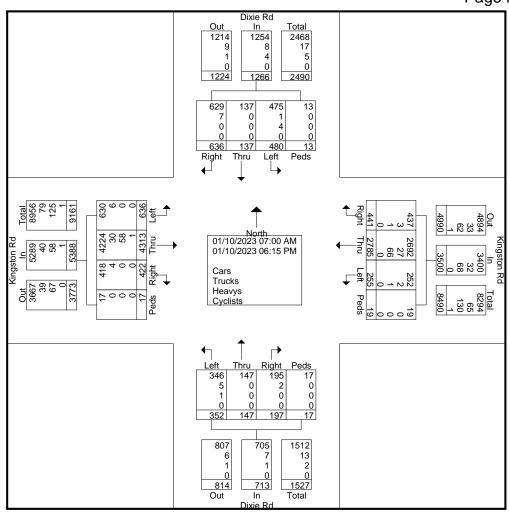
Groups Printed- Cars - Trucks - Heavys - Cyclists

| | | | | | | | | | | 00.0 | | | | | | | | | | | |
|------------|-------|------|----------|------|------------|-------|------|---------|------|------------|-------|------|---------|------|------------|-------|------|---------|------|------------|------------|
| | | | Dixie Ro | d | | | K | ingston | Rd | | | | Dixie R | d | | | K | ingston | Rd | | |
| | | | From No | rth | | | | From Ea | st | | | F | rom Sou | uth | | | F | rom We | st | | |
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Heavys | 0 | 0 | 4 | 0 | 4 | 1 | 66 | 1 | 0 | 68 | 0 | 0 | 1 | 0 | 1 | 0 | 58 | 0 | 0 | 58 | 131 |
| % Heavys | 0 | 0 | 0.8 | 0 | 0.3 | 0.2 | 2.4 | 0.4 | 0 | 1.9 | 0 | 0 | 0.3 | 0 | 0.1 | 0 | 1.3 | 0 | 0 | 1.1 | 1.2 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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File Name: Kingston Road at Dixie Road

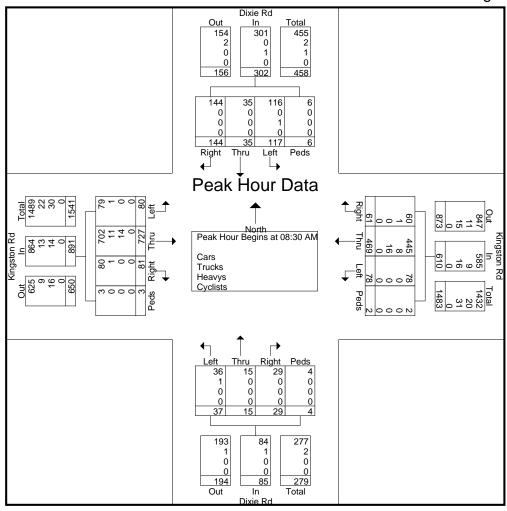
Site Code : 00000000 Start Date : 01/10/2023

| | | | Dixie Rd | | | | | ingston I | | | | | Dixie Ro | | | | | | | | |
|------------------|--------------|-----------|-----------|---------|------------|-------|------|-----------|------|------------|-------|------|----------|------|------------|-------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | | | | | | | | • | | • | | | | | | | | • | | | |
| Peak Hour for En | tire Interse | ection Be | gins at 0 | 8:30 AM | 1 | | | | | | | | | | | | | | | | |
| 08:30 AM | 41 | 6 | 28 | 0 | 75 | 13 | 122 | 15 | 0 | 150 | 5 | 2 | 10 | 1 | 18 | 12 | 157 | 17 | 0 | 186 | 429 |
| 08:45 AM | 41 | 10 | 35 | 3 | 89 | 16 | 118 | 19 | 2 | 155 | 7 | 7 | 7 | 0 | 21 | 25 | 184 | 29 | 0 | 238 | 503 |
| 09:00 AM | 37 | 8 | 27 | 2 | 74 | 17 | 110 | 22 | 0 | 149 | 12 | 3 | 5 | 2 | 22 | 22 | 194 | 17 | 2 | 235 | 480 |
| 09:15 AM | 25 | 11 | 27 | 1 | 64 | 15 | 119 | 22 | 0 | 156 | 5 | 3 | 15 | 1 | 24 | 22 | 192 | 17 | 1 | 232 | 476 |
| Total Volume | 144 | 35 | 117 | 6 | 302 | 61 | 469 | 78 | 2 | 610 | 29 | 15 | 37 | 4 | 85 | 81 | 727 | 80 | 3 | 891 | 1888 |
| % App. Total | 47.7 | 11.6 | 38.7 | 2 | | 10 | 76.9 | 12.8 | 0.3 | | 34.1 | 17.6 | 43.5 | 4.7 | | 9.1 | 81.6 | 9 | 0.3 | | |
| PHF | .878 | .795 | .836 | .500 | .848 | .897 | .961 | .886 | .250 | .978 | .604 | .536 | .617 | .500 | .885 | .810 | .937 | .690 | .375 | .936 | .938 |
| Cars | 144 | 35 | 116 | 6 | 301 | 60 | 445 | 78 | 2 | 585 | 29 | 15 | 36 | 4 | 84 | 80 | 702 | 79 | 3 | 864 | 1834 |
| % Cars | 100 | 100 | 99.1 | 100 | 99.7 | 98.4 | 94.9 | 100 | 100 | 95.9 | 100 | 100 | 97.3 | 100 | 98.8 | 98.8 | 96.6 | 98.8 | 100 | 97.0 | 97.1 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0 | 0 | 9 | 0 | 0 | 1 | 0 | 1 | 1 | 11 | 1 | 0 | 13 | 23 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 1.6 | 1.7 | 0 | 0 | 1.5 | 0 | 0 | 2.7 | 0 | 1.2 | 1.2 | 1.5 | 1.3 | 0 | 1.5 | 1.2 |
| Heavys | 0 | 0 | 1 | 0 | 1 | 0 | 16 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 14 | 31 |
| % Heavys | 0 | 0 | 0.9 | 0 | 0.3 | 0 | 3.4 | 0 | 0 | 2.6 | 0 | 0 | 0 | 0 | 0 | 0 | 1.9 | 0 | 0 | 1.6 | 1.6 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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File Name: Kingston Road at Dixie Road

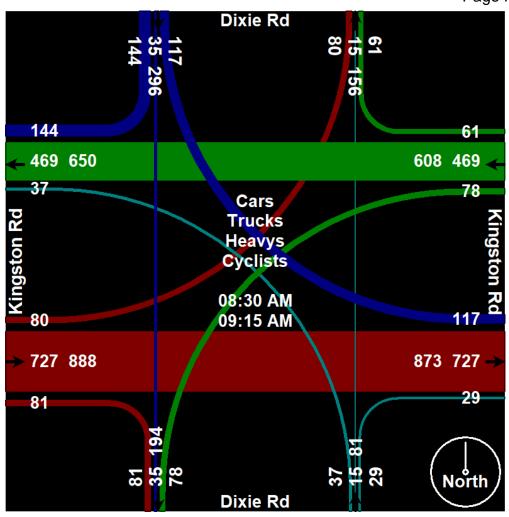
Site Code : 00000000 Start Date : 01/10/2023



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File Name: Kingston Road at Dixie Road

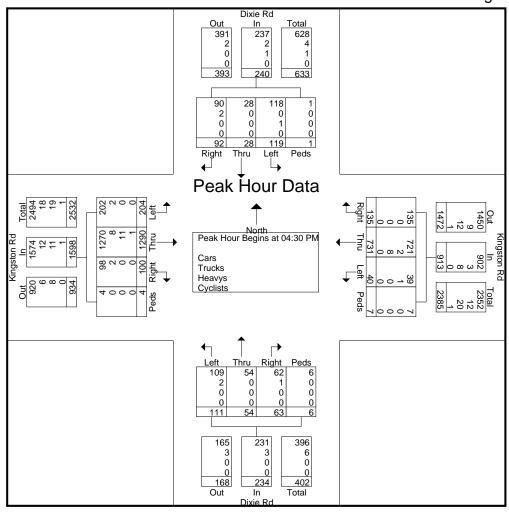
Site Code : 00000000 Start Date : 01/10/2023

| | | | Dixie Ro | | | | | ingston I From Ea | | | | | Dixie Ro | | | | | | | | |
|-------------------|--------------|-----------|-----------|---------|------------|-------|------|----------------------|------|------------|-------|------|----------|------|------------|-------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analys | | | | | | | | | | | | | | | | | | | | | _ |
| Peak Hour for Ent | tire Interse | ection Be | gins at 0 | 4:30 PM | ١ . | | | | | | | | | | | | | | | | |
| 04:30 PM | 33 | 4 | 34 | 0 | 71 | 34 | 181 | 10 | 3 | 228 | 15 | 12 | 31 | 5 | 63 | 25 | 349 | 52 | 1 | 427 | 789 |
| 04:45 PM | 16 | 12 | 25 | 1 | 54 | 32 | 184 | 10 | 1 | 227 | 24 | 9 | 24 | 0 | 57 | 22 | 338 | 46 | 1 | 407 | 745 |
| 05:00 PM | 20 | 6 | 29 | 0 | 55 | 36 | 177 | 11 | 2 | 226 | 15 | 18 | 27 | 1 | 61 | 32 | 317 | 55 | 2 | 406 | 748 |
| 05:15 PM | 23 | 6 | 31 | 0 | 60 | 33 | 189 | 9 | 1 | 232 | 9 | 15 | 29 | 0 | 53 | 21 | 286 | 51 | 0 | 358 | 703 |
| Total Volume | 92 | 28 | 119 | 1 | 240 | 135 | 731 | 40 | 7 | 913 | 63 | 54 | 111 | 6 | 234 | 100 | 1290 | 204 | 4 | 1598 | 2985 |
| % App. Total | 38.3 | 11.7 | 49.6 | 0.4 | | 14.8 | 80.1 | 4.4 | 0.8 | | 26.9 | 23.1 | 47.4 | 2.6 | | 6.3 | 80.7 | 12.8 | 0.3 | | |
| PHF | .697 | .583 | .875 | .250 | .845 | .938 | .967 | .909 | .583 | .984 | .656 | .750 | .895 | .300 | .929 | .781 | .924 | .927 | .500 | .936 | .946 |
| Cars | 90 | 28 | 118 | 1 | 237 | 135 | 721 | 39 | 7 | 902 | 62 | 54 | 109 | 6 | 231 | 98 | 1270 | 202 | 4 | 1574 | 2944 |
| % Cars | 97.8 | 100 | 99.2 | 100 | 98.8 | 100 | 98.6 | 97.5 | 100 | 98.8 | 98.4 | 100 | 98.2 | 100 | 98.7 | 98.0 | 98.4 | 99.0 | 100 | 98.5 | 98.6 |
| Trucks | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 3 | 1 | 0 | 2 | 0 | 3 | 2 | 8 | 2 | 0 | 12 | 20 |
| % Trucks | 2.2 | 0 | 0 | 0 | 0.8 | 0 | 0.3 | 2.5 | 0 | 0.3 | 1.6 | 0 | 1.8 | 0 | 1.3 | 2.0 | 0.6 | 1.0 | 0 | 0.8 | 0.7 |
| Heavys | 0 | 0 | 1 | 0 | 1 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 11 | 20 |
| % Heavys | 0 | 0 | 0.8 | 0 | 0.4 | 0 | 1.1 | 0 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0.7 | 0.7 |
| Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| % Cyclists | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0.0 |

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File Name: Kingston Road at Dixie Road

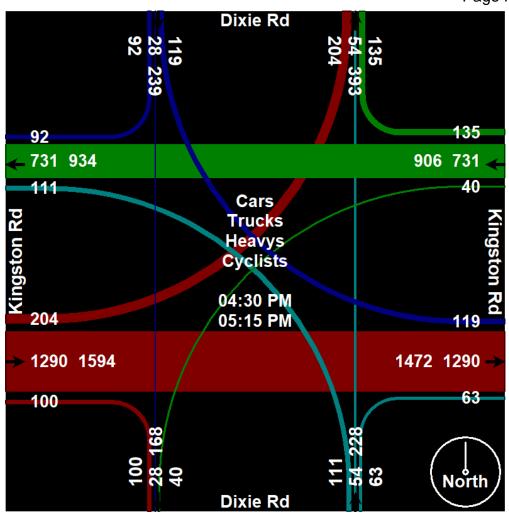
Site Code : 00000000 Start Date : 01/10/2023



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File Name: Kingston Road at Dixie Road

Site Code : 00000000 Start Date : 01/10/2023



Kingston Rd (RHwy 2) @ Fairport Rd 10745 **Count ID: Count Date:** 0700500000 Intersection ID: 35702040618 AM Peak Ped.→ MD Peak 0.81 0.00 0.86 0.86 0.00 0.83 08:45 0 12:15 3% % ↑ 7 % ↑ ထ ဝ ၈ 9 0 1 5 Ped. Ped. 182 Cars Trucks Trucks % PHF Trucks Trucks % PHF 6% 0.77 2% 0.85 23 792 28 0.76 1% ← ⁵⁶³ 15 3% 0.89 0.76 2% 2 110 3% 0.90 0.86 4% 28 681 Γo 0 0% 0.00 0.93 3% 30 **₽**0 0 0% 0.00 0.00 0% 0 $\downarrow \leftarrow \uparrow \rightarrow 863$ 0.00 0% $\downarrow \leftarrow \uparrow \rightarrow 1092$ PHF Trucks % Trucks Trucks % Trucks Cars o Cars o 0 0 Ped. Ped. Λ, \uparrow_{\downarrow} 0 0 0 0 0 0 **↓** % % % **1** % % % → Ped. → Ped. 0.00 0.00 PM Peak Total Count 0.87 0.00 0.93 14 16:30 8 hours* % % % ↑ 1% 0% 3% 0 0 0 3 60 60 \uparrow_{\downarrow} Ped. Ped. Cars Trucks Trucks % PHF Cars Trucks Trucks % PHF 19 15 855 1% 0.85 305 35 2% 223 9886 1873 0% 1 2% 25 1484 ↑ 3% 0.75 205 2% 0.88 245 0.92 2% 21 1371 → ιo 0 0% 0.00 3% 291 11181 -> **₽**0 0 0% 0 $\downarrow \leftarrow \uparrow \rightarrow 1642$ → ↑ ↑ → 13586 327 0.00 \rightarrow \rightarrow Trucks % Trucks Cars 0 0 0 0 Trucks % Trucks Cars 0 0 0 0 0 Ped. Ped. \uparrow_{\downarrow} \uparrow 0 0 0 0 0 0 **↓** % % % **1** % % %

→ Ped.

→ Ped.

0.00

TMC No:

12/06/2022, Tue

TMC 15 Min Report

Kingston Rd (RHwy 2) @ Fairport Rd

TMC No: 12/06/2022, Tue 0700500000 Intersection ID: 10745 Count ID: 35702040618 **Count Date:** EAST APPROACH SOUTH APPROACH WEST APPROACH NORTH APPROACH Cars Heavies Ped Cars Heavies Ped Cars Heavies Heavies Trucks Trucks Trucks Ped Cars Trucks Ped Total Thru Thru Thru Thru Thru Thru Left Thru Thru Right Thru Right Thru Thru Thru Right Period 1 05:00 0* 61* 05:15 5* 0* 11* 29* 0* 0* 2* 0* 05:30 0* 10* 0* 0* 0* 0* 34* 0* 0* 0* 0* 0* 0* 0 11* 0* 0* 62* 94* 05:45 6* 22* 40* 0* 21 0* 0* 06:00 06:15 6 27 151 06:30 06:45 8 189 07:00 26 38 85 61 224 0 07:15 19 42 103 47 245 07:30 28 107 288 07:45 31 59 113 92 350 08:00 40 124 08:15 33 160 437 08:30 149 27 131 446 08:45 51 67 151 149 469 21 09:00 54 58 159 16 26 201 530 09:15 37 133 30 32 155 466 09:30 43 120 32 176 449 115 10:00 52 26 126 10:15 36 31 131 28 202 464 0 0 10:30 45 34 132 32 191 463 13 Ω 30 10:45 41 Period 2 11:00 43 32 467 11:15 53 32 28 154 212 520 32 161 11:30 50 31 17 220 524 11:45 42 32 170 41 0 180 0 493 17 12:00 50 26 161 27 27 214 520 12:15 55 182 34 12:30 52 33 157 43 230 562 12:45 48 20 166 242 13:00 37 35 158 52 222 555 36 13:15 48* 38* 186* 49* 0* 0* 18* 237* 0* 0* 594* 0* 0* 13:30 51* 0* 27* 0* 0* 0* 162* 32* 0* 5* 0* 0* 0* 0* 0* 234* 0* 0* 0* 2* 0* 0* 0* 0* 0* 0* 0* 0* 30* 0* 0* 553* 13:45 58* 0* 32* 174* 50* 237* 0* 605* Period 3 14:00 60 161 14:15 36 32 207 45 26 231 592 34 49 14:30 44 194 0 25 229 592 14:45 44 25 179 37 28 263 595 15:00 50 28 192 35 33 223 575 15:15 47 172 257 15:30 210 15:45 57 178 16:00 79 36 183 33 293 56 699 179 16:15 47 37 54 368 57 758 16:30 74 37 163 40 69 320 711 16:45 33 205 57 40 351 760 17:00 78 167 325 723 17:15 59 32 183 66 375 773 27 17:30 170 323 55 683 17:45 52 32 168 55 40 358 718 18:00 69 27 135 45 44 316 649 18:15 50 35 163 60 44 297 655 18:30 29 139 47 33 255 18:45 43 33 158 46 33 275 598 19:00 43 25 131 39 33 219 19:15 78 153 61 236 34 622 19:30 34 33 122 39 33 160 0 429 19:45 24 131 42 191 448 20 0 35 0 20:00 29 0 19 0 0 0 Ω 0 101 32 0 0 0 0 0 0 0 34 179 0 0 Ω 0 0 397 20:15 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 20:30

Kingston Rd (RHwy 2) @ Hwy 401 WB Ramp (E of Whites Rd) TMC No: **Count ID: Count Date:** 0700300000 Intersection ID: 20046 35702040622 AM Peak MD Peak Ped.→ 0.00 0.00 08:45 12:15 % % % ↑ % % % ↑ 0 0 0 0 0 0 0 0 Ped. Ped. 0 0 0 0 0 0 0 0 Cars Trucks Trucks % PHF Trucks Trucks % PHF 0% 0.00 0% 0.00 36 43 1002 0.00 0% 0 ← ⁵²⁷ 3% 0.88 0.00 0% 0 4% 0.86 √ 284 0.86 4% 29 715 1% 0.77 0.83 3% 30 180 3% 0.86 0.60 0% $\downarrow \leftarrow \uparrow \rightarrow 780$ 0.96 0% \downarrow \uparrow \uparrow \uparrow 1020 PHF Trucks % Trucks Trucks % Trucks Cars 0 0 Ped. Ped. Λ, \uparrow_{\downarrow} 0 6 17 0 \$ % % ↓ \$ % ↓ ↓ → Ped. → Ped. 0.65 0.00 0.92 0.62 0.00 0.89 PM Peak 0.00 Total Count 18 16:15 8 hours* % % % ↑ °% ↑ 0 0 0 0 0 0 0 0 \uparrow_{\downarrow} Ped. Ped. 0 0 0 0 0 0 0 0 Cars Trucks Trucks % PHF Trucks Trucks % PHF 16 0% 0.00 390 0% 1332 ← ↓ ↓ ↑ 12840 ← ↓ Ь ↑ 0.00 0% 0 1% 0.91 0% 0 3% 0.98 2% 28 1473 → 184 2% 0.80 3% 310 11817 → 3% ← ↑ → 1573 4% ↑ → 12684 318 0.75 4% \rightarrow \rightarrow Trucks % Trucks Trucks % Trucks 5703 Ped. Ped. \uparrow_{\downarrow} \uparrow_{\downarrow} 5 6 0 8 0 156 81

→ 3% 1%

→ Ped.

√ % % %

0.81 0.00 0.89

→ Ped.

12/06/2022, Tue

TMC 15 Min Report

Kingston Rd (RHwy 2) @ Hwy 401 WB Ramp (E of Whites Rd)

TMC No: 0700300000 **Intersection ID:** 20046 **Count ID:** 35702040622 **Count Date:** 12/06/2022, Tue

| Time Lef | | NORTH APPROACH Cars Trucks Heavies 'hru Right Left Thru Right Left Thru Right | | | | | | | Ped | Left | Cars Thru | Right | | | | | | | Ped | Ped Cars Left Thru Righ | | | SOUTH APPROACH Trucks ght Left Thru Right Lef | | | н | Heavies Ped eft Thru Right | | | Cars Left Thru Right | | | WEST APPROACH Trucks Left Thru Right Left | | | | Heavies Thru F | | Ped | Total |
|--|---|---|---|---|---|---|---|---|--|--|--|---|--|---|---|---|---|---|--|--|---|---|---|---|--|---|---|---|---|---|---|--|---|---|--|---|--|--|--|--|
| Period 1 05:00 0* 05:15 0* 05:30 0* 06:45 0* 06:30 0 06:15 0 06:30 0 06:45 0 07:00 0 07:15 0 07:30 0 08:15 0 08:30 0 08:45 0 09:00 0 08:45 0 09:00 0 09:45 0 09:30 0 09:45 0 10:00 0 | 0*** 0** 0** 0* 0* 0* 0* 0* 0* 0* 0* 0* | 0* | 0*0*00*00*00*00*00*00*00*00*00*00*00*00 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0°000000000000000000000000000000000000 | 0* 0* 0* 00* 00 00 00 00 00 00 00 00 00 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 23* 28* 37* 45 52 43 67 67 64 69 60 64 69 64 36 42 37 53 | 0* 19* 22* 24* 32 56 58 58 82 95 109 131 89 123 152 122 130 96 109 109 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 1* 1* 0* 1 0 0 1 2 0 0 0 1 3 0 2 2 1 1 1 2 1 1 1 | 0° 2° 1° 1° 2° 3° 3° 3° 3° 4° 7° 4° 9° 6° 8° 6° 6° 6° 6° 6° 5° 5° 7° 5° 5° 7° 4° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° 1° | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 00* 00* 00 00 00 00 00 00 00 00 | 0° 0° 0° 0° 0° 0° 0 0 0 0 0 0 0 0 0 0 0 | 0* 8* 15* 22* 18 21 22 40 45 71 62 90 123 109 126 120 111 104 83 107 100 94 75 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 1* 0* 2* 2 3 3 2 0 1 1 6 11 11 15 16 11 11 11 13 9 15 | 2* 0* 0* 1 1 1 2 4 2 3 5 3 4 5 5 4 5 5 5 2 3 3 2 | 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 00 00 00 00 01 00 00 00 00 00 00 00 00 | 0* 0* 0* 00 00 00 00 00 00 00 00 00 00 0 | 0°000000000000000000000000000000000000 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 11* 10* 22* 19 33 39 44 63 51 105 109 129 155 209 157 183 207 196 193 | 0° 2° 0° 0° 2 0 0 0 2 0 0 0 2 1 3 1 4 0 5 3 4 4 2 2 5 1 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 1* 1* 16 6 1 4 3 2 7 6 9 4 2 8 7 7 8 7 6 6 6 6 6 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 00* 00* 00 00 00 00 00 00 00 00 | 0° (0° (0° (0° (0° (0° (0° (0° (0° (0° (| ************************************** | 0* 0* 0* 00 00 00 00 00 00 00 00 00 00 0 | 0° 70° 78° 108* 128 170 177 222 245 399 325 399 422 506 485 525 579 505 524 464 490 485 495 |
| Period 2 11:00 0 11:15 0 11:30 0 11:45 0 12:00 0 12:15 0 12:30 0 12:45 0 13:00 0 13:15 0* | 0 0 0 0 0 0 0 0 0** | 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0 0* | 0 2 0 0 0 0 0 3 0 0 0 1* 1* 0* | 51 66 53 40 41 49 41 36 54 45* 35* 48* | 118 109 141 168 150 172 152 149 133 176* 160* 157* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 3 1 1 0 3 0 3 0 1* 1* 1* | 4 12 8 4 5 12 5 5 4 4* 3* 3* | 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0* 0* | 0 0 0 0 0 0 0 0 0 0 0 | 88 83 88 90 100 108 99 78 111 131* 100* 90* | 0 0 0 0 0 0 0 0 0 0 0 0 | 8 13 16 17 21 14 21 2 15 13* 13* 17* | 2 3 6 5 3 4 5 6* 1* | 0* 0* | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0* 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0° 0° | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 203 209 212 188 213 217 216 292 243 244* 253* 251* | 4 2 3 2 0 6 7 7 7 4* 5* 8* | 0 0 0 0 0 0 0 0 0 0* | 8 10 5 4 6 3 11 9 7 9* 8* 10* | 1 0 1 0 0 0 0 0 0 0 0* 0* | 0 0 0 0 0 0 0 0 0 0* | 0 (0 (0 (0 (0 (0 (0 (0 (0 (0 (0 (0 (0 (0 |) (0) (0) (0) (0) (0) (0) (0) (0) (0) (0 | 0 0 0 0 0 0 0 0 0* | 487 511 531 517 542 589 558 586 579 635* 580* 587* |
| Period 3 14:00 0 14:15 0 14:30 0 15:15 0 15:30 0 15:45 0 16:00 0 16:45 0 17:00 0 17:15 0 18:30 0 17:45 0 18:30 0 17:45 0 18:30 0 17:45 0 18:30 0 18:45 0 18:30 0 19:45 0 19:00 0 19:15 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 41 48 37 43 49 33 63 38 40 46 57 41 37 56 51 39 49 37 51 49 25 26 27 | 159 189 189 165 172 155 192 162 196 167 166 180 151 148 133 128 133 128 139 122 96 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 3 3 3 2 2 4 0 0 5 2 2 0 2 0 0 3 1 1 2 0 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 | 4 2 6 3 4 4 4 3 5 5 5 3 1 0 6 3 2 2 4 1 1 5 2 3 1 1 3 2 2 1 1 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 1 0 0 0 0 0 0 0 0 0 1 1 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 | 113 114 137 114 126 127 142 136 157 146 186 178 152 123 150 135 134 110 129 118 93 109 97 114 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 18 14 9 16 14 30 15 20 29 26 31 23 20 26 33 31 25 31 15 19 19 19 19 20 20 20 20 20 20 20 20 20 20 20 20 20 | 5 11 0 8 9 6 1 1 1 1 1 2 0 0 1 1 1 0 0 0 1 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 259 246 229 289 240 262 284 350 377 359 360 371 355 363 337 311 296 260 261 231 206 | 4 6 4 10 1 4 5 7 5 4 7 8 4 6 3 3 3 0 4 4 3 6 6 6 5 6 6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 5 6 7 111 7 8 3 6 6 9 6 10 3 4 6 6 6 6 7 11 7 8 3 4 6 6 6 7 7 1 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 | 1 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c | 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 | 610 632 633 656 623 637 717 725 767 777 797 805 750 664 663 630 597 551 547 499 481 467 0° |

Generated: 06/13/2023 Page 2 of 2

Kingston Rd (RHwy 2) @ Boyer Plaza / Delta Bv TMC No: 4063 **Count ID: Count Date:** 0700200000 Intersection ID: 35702040743 AM Peak MD Peak Ped.→ 0.61 0.65 0.78 0.71 0.59 0.79 13 10:30 12:15 % % ↑ 0% **↑** 5% 0 0 0 0 0 4 Ped. Ped. 42 13 124 77 18 147 Trucks Trucks % PHF Cars Trucks Trucks % PHF 1159 ← ↓ ↓ ↑ ↑ 3% 0.70 1% 0.87 18 31 1436 0.79 0% 0 76 ← 895 2% 0.91 0.84 2% 2 125 2% 0.95 **√** 96 1010 → **↓** 119 0.95 4% 35 942 1% 0.69 0.91 2% 23 1% 0.97 0.93 ← ↑ → 1076 0.71 3% \downarrow \uparrow \uparrow \uparrow 1228 PHF Trucks % Trucks Trucks % Trucks Cars 2 3 201 Ped. Ped. \uparrow_{\downarrow} Λ, **-** 0 0 ω 4 α ω ↓ % % % 14% 14% → Ped. → Ped. 0.73 0.50 0.81 0.86 0.73 PM Peak Total Count Ped. → 152 0.73 0.41 0.85 16:45 16 8 hours* % % % ↑ 1% 1% 0 0 0 25 ↑↓ Ped. Ped. 82 13 755 142 1722 Trucks Trucks % PHF Cars Trucks Trucks % PHF 43 15 1470 ← ↓ ↓ ↑ ↑ 0% 0.84 382 15830 ← ↓ ↓ ↑ 1% 121 1160 0.66 1% 1 ← 1129 1% 0.87 1% 16 3% 1331 ↑ 0.98 1% 15 1344 🛶 0% 0.74 2% 292 12084 -> 1% 0 12 → ↑ → 14055 306 0.79 3% 372 \rightarrow \rightarrow Trucks % Trucks 0 Trucks % Trucks 25 1751 198 15 1216 Ped. Ped. \uparrow_{\downarrow} \uparrow_{\downarrow} 0 2 16 22 **↓** % % **→** 1%

→ Ped.

→ Ped.

0.93 0.54 0.94 12/13/2022, Tue

TMC 15 Min Report

Kingston Rd (RHwy 2) @ Boyer Plaza / Delta Bv

TMC No: 12/13/2022, Tue Intersection ID: Count ID: **Count Date:** SOUTH APPROACH WEST APPROACH NORTH APPROACH EAST APPROACH Cars Heavies Ped Cars Heavies Ped Cars Heavies Heavies Trucks Trucks Trucks Ped Cars Trucks Ped Total Thru Thru Thru Thru Thru Thru Left Thru Thru Right Thru Thru Thru Thru Right Period 1 05:00 0* 0* 66* 05:15 3* 12* 0* 0* 9* 0* 05:30 2* 18* 0* 0* 0* 2* 24* 0* 0* 0* 0* 0* 10* 0* 81* 12* 05:45 4* 20* 0* 0* 0* 113* 06:00 06:15 2 06:30 06:45 07:00 07:15 6 07:30 07:45 08:00 13 08:15 8 08:30 08:45 16 09:00 09:15 09:30 10:00 10:15 5 10:30 8 10:45 Period 2 11:00 18 11:15 10 11:30 11:45 18 12:00 12:15 18 12:30 12:45 27 13:00 20 13:15 12* 52* 26* 267* 22* 0* 63* 29* 231* 13* 0* 0* 778* 18* 13:30 18* 36* 0* 0* 0* 4* 27* 263* 0* 0* 0* 43* 5* 36* 0* 0* 0* 227* 22* 6* 0* 0* 0* 2* 0* 0* 6* 0* 2* 0* 32* 0* 0* 750* 13:45 24* 32* 28* 275* 260* 793* Period 3 14:00 18 14:15 15 14:30 14:45 21 15:00 15:15 16 15:30 15:45 18 16:00 16:15 21 16:30 20 16:45 17:00 28 17:15 12 17:30 17:45 25 18:00 18:15 18 18:30 18:45 21 19:00 19:15 11 19:30 19:45 11 20:00 15

0* 0* 0*

0*

0*

20:15 0*

20:30

0* 0* 0*

0* 0* 0*

0* 0*

Kingston Rd (RHwy 2) @ Whites Rd (R.R.38)

→ Ped.

TMC No: 10956 Count ID: 35702040625 **Count Date:** 0380500000 Intersection ID: AM Peak Ped.→ MD Peak Ped. 251 ← 0.77 0.91 0.52 0.77 0.80 0.78 08:45 38 12:15 1% **↑** 5% **1**% 3% ↑ 39 46 4 32 7 4 \uparrow_{\downarrow} Ped. Ped. 156 Cars Trucks Trucks % PHF Trucks Trucks % PHF 20 31 5% 0.91 4% 0.93 28 799 281 14 33 925 334 0.79 5% 78 ← 478 3% 0.77 0.82 6% 6 ← 612 4% 0.94 **↓** 273 0.79 4% 13 311 2 1% 0.76 0.90 2% 12 522 8 3% 0.88 0.81 3% $\uparrow
\uparrow
\uparrow$ 857 0.95 4% 12 ↑ ↑ 1162 PHF Trucks % Trucks 20 Trucks % Trucks 72 Cars 146 Ped. Ped. \uparrow_{\downarrow} Λ, 21 7 $\stackrel{\rightharpoonup}{\rightarrow}$ **↓** 5% 3% **→** 2% 3% $\stackrel{\textstyle >}{\leftarrow}$ Ped. → Ped. 0.87 0.89 0.89 PM Peak Total Count Ped. → 575 0.88 0.85 0.75 75 15:45 8 hours* 1% ↑ 2% 2% 2% 2% 2% 3 29 2 45 202 32 ↑↓ Ped. Ped. 8095 1570 189 Cars Trucks Trucks % PHF Cars Trucks Trucks % PHF 174 37 16 1138 ← ↓ ↓ ↑ ↑ 1% 0.83 303 145 3% 490 10749 ← ↓ ↓ ↑ 4373 3% 4 ← 724 1% 0.88 3% 33 3% 0.86 155 1209 ↑ 231 0.93 2% 18 722 5 2% 0.83 3% 176 5913 → 3018 57 2% 10 ↑ → ¹⁵⁶⁶ 85 0.92 3% 2% ↑ → 13769 \rightarrow \rightarrow PHF Trucks % Trucks 65 Trucks % Trucks Cars 289 2060 Ped. Ped. 1υ \uparrow_{\downarrow} 12 2 44 158 40 344 122 **↓** 1% 2% 4 **→** 2% 2%

→ Ped.

0.97 0.90 0.87

12/06/2022, Tue

TMC 15 Min Report

Kingston Rd (RHwy 2) @ Whites Rd (R.R.38)

TMC No: 0380500000 **Intersection ID:** 10956 **Count ID:** 35702040625 **Count Date:** 12/06/2022, Tue

| Time | | ars | ⊋iaht | | NORTH A | s | | Heavie | | Ped | l of* | Cars | Right | | Trucks | | | Heavie | - | Ped | l oft | Cars | Right | | Trucks | | | Heavies | | Ped | Left | Cars | Righ* | | WEST AP Trucks | | | Heavies | - | Ped | Total |
|--|--|--|--|---|---|---|---|---|---|--|--|---|--|--|--|---|---|---|---|--|--|--|--|--|--|---|---|---|---|---|--|--|---|--|---|---|---|---|---|---|---|
| Period 1 05:00 0** 05:15 7** 05:30 6** 06:00 13 06:15 11 06:30 4 06:45 6 07:00 21 07:15 10 07:30 15 07:45 22 08:00 23 08:15 33 08:15 39 09:00 34 09:15 39 09:45 61 10:00 41 | 0* 49* 77 10 12 12 11 17 15 19 21 23 30 28 22 20 18 17 | 11* 155 155 158 161 | 0° 33° 11° 44° 44° 44° 44° 44° 45° 55° 55° 55° 55 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0 2 2 2 1 3 5 1 2 2 3 10 16 17 4 2 2 | 0* 0* 0* 0* 0* 00 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 1* 1* 2* 1 2 0 6 1 1 0 8 4 5 4 2 7 15 14 8 3 4 | 0* 11* 16* 14* 25 24 37 45 42 61 48 56 55 72 60 78 45 51 53 55 51 | 0* 14* 23* 25* 34 44 44 51 82 75 70 101 112 130 102 157 103 116 104 117 125 | 0* 10* 11* 7* 11 9 18 19 21 30 36 52 58 65 86 78 57 74 72 68 53 59 | 0* 0* 0* 0 0 0 0 0 1 1 1 1 0 0 1 1 1 0 1 | 0* 3* 1* 1* 2 3 3 5 6 5 7 7 8 8 8 5 4 4 4 7 5 7 | 0* 1* 0* 1 1 0 3 1 1 0 7 2 5 4 4 5 3 7 2 2 5 4 4 2 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0* 0* 0* 0* 1 0 2 3 1 1 0 8 2 2 3 1 7 4 8 2 2 1 1 | 0* 3* 5* 5* 6 12 15 10 9 17 23 17 26 35 27 32 43 33 38 35 44 49 | 0* 13* 15* 13* 11 30 34 64 45 62 59 88 80 114 100 96 91 104 99 66 47 37 | 0* 11* 9* 9* 14 18 38 38 46 66 78 80 73 93 111 93 93 78 87 92 | 0* 0* 0* 0* 1* 0 0 1 1 1 4 4 0 3 3 1 0 0 0 1 1 | 7 Thru 0* 1* 0* 2* 2 4 7 3 2 3 9 7 4 4 1 5 6 9 1 2 1 4 | 0° 0° 0° 1° 4 1 1 2 2 1 1 2 2 5 1 1 3 3 1 5 4 3 3 2 1 4 | 0* 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 | 7hru | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0* 00 0 0 0 0 0 0 0 0 0 0 0 | 0* 1* 0* 0* 2 1 3 4 3 2 4 11 8 16 12 14 17 26 26 20 13 | 7 16* 7 16 27 22 25 22 25 37 31 53 47 49 60 100 65 86 94 107 108 | 0* 12* 14* 21* 17 23 22 26 50 32 49 61 71 91 68 64 65 60 62 | 0* 0* 0* 11* 0 1 1 0 3 0 1 1 0 1 1 0 1 1 | 7 Thru 0* 0* 1* 2* 2 1 4 3 2 5 2 4 3 1 4 7 2 1 3 5 6 2 | 0* 0* 0* 0 1 4 0 1 1 3 3 1 1 5 2 0 2 1 4 1 1 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 7hru 0* 0* 0* 00 00 00 00 00 00 00 00 00 00 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 144* 185* 233* 284 343 362 491 495 555 668 761 915 962 960 932 1075 941 1024 899 851 822 |
| 10:30 34 10:45 37 Period 2 11:00 37 11:15 33 11:30 55 11:45 41 12:00 51 12:15 32 12:30 52 12:45 31 13:00 44 13:15 38 13:30 25 13:45 36 | 13 14 12 93 11 13 13 10 10 13 99 15 | 22 ::66 :: 25 ::3 27 ::37 ::33 ::55 :: 133 ::2* ::9* | 24 26 30 25 33 28 32 30 31 28 42 21* 26* 42* | 3 4 3 5 1 3 2 1 1 2* 1* 0* | 2 4 1 4 5 4 3 3 4 7* 5* 5* | 0 0 0 0 1 0 1 0 3 0 1 1* 2* 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 7 11 3 11 2 7 126 73 45 4* 6* 8* | 56 33 54 48 50 60 41 71 70 79 53 75* 63* 64* | 132 126 129 142 118 150 135 160 161 141 150 165* | 60 54 67 59 65 62 81 83 82 77 92 76* 90* 79* | 0 2 0 1 1 1 3 3 3 3 1 1 0 * 1 * 1 * | 5 8 4 5 7 9 4 6 6 4* 5* 5* | 7 6 3 4 7 4 2 4 5 4 2 3* 0* 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 5 3 6 4 1 2 39 23 8 2* 6* 9* | 41 47 40 41 47 33 38 42 49 53 33 47 47* 29* 35* | 63 63 63 59 55 72 72 76 83 66 77* 75* 95* | 97 84 98 98 114 122 121 118 120 102* 118* 130* | 1 1 0 1 2 3 0 2 1 1 1 0 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 | 2 5 3 3 6 3 1 4 1 4 2 3* 2* 1* | | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 2 1 1 2 9 22 7 3* 5* 4* | 17 19 23 19 10 14 23 28 21 20 27 24* 32* 21* | 100 89 109 130 117 93 105 119 122 144 137 137* 160* 143* | 71 68 51 83 83 75 76 72 80 76 82 92* 71* 69* | 0 1 0 1 0 3 2 3 2 0 1 0* 0* 0* | 3 7 5 5 5 2 4 2 1 4 4 3 1* 3* 8* | 3 0 4 0 3 0 1 4 2 3 3 7* 5* 2* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 3 | 842 813 872 873 857 903 945 990 1022 1122 1005* 1008* 1037* |
| Period 3 14:00 34 14:15 36 14:30 40 14:45 41 15:00 31 15:30 32 15:45 54 16:00 47 16:15 43 16:30 45 16:45 41 17:00 50 17:15 44 17:30 49 17:45 49 17: | 15 14 15 16 13 12 10 13 12 | 66 6 10 10 10 10 10 10 10 10 10 10 10 10 10 | 26 332 335 337 341 411 935 437 437 437 437 437 437 437 437 | 0 2 1 1 0 1 1 0 1 1 0 0 0 0 0 0 0 0 0 0 | 1 8 3 5 5 0 111 3 6 110 8 5 5 5 3 3 2 2 2 2 5 5 0 0 2 2 3 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1 0 0 0 1 1 0 1 1 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 1 0 0 0 1 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 3 11 13 2 12 4 5 28 23 11 13 5 10 4 2 6 1 6 9 3 7 4 1 1 4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 60 65 73 59 74 67 67 55 58 69 54 61 71 66 63 67 66 59 65 44 43 0° 0° | 155 169 187 174 177 162 189 177 170 194 192 154 161 154 133 135 132 140 135 129 126 130 112 0* | 101 92 101 96 95 104 123 101 133 106 150 130 137 117 124 107 137 108 121 98 84 82 89 93 0* | 2 2 3 3 2 4 1 1 1 2 1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 | 4 4 4 5 5 6 6 5 3 4 4 0 0 6 6 2 1 1 4 0 4 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 | 3 2 9 0 0 2 2 5 7 2 2 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 3 5 4 3 5 3 2 15 21 16 13 5 3 4 3 7 1 4 8 4 6 6 5 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 35 43 39 56 49 62 59 63 47 52 66 52 39 57 50 62 39 50 48 36 32 23 34 18 28 0° | 74 93 103 129 105 151 158 191 151 178 164 185 215 200 188 152 200 188 152 136 169 163 111 114 93 107 105 0* | 136 123 117 167 135 125 145 157 170 167 161 189 185 177 163 163 144 134 143 134 125 94 108 0° | 0 1 2 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 | 2 4 3 6 1 1 3 3 3 6 0 0 1 1 2 1 1 2 1 1 1 2 0 0 1 1 1 1 1 1 | 0 4 3 6 2 3 1 1 2 1 3 3 1 6 6 1 1 1 2 2 2 2 0 0 2 2 1 1 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 4 2 1 2 2 2 1 1 2 2 1 1 3 3 5 1 1 0 3 5 1 1 0 0 0 1 1 1 0 0 0 0 1 1 1 0 0 0 0 | 23 29 29 21 27 28 33 37 38 46 45 45 42 42 42 42 40 33 32 23 32 23 23 26 24 15 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° | 129 148 122 118 129 132 173 167 171 193 191 162 201 199 173 144 138 98 112 85 97 0° | 777 95 77 81 85 85 85 90 91 88 89 81 86 79 111 76 87 77 82 78 70 52 56 45 0* | 0 0 0 1 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 | 3 3 4 4 7 4 3 5 5 5 5 4 3 1 1 3 4 4 2 2 2 4 4 3 2 2 2 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 2 2 2 2 0 1 4 5 5 2 5 2 1 1 0 0 1 1 4 5 5 2 5 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 3 2 2 2 2 2 2 2 2 4 3 6 4 3 2 2 6 5 5 1 2 1 1 2 0 0 0 0 2 1 1 0 0 0 0 0 0 0 0 | 1006 1093 1107 1140 1099 1154 1266 1434 1359 1388 1326 1390 1388 1328 1203 1135 1108 992 937 844 992 937 848 792 0° |

TMC Tabular Report Whites Rd (R.R.38) @ Highway 401 EB Off Ramp TMC No: 11065 Count ID: **Count Date:** 12/06/2022, Tue 0380700000 Intersection ID: 35702040624 AM Peak MD Peak Ped.→ 0.00 0.00 0.92 0.00 Ped.→ 08:45 12:15 % % ↑ 3% **↑** 0 21 0 0 13 Ped. Ped. 0 Cars Trucks Trucks % PHF Trucks Trucks % PHF 0 0% 0.00 0% 0.00 0 0.85 3% 16 585 0% 0.00 0.88 3% 20 0% 0.00 0.00 0% 0 **₽**0 0% 0.00 0.00 0% 0 0% 0.00 0.91 4% 12 0.88 5% 14 269 $\downarrow \leftarrow \uparrow \land \uparrow \circ$ $\downarrow \hookrightarrow \uparrow \land \uparrow \circ$

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PM Peak 0.00 16:45 % % ↑ 0 Ped. Cars Trucks Trucks % PHF 0% 0.00 0 1% 11 0% 0.00 0.97 0.00 0% 0 0 0% 0.00 0.95 17 \rightarrow Trucks % Trucks Cars 11 Ped. \uparrow_{\downarrow} 0 12 0 24 ↓ % % → Ped. 0.00 0.83 0.00

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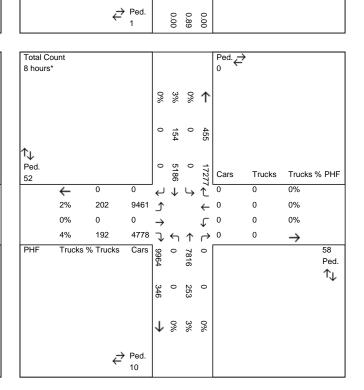
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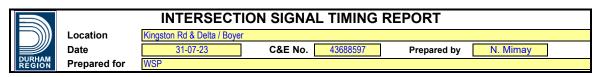
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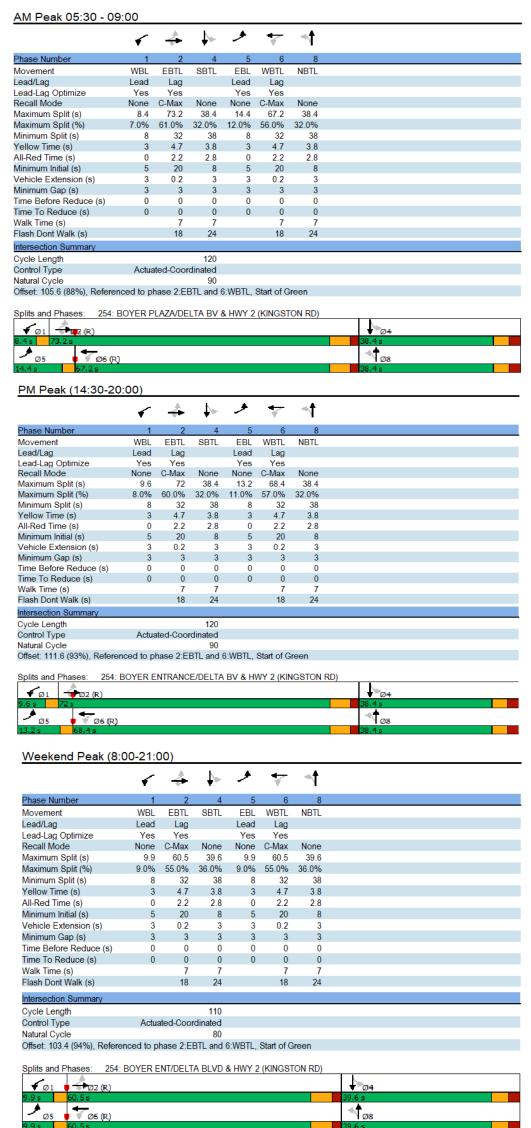
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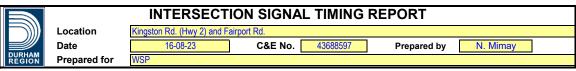
Whites Rd (R.R.38) @ Highway 401 EB Off Ramp

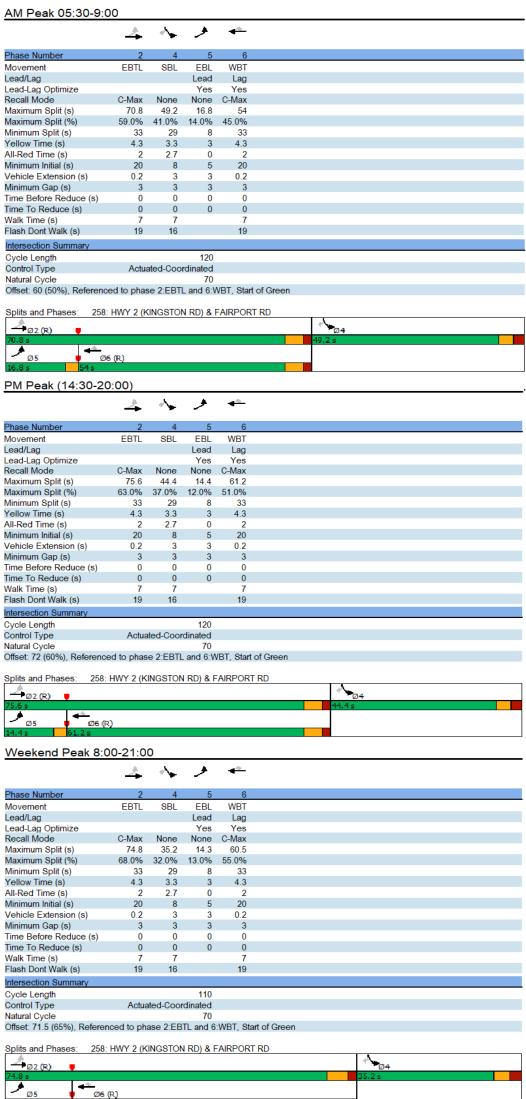
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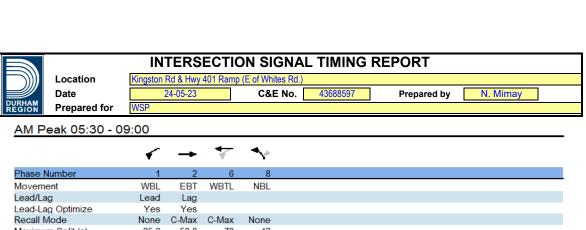
| _ | | | | | | APPRO# | ACH | | | | | _ | | | | PPROAC | н | | | | | _ | | s | | APPROA | СН | | | | | | | , | WEST A | | СН | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|---|---|---|---|---|---|---|--|--|---|---|---|---|---|---|--|---|---|--|
| Time | Left | Cars Thru | Right | Left | Truck Thru | s ı Right | t Left | Heavi Thru | | Ped t | Left | Cars Thru | Right | Left | Truck Thru | | Left | Heavie Thru | | Ped | Left | Cars Thru | Right | Left | Trucks Thru | | Left | Heavie Thru | | Ped | Left | Cars Thru | | Left | Trucks Thru | Right | Left | Heavies Thru | s Right | Ped | Total |
| 10:15 | 0 0° 0 0° 0 0° 0 0° 0 0° 0 0° 0 0° 0 0° | 0* 9* 10* 22* 23 30 28 72 60 65 82 108 155 94 103 118 112 84 103 90 75 80 | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0* 0* 0* 0* 00 1 1 0 2 2 1 1 1 5 3 2 2 5 5 3 8 5 1 3 0 0 | 0* 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0°000000000000000000000000000000000000 | 0* 0* 0* 0* 00* 00* 00 00 00 00 00 00 00 | 0* 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* | 0* 0* 0* 0* 00 00 00 00 00 00 00 00 00 0 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* | 0* 0* 0* 0* 00 00 00 00 00 00 00 00 00 0 | 0* 0* 0* 0* 0 1 1 0 0 0 0 1 1 7 3 3 0 0 0 | 0*0*0*0*0*0*0*0*0*0*0*0*0*0*0*0*0*0*0* | 0* 19* 43* 55* 56 74 107 83 119 156 170 181 195 147 149 105 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0* 1* 2* 1* 1 0 1 3 4 5 5 3 7 6 10 15 11 7 4 5 | 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0* 0 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 0* 0* 00* 00* 00 00 00 00 00 00 00 00 | 0* 0* 0* 00* 00* 00* 00* 00* 00* 00* 00 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 21* 15* 14* 24 45 34 77 73 81 133 118 147 1748 136 102 131 110 | 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0 | 0* 12* 17* 30* 26 31 42 52 63 55 65 95 95 69 70 74 64 66 69 61 61 80 68 | 0* 1* 1* 1* 7* 6 8 4 4 2 3 8 11 2 4 2 3 3 9 1 2 1 8 | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 1* 3* 5 4 2 1 1 1 4 0 3 3 1 4 3 3 2 4 4 4 5 5 4 | 0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0° | 0* 0* 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0* 0* 0* 00 0 0 0 1 2 0 0 0 3 3 3 1 0 0 2 1 4 0 3 0 0 2 | 0° 63° 89° 126° 143° 1991 1991 220° 230° 2417 480° 570° 528° 445° 528° 552° 521° 4415° 408° 382° 382° 382° 382° 382° 382° 382° 38 |
| 12:15 12:30 12:45 13:00 13:15 13:30 13:45 | 55 0 od 2 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 0 0 0 5 0 0 5 0 0 5 0 0 6 0 0 7 0 0 8 0 0 8 0 0 9 0 | 70 59 61 72 90 106 77 90 95 105 100* 81* 88* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 2 2 0 4 4 2 3 5 3 2 3 4* 5* 2* | 0 0 0 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0* | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 1 0 0 1 1 0 1 3 0 2* 1* 2* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 132 121 127 128 111 144 121 168 146 140 143 122* 155* 133* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 2 4 3 11 6 5 5 6 4 7 6 4* 6* 5* | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 | 112 115 142 116 130 120 157 144 155 169 133 161* 149* 192* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 59 71 54 60 77 71 88 58 76 66 69 80* 84* 74* | 3 5 11 4 3 4 5 2 4 8 6 4* 4* 1* | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 4 4 4 6 7 2 4 4 4 2 6* 5* 4* | 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 | 384 389 403 399 427 460 460 477 488 495 468 483* 492* 501* |
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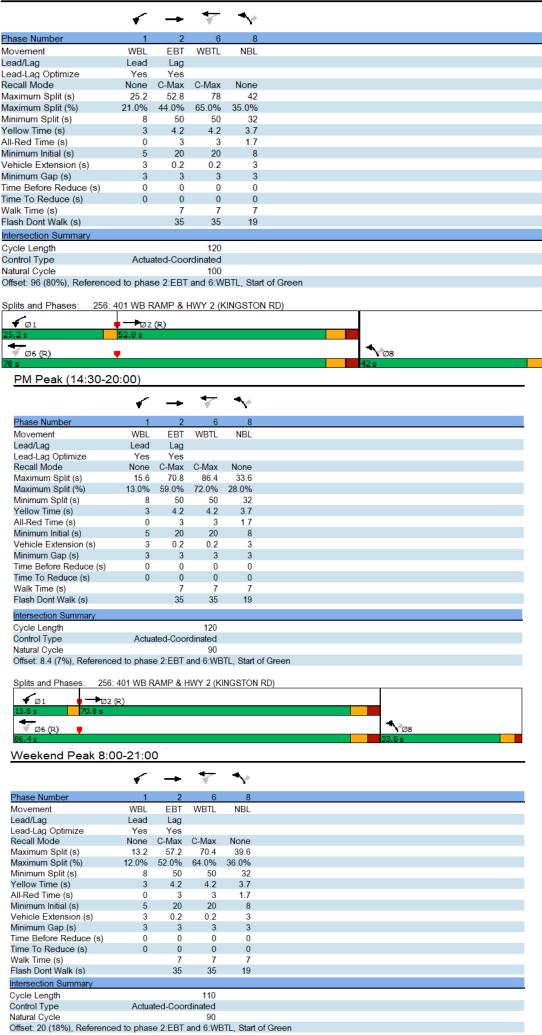




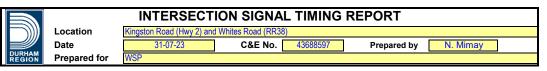


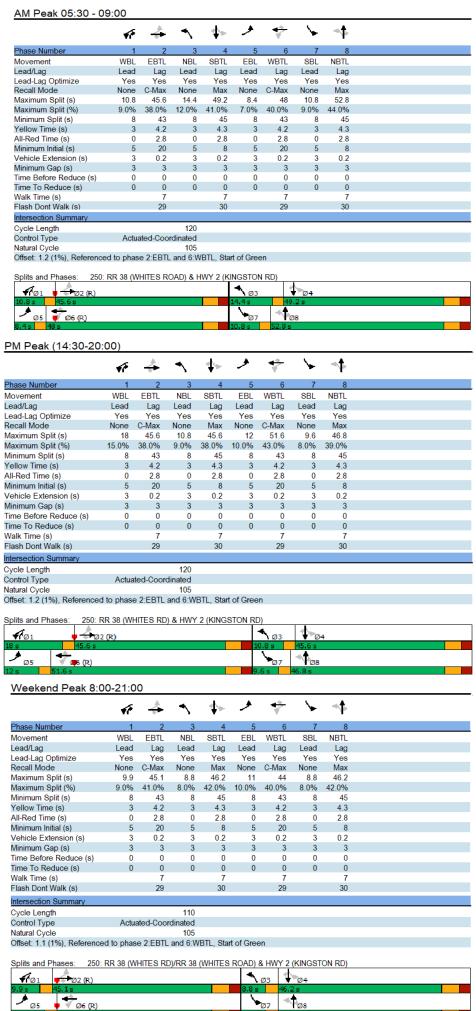


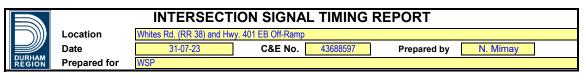


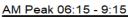


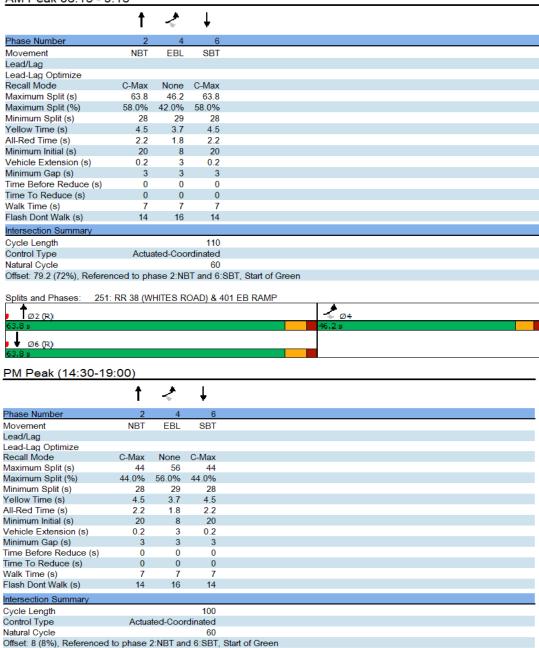
| Splits and Pha | ases: 256: HWY 401 WB & HWY 2 (KINGSTON RD) | |
|----------------|---|-------------|
| √ Ø1 | ■ → Ø2 (R) | |
| 13.2 s | 57.2 s | |
| ₩ Ø6 (R) | • | ↑ ⊘8 |
| 70.4 s | | 39.6 s |
| | | |





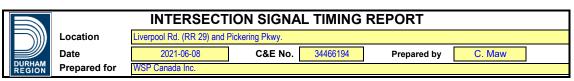


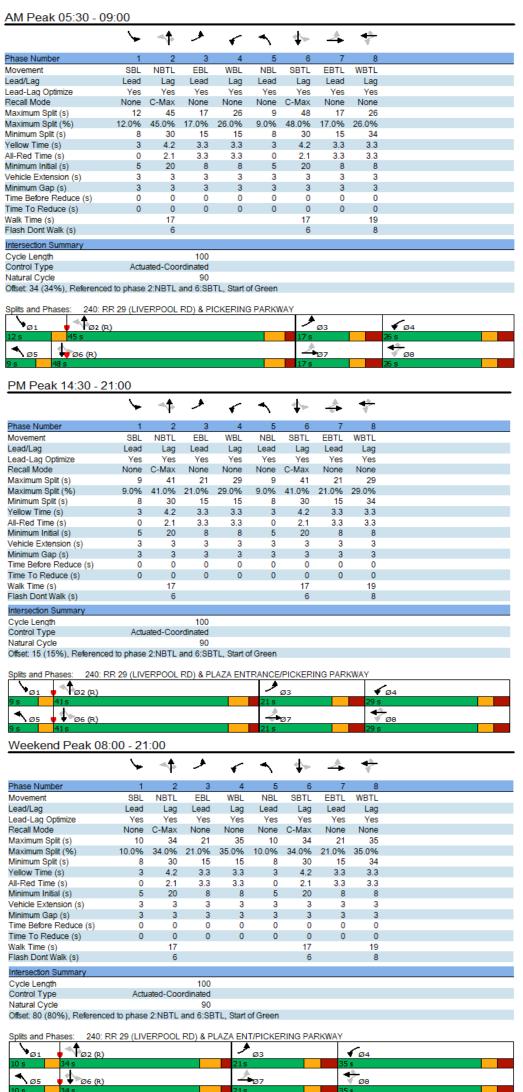


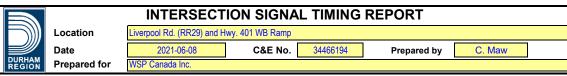


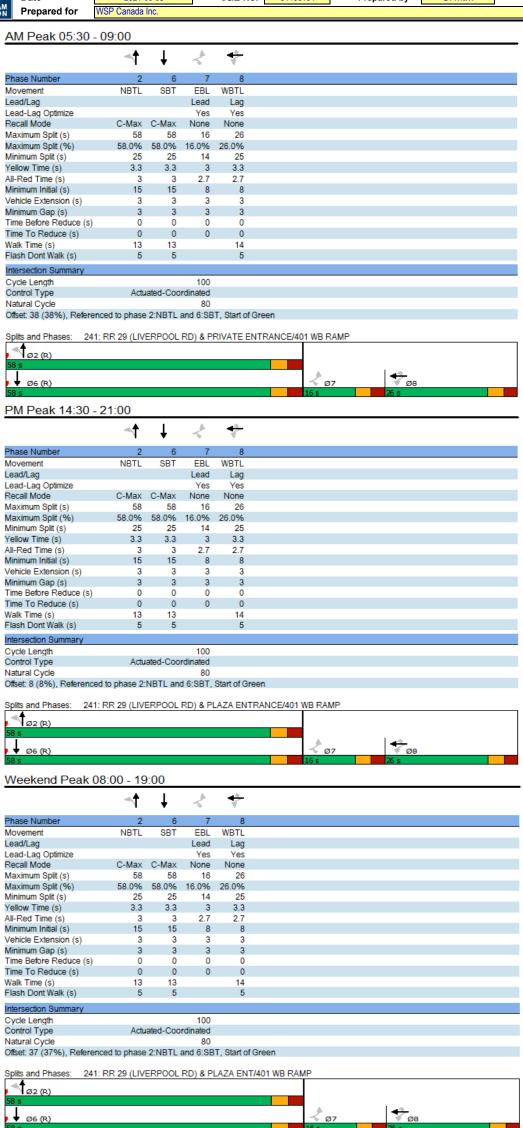
Weekend Peak (8:00-21:00)

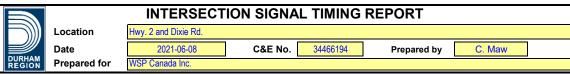
| | † | ₹ | ↓ |
|-----------------------------|-------------|----------|-----------|
| Phase Number | 2 | 4 | 6 |
| Movement | NBT | EBL | SBT |
| Lead/Lag | | | |
| Lead-Lag Optimize | | | |
| Recall Mode | C-Max | None | C-Max |
| Maximum Split (s) | 49.5 | 60.5 | 49.5 |
| Maximum Split (%) | 45.0% | 55.0% | 45.0% |
| Minimum Split (s) | 28 | 29 | 28 |
| Yellow Time (s) | 4.5 | 3.7 | 4.5 |
| All-Red Time (s) | 2.2 | 1.8 | 2.2 |
| Minimum Initial (s) | 20 | 8 | 20 |
| Vehicle Extension (s) | 0.2 | 3 | 0.2 |
| Minimum Gap (s) | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 |
| Walk Time (s) | 7 | 7 | 7 |
| Flash Dont Walk (s) | 14 | 16 | 14 |
| Intersection Summary | | | |
| Cycle Length | | | 110 |
| Control Type | Actua | ted-Coor | dinated |
| Natural Cycle | | | 60 |
| Offset: 24.2 (22%), Referer | nced to pha | ase 2:NB | T and 6:S |

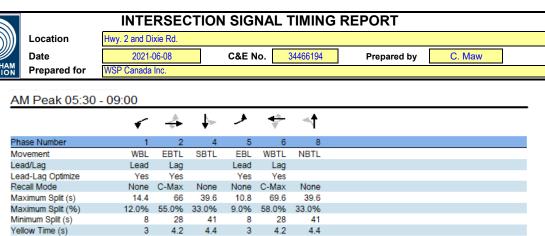






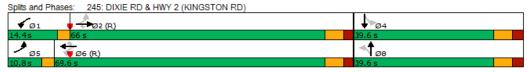




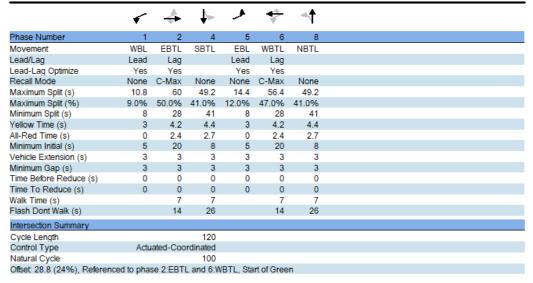


4.2 4.4 4.4 3 All-Red Time (s) Minimum Initial (s) 2.4 2.4 2.7 Vehicle Extension (s) Minimum Gap (s) Time Before Reduce (s) 0 0 0 0 0 0 Time To Reduce (s) Walk Time (s) Flash Dont Walk (s) 14 26 26 Intersection Summary Cycle Length 120

Actuated-Coordinated Natural Cycle 80
Offset: 112.8 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green



PM Peak 14:30 - 20:00



245: DIXIE RD & HWY 2 (KINGSTON RD) Splits and Phases:

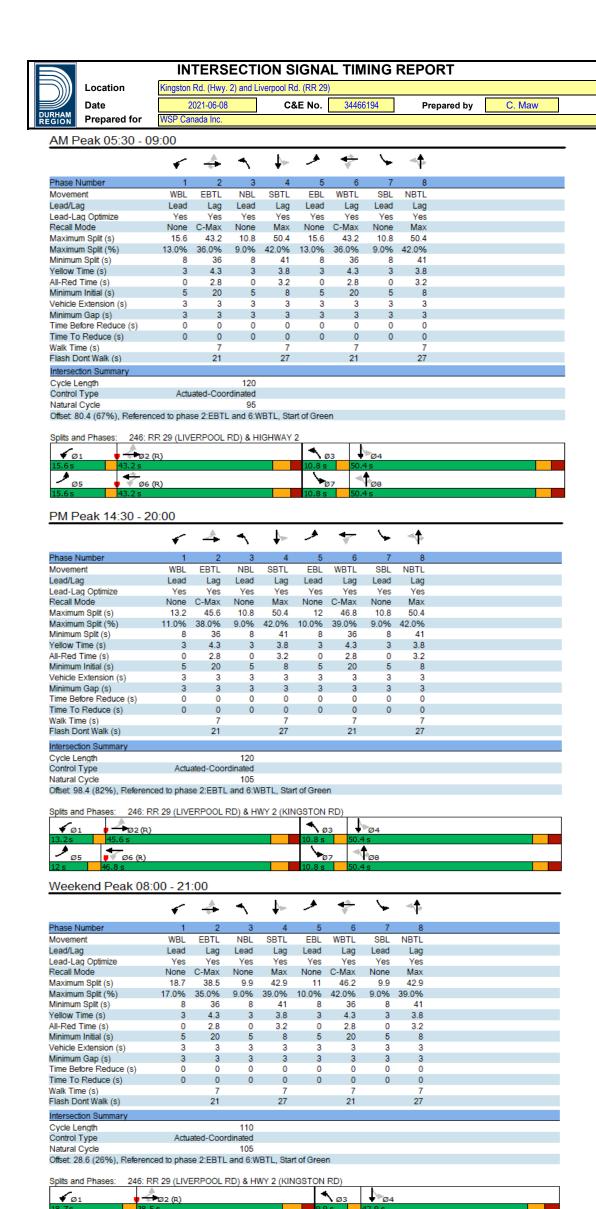


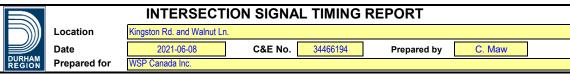
Weekend Peak 08:00 - 21:00

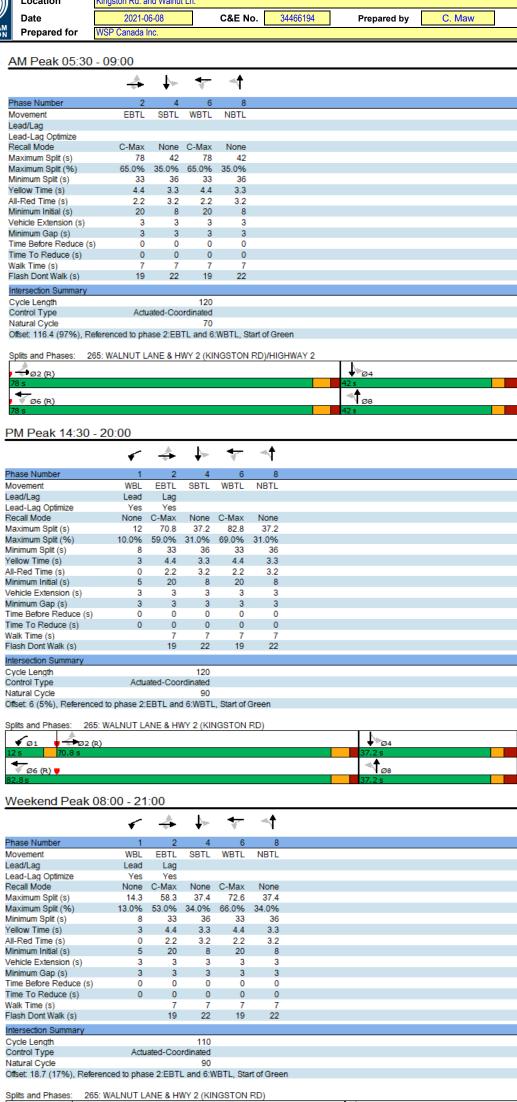
| Weekend Feak 00. | 00 - 21 | .00 | | | | |
|---------------------------------|----------|----------|----------|--------|-------|-------|
| | • | * | ↓ | • | * | -4 |
| Phase Number | 1 | 2 | 4 | 5 | 6 | 8 |
| Movement | WBL | EBTL | SBTL | EBL | WBTL | NBTL |
| Lead/Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize | Yes | Yes | | Yes | Yes | |
| Recall Mode | None | C-Max | None | None | C-Max | None |
| Maximum Split (s) | 9.9 | 55 | 45.1 | 11 | 53.9 | 45.1 |
| Maximum Split (%) | 9.0% | 50.0% | 41.0% | 10.0% | 49.0% | 41.0% |
| Minimum Split (s) | 8 | 28 | 41 | 8 | 28 | 41 |
| Yellow Time (s) | 3 | 4.2 | 4.4 | 3 | 4.2 | 4.4 |
| All-Red Time (s) | 0 | 2.4 | 2.7 | 0 | 2.4 | 2.7 |
| Minimum Initial (s) | 5 | 20 | 8 | 5 | 20 | 8 |
| Vehicle Extension (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Minimum Gap (s) | 3 | 3 | 3 | 3 | 3 | 3 |
| Time Before Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Time To Reduce (s) | 0 | 0 | 0 | 0 | 0 | 0 |
| Walk Time (s) | | 7 | 7 | | 7 | 7 |
| Flash Dont Walk (s) | | 14 | 26 | | 14 | 26 |
| Intersection Summary | | | | | | |
| | | | 110 | | | |
| Cycle Length Control Type | Actu | ated-Coo | | | | |
| Natural Cycle | Actu | alcu*C00 | 90 | | | |
| Officet: F.F. (FOX). Deferenced | to phase | O-EDTL A | | FI 044 | | |

Offset: 5.5 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green









APPENDIX

B LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS AT SIGNALIZED INTERSECTIONS $^{(1)}$

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. The criteria are given in the table below. Delay may be measured in the field or estimated using software such as Highway Capacity Software. Delay is a complex measure and is dependent upon a number of variables, including quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

| Level of Service | Features | Control Delay per vehicle (sec) |
|---------------------|---|---------------------------------------|
| A | LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favourable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay. | ≤ 10 |
| В | LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay. | > 10 and ≤ 20 |
| С | LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping. | > 20 and ≤ 35 |
| D | LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, of high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. | > 35 and ≤ 55 |
| Е | LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences. | $> 55 \text{ and } \le 80$ |
| F | LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. | > 80 |

(1) Highway Capacity Manual 2000

LEVEL OF SERVICE DEFINITIONS AT UNSIGNALIZED INTERSECTIONS⁽¹⁾

The level of service criteria for unsignalized intersections are given in the table below. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position. The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation.

| Level of Service | Features | Average Total Delay (sec/veh) |
|------------------|--|----------------------------------|
| A | Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation. | ≤10 |
| В | Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation. | $> 10 \text{ and } \le 15$ |
| С | Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement. This may occasionally impact on the stability of flow on the major street. | > 15 and ≤ 25 |
| D | Long traffic delays occur. Motorists emerging from the minor street experience significant restriction and frustration. Drivers on the major street will experience congestion and delay as drivers emerging from the minor street interfere with the major through movements. | $>$ 25 and \leq 35 |
| Е | Very long traffic delays occur. Operations approach the capacity of the intersection. | $> 35 \text{ and } \le 50$ |
| F | Saturation occurs, with vehicle demand exceeding the available capacity. Very long traffic delays occur. | > 50 |

⁽¹⁾ Highway Capacity Manual 2000.

APPENDIX

C EXISTING TRAFFIC CONDITIONS

| | ۶ | → | • | € | + | • | • | † | ~ | / | + | -√ |
|----------------------------|-------|-----------|----------|-------|------------|----------|----------|----------------|-------|----------|-------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ↑ ↑ | | ሻ | (î | | ሻ | f) | |
| Traffic Volume (vph) | 20 | 762 | 19 | 143 | 523 | 30 | 52 | 6 | 77 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 762 | 19 | 143 | 523 | 30 | 52 | 6 | 77 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | 0.0 | 25.8 | 37.0 | 0.0 | 0.0 | 63.2 | 0.0 | 0.0 | 18.5 | V. . | 0.0 |
| Storage Lanes | 1 | | 1 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.99 | 1.00 | | 0.99 | 0.99 | | 1.00 | 0.98 | |
| Frt | | | 0.850 | 0.00 | 0.992 | | 0.00 | 0.860 | | | 0.875 | |
| Flt Protected | 0.950 | | 0.000 | 0.950 | 0.002 | | 0.950 | 0.000 | | 0.950 | 0.07.0 | |
| Satd. Flow (prot) | 1685 | 3471 | 1470 | 1652 | 3390 | 0 | 1745 | 1551 | 0 | 1725 | 1596 | 0 |
| Flt Permitted | 0.435 | • • • • • | | 0.342 | | | 0.734 | | • | 0.701 | | |
| Satd. Flow (perm) | 768 | 3471 | 1414 | 592 | 3390 | 0 | 1334 | 1551 | 0 | 1270 | 1596 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 32 | | 8 | | | 80 | | | 30 | |
| Link Speed (k/h) | | 60 | <u> </u> | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 124.5 | | | 224.5 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 11.2 | | | 20.2 | |
| Confl. Peds. (#/hr) | 4 | 7.0 | 8 | 8 | 71.7 | 4 | 9 | 11.2 | 2 | 2 | 20.2 | 9 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 21 | 794 | 20 | 149 | 545 | 31 | 54 | 6 | 80 | 15 | 6 | 30 |
| Shared Lane Traffic (%) | | | | | 0.0 | . | <u> </u> | | | | | |
| Lane Group Flow (vph) | 21 | 794 | 20 | 149 | 576 | 0 | 54 | 86 | 0 | 15 | 36 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.05 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | | 0 | 0 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 7.5 | 7.5 | | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | 6.1 | 6.1 | 1.8 | | 9.0 | 9.0 | | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 2 | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | | 8 | | | 4 | | |
| | | | | | | | - | | | · · | | |

| | ۶ | → | • | • | ← | • | 1 | † | ~ | > | ļ | 1 |
|---------------------------|---------------|----------|-----------|---------|-------------|-----|-------|----------|-----|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | | 36.0 | 36.0 | | 36.0 | 36.0 | |
| Total Split (s) | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 | | 42.0 | 42.0 | | 42.0 | 42.0 | |
| Total Split (%) | 65.0% | 65.0% | 65.0% | 65.0% | 65.0% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 71.4 | 71.4 | 71.4 | 71.4 | 71.4 | | 35.5 | 35.5 | | 35.5 | 35.5 | |
| Yellow Time (s) | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | | 3.3 | 3.3 | | 3.3 | 3.3 | |
| All-Red Time (s) | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | | 3.2 | 3.2 | | 3.2 | 3.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | C-Max | C-Max | C-Max | C-Max | C-Max | | None | None | | None | None | |
| Walk Time (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | 7 | 7 | 7 | 5 | 5 | | 5 | 5 | | 14 | 14 | |
| Act Effct Green (s) | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 | | 17.0 | 17.0 | | 17.0 | 17.0 | |
| Actuated g/C Ratio | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | | 0.14 | 0.14 | | 0.14 | 0.14 | |
| v/c Ratio | 0.04 | 0.31 | 0.02 | 0.34 | 0.23 | | 0.29 | 0.30 | | 0.08 | 0.14 | |
| Control Delay | 4.9 | 4.8 | 0.7 | 6.2 | 3.3 | | 46.0 | 12.0 | | 39.8 | 16.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 4.9 | 4.8 | 0.7 | 6.2 | 3.3 | | 46.0 | 12.0 | | 39.8 | 16.3 | |
| LOS | А | Α | Α | Α | Α | | D | В | | D | В | |
| Approach Delay | | 4.7 | | | 3.9 | | | 25.1 | | | 23.2 | |
| Approach LOS | | А | | | Α | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 20 | | | | | | | | | | | |
| Offset: 116.4 (97%), Refe | erenced to ph | ase 2:EB | TL and 6: | WBTL, S | tart of Gre | en | | | | | | |
| Matural Ovalar 70 | | | | | | | | | | | | |

Natural Cycle: 70

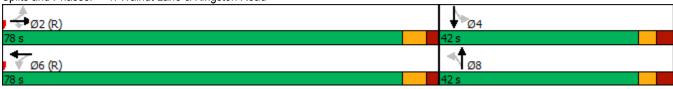
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay: 6.5 Intersection LOS: A Intersection Capacity Utilization 66.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Walnut Lane & Kingston Road



1: Walnut Lane & Kingston Road

| | • | → | • | • | ← | • | † | \ | ↓ | |
|------------------------|------|----------|------|-------|----------|------|----------|----------|----------|--|
| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 21 | 794 | 20 | 149 | 576 | 54 | 86 | 15 | 36 | |
| v/c Ratio | 0.04 | 0.31 | 0.02 | 0.34 | 0.23 | 0.29 | 0.30 | 0.08 | 0.14 | |
| Control Delay | 4.9 | 4.8 | 0.7 | 6.2 | 3.3 | 46.0 | 12.0 | 39.8 | 16.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 4.9 | 4.8 | 0.7 | 6.2 | 3.3 | 46.0 | 12.0 | 39.8 | 16.3 | |
| Queue Length 50th (m) | 0.8 | 20.8 | 0.0 | 3.4 | 6.5 | 12.3 | 1.3 | 3.3 | 1.3 | |
| Queue Length 95th (m) | 2.7 | 25.0 | 0.6 | m12.1 | 19.4 | 21.1 | 13.8 | 8.4 | 9.5 | |
| Internal Link Dist (m) | | 105.3 | | | 670.6 | | 100.5 | | 200.5 | |
| Turn Bay Length (m) | 26.0 | | 25.8 | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 575 | 2601 | 1067 | 443 | 2542 | 394 | 515 | 375 | 493 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.04 | 0.31 | 0.02 | 0.34 | 0.23 | 0.14 | 0.17 | 0.04 | 0.07 | |
| Intersection Summary | | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

| | • | → | • | • | ← | • | 1 | † | ~ | \ | | 4 |
|----------------------------|-------|---------------|---------|-------|--------------|-------|-------|----------------|-------|----------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | (î | | ሻ | f) | |
| Traffic Volume (vph) | 80 | 727 | 81 | 78 | 469 | 61 | 37 | 15 | 29 | 117 | 35 | 144 |
| Future Volume (vph) | 80 | 727 | 81 | 78 | 469 | 61 | 37 | 15 | 29 | 117 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.97 | 1.00 | | 0.96 | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | | 0.850 | | | 0.850 | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3367 | 1466 | 1645 | 3368 | 1459 | 1752 | 1771 | 0 | 1827 | 1760 | 0 |
| Flt Permitted | 0.468 | | | 0.334 | | | 0.463 | | | 0.726 | | |
| Satd. Flow (perm) | 764 | 3367 | 1420 | 577 | 3368 | 1406 | 852 | 1771 | 0 | 1393 | 1760 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 92 | | | 65 | | 31 | | | 153 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 888.0 | | | 199.8 | | | 43.8 | | | 235.1 | |
| Travel Time (s) | | 53.3 | | | 12.0 | | | 3.9 | | | 14.1 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 85 | 773 | 86 | 83 | 499 | 65 | 39 | 16 | 31 | 124 | 37 | 153 |
| Shared Lane Traffic (%) | | | | | , , , | | | | | | | |
| Lane Group Flow (vph) | 85 | 773 | 86 | 83 | 499 | 65 | 39 | 47 | 0 | 124 | 190 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | 9 |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.10 | 1.13 | 1.01 | 1.11 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | 6.1 | 6.1 | 1.8 | 6.1 | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | Cl+Ex | Cl+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | · | - - /, | · · | | - - / | · · | , | - - /- | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | . 31111 | 1 | 6 | . 3 | . 3 | 8 | | . 51111 | 4 | |

| | • | → | • | • | • | • | 4 | † | / | > | ļ | 4 |
|-------------------------|------|----------|-------|-------|-------|-------|-------|----------|-----|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 8.0 | 27.6 | 27.6 | 8.0 | 27.6 | 27.6 | 40.1 | 40.1 | | 40.1 | 40.1 | |
| Total Split (s) | 10.8 | 66.0 | 66.0 | 14.4 | 69.6 | 69.6 | 39.6 | 39.6 | | 39.6 | 39.6 | |
| Total Split (%) | 9.0% | 55.0% | 55.0% | 12.0% | 58.0% | 58.0% | 33.0% | 33.0% | | 33.0% | 33.0% | |
| Maximum Green (s) | 7.8 | 59.4 | 59.4 | 11.4 | 63.0 | 63.0 | 32.5 | 32.5 | | 32.5 | 32.5 | |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 0.0 | 2.4 | 2.4 | 0.0 | 2.4 | 2.4 | 2.7 | 2.7 | | 2.7 | 2.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 6.6 | 6.6 | 3.0 | 6.6 | 6.6 | 7.1 | 7.1 | | 7.1 | 7.1 | |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | None | | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | 14.0 | | 14.0 | 14.0 | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Pedestrian Calls (#/hr) | | 6 | 6 | | 1 | 1 | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 89.3 | 79.9 | 79.9 | 89.8 | 80.1 | 80.1 | 18.0 | 18.0 | | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.74 | 0.67 | 0.67 | 0.75 | 0.67 | 0.67 | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.14 | 0.34 | 0.09 | 0.17 | 0.22 | 0.07 | 0.31 | 0.16 | | 0.60 | 0.48 | |
| Control Delay | 7.0 | 19.3 | 7.4 | 4.3 | 6.9 | 1.9 | 48.1 | 19.9 | | 57.5 | 14.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 7.0 | 19.3 | 7.4 | 4.3 | 6.9 | 1.9 | 48.1 | 19.9 | | 57.5 | 14.5 | |
| LOS | Α | В | Α | Α | Α | Α | D | В | | Е | В | |
| Approach Delay | | 17.1 | | | 6.0 | | | 32.7 | | | 31.5 | |
| Approach LOS | | В | | | Α | | | С | | | С | |

Intersection Summary

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 120

Offset: 112.8 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

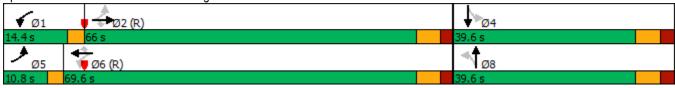
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60
Intersection Signal Delay: 16.4
Intersection Capacity Utilization 64.3%

Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



3: Dixie Road & Kingston Road

| | • | → | • | • | ← | • | 4 | † | > | ļ | |
|------------------------|-------|----------|------|------|-------|------|------|----------|-------------|-------|--|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 85 | 773 | 86 | 83 | 499 | 65 | 39 | 47 | 124 | 190 | |
| v/c Ratio | 0.14 | 0.34 | 0.09 | 0.17 | 0.22 | 0.07 | 0.31 | 0.16 | 0.60 | 0.48 | |
| Control Delay | 7.0 | 19.3 | 7.4 | 4.3 | 6.9 | 1.9 | 48.1 | 19.9 | 57.5 | 14.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 7.0 | 19.3 | 7.4 | 4.3 | 6.9 | 1.9 | 48.1 | 19.9 | 57.5 | 14.5 | |
| Queue Length 50th (m) | 4.6 | 66.7 | 5.0 | 3.3 | 16.8 | 0.3 | 8.5 | 3.3 | 28.2 | 7.8 | |
| Queue Length 95th (m) | 21.9 | 115.6 | 24.4 | 7.8 | 27.4 | 2.9 | 16.5 | 12.0 | 40.7 | 24.4 | |
| Internal Link Dist (m) | | 864.0 | | | 175.8 | | | 19.8 | | 211.1 | |
| Turn Bay Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 623 | 2241 | 976 | 543 | 2249 | 960 | 230 | 502 | 377 | 588 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.14 | 0.34 | 0.09 | 0.15 | 0.22 | 0.07 | 0.17 | 0.09 | 0.33 | 0.32 | |
| Intersection Summary | | | | | | | | | | | |

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WSP
Synchro 11 Report
Page 6

| | ۶ | → | • | • | ← | • | 4 | † | <i>></i> | / | Ţ | ✓ |
|----------------------------|-------|----------|-------|-------|----------|----------|--------------|----------|-------------|----------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ች | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 113 | 501 | 237 | 133 | 463 | 48 | 269 | 367 | 150 | 78 | 518 | 106 |
| Future Volume (vph) | 113 | 501 | 237 | 133 | 463 | 48 | 269 | 367 | 150 | 78 | 518 | 106 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.97 | 0.99 | | 0.96 | 0.98 | | 0.93 | 0.97 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.408 | | | 0.362 | | | 0.366 | 0.00 | | 0.521 | | |
| Satd. Flow (perm) | 709 | 3299 | 1487 | 640 | 3510 | 1517 | 673 | 3700 | 1536 | 1081 | 3618 | 1444 |
| Right Turn on Red | | | Yes | | | Yes | 0.0 | 0.00 | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 244 | | | 91 | | | 155 | | | 109 |
| Link Speed (k/h) | | 60 | | | 60 | <u> </u> | | 50 | | | 50 | 100 |
| Link Distance (m) | | 694.6 | | | 396.1 | | | 257.7 | | | 350.8 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.3 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | 20.0 | 21 | 34 | 10.0 | 44 | 44 | 20.0 | 34 |
| Confl. Bikes (#/hr) | | | ., | ., | | 1 | 01 | | | | | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 116 | 516 | 244 | 137 | 477 | 49 | 277 | 378 | 155 | 80 | 534 | 109 |
| Shared Lane Traffic (%) | 110 | 010 | 211 | 107 | | 10 | - 111 | 010 | 100 | 00 | 001 | 100 |
| Lane Group Flow (vph) | 116 | 516 | 244 | 137 | 477 | 49 | 277 | 378 | 155 | 80 | 534 | 109 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.3 | ragne | Loit | 3.3 | ragne | Loit | 4.7 | ragin | Loit | 4.7 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | 1.0 | | | 1.0 | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 0.55 | 14 | 24 | 0.50 | 14 | 24 | 0.51 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | CI+Ex | CI+Ex | Cl+Ex | Cl+Ex | CI+Ex | Cl+Ex |
| Detector 1 Channel | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX | CITEX |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | | | | | | | | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road WSP

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|----------------------------|--------------|----------|-----------|-----------|------------|-------|-------|----------|----------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 8.0 | 35.1 | 35.1 | 8.0 | 35.1 | 35.1 | 8.0 | 41.0 | 35.1 | 8.0 | 41.0 | 41.0 |
| Total Split (s) | 15.6 | 43.2 | 43.2 | 15.6 | 43.2 | 43.2 | 10.8 | 50.4 | 43.2 | 10.8 | 50.4 | 50.4 |
| Total Split (%) | 13.0% | 36.0% | 36.0% | 13.0% | 36.0% | 36.0% | 9.0% | 42.0% | 36.0% | 9.0% | 42.0% | 42.0% |
| Maximum Green (s) | 12.6 | 36.1 | 36.1 | 12.6 | 36.1 | 36.1 | 7.8 | 43.4 | 36.1 | 7.8 | 43.4 | 43.4 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 2.8 | 0.0 | 3.2 | 2.8 | 0.0 | 3.2 | 3.2 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 7.1 | 7.1 | 3.0 | 7.1 | 7.1 | 3.0 | 7.0 | 7.1 | 3.0 | 7.0 | 7.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 27.0 | 21.0 | | 27.0 | 27.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 52.2 | 38.0 | 38.0 | 53.4 | 38.6 | 38.6 | 55.9 | 45.7 | 38.0 | 54.7 | 43.4 | 43.4 |
| Actuated g/C Ratio | 0.44 | 0.32 | 0.32 | 0.44 | 0.32 | 0.32 | 0.47 | 0.38 | 0.32 | 0.46 | 0.36 | 0.36 |
| v/c Ratio | 0.30 | 0.49 | 0.38 | 0.36 | 0.42 | 0.09 | 0.72 | 0.27 | 0.26 | 0.15 | 0.41 | 0.18 |
| Control Delay | 20.8 | 38.4 | 16.0 | 21.7 | 33.8 | 1.2 | 33.7 | 26.9 | 6.0 | 17.4 | 29.9 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.8 | 38.4 | 16.0 | 21.7 | 33.8 | 1.2 | 33.7 | 26.9 | 6.0 | 17.4 | 29.9 | 5.5 |
| LOS | С | D | В | С | С | Α | С | С | Α | В | С | Α |
| Approach Delay | | 29.8 | | | 28.8 | | | 25.2 | | | 24.8 | |
| Approach LOS | | С | | | С | | | С | | | С | |
| Intersection Summary | 011 | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 80.4 (67%), Refere | enced to pha | se 2:EBT | L and 6:V | VBIL, Sta | art of Gre | en | | | | | | |
| Natural Cycle: 95 | | | | | | | | | | | | |

Natural Cycle: 95

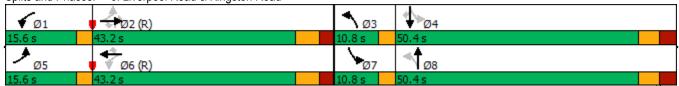
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 92.4% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Liverpool Road & Kingston Road



| | • | → | • | • | • | • | • | † | ~ | \ | ↓ | 1 |
|------------------------|-------|----------|------|-------|-------|-------|-------|----------|------|----------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 116 | 516 | 244 | 137 | 477 | 49 | 277 | 378 | 155 | 80 | 534 | 109 |
| v/c Ratio | 0.30 | 0.49 | 0.38 | 0.36 | 0.42 | 0.09 | 0.72 | 0.27 | 0.26 | 0.15 | 0.41 | 0.18 |
| Control Delay | 20.8 | 38.4 | 16.0 | 21.7 | 33.8 | 1.2 | 33.7 | 26.9 | 6.0 | 17.4 | 29.9 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.8 | 38.4 | 16.0 | 21.7 | 33.8 | 1.2 | 33.7 | 26.9 | 6.0 | 17.4 | 29.9 | 5.5 |
| Queue Length 50th (m) | 21.3 | 53.2 | 23.3 | 18.3 | 46.3 | 0.0 | 38.7 | 33.0 | 0.0 | 9.8 | 49.1 | 0.0 |
| Queue Length 95th (m) | 24.4 | 84.7 | 54.4 | 30.7 | 63.4 | 1.7 | #58.6 | 45.1 | 14.8 | 18.4 | 64.3 | 11.6 |
| Internal Link Dist (m) | | 670.6 | | | 372.1 | | | 233.7 | | | 326.8 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 421 | 1044 | 637 | 402 | 1130 | 549 | 385 | 1409 | 592 | 558 | 1308 | 591 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.49 | 0.38 | 0.34 | 0.42 | 0.09 | 0.72 | 0.27 | 0.26 | 0.14 | 0.41 | 0.18 |

Intersection Summary

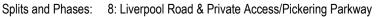
Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

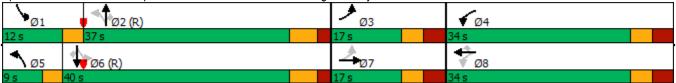
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|----------------------------|-------|------------|-------|-------|----------|-------|-------|----------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | 1,4 | 1 | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 192 | 19 | 59 | 48 | 681 | 272 | 146 | 668 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 192 | 19 | 59 | 48 | 681 | 272 | 146 | 668 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 0.99 | | 0.97 | 1.00 | | 0.96 |
| Frt | | 0.898 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3062 | 0 | 3113 | 1858 | 1204 | 1645 | 3505 | 1523 | 1675 | 3500 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.353 | | | 0.296 | | |
| Satd. Flow (perm) | 0 | 3062 | 0 | 0 | 1858 | 1181 | 607 | 3505 | 1483 | 520 | 3500 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 40 | | | | 141 | | | 299 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 19 | 40 | 211 | 21 | 65 | 53 | 748 | 299 | 160 | 734 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 59 | 0 | 211 | 21 | 65 | 53 | 748 | 299 | 160 | 734 | 26 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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|---|---------------|----------|----------|------------|------------|-----------|-------|----------|----------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.2 | 52.0 | 52.0 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.21 | | 0.56 | 0.09 | 0.24 | 0.12 | 0.41 | 0.33 | 0.36 | 0.37 | 0.03 |
| Control Delay | 44.1 | 22.2 | | 46.9 | 38.5 | 2.2 | 7.7 | 14.3 | 1.7 | 9.9 | 14.8 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.2 | | 46.9 | 38.5 | 2.2 | 7.7 | 14.3 | 1.7 | 9.9 | 14.8 | 0.0 |
| LOS | D | C | | D | D | Α | Α | B | Α | А | B | A |
| Approach Delay | | 25.6 | | | 36.5 | | | 10.6 | | | 13.5 | |
| Approach LOS | | С | | | D | | | В | | | В | |
| Intersection Summary | Othor | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 100 | 00 | | | | | | | | | | | |
| Actuated Cycle Length: 10 | | O NDTL | and G.CD | TI Ctort | of Croon | | | | | | | |
| Offset: 34 (34%), Referen | iceu to phase | Z.INBIL | anu 0:5B | ı L, Staft | oi Green | | | | | | | |
| Natural Cycle: 90 | oordinatad | | | | | | | | | | | |
| Control Type: Actuated-C Maximum v/c Ratio: 0.56 | ooramatea | | | | | | | | | | | |
| | 15.4 | | | l. | ntorcontin | n I OC: D | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | _ | | | | | |



Intersection Capacity Utilization 55.6%

Analysis Period (min) 15



ICU Level of Service B

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|------------------------|------|----------|------|-------|------|------|----------|------|-------|----------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 59 | 211 | 21 | 65 | 53 | 748 | 299 | 160 | 734 | 26 | |
| v/c Ratio | 0.08 | 0.21 | 0.56 | 0.09 | 0.24 | 0.12 | 0.41 | 0.33 | 0.36 | 0.37 | 0.03 | |
| Control Delay | 44.1 | 22.2 | 46.9 | 38.5 | 2.2 | 7.7 | 14.3 | 1.7 | 9.9 | 14.8 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.2 | 46.9 | 38.5 | 2.2 | 7.7 | 14.3 | 1.7 | 9.9 | 14.8 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.8 | 20.2 | 3.7 | 0.0 | 3.5 | 37.6 | 0.0 | 11.3 | 43.8 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 8.0 | 30.3 | 10.1 | 0.0 | m6.7 | 43.6 | 5.3 | 21.7 | 62.3 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 354 | 852 | 509 | 425 | 434 | 1823 | 915 | 450 | 1963 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.17 | 0.25 | 0.04 | 0.15 | 0.12 | 0.41 | 0.33 | 0.36 | 0.37 | 0.03 | |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

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|----------------------------|-------|----------|---------|-------|----------|----------|-------|----------|----------|----------|------------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | | 7 | ሻ | 4 | 7 | ሻ | ^ | | | ↑ ↑ | |
| Traffic Volume (vph) | 6 | 0 | 2 | 188 | 2 | 338 | 8 | 630 | 0 | 0 | 580 | 0 |
| Future Volume (vph) | 6 | 0 | 2 | 188 | 2 | 338 | 8 | 630 | 0 | 0 | 580 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.5 | 3.7 | 4.5 | 3.7 | 3.7 | 3.5 | 3.0 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 26.5 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 0 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 52.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | 0.99 | | | | | |
| Frt | | | 0.850 | | | 0.850 | | | | | | |
| Flt Protected | 0.950 | | | 0.950 | 0.953 | | 0.950 | | | | | |
| Satd. Flow (prot) | 1986 | 0 | 1184 | 1700 | 1706 | 1551 | 1348 | 3433 | 0 | 0 | 3394 | 0 |
| FIt Permitted | 0.950 | | | 0.950 | 0.953 | | 0.420 | | | | | |
| Satd. Flow (perm) | 1986 | 0 | 1184 | 1700 | 1706 | 1551 | 591 | 3433 | 0 | 0 | 3394 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 101 | | | 329 | | | | | | |
| Link Speed (k/h) | | 30 | | | 50 | <u> </u> | | 50 | | | 50 | |
| Link Distance (m) | | 75.1 | | | 226.7 | | | 371.5 | | | 162.3 | |
| Travel Time (s) | | 9.0 | | | 16.3 | | | 26.7 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 0.0 | | | 10.0 | | 7 | 20.1 | 14 | 14 | | 7 |
| Confl. Bikes (#/hr) | | | | | | | • | | 4 | | | • |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 0% |
| Adj. Flow (vph) | 6 | 0 | 2 | 196 | 2 | 352 | 8 | 656 | 0 | 0 | 604 | 0 |
| Shared Lane Traffic (%) | | | _ | 50% | _ | 002 | | 000 | | | 001 | |
| Lane Group Flow (vph) | 6 | 0 | 2 | 98 | 100 | 352 | 8 | 656 | 0 | 0 | 604 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 20.0 | 4.5 | , agaic | LOIL | 4.5 | , agaic | 2010 | 3.0 | i agiit | 20.0 | 3.0 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 0.88 | 0.99 | 0.88 | 0.99 | 0.99 | 1.01 | 1.09 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 1.01 | 14 | 24 | 1.00 | 14 |
| Number of Detectors | 1 | | 1 | 1 | 2 | 1 | 1 | 2 | | <u> </u> | 2 | |
| Detector Template | Left | | Right | Left | Thru | Right | Left | Thru | | | Thru | |
| Leading Detector (m) | 2.0 | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Size(m) | 2.0 | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | |
| Detector 1 Channel | OITEX | | OITEX | OITEX | OITEX | OITEX | OITEX | OIILX | | | OITEX | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 2 Position(m) | 0.0 | | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | | | 9.4 | |
| | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | | | | UI+⊏X | | | UI+⊏X | | | UI+⊏X | |

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|------------------------------|--------------|------------|---------------|------------|------------|------------|-------|----------|-------------|-------------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | | Prot | Split | NA | Perm | Perm | NA | | | NA | |
| Protected Phases | 7 | | 7 | . 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | |
| Detector Phase | 7 | | 7 | 8 | 8 | 8 | 2 | 2 | | | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | | 8.0 | 8.0 | 8.0 | 8.0 | 15.0 | 15.0 | | | 15.0 | |
| Minimum Split (s) | 14.0 | | 14.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | | | 25.0 | |
| Total Split (s) | 16.0 | | 16.0 | 26.0 | 26.0 | 26.0 | 58.0 | 58.0 | | | 58.0 | |
| Total Split (%) | 16.0% | | 16.0% | 26.0% | 26.0% | 26.0% | 58.0% | 58.0% | | | 58.0% | |
| Maximum Green (s) | 10.3 | | 10.3 | 20.0 | 20.0 | 20.0 | 51.7 | 51.7 | | | 51.7 | |
| Yellow Time (s) | 3.0 | | 3.0 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | | | 3.3 | |
| All-Red Time (s) | 2.7 | | 2.7 | 2.7 | 2.7 | 2.7 | 3.0 | 3.0 | | | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Total Lost Time (s) | 5.7 | | 5.7 | 6.0 | 6.0 | 6.0 | 6.3 | 6.3 | | | 6.3 | |
| Lead/Lag | Lead | | Lead | Lag | Lag | Lag | 0.0 | 0.0 | | | 0.0 | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | Yes | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Recall Mode | None | | None | None | None | None | C-Max | C-Max | | | C-Max | |
| Walk Time (s) | 140110 | | 140110 | 14.0 | 14.0 | 14.0 | 13.0 | 13.0 | | | 13.0 | |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | |
| Pedestrian Calls (#/hr) | | | | 0.0 | 0.0 | 0.0 | 15 | 15 | | | 17 | |
| Act Effct Green (s) | 8.0 | | 8.0 | 12.2 | 12.2 | 12.2 | 72.7 | 72.7 | | | 72.7 | |
| Actuated g/C Ratio | 0.08 | | 0.08 | 0.12 | 0.12 | 0.12 | 0.73 | 0.73 | | | 0.73 | |
| v/c Ratio | 0.04 | | 0.01 | 0.12 | 0.48 | 0.74 | 0.73 | 0.76 | | | 0.73 | |
| Control Delay | 43.2 | | 0.01 | 47.2 | 47.5 | 15.7 | 7.5 | 6.3 | | | 5.8 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | 43.2 | | 0.0 | 47.2 | 47.5 | 15.7 | 7.5 | 6.3 | | | 5.8 | |
| LOS | 73.2 D | | Α | D | D | В | Α.5 | Α | | | A | |
| Approach Delay | | 32.4 | Α | | 27.1 | <u> </u> | | 6.3 | | | 5.8 | |
| Approach LOS | | 02.4 C | | | C C | | | 0.5 A | | | 3.0 A | |
| | | | | | | | | | | | ^ | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 10 | | | | | | | | | | | | |
| Offset: 38 (38%), Reference | ced to phase | 2:NBTL a | and 6:SB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 65 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.74 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ration 55.3% | | | I(| CU Level | of Service | e B | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Li | verpool Road | l & Privat | e Access | s/Hwv 40 | 1 WR Off- | Ramn | | | | | | |
| 4 | | | | | | | Ø7 | | ₹ ø8 | | | |
| 02 (R) | | | | | | 16 s | | | ▼ Ø8 | | | |
| | | | | | | 10 5 | | | 20 3 | | | |
| ▼ Ø6 (R) | | | | | | | | | | | | |

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|------------------------|------|------|------|-------|-------|------|----------|-------|
| Lane Group | EBL | EBR | WBL | WBT | WBR | NBL | NBT | SBT |
| Lane Group Flow (vph) | 6 | 2 | 98 | 100 | 352 | 8 | 656 | 604 |
| v/c Ratio | 0.04 | 0.01 | 0.47 | 0.48 | 0.74 | 0.02 | 0.26 | 0.24 |
| Control Delay | 43.2 | 0.0 | 47.2 | 47.5 | 15.7 | 7.5 | 6.3 | 5.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.2 | 0.0 | 47.2 | 47.5 | 15.7 | 7.5 | 6.3 | 5.8 |
| Queue Length 50th (m) | 1.1 | 0.0 | 19.1 | 19.5 | 4.1 | 0.3 | 15.7 | 14.8 |
| Queue Length 95th (m) | 5.0 | 0.0 | 32.4 | 33.0 | 29.1 | 2.9 | 47.2 | 54.1 |
| Internal Link Dist (m) | | | | 202.7 | | | 347.5 | 138.3 |
| Turn Bay Length (m) | | | | | 125.0 | 26.5 | | |
| Base Capacity (vph) | 204 | 212 | 340 | 341 | 573 | 429 | 2496 | 2468 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.03 | 0.01 | 0.29 | 0.29 | 0.61 | 0.02 | 0.26 | 0.24 |
| Intersection Summary | | | | | | | | |

| | • | → | • | • | \ | 4 |
|----------------------------|-------|---------------|---------------|-------|----------|--------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | T T | † | ↑ ↑ | ₩DIX | JDL | 7 JUIN |
| Traffic Volume (vph) | 96 | TT 681 | TT 563 | 99 | 182 | 229 |
| Future Volume (vph) | 96 | 681 | 563 | 99 | 182 | 229 |
| | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Ideal Flow (vphpl) | | | | | | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 |
| Grade (%) | 75.0 | 6% | 0% | 10.5 | 0% | 0.0 |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 |
| Storage Lanes | 1 | | | 1 | 1 | 1 |
| Taper Length (m) | 2.5 | • = = | • • • | | 31.3 | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Frt | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1602 | 3335 | 3466 | 1471 | 1736 | 1708 |
| Flt Permitted | 0.382 | | | | 0.950 | |
| Satd. Flow (perm) | 644 | 3335 | 3466 | 1471 | 1736 | 1708 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 57 | | 254 |
| Link Speed (k/h) | | 60 | 60 | | 40 | |
| Link Distance (m) | | 424.0 | 888.0 | | 284.9 | |
| Travel Time (s) | | 25.4 | 53.3 | | 25.6 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 4 % |
| | 107 | | 626 | 110 | 202 | 254 |
| Adj. Flow (vph) | 107 | 757 | 020 | 110 | 202 | 204 |
| Shared Lane Traffic (%) | 407 | 7.7 | 000 | 440 | 000 | 054 |
| Lane Group Flow (vph) | 107 | 757 | 626 | 110 | 202 | 254 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 1.03 | 1.00 | 0.88 |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 |
| Number of Detectors | 1 | 2 | 2 | 1 | 1 | 1 |
| Detector Template | Left | Thru | Thru | Right | Left | Right |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | 2.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | | | | | | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | 2.0 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | |
| Detector 2 Type | | Cl+Ex | CI+Ex | | | |
| Detector 2 Channel | | | | | | |
| | | | | | | |

1105-1163 Kingston Road
WSP
Synchro 11 Report
Page 16

| | • | - | • | • | - | 1 |
|---------------------------|------------|--------|----------|-----------|----------|-------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | |
| Turn Type | pm+pt | NA | NA | Perm | Prot | Perm |
| Protected Phases | 5 | 2 | 6 | | 4 | |
| Permitted Phases | 2 | | | 6 | | 4 |
| Detector Phase | 5 | 2 | 6 | 6 | 4 | 4 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 8.0 | 32.3 | 32.3 | 32.3 | 29.0 | 29.0 |
| Total Split (s) | 16.8 | 70.8 | 54.0 | 54.0 | 49.2 | 49.2 |
| Total Split (%) | 14.0% | 59.0% | 45.0% | 45.0% | 41.0% | 41.0% |
| Maximum Green (s) | 13.8 | 64.5 | 47.7 | 47.7 | 43.2 | 43.2 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 4.3 | 3.3 | 3.3 |
| All-Red Time (s) | 0.0 | 2.0 | 2.0 | 2.0 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 6.3 | 6.3 | 6.3 | 6.0 | 6.0 |
| Lead/Lag | Lead | | Lag | Lag | | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 0.2 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | C-Max | None | None |
| Walk Time (s) | | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | 19.0 | 16.0 | 16.0 |
| Pedestrian Calls (#/hr) | | 0 | 1 | 1 | 2 | 2 |
| Act Effct Green (s) | 91.5 | 88.2 | 77.6 | 77.6 | 19.5 | 19.5 |
| Actuated g/C Ratio | 0.76 | 0.74 | 0.65 | 0.65 | 0.16 | 0.16 |
| v/c Ratio | 0.19 | 0.31 | 0.28 | 0.11 | 0.72 | 0.52 |
| Control Delay | 8.1 | 12.2 | 7.6 | 3.5 | 61.5 | 8.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 8.1 | 12.2 | 7.6 | 3.5 | 61.5 | 8.9 |
| LOS | Α | В | Α | Α | Е | Α |
| Approach Delay | | 11.7 | 7.0 | | 32.2 | |
| Approach LOS | | В | Α | | С | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 120 | | | | | | |
| Actuated Cycle Length: 1 | 20 | | | | | |
| Offset: 60 (50%), Referer | | 2:EBTL | and 6:WE | 3T, Start | of Green | |
| Natural Cycle: 70 | ' | | | | | |
| Control Type: Actuated-C | oordinated | | | | | |
| Mariana de Datia o 70 | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road

Maximum v/c Ratio: 0.72 Intersection Signal Delay: 14.5

Analysis Period (min) 15

Intersection Capacity Utilization 45.7%



Intersection LOS: B

ICU Level of Service A

10: Kingston Road & Fairport Road

| | • | - | • | • | > | 4 |
|------------------------|------|-------|-------|------|-------------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Group Flow (vph) | 107 | 757 | 626 | 110 | 202 | 254 |
| v/c Ratio | 0.19 | 0.31 | 0.28 | 0.11 | 0.72 | 0.52 |
| Control Delay | 8.1 | 12.2 | 7.6 | 3.5 | 61.5 | 8.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 8.1 | 12.2 | 7.6 | 3.5 | 61.5 | 8.9 |
| Queue Length 50th (m) | 3.1 | 51.2 | 34.6 | 0.0 | 45.6 | 0.0 |
| Queue Length 95th (m) | 27.4 | 112.5 | 22.9 | 5.2 | 66.3 | 20.5 |
| Internal Link Dist (m) | | 400.0 | 864.0 | | 260.9 | |
| Turn Bay Length (m) | 75.0 | | | 18.5 | 15.5 | |
| Base Capacity (vph) | 601 | 2452 | 2240 | 970 | 624 | 777 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.18 | 0.31 | 0.28 | 0.11 | 0.32 | 0.33 |
| Intersection Summary | | | | | | |

| | → | \rightarrow | • | ← | 4 | / |
|----------------------------|----------|---------------|-------|------------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † | LDIN | * | ↑ ↑ | ሻሻ | 7 |
| Traffic Volume (vph) | 715 | 12 | 284 | 527 | 461 | 65 |
| Future Volume (vph) | 715 | 12 | 284 | 527 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 3.1 | 2.1 | 0% | 0% | 3.1 |
| Storage Length (m) | U /0 | 0.0 | 47.5 | U /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | I |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | 0.95 | 1.00 | 0.95 | 0.97 | 0.850 |
| | 0.998 | | 0.050 | | 0.050 | 0.000 |
| Fit Protected | 2470 | ^ | 0.950 | 2540 | 0.950 | 1000 |
| Satd. Flow (prot) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Flt Permitted | 0.470 | | 0.295 | 0540 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 495 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 2 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 777 | 13 | 309 | 573 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 790 | 0 | 309 | 573 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| • | 0.98 | | | 0.97 | | |
| Turning Speed (k/h) | 0 | 14 | 24 | 0 | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | JI. LX | | | OI. LX | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Detector 2 Exterior(8) | 0.0 | | | 0.0 | | |

| | - | • | • | • | 1 | |
|-------------------------|-------|-----|-------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Turn Type | NA | | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | 6 | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 49.2 | | 8.0 | 49.2 | 31.4 | 31.4 |
| Total Split (s) | 52.8 | | 25.2 | 78.0 | 42.0 | 42.0 |
| Total Split (%) | 44.0% | | 21.0% | 65.0% | 35.0% | 35.0% |
| Maximum Green (s) | 45.6 | | 22.2 | 70.8 | 36.6 | 36.6 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 0.0 | 3.0 | 1.7 | 1.7 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 3.0 | 7.2 | 5.4 | 5.4 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 19.0 | 19.0 |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 |
| Act Effct Green (s) | 67.4 | | 88.7 | 84.5 | 22.9 | 22.9 |
| Actuated g/C Ratio | 0.56 | | 0.74 | 0.70 | 0.19 | 0.19 |
| v/c Ratio | 0.40 | | 0.63 | 0.23 | 0.76 | 0.19 |
| Control Delay | 18.3 | | 8.9 | 3.0 | 53.8 | 9.8 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 18.3 | | 8.9 | 3.0 | 53.8 | 9.8 |
| LOS | В | | Α | Α | D | Α |
| Approach Delay | 18.3 | | | 5.0 | 48.4 | |
| Approach LOS | В | | | Α | D | |
| Intersection Summary | | | | | | |

Intersection Summary

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 120

Offset: 96 (80%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 90

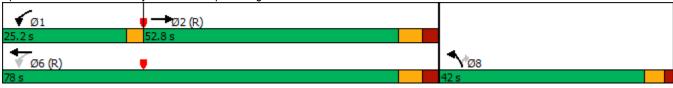
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76
Intersection Signal Delay: 20.8
Intersection Capacity Utilization 62.9%

Intersection LOS: C
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: Hwy 401 WB Ramps & Kingston Road



11: Hwy 401 WB Ramps & Kingston Road

| | → | • | • | 1 | / |
|------------------------|----------|------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 790 | 309 | 573 | 501 | 71 |
| v/c Ratio | 0.40 | 0.63 | 0.23 | 0.76 | 0.19 |
| Control Delay | 18.3 | 8.9 | 3.0 | 53.8 | 9.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 18.3 | 8.9 | 3.0 | 53.8 | 9.8 |
| Queue Length 50th (m) | 47.7 | 5.1 | 5.7 | 58.1 | 0.0 |
| Queue Length 95th (m) | 60.2 | 9.9 | 12.4 | 72.3 | 11.5 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1955 | 569 | 2499 | 1049 | 547 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.54 | 0.23 | 0.48 | 0.13 |
| Intersection Summary | | | | | |

| Lane Group |
|--|
| Traffic Volume (vph) |
| Traffic Volume (vph) |
| Future Volume (vph) |
| Ideal Flow (vphpl) |
| Lane Width (m) |
| Grade (%) |
| Storage Length (m) 51.8 |
| Storage Lanes |
| Taper Length (m) 35.3 2.5 2. |
| Lane Util. Factor |
| Ped Bike Factor |
| Fit Protected 0.950 0.95 |
| Satd. Flow (prot) 1673 3292 1549 1671 3427 1533 1805 1756 0 1643 1472 0 Fit Permitted 0.239 0.229 0.578 0.686 Satd. Flow (perm) 419 3292 1549 403 3427 1456 1092 1756 0 1183 1472 0 Right Turn on Red Yes Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 60 87 103 139 139 1183 1472 0 Link Speed (k/h) 60 60 87 130.9 169.9 159.9 149.9 159.9 159.9 159.9 159.9 159.9 159.9 |
| Satd. Flow (prot) 1673 3292 1549 1671 3427 1533 1805 1756 0 1643 1472 0 Flt Permitted 0.239 0.229 0.578 0.686 Satd. Flow (perm) 419 3292 1549 403 3427 1456 1092 1756 0 1183 1472 0 Right Turn on Red Yes Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 60 87 103 139 139 Link Speed (k/h) 60 60 30 40 40 Link Distance (m) 222.7 268.7 130.9 169.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89 |
| Fit Permitted 0.239 |
| Satd. Flow (perm) 419 3292 1549 403 3427 1456 1092 1756 0 1183 1472 0 Right Turn on Red Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 60 87 103 139 Link Speed (k/h) 60 60 30 40 Link Distance (m) 222.7 268.7 130.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 0. |
| Right Turn on Red Yes Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 60 87 103 139 139 139 139 139 139 139 139 139 139 140 130 130 40 130 40 140 150 130.9 169.9 169.9 150 <t< td=""></t<> |
| Satd. Flow (RTOR) 60 87 103 139 Link Speed (k/h) 60 60 30 40 Link Distance (m) 222.7 268.7 130.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 |
| Link Speed (k/h) 60 60 30 40 Link Distance (m) 222.7 268.7 130.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 |
| Link Distance (m) 222.7 268.7 130.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 |
| Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89< |
| Confl. Peds. (#/hr) 13 13 6 3 3 6 Peak Hour Factor 0.89 |
| Peak Hour Factor 0.89 0.80 |
| Heavy Vehicles (%) 0% 4% 0% 2% 3% 3% 0% 0% 2% 5% 0% 0% Adj. Flow (vph) 85 1058 42 108 1006 83 157 7 103 47 15 139 Shared Lane Traffic (%) Lane Group Flow (vph) 85 1058 42 108 1006 83 157 110 0 47 154 0 Enter Blocked Intersection No 3.6 |
| Adj. Flow (vph) 85 1058 42 108 1006 83 157 7 103 47 15 139 Shared Lane Traffic (%) Lane Group Flow (vph) 85 1058 42 108 1006 83 157 110 0 47 154 0 Enter Blocked Intersection No No< |
| Shared Lane Traffic (%) Lane Group Flow (vph) 85 1058 42 108 1006 83 157 110 0 47 154 0 Enter Blocked Intersection No |
| Lane Group Flow (vph) 85 1058 42 108 1006 83 157 110 0 47 154 0 Enter Blocked Intersection No |
| Enter Blocked Intersection No |
| Lane Alignment Left Left Right Left Left Right Left Left Right Left Right Left Left |
| Median Width(m) 3.5 3.5 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 |
| Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 |
| Crosswalk Width(m) 1.6 1.6 1.6 1.6 |
| |
| Two way Left Turn Lane Yes |
| Headway Factor 1.10 1.07 1.06 1.08 1.03 1.03 1.00 0.87 0.99 1.06 1.13 0.99 |
| Turning Speed (k/h) 24 14 24 14 24 14 24 14 |
| Number of Detectors 1 2 1 1 2 1 1 2 |
| Detector Template Left Thru Right Left Thru Left Thru Left Thru |
| Leading Detector (m) 2.0 10.0 2.0 2.0 10.0 2.0 10.0 2.0 10.0 |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 0.6 2.0 0.6 |
| Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex |
| Detector 1 Channel |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. |
| Detector 2 Position(m) 9.4 9.4 9.4 9.4 |
| Detector 2 Size(m) 0.6 0.6 0.6 0.6 |
| Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex |

| | ۶ | → | • | • | + | • | 1 | † | <i>></i> | / | ţ | 4 |
|----------------------------|-------|----------|-------|-------|-------|-------|-------|-------|-------------|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 8.0 | 31.9 | 31.9 | 8.0 | 31.9 | 31.9 | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 14.4 | 73.2 | 73.2 | 8.4 | 67.2 | 67.2 | 38.4 | 38.4 | | 38.4 | 38.4 | |
| Total Split (%) | 12.0% | 61.0% | 61.0% | 7.0% | 56.0% | 56.0% | 32.0% | 32.0% | | 32.0% | 32.0% | |
| Maximum Green (s) | 11.4 | 66.3 | 66.3 | 5.4 | 60.3 | 60.3 | 31.8 | 31.8 | | 31.8 | 31.8 | |
| Yellow Time (s) | 3.0 | 4.7 | 4.7 | 3.0 | 4.7 | 4.7 | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 0.0 | 2.2 | 2.2 | 0.0 | 2.2 | 2.2 | 2.8 | 2.8 | | 2.8 | 2.8 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.6 | 6.6 | | 6.6 | 6.6 | |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | None | | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | 18.0 | | 18.0 | 18.0 | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | | 1 | 1 | | 16 | 16 | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 87.7 | 76.7 | 76.7 | 84.7 | 76.5 | 76.5 | 21.4 | 21.4 | | 21.4 | 21.4 | |
| Actuated g/C Ratio | 0.73 | 0.64 | 0.64 | 0.71 | 0.64 | 0.64 | 0.18 | 0.18 | | 0.18 | 0.18 | |
| v/c Ratio | 0.22 | 0.50 | 0.04 | 0.32 | 0.46 | 0.09 | 0.81 | 0.28 | | 0.22 | 0.41 | |
| Control Delay | 6.6 | 12.6 | 2.1 | 14.9 | 29.2 | 12.4 | 75.2 | 9.9 | | 41.8 | 11.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 6.6 | 12.6 | 2.1 | 14.9 | 29.2 | 12.4 | 75.2 | 9.9 | | 41.8 | 11.4 | |
| LOS | Α | В | Α | В | С | В | Е | Α | | D | В | |
| Approach Delay | | 11.8 | | | 26.7 | | | 48.3 | | | 18.5 | |
| Approach LOS | | В | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 120 | | | | | | | | | | | | |

Offset: 105.6 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

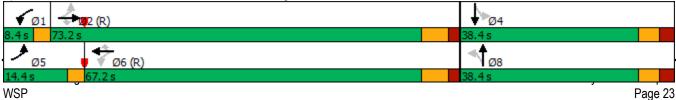
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81 Intersection Signal Delay: 21.9 Intersection Capacity Utilization 71.2%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



| | ٠ | → | • | • | ← | • | 4 | † | > | ļ | |
|------------------------|------|----------|-------|-------|----------|------|------|----------|-------------|-------|--|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 85 | 1058 | 42 | 108 | 1006 | 83 | 157 | 110 | 47 | 154 | |
| v/c Ratio | 0.22 | 0.50 | 0.04 | 0.32 | 0.46 | 0.09 | 0.81 | 0.28 | 0.22 | 0.41 | |
| Control Delay | 6.6 | 12.6 | 2.1 | 14.9 | 29.2 | 12.4 | 75.2 | 9.9 | 41.8 | 11.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 6.6 | 12.6 | 2.1 | 14.9 | 29.2 | 12.4 | 75.2 | 9.9 | 41.8 | 11.4 | |
| Queue Length 50th (m) | 5.3 | 59.7 | 0.3 | 12.3 | 106.7 | 3.7 | 35.9 | 1.4 | 9.6 | 3.0 | |
| Queue Length 95th (m) | 13.4 | 87.1 | m3.5 | 26.5 | 136.5 | 16.6 | 53.9 | 14.5 | 18.5 | 18.4 | |
| Internal Link Dist (m) | | 198.7 | | | 244.7 | | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | | | | | |
| Base Capacity (vph) | 430 | 2103 | 1011 | 341 | 2185 | 959 | 289 | 541 | 313 | 492 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.20 | 0.50 | 0.04 | 0.32 | 0.46 | 0.09 | 0.54 | 0.20 | 0.15 | 0.31 | |
| Intersection Summary | | | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

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|----------------------------|-------|----------|-------|-------|----------|--------|-------|-------|-------------|----------|-------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ች | ^ | 7 | ሻ | ተተተ | 7 | * | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 311 | 294 | 234 | 478 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Future Volume (vph) | 78 | 311 | 294 | 234 | 478 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.98 | 0.99 | | 0.95 | 1.00 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.418 | 0000 | 1001 | 0.483 | 00.0 | 1000 | 0.232 | 0001 | 1000 | 0.495 | 0001 | 1020 |
| Satd. Flow (perm) | 706 | 3335 | 1567 | 892 | 3510 | 1527 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | 002 | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 218 | | | 284 | | | 288 | | | 190 |
| Link Speed (k/h) | | 60 | 2.0 | | 60 | 201 | | 60 | 200 | | 60 | 100 |
| Link Distance (m) | | 286.1 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.2 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | 17.5 | 13 | 13 | 10.1 | 38 | 20 | 0.0 | 20 | 20 | 20.1 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 338 | 320 | 254 | 520 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Shared Lane Traffic (%) | 00 | 000 | 020 | 201 | 020 | 000 | 100 | 12 1 | != ! | 110 | 000 | 100 |
| Lane Group Flow (vph) | 85 | 338 | 320 | 254 | 520 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.5 | ragin | Loit | 3.5 | rugiit | LOIL | 3.5 | ragin | Loit | 3.5 | rtigitt |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | 1.01 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Position(m) | | | | | | | | | | | | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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|-------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 8.0 | 43.0 | 43.0 | 8.0 | 43.0 | 43.0 | 8.0 | 44.1 | 8.0 | 8.0 | 44.1 | 44.1 |
| Total Split (s) | 8.4 | 45.6 | 45.6 | 10.8 | 48.0 | 48.0 | 14.4 | 52.8 | 10.8 | 10.8 | 49.2 | 49.2 |
| Total Split (%) | 7.0% | 38.0% | 38.0% | 9.0% | 40.0% | 40.0% | 12.0% | 44.0% | 9.0% | 9.0% | 41.0% | 41.0% |
| Maximum Green (s) | 5.4 | 38.6 | 38.6 | 7.8 | 41.0 | 41.0 | 11.4 | 45.7 | 7.8 | 7.8 | 42.1 | 42.1 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 0.0 | 0.0 | 2.8 | 2.8 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 7.0 | 7.0 | 3.0 | 7.0 | 7.0 | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 30.0 | | | 30.0 | 30.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 48.0 | 38.6 | 38.6 | 52.9 | 42.7 | 42.7 | 59.9 | 45.7 | 57.6 | 54.9 | 43.0 | 43.0 |
| Actuated g/C Ratio | 0.40 | 0.32 | 0.32 | 0.44 | 0.36 | 0.36 | 0.50 | 0.38 | 0.48 | 0.46 | 0.36 | 0.36 |
| v/c Ratio | 0.26 | 0.32 | 0.49 | 0.56 | 0.42 | 0.42 | 0.50 | 0.22 | 0.48 | 0.36 | 0.48 | 0.28 |
| Control Delay | 22.2 | 31.7 | 13.2 | 16.6 | 18.5 | 4.3 | 22.0 | 25.5 | 7.7 | 19.4 | 31.0 | 4.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.2 | 31.7 | 13.2 | 16.6 | 18.5 | 4.3 | 22.0 | 25.5 | 7.7 | 19.4 | 31.0 | 4.9 |
| LOS | С | С | В | В | В | Α | С | С | Α | В | С | Α |
| Approach Delay | | 22.7 | | | 14.0 | | | 17.4 | | | 25.4 | |
| Approach LOS | | С | | | В | | | В | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |

Cycle Length: 120
Actuated Cycle Length: 120

Offset: 1.2 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

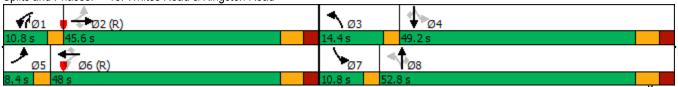
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 100.9% ICU Level of Service G

Analysis Period (min) 15





13: Whites Road & Kingston Road

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|------------------------|-------|----------|-------|------|----------|------|------|----------|----------|-------------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 338 | 320 | 254 | 520 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| v/c Ratio | 0.26 | 0.32 | 0.49 | 0.56 | 0.42 | 0.42 | 0.50 | 0.22 | 0.48 | 0.36 | 0.48 | 0.28 |
| Control Delay | 22.2 | 31.7 | 13.2 | 16.6 | 18.5 | 4.3 | 22.0 | 25.5 | 7.7 | 19.4 | 31.0 | 4.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.2 | 31.7 | 13.2 | 16.6 | 18.5 | 4.3 | 22.0 | 25.5 | 7.7 | 19.4 | 31.0 | 4.9 |
| Queue Length 50th (m) | 11.5 | 31.4 | 17.4 | 23.5 | 49.2 | 15.6 | 19.8 | 24.4 | 16.8 | 21.2 | 58.0 | 0.0 |
| Queue Length 95th (m) | 21.3 | 44.0 | 43.5 | 21.4 | 27.7 | 0.7 | 32.5 | 32.5 | 39.9 | 34.1 | 70.8 | 15.0 |
| Internal Link Dist (m) | | 262.1 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 324 | 1072 | 651 | 450 | 1248 | 725 | 330 | 1925 | 877 | 468 | 1813 | 686 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.26 | 0.32 | 0.49 | 0.56 | 0.42 | 0.42 | 0.48 | 0.22 | 0.48 | 0.36 | 0.48 | 0.28 |
| Intersection Summary | | | | | | | | | | | | |

| | • | • | 4 | † | ↓ | 4 |
|----------------------------|-------|--------|------|----------|----------|---------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ኻዣ | 7 | | ^ | ^ | - J., (|
| Traffic Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Future Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 3.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 223.0 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | ı | 2.5 | | | U |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.31 | 0.31 | 1.00 | 0.90 | 0.33 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.993 | 0.000 | | | | |
| | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Satd. Flow (prot) | | 1400 | 0 | 33/4 | J40 I | 0 |
| Flt Permitted | 0.954 | 1400 | 0 | 2274 | 2404 | 0 |
| Satd. Flow (perm) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Right Turn on Red | _ | Yes | | | | Yes |
| Satd. Flow (RTOR) | 5 | 256 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | _ | 11.2 | 19.0 | _ |
| Confl. Peds. (#/hr) | | | 7 | | • • • | 7 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 622 | 285 | 0 | 737 | 444 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 651 | 256 | 0 | 737 | 444 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | OITLX | OLITEX | | OLITEX | OFFEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| . , | | | | 0.0 | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | Cl+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

| ≯ | • | • | † | ↓ | 4 |
|----------|---|---|----------|----------|---|
|----------|---|---|----------|----------|---|

| Turn Type | | | • | • | • | - | | |
|--|-----------------------|------|------|-----|------|------|-----|--|
| Turn Type | Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Protected Phases 4 2 6 Permitted Phases 4 4 2 6 Switch Phase 8.0 8.0 20.0 20.0 Minimum Initial (s) 8.0 8.0 20.0 20.0 Minimum Split (s) 28.5 28.5 27.7 27.7 Total Split (s) 46.2 46.2 63.8 63.8 Total Split (s) 42.0% 42.0% 58.0% 58.0% Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag 2 2.2 2.2 2.2 Vehicle Extension (s) 3.0 3.0 0.2 0.2 2.2 Recall Mode None None None | Detector 2 Extend (s) | | | | 0.0 | 0.0 | | |
| Permitted Phases | Turn Type | Prot | Perm | | NA | NA | | |
| Detector Phase Switch Phase Minimum Initial (s) | Protected Phases | 4 | | | 2 | 6 | | |
| Switch Phase Minimum Initial (s) 8.0 8.0 20.0 20.0 Minimum Split (s) 28.5 28.5 27.7 27.7 Total Split (s) 46.2 46.2 63.8 63.8 Total Split (%) 42.0% 42.0% 58.0% 58.0% Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27.3 70.5 70.5 A | Permitted Phases | | 4 | | | | | |
| Minimum Initial (s) 8.0 8.0 20.0 20.0 Minimum Split (s) 28.5 28.5 27.7 27.7 Total Split (s) 46.2 46.2 63.8 63.8 Total Split (%) 42.0% 42.0% 58.0% 58.0% Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead/Lag Lead/Lag Lead/Lag Lead/Lag Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27. | Detector Phase | 4 | 4 | | 2 | 6 | | |
| Minimum Split (s) 28.5 28.5 27.7 27.7 Total Split (s) 46.2 46.2 63.8 63.8 Total Split (%) 42.0% 42.0% 58.0% 58.0% Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay< | Switch Phase | | | | | | | |
| Total Split (s) | Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | |
| Total Split (%) 42.0% 42.0% 58.0% 58.0% Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | Minimum Split (s) | 28.5 | | | 27.7 | 27.7 | | |
| Maximum Green (s) 40.7 40.7 57.1 57.1 Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 < | Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | | |
| Yellow Time (s) 3.7 3.7 4.5 4.5 All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS </td <td>Total Split (%)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | Total Split (%) | | | | | | | |
| All-Red Time (s) 1.8 1.8 2.2 2.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | Maximum Green (s) | | | | | | | |
| Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay </td <td>Yellow Time (s)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | Yellow Time (s) | | | | | | | |
| Total Lost Time (s) 5.5 5.5 6.7 6.7 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | . , | | | | | | | |
| Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effet Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | Lost Time Adjust (s) | | | | | | | |
| Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | ` / | 5.5 | 5.5 | | 6.7 | 6.7 | | |
| Vehicle Extension (s) 3.0 3.0 0.2 0.2 Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Recall Mode None None C-Max C-Max Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Walk Time (s) 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Flash Dont Walk (s) 16.0 16.0 14.0 14.0 Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Pedestrian Calls (#/hr) 3 3 0 0 Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | . , | | | | | | | |
| Act Effct Green (s) 27.3 27.3 70.5 70.5 Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | ` / | | | | | | | |
| Actuated g/C Ratio 0.25 0.25 0.64 0.64 v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| v/c Ratio 0.77 0.47 0.34 0.20 Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | \ , | | | | | | | |
| Control Delay 44.5 6.8 10.2 9.0 Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Queue Delay 0.0 0.0 0.0 0.0 Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| Total Delay 44.5 6.8 10.2 9.0 LOS D A B A Approach Delay 33.8 10.2 9.0 | Control Delay | _ | | | | | | |
| LOS D A B A Approach Delay 33.8 10.2 9.0 | Queue Delay | | | | | | | |
| Approach Delay 33.8 10.2 9.0 | | | | | | | | |
| · ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' | | | Α | | | | | |
| Approach LOS C B A | Approach Delay | | | | | | | |
| | Approach LOS | C | | | В | Α | | |

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 79.2 (72%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 20.2 Intersection LOS: C
Intersection Capacity Utilization 48.8% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



| | → | • | † | ↓ |
|------------------------|----------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 651 | 256 | 737 | 444 |
| v/c Ratio | 0.77 | 0.47 | 0.34 | 0.20 |
| Control Delay | 44.5 | 6.8 | 10.2 | 9.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.5 | 6.8 | 10.2 | 9.0 |
| Queue Length 50th (m) | 66.5 | 0.0 | 35.3 | 19.0 |
| Queue Length 95th (m) | 79.4 | 19.3 | 54.4 | 31.0 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1256 | 679 | 2163 | 2232 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.52 | 0.38 | 0.34 | 0.20 |
| Intersection Summary | | | | |

| | • | • | † | / | > | ↓ | |
|-----------------------------------|------------|-------|------------|----------|-------------|------------|-----|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | W | | 1 > | | | ર્ન | |
| Traffic Volume (vph) | 0 | 81 | 0 | 0 | 194 | Ö | |
| Future Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped Bike Factor | | | | | | | |
| Frt | 0.865 | | | | | | |
| Flt Protected | | | | | | 0.950 | |
| Satd. Flow (prot) | 1701 | 0 | 1984 | 0 | 0 | 1867 | |
| Flt Permitted | | | | | | 0.950 | |
| Satd. Flow (perm) | 1701 | 0 | 1984 | 0 | 0 | 1867 | |
| Link Speed (k/h) | 30 | | 40 | | | 40 | |
| Link Distance (m) | 193.0 | | 106.8 | | | 43.8 | |
| Travel Time (s) | 23.2 | | 9.6 | | | 3.9 | |
| Confl. Peds. (#/hr) | | 5 | | | 8 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 2% | 0% | 0% | 1% | 0% | |
| Adj. Flow (vph) | 0 | 88 | 0 | 0 | 211 | 0 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 88 | 0 | 0 | 0 | 0 | 211 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 4.1 | | 3.6 | | | 3.6 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 | |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | | |
| Sign Control | Stop | | Free | | | Free | |
| | | | | | | | |
| Intersection Summary | | | | | | | |
| Jr - | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilization | tion 24.2% | | | IC | U Level | of Service |) A |
| Analysis Period (min) 15 | | | | | | | |

| | • | 4 | † | ~ | > | |
|------------------------------|--------|----------|----------|------|-------------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1> | | | र्स |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 0 | 194 | Ö |
| Future Volume (Veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | 0.99 | | | | | |
| vC, conflicting volume | 430 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 421 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | • • • | <u> </u> | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 87 | |
| cM capacity (veh/h) | 503 | 1053 | | | 1605 | |
| | | | CD 4 | | 1000 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 88 | 0 | 211 | | | |
| Volume Left | 0 | 0 | 211 | | | |
| Volume Right | 88 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.08 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 2.1 | 0.0 | 3.4 | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 7.9 | | | |
| Intersection Capacity Utiliz | zation | | 24.2% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |

| Lane Configurations | | ۶ | → | • | € | + | • | • | † | / | / | ↓ | 4 |
|--|---|-------|----------|-------|-------|------------|-------|-------|----------|----------|----------|----------------|-------|
| Traffic Volume (vph) 38 1402 45 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 38 1402 45 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 39 1402 145 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 30 1900 1900 1900 1900 1900 1900 1900 19 | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Traffic Volume (vph) 38 1402 45 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 38 1402 45 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 39 1402 145 166 761 40 117 19 180 24 16 26 lideal Flow (vphpl) 30 1900 1900 1900 1900 1900 1900 1900 19 | Lane Configurations | * | * | 7 | * | ∳ ሴ | | * | î, | | * | T _a | |
| Fulure Volume (vph) | | | | | | | 40 | | | 180 | | | 26 |
| Ideal Flow (ryphy) | | | | | | | | | | | | | |
| Lane Width (m) | (, , | | | | | | | | | | | | |
| Storage Length (m) | | | | | | | | | | | | | |
| Storage Lanes | . , | | 0.0 | | | 0.0 | | | 0.0 | | | 0.1 | |
| Taper Length (m) | | | | | | | | | | | | | |
| Lane Util. Factor | | | | ' | | | | | | | | | |
| Ped Bike Factor | | | 0.95 | 1 00 | | 0.95 | 0.95 | | 1 00 | 1 00 | | 1 00 | 1 00 |
| Fith | | | 0.50 | | 1.00 | | 0.50 | | | 1.00 | | | 1.00 |
| Fit Protected 0.950 0.95 | | 1.00 | | | | | | 0.50 | | | 1.00 | | |
| Satd. Flow (prot) 1685 3539 1578 1685 3512 0 1745 1599 0 1725 1709 0 | | 0 050 | | 0.000 | 0.950 | 0.555 | | 0 950 | 0.000 | | 0.950 | 0.500 | |
| Fit Permitted Satd. Flow (perm) 602 3539 1520 215 3512 0 1317 1599 0 698 1709 0 708 1709 0 708 1709 0 708 1709 0 708 1709 0 708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1709 1708 1708 1709 1708 | | | 3530 | 1578 | | 3512 | Λ | | 1500 | 0 | | 1700 | 0 |
| Satd. Flow (perm) 602 3539 1520 215 3512 0 1317 1599 0 698 1709 0 Right Turn on Red Yes | | | 3339 | 1370 | | 3312 | U | | 1599 | U | | 1709 | U |
| Right Turn on Reid Yes Yes Yes Tes Yes Y | | | 2520 | 1520 | | 2512 | 0 | | 1500 | 0 | | 1700 | 0 |
| Satd. Flow (RTOR) | | 002 | ათაფ | | 215 | 3312 | | 1317 | 1599 | | 090 | 1709 | |
| Link Speed (k/h) 60 694.6 124.5 224.5 Travel Time (s) 7.8 41.7 11.2 224.5 Confi. Peds. (#/hr) 5 7 7 5 14 5 5 14 Confi. Bikes (#/hr) 1 1 7 7 0.97 | | | | | | 0 | res | | 150 | res | | 07 | res |
| Link Distance (m) | | | 60 | 59 | | | | | | | | | |
| Travel Time (s) | | | | | | | | | | | | | |
| Confl. Peds. (#/hr) | \ / | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | _ | 7.8 | 7 | 7 | 41.7 | _ | 4.4 | 11.2 | _ | _ | 20.2 | 4.4 |
| Peak Hour Factor | . , | 5 | | | 1 | | 5 | 14 | | 5 | 5 | | 14 |
| Heavy Vehicles (%) | | 2.07 | 0.07 | | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| Bus Blockages (#/hr) 0 | | | | | | | | | | | | | |
| Adj. Flow (vph) 39 1445 46 171 785 41 121 20 186 25 16 27 | | | | | | | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 39 1445 46 171 826 0 121 206 0 25 43 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | | | |
| Lane Group Flow (vph) 39 1445 46 171 826 0 121 206 0 25 43 0 | | 39 | 1445 | 46 | 171 | 785 | 41 | 121 | 20 | 186 | 25 | 16 | 27 |
| Enter Blocked Intersection | | | = | | | | | | | _ | | | |
| Left Left Right Left Right Left Right Left Left Right Left Left Right Right | | | | | | | | | | | | | |
| Median Width(m) 3.1 3.1 3.3 3.3 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 1.6 4.9 4.9 Two way Left Turn Lane Yes Yes Yes Headway Factor 1.09 1.00 1.03 1.09 1.00 0.99 1.04 1.01 0.99 1.06 0.99 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 14 24 14 24 14 24 14 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 14 24 14 14 24 14 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | | | | |
| Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 1.6 4.9 4.9 Two way Left Turn Lane Yes Yes Yes Headway Factor 1.09 1.00 1.03 1.09 1.00 0.99 1.04 1.01 0.99 1.06 0.99 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 14 24 14 14 24 14 14 24 14 14 24 14 14 24 14 24 14 14 24 14 14 24 14 | | Left | | Right | Left | | Right | Left | | Right | Left | | Right |
| Crosswalk Width(m) 4.9 1.6 4.9 4.9 Two way Left Turn Lane Yes Yes Yes Headway Factor 1.09 1.00 1.03 1.09 1.00 0.99 1.04 1.01 0.99 1.06 0.99 0.99 Turning Speed (k/h) 24 14 24 | | | | | | | | | | | | | |
| Two way Left Turn Lane Yes Yes Headway Factor 1.09 1.00 1.03 1.09 1.00 0.99 1.04 1.01 0.99 1.06 0.99 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 14 24 14 | | | | | | | | | | | | | |
| Headway Factor 1.09 1.00 1.03 1.09 1.00 0.99 1.04 1.01 0.99 1.06 0.99 0.99 Turning Speed (k/h) 24 | | | | | | | | | 4.9 | | | 4.9 | |
| Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 Na 14 24 14 <td></td> | | | | | | | | | | | | | |
| Number of Detectors 0 0 0 0 0 1 1 0 0 Detector Template Leading Detector (m) 0.0 0 | | | 1.00 | | | 1.00 | | | 1.01 | | | 0.99 | |
| Detector Template Leading Detector (m) 0.0 0.0 0.0 0.0 7.5 7.5 0.0 0.0 Trailing Detector (m) 0.0 0. | • | | | | | | 14 | | | 14 | | | 14 |
| Leading Detector (m) 0.0 | | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | | 0 | 0 | |
| Trailing Detector (m) 0.0 | · · | | | | | | | | | | | | |
| Detector 1 Position(m) 0.0 | . , | | | | | | | | | | | | |
| Detector 1 Size(m) 6.1 1.8 6.1 6.1 1.8 9.0 9.0 6.1 1.8 Detector 1 Type CI+Ex CI+Ex <t< td=""><td></td><td></td><td>0.0</td><td></td><td></td><td></td><td></td><td>-1.5</td><td></td><td></td><td></td><td>0.0</td><td></td></t<> | | | 0.0 | | | | | -1.5 | | | | 0.0 | |
| Detector 1 Type CI+Ex | Detector 1 Position(m) | | | | | | | | | | | | |
| Detector 1 Channel Detector 1 Extend (s) 0.0 <td>Detector 1 Size(m)</td> <td>6.1</td> <td>1.8</td> <td></td> <td>6.1</td> <td>1.8</td> <td></td> <td>9.0</td> <td></td> <td></td> <td>6.1</td> <td>1.8</td> <td></td> | Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | | 6.1 | 1.8 | |
| Detector 1 Extend (s) 0.0 | Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Queue (s) 0.0 | Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Queue (s) 0.0 | Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type Perm NA Perm pm+pt NA Perm NA Perm NA | | | | | | | | | | | | | |
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|-------------------------|-------|----------|-------|-------|----------|-----|-------|----------|----------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | 2 | | 2 | 6 | | | 8 | | | 4 | | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | 20.0 | 20.0 | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 8.0 | 33.0 | | 36.0 | 36.0 | | 36.0 | 36.0 | |
| Total Split (s) | 70.8 | 70.8 | 70.8 | 12.0 | 82.8 | | 37.2 | 37.2 | | 37.2 | 37.2 | |
| Total Split (%) | 59.0% | 59.0% | 59.0% | 10.0% | 69.0% | | 31.0% | 31.0% | | 31.0% | 31.0% | |
| Maximum Green (s) | 64.2 | 64.2 | 64.2 | 9.0 | 76.2 | | 30.7 | 30.7 | | 30.7 | 30.7 | |
| Yellow Time (s) | 4.4 | 4.4 | 4.4 | 3.0 | 4.4 | | 3.3 | 3.3 | | 3.3 | 3.3 | |
| All-Red Time (s) | 2.2 | 2.2 | 2.2 | 0.0 | 2.2 | | 3.2 | 3.2 | | 3.2 | 3.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.6 | 6.6 | 6.6 | 3.0 | 6.6 | | 6.5 | 6.5 | | 6.5 | 6.5 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | C-Max | C-Max | C-Max | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | 7.0 | 7.0 | 7.0 | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 19.0 | 19.0 | 19.0 | | 19.0 | | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | 8 | 8 | 8 | | 4 | | 2 | 2 | | 9 | 9 | |
| Act Effct Green (s) | 77.6 | 77.6 | 77.6 | 93.0 | 89.4 | | 17.5 | 17.5 | | 17.5 | 17.5 | |
| Actuated g/C Ratio | 0.65 | 0.65 | 0.65 | 0.78 | 0.74 | | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.10 | 0.63 | 0.05 | 0.63 | 0.32 | | 0.63 | 0.56 | | 0.25 | 0.16 | |
| Control Delay | 9.4 | 9.1 | 3.5 | 30.6 | 5.4 | | 61.2 | 18.0 | | 47.9 | 21.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 9.4 | 9.1 | 3.5 | 30.6 | 5.4 | | 61.2 | 18.0 | | 47.9 | 21.6 | |
| LOS | Α | Α | Α | С | Α | | E | В | | D | С | |
| Approach Delay | | 9.0 | | | 9.7 | | | 33.9 | | | 31.3 | |
| Approach LOS | | Α | | | Α | | | С | | | С | |

Intersection Summary

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 120

Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63 Intersection Signal Delay: 12.5 Intersection Capacity Utilization 83.7%

Intersection LOS: B
ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Walnut Lane & Kingston Road



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|------------------------|------|----------|---------------|-------|----------|------|----------|-------------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 39 | 1445 | 46 | 171 | 826 | 121 | 206 | 25 | 43 |
| v/c Ratio | 0.10 | 0.63 | 0.05 | 0.63 | 0.32 | 0.63 | 0.56 | 0.25 | 0.16 |
| Control Delay | 9.4 | 9.1 | 3.5 | 30.6 | 5.4 | 61.2 | 18.0 | 47.9 | 21.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 9.4 | 9.1 | 3.5 | 30.6 | 5.4 | 61.2 | 18.0 | 47.9 | 21.6 |
| Queue Length 50th (m) | 1.3 | 41.5 | 0.1 | 13.5 | 24.6 | 27.5 | 10.2 | 5.4 | 3.3 |
| Queue Length 95th (m) | m8.0 | 101.2 | m2.6 | m35.5 | 40.3 | 41.9 | 29.4 | 12.4 | 12.1 |
| Internal Link Dist (m) | | 105.3 | | | 670.6 | | 100.5 | | 200.5 |
| Turn Bay Length (m) | 26.0 | | 25.8 | 37.0 | | 63.2 | | 18.5 | |
| Base Capacity (vph) | 389 | 2289 | 1004 | 276 | 2617 | 336 | 526 | 178 | 457 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.10 | 0.63 | 0.05 | 0.62 | 0.32 | 0.36 | 0.39 | 0.14 | 0.09 |
| Intersection Summary | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

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|----------------------------|-------|----------|-------|-------|----------|-------|--------|----------|----------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ĥ | | ሻ | f) | |
| Traffic Volume (vph) | 204 | 1290 | 100 | 40 | 731 | 135 | 111 | 54 | 63 | 119 | 28 | 92 |
| Future Volume (vph) | 204 | 1290 | 100 | 40 | 731 | 135 | 111 | 54 | 63 | 119 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | | | 0.98 | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | | 0.850 | | | 0.850 | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3433 | 1472 | 1597 | 3500 | 1495 | 1770 | 1787 | 0 | 1827 | 1731 | 0 |
| Flt Permitted | 0.316 | | | 0.158 | | | 0.658 | | | 0.666 | | |
| Satd. Flow (perm) | 525 | 3433 | 1416 | 266 | 3500 | 1461 | 1221 | 1787 | 0 | 1272 | 1731 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 75 | | | 142 | | 54 | | | 97 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 888.0 | | | 199.8 | | | 43.8 | | | 235.1 | |
| Travel Time (s) | | 53.3 | | | 12.0 | | | 3.9 | | | 14.1 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 215 | 1358 | 105 | 42 | 769 | 142 | 117 | 57 | 66 | 125 | 29 | 97 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 215 | 1358 | 105 | 42 | 769 | 142 | 117 | 123 | 0 | 125 | 126 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | Ŭ | | 3.8 | , i | | 3.8 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.10 | 1.13 | 1.01 | 1.10 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | 6.1 | 6.1 | 1.8 | 6.1 | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| 7 F - | F - F | | | | | 2 | ****** | | | | | |

1105-1163 Kingston Road WSP

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|-------------------------|-------|----------|---------------|------|----------|-------|-------|----------|-----|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 8.0 | 27.6 | 27.6 | 8.0 | 27.6 | 27.6 | 40.1 | 40.1 | | 40.1 | 40.1 | |
| Total Split (s) | 14.4 | 60.0 | 60.0 | 10.8 | 56.4 | 56.4 | 49.2 | 49.2 | | 49.2 | 49.2 | |
| Total Split (%) | 12.0% | 50.0% | 50.0% | 9.0% | 47.0% | 47.0% | 41.0% | 41.0% | | 41.0% | 41.0% | |
| Maximum Green (s) | 11.4 | 53.4 | 53.4 | 7.8 | 49.8 | 49.8 | 42.1 | 42.1 | | 42.1 | 42.1 | |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 0.0 | 2.4 | 2.4 | 0.0 | 2.4 | 2.4 | 2.7 | 2.7 | | 2.7 | 2.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 6.6 | 6.6 | 3.0 | 6.6 | 6.6 | 7.1 | 7.1 | | 7.1 | 7.1 | |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | None | | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | 14.0 | | 14.0 | 14.0 | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Pedestrian Calls (#/hr) | | 4 | 4 | | 6 | 6 | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 91.1 | 79.9 | 79.9 | 85.0 | 75.0 | 75.0 | 18.8 | 18.8 | | 18.8 | 18.8 | |
| Actuated g/C Ratio | 0.76 | 0.67 | 0.67 | 0.71 | 0.62 | 0.62 | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.45 | 0.59 | 0.11 | 0.16 | 0.35 | 0.15 | 0.62 | 0.38 | | 0.63 | 0.36 | |
| Control Delay | 7.1 | 20.2 | 4.3 | 5.9 | 9.1 | 1.3 | 59.2 | 26.9 | | 59.6 | 14.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 7.1 | 20.2 | 4.3 | 5.9 | 9.1 | 1.3 | 59.2 | 26.9 | | 59.6 | 14.9 | |
| LOS | Α | С | Α | Α | Α | Α | Е | С | | Е | В | |
| Approach Delay | | 17.5 | | | 7.8 | | | 42.6 | | | 37.1 | |
| Approach LOS | | В | | | Α | | | D | | | D | |

Intersection Summary

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 120

Offset: 28.8 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 18.1 Intersection LOS: B
Intersection Capacity Utilization 70.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



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|------------------------|-------|----------|-------|------|-------|------|------|----------|----------|----------|--|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 215 | 1358 | 105 | 42 | 769 | 142 | 117 | 123 | 125 | 126 | |
| v/c Ratio | 0.45 | 0.59 | 0.11 | 0.16 | 0.35 | 0.15 | 0.62 | 0.38 | 0.63 | 0.36 | |
| Control Delay | 7.1 | 20.2 | 4.3 | 5.9 | 9.1 | 1.3 | 59.2 | 26.9 | 59.6 | 14.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 7.1 | 20.2 | 4.3 | 5.9 | 9.1 | 1.3 | 59.2 | 26.9 | 59.6 | 14.9 | |
| Queue Length 50th (m) | 10.3 | 158.2 | 5.0 | 1.7 | 43.7 | 1.0 | 26.5 | 14.7 | 28.4 | 6.0 | |
| Queue Length 95th (m) | 33.0 | 187.5 | m14.3 | 4.6 | 61.8 | 2.6 | 39.2 | 27.5 | 41.3 | 19.5 | |
| Internal Link Dist (m) | | 864.0 | | | 175.8 | | | 19.8 | | 211.1 | |
| Turn Bay Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 498 | 2284 | 967 | 278 | 2186 | 966 | 428 | 661 | 446 | 670 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.43 | 0.59 | 0.11 | 0.15 | 0.35 | 0.15 | 0.27 | 0.19 | 0.28 | 0.19 | |
| | | | | | | | | | | | |

Intersection Summary

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m Volume for 95th percentile queue is metered by upstream signal.

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ች | ^ | 7 | ሻ | ^ | 7 | ች | ^ | 7 |
| Traffic Volume (vph) | 192 | 952 | 310 | 201 | 544 | 61 | 323 | 736 | 257 | 90 | 426 | 103 |
| Future Volume (vph) | 192 | 952 | 310 | 201 | 544 | 61 | 323 | 736 | 257 | 90 | 426 | 103 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.98 | | 0.91 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.360 | | | 0.101 | | | 0.447 | | | 0.248 | | |
| Satd. Flow (perm) | 633 | 3461 | 1517 | 183 | 3579 | 1520 | 830 | 3773 | 1576 | 519 | 3654 | 1495 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 291 | | | 91 | | | 230 | | | 105 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.1 | | | 257.7 | | | 350.8 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.3 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 196 | 971 | 316 | 205 | 555 | 62 | 330 | 751 | 262 | 92 | 435 | 105 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 196 | 971 | 316 | 205 | 555 | 62 | 330 | 751 | 262 | 92 | 435 | 105 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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|-------------------------|-------|-------|-------|-------|-------|-------|-------|----------|--------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 8.0 | 35.1 | 35.1 | 8.0 | 35.1 | 35.1 | 8.0 | 41.0 | 35.1 | 8.0 | 41.0 | 41.0 |
| Total Split (s) | 12.0 | 45.6 | 45.6 | 13.2 | 46.8 | 46.8 | 10.8 | 50.4 | 45.6 | 10.8 | 50.4 | 50.4 |
| Total Split (%) | 10.0% | 38.0% | 38.0% | 11.0% | 39.0% | 39.0% | 9.0% | 42.0% | 38.0% | 9.0% | 42.0% | 42.0% |
| Maximum Green (s) | 9.0 | 38.5 | 38.5 | 10.2 | 39.7 | 39.7 | 7.8 | 43.4 | 38.5 | 7.8 | 43.4 | 43.4 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 2.8 | 0.0 | 3.2 | 2.8 | 0.0 | 3.2 | 3.2 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 7.1 | 7.1 | 3.0 | 7.1 | 7.1 | 3.0 | 7.0 | 7.1 | 3.0 | 7.0 | 7.0 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 27.0 | 21.0 | | 27.0 | 27.0 |
| Pedestrian Calls (#/hr) | | 15 | 15 | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 51.6 | 38.5 | 38.5 | 54.0 | 39.7 | 39.7 | 55.6 | 43.8 | 38.5 | 54.8 | 43.4 | 43.4 |
| Actuated g/C Ratio | 0.43 | 0.32 | 0.32 | 0.45 | 0.33 | 0.33 | 0.46 | 0.36 | 0.32 | 0.46 | 0.36 | 0.36 |
| v/c Ratio | 0.56 | 0.87 | 0.46 | 0.96 | 0.47 | 0.11 | 0.74 | 0.55 | 0.40 | 0.28 | 0.33 | 0.17 |
| Control Delay | 27.9 | 50.5 | 14.0 | 80.8 | 33.4 | 2.7 | 34.2 | 32.1 | 7.7 | 19.0 | 28.6 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.9 | 50.5 | 14.0 | 80.8 | 33.4 | 2.7 | 34.2 | 32.1 | 7.7 | 19.0 | 28.6 | 5.5 |
| LOS | С | D | В | F | С | Α | С | С | Α | В | С | Α |
| Approach Delay | | 39.7 | | | 42.9 | | | 27.9 | | | 23.4 | |
| Approach LOS | | D | | | D | | | С | | | С | |

Intersection Summary

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 98.4 (82%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

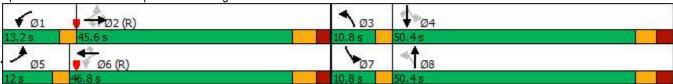
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96 Intersection Signal Delay: 34.2 Intersection Capacity Utilization 102.1%

Intersection LOS: C
ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Liverpool Road & Kingston Road



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6: Liverpool Road & Kingston Road

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|------------------------|-------|--------|------|-------|----------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 196 | 971 | 316 | 205 | 555 | 62 | 330 | 751 | 262 | 92 | 435 | 105 |
| v/c Ratio | 0.56 | 0.87 | 0.46 | 0.96 | 0.47 | 0.11 | 0.74 | 0.55 | 0.40 | 0.28 | 0.33 | 0.17 |
| Control Delay | 27.9 | 50.5 | 14.0 | 80.8 | 33.4 | 2.7 | 34.2 | 32.1 | 7.7 | 19.0 | 28.6 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.9 | 50.5 | 14.0 | 80.8 | 33.4 | 2.7 | 34.2 | 32.1 | 7.7 | 19.0 | 28.6 | 5.5 |
| Queue Length 50th (m) | 35.4 | 128.1 | 33.1 | 31.8 | 54.2 | 0.0 | 47.7 | 73.5 | 5.2 | 11.4 | 38.7 | 0.0 |
| Queue Length 95th (m) | 48.3 | #152.2 | 65.8 | #79.0 | 70.5 | 4.6 | #70.0 | 92.4 | 24.7 | 20.5 | 51.9 | 11.3 |
| Internal Link Dist (m) | | 670.6 | | | 372.1 | | | 233.7 | | | 326.8 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 351 | 1110 | 684 | 213 | 1184 | 563 | 447 | 1376 | 661 | 336 | 1321 | 607 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.87 | 0.46 | 0.96 | 0.47 | 0.11 | 0.74 | 0.55 | 0.40 | 0.27 | 0.33 | 0.17 |

Intersection Summary

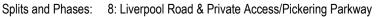
Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

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|--|---------|------------|----------|---------|----------|----------|-------|----------|-------------|----------|----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ∱ } | | 1,4 | ^ | 7 | ሻ | ^ | 7 | * | ^ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 398 | 58 | 174 | 106 | 992 | 396 | 191 | 855 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 398 | 58 | 174 | 106 | 992 | 396 | 191 | 855 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.97 | | | 0.99 | | 0.96 | | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 3539 | 1569 | 1708 | 3535 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.208 | | | 0.147 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 357 | 3539 | 1502 | 264 | 3535 | 1482 |
| Right Turn on Red | - | | Yes | - | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 134 | | | | 179 | | | 408 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | 0.0 | 21 | 21 | 20.1 | | 21 | | 21 | 21 | 10.0 | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 90 | 71 | 134 | 410 | 60 | 179 | 109 | 1023 | 408 | 197 | 881 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 90 | 205 | 0 | 410 | 60 | 179 | 109 | 1023 | 408 | 197 | 881 | 47 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | J | | 6.0 | J | | 3.8 | J | | 3.8 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | Cl+Ex |
| Detector 1 Channel | OI - EX | OI EX | | Ol - Ex | OI - EX | OI - EX | O. ZX | OI EX | OI ZX | OI - EX | OI - EX | OI EX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 3.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 3.0 | 9.4 | 3.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| ====================================== | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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|---|---------------|----------|----------|-----------|------------|------------------------|-------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | Cl+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | 10.0 | 40.0 | | 22.2 | 20 | 20 | 40 = | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 10.8 | 10.8 | | 20.3 | 20.3 | 20.3 | 49.7 | 40.4 | 40.4 | 49.7 | 40.4 | 40.4 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.20 | 0.20 | 0.20 | 0.50 | 0.40 | 0.40 | 0.50 | 0.40 | 0.40 |
| v/c Ratio | 0.49 | 0.47 | | 0.63 | 0.16 | 0.42 | 0.43 | 0.72 | 0.48 | 0.91 | 0.62 | 0.07 |
| Control Delay | 50.5 | 18.9 | | 40.2 | 31.3 | 7.7 | 13.9 | 22.2 | 2.4 | 63.1 | 28.0 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 50.5 | 18.9 | | 40.2 | 31.3 | 7.7 | 13.9 | 22.2 | 2.4 | 63.1 | 28.0 | 0.2 |
| LOS | D | В | | D | C | Α | В | C | Α | E | C | Α |
| Approach Delay | | 28.5 | | | 30.4 | | | 16.4 | | | 33.0 | |
| Approach LOS | | С | | | С | | | В | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| , | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | iced to phase | 2:NBTL | and 6:SB | TL, Start | of Green | | | | | | | |
| | | | | | | | | | | | | |
| | oordinated | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | zation 76.4% |) | | 10 | CU Level | of Service | e D | | | | | |
| Area Type: Cycle Length: 100 Actuated Cycle Length: 1 Offset: 15 (15%), Referent Natural Cycle: 90 Control Type: Actuated-C Maximum v/c Ratio: 0.91 Intersection Signal Delay: Intersection Capacity Utilia | oordinated | | and 6:SB | lr | ntersectio | n LOS: C of Service | | | | | | |



Analysis Period (min) 15



| | • | - | • | ← | • | 4 | † | ~ | - | ļ | 4 | |
|------------------------|------|------|------|-------|------|---------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 90 | 205 | 410 | 60 | 179 | 109 | 1023 | 408 | 197 | 881 | 47 | |
| v/c Ratio | 0.49 | 0.47 | 0.63 | 0.16 | 0.42 | 0.43 | 0.72 | 0.48 | 0.91 | 0.62 | 0.07 | |
| Control Delay | 50.5 | 18.9 | 40.2 | 31.3 | 7.7 | 13.9 | 22.2 | 2.4 | 63.1 | 28.0 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 50.5 | 18.9 | 40.2 | 31.3 | 7.7 | 13.9 | 22.2 | 2.4 | 63.1 | 28.0 | 0.2 | |
| Queue Length 50th (m) | 16.7 | 6.7 | 38.8 | 10.0 | 0.0 | 5.3 | 48.1 | 0.0 | 18.3 | 66.7 | 0.0 | |
| Queue Length 95th (m) | 30.9 | 16.6 | 48.2 | 18.5 | 15.4 | m12.7 m | n#129.8 | m6.4 | #66.1 | 107.1 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 540 | 877 | 509 | 513 | 254 | 1428 | 849 | 217 | 1426 | 683 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.37 | 0.38 | 0.47 | 0.12 | 0.35 | 0.43 | 0.72 | 0.48 | 0.91 | 0.62 | 0.07 | |

Intersection Summary

Synchro 11 Report 1105-1163 Kingston Road WSP Page 12

⁹⁵th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | | 7 | * | 4 | 7 | ሻ | ^ | | | ∱ } | |
| Traffic Volume (vph) | 36 | 0 | 16 | 278 | 8 | 405 | 25 | 1055 | 0 | 0 | 887 | 2 |
| Future Volume (vph) | 36 | 0 | 16 | 278 | 8 | 405 | 25 | 1055 | 0 | 0 | 887 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.5 | 3.7 | 4.5 | 3.7 | 3.7 | 3.5 | 3.0 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 26.5 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 0 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 52.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | | | | | | 0.99 | | | | 1.00 | |
| Frt | | | 0.850 | | | 0.850 | | | | | | |
| Flt Protected | 0.950 | | | 0.950 | 0.955 | | 0.950 | | | | | |
| Satd. Flow (prot) | 1986 | 0 | 1777 | 1734 | 1743 | 1581 | 1685 | 3535 | 0 | 0 | 3460 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | 0.955 | | 0.244 | | | | | |
| Satd. Flow (perm) | 1986 | 0 | 1777 | 1734 | 1743 | 1581 | 429 | 3535 | 0 | 0 | 3460 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 101 | | | 156 | | | | | | |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 75.1 | | | 226.7 | | | 371.5 | | | 162.3 | |
| Travel Time (s) | | 9.0 | | | 16.3 | | | 26.7 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 39 | 0 | 17 | 299 | 9 | 435 | 27 | 1134 | 0 | 0 | 954 | 2 |
| Shared Lane Traffic (%) | | | | 49% | | | | | | | | |
| Lane Group Flow (vph) | 39 | 0 | 17 | 152 | 156 | 435 | 27 | 1134 | 0 | 0 | 956 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 4.5 | | | 4.5 | | | 3.0 | | | 3.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.88 | 0.99 | 0.88 | 0.99 | 0.99 | 1.01 | 1.09 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | |
| Detector Template | Left | | Right | Left | Thru | Right | Left | Thru | | | Thru | |
| Leading Detector (m) | 2.0 | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Size(m) | 2.0 | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | Cl+Ex | | | CI+Ex | |

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|-----------------------------|---------------|----------|----------|-------------|------------|------------|-------|----------|------|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | | Prot | Split | NA | Perm | Perm | NA | | | NA | |
| Protected Phases | 7 | | 7 | 8 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | - | | | 8 | 2 | _ | | | | |
| Detector Phase | 7 | | 7 | 8 | 8 | 8 | 2 | 2 | | | 6 | |
| Switch Phase | · | | • | | | | _ | | | | | |
| Minimum Initial (s) | 8.0 | | 8.0 | 8.0 | 8.0 | 8.0 | 15.0 | 15.0 | | | 15.0 | |
| Minimum Split (s) | 14.0 | | 14.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | | | 25.0 | |
| Total Split (s) | 16.0 | | 16.0 | 26.0 | 26.0 | 26.0 | 58.0 | 58.0 | | | 58.0 | |
| Total Split (%) | 16.0% | | 16.0% | 26.0% | 26.0% | 26.0% | 58.0% | 58.0% | | | 58.0% | |
| Maximum Green (s) | 10.3 | | 10.070 | 20.070 | 20.0 | 20.0 | 51.7 | 51.7 | | | 51.7 | |
| Yellow Time (s) | 3.0 | | 3.0 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | | | 3.3 | |
| All-Red Time (s) | 2.7 | | 2.7 | 2.7 | 2.7 | 2.7 | 3.0 | 3.0 | | | 3.0 | |
| . , | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Lost Time Adjust (s) | 5.7 | | 5.7 | 6.0 | 6.0 | 6.0 | 6.3 | 6.3 | | | 6.3 | |
| Total Lost Time (s) | | | | | | | 0.3 | 0.3 | | | 0.3 | |
| Lead/Lag | Lead | | Lead | Lag | Lag | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | Yes | 2.0 | 2.0 | | | 2.0 | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | |
| Recall Mode | None | | None | None | None | None | C-Max | C-Max | | | C-Max | |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | 13.0 | 13.0 | | | 13.0 | |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | 14 | 14 | | | 7 | |
| Act Effct Green (s) | 8.4 | | 8.4 | 20.0 | 20.0 | 20.0 | 59.1 | 59.1 | | | 59.1 | |
| Actuated g/C Ratio | 0.08 | | 0.08 | 0.20 | 0.20 | 0.20 | 0.59 | 0.59 | | | 0.59 | |
| v/c Ratio | 0.23 | | 0.07 | 0.44 | 0.45 | 0.99 | 0.11 | 0.54 | | | 0.47 | |
| Control Delay | 46.2 | | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | | | 8.3 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Total Delay | 46.2 | | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | | | 8.3 | |
| LOS | D | | Α | D | D | Е | В | В | | | Α | |
| Approach Delay | | 32.4 | | | 55.6 | | | 14.7 | | | 8.3 | |
| Approach LOS | | С | | | Е | | | В | | | Α | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 10 | 00 | | | | | | | | | | | |
| Offset: 8 (8%), Reference | | NBTL and | d 6:SBT. | Start of C | Green | | | | | | | |
| Natural Cycle: 65 | - to proces = | | , | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | ooramatoa | | | | | | | | | | | |
| Intersection Signal Delay: | 23.4 | | | lt | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utili | | | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | 20001111.270 | | | | OO LOVOI | 01 001 110 | | | | | | |
| , , | iverned Da- | 0 Dai:4 | lo Λοσσ | /Llug - 40- | 1 WD Off | Dome | | | | | | |
| Splits and Phases: 9: L | iverpool Road | & Privat | e Access | 5/⊓wy 40′ | I MR Off- | | _ | 1 | 4 | | | - 5 |
| Tø2 (R) | | | | | 1.1 | | Ø7 | | ₹ø8 | | | |
| 58 s | | | | | | 16 : | | | 26 s | | | |
| 5.0 | | | | | | - | | | | | | |

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|-----------------------|------|------|------|----------|--------|------|----------|------|
| Lane Group | EBL | EBR | WBL | WBT | WBR | NBL | NBT | SBT |
| Lane Group Flow (vph) | 39 | 17 | 152 | 156 | 435 | 27 | 1134 | 956 |
| v/c Ratio | 0.23 | 0.07 | 0.44 | 0.45 | 0.99 | 0.11 | 0.54 | 0.47 |
| Control Delay | 46.2 | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | 8.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 46.2 | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | 8.3 |
| Queue Length 50th (m) | 7.2 | 0.0 | 27.3 | 28.2 | 57.5 | 2.4 | 74.2 | 37.3 |
| Queue Length 95th (m) | 17.0 | 0.0 | 47.3 | 48.2 | #119.4 | 7.4 | 97.5 | 45.8 |

| 00 | | 102 | 100 | 100 | | 1101 | 000 | |
|------|--|---|-------|--|---|--|---|---|
| 0.23 | 0.07 | 0.44 | 0.45 | 0.99 | 0.11 | 0.54 | 0.47 | |
| 46.2 | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | 8.3 | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 46.2 | 0.6 | 39.7 | 39.9 | 66.7 | 12.9 | 14.8 | 8.3 | |
| 7.2 | 0.0 | 27.3 | 28.2 | 57.5 | 2.4 | 74.2 | 37.3 | |
| 17.0 | 0.0 | 47.3 | 48.2 | #119.4 | 7.4 | 97.5 | 45.8 | |
| | | | 202.7 | | | 347.5 | 138.3 | |
| | | | | 125.0 | 26.5 | | | |
| 204 | 273 | 346 | 348 | 441 | 253 | 2088 | 2044 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0.19 | 0.06 | 0.44 | 0.45 | 0.99 | 0.11 | 0.54 | 0.47 | |
| | | | | | | | | |
| | 0.23 46.2 0.0 46.2 7.2 17.0 | 0.23 0.07 46.2 0.6 0.0 0.0 46.2 0.6 7.2 0.0 17.0 0.0 204 273 0 0 0 0 0 0 | 0.23 | 0.23 0.07 0.44 0.45 46.2 0.6 39.7 39.9 0.0 0.0 0.0 0.0 46.2 0.6 39.7 39.9 7.2 0.0 27.3 28.2 17.0 0.0 47.3 48.2 202.7 204 273 346 348 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.23 0.07 0.44 0.45 0.99 46.2 0.6 39.7 39.9 66.7 0.0 0.0 0.0 0.0 0.0 46.2 0.6 39.7 39.9 66.7 7.2 0.0 27.3 28.2 57.5 17.0 0.0 47.3 48.2 #119.4 202.7 204 273 346 348 441 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.23 0.07 0.44 0.45 0.99 0.11 46.2 0.6 39.7 39.9 66.7 12.9 0.0 0.0 0.0 0.0 0.0 46.2 0.6 39.7 39.9 66.7 12.9 7.2 0.0 27.3 28.2 57.5 2.4 17.0 0.0 47.3 48.2 #119.4 7.4 202.7 204 273 346 348 441 253 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.23 0.07 0.44 0.45 0.99 0.11 0.54 46.2 0.6 39.7 39.9 66.7 12.9 14.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 46.2 0.6 39.7 39.9 66.7 12.9 14.8 7.2 0.0 27.3 28.2 57.5 2.4 74.2 17.0 0.0 47.3 48.2 #119.4 7.4 97.5 202.7 347.5 26.5 204 273 346 348 441 253 2088 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0.23 0.07 0.44 0.45 0.99 0.11 0.54 0.47 46.2 0.6 39.7 39.9 66.7 12.9 14.8 8.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 46.2 0.6 39.7 39.9 66.7 12.9 14.8 8.3 7.2 0.0 27.3 28.2 57.5 2.4 74.2 37.3 17.0 0.0 47.3 48.2 #119.4 7.4 97.5 45.8 202.7 347.5 138.3 125.0 26.5 204 273 346 348 441 253 2088 2044 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |

Queue shown is maximum after two cycles.

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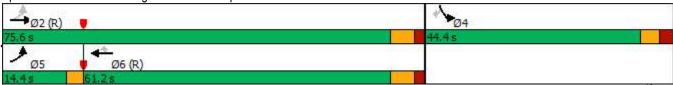
⁹⁵th percentile volume exceeds capacity, queue may be longer.

| | • | → | ← | • | \ | 4 |
|------------------------------------|-------|----------|------------|-------|----------|-------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | ኘ | ^ | ↑ ↑ | 7 | <u> </u> | 7 |
| Traffic Volume (vph) | 205 | 1371 | 718 | 223 | 271 | 137 |
| Future Volume (vph) | 205 | 1371 | 718 | 223 | 271 | 137 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 |
| Lane Width (m) | 3.0 | 6% | 0% | 3.1 | 0% | 4.5 |
| Grade (%) | 75.0 | 070 | U% | 10 E | | 0.0 |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 |
| Storage Lanes | 1 | | | 1 | 1 | 1 |
| Taper Length (m) | 2.5 | 0.05 | 0.05 | 4.00 | 31.3 | 4.00 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | | | 0.98 | | 0.98 |
| Frt | | | | 0.850 | | 0.850 |
| Flt Protected | 0.950 | | | | 0.950 | |
| Satd. Flow (prot) | 1618 | 3433 | 3466 | 1559 | 1805 | 1777 |
| Flt Permitted | 0.315 | | | | 0.950 | |
| Satd. Flow (perm) | 536 | 3433 | 3466 | 1524 | 1805 | 1750 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | 112 | | 143 |
| Link Speed (k/h) | | 60 | 60 | | 40 | |
| Link Opeca (k/n) Link Distance (m) | | 424.0 | 888.0 | | 284.9 | |
| Travel Time (s) | | 25.4 | 53.3 | | 25.6 | |
| Confl. Peds. (#/hr) | 1 | 23.4 | 55.5 | 1 | 23.0 | 2 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | | 0.96 | 0.96 |
| | | | | 0.96 | | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 |
| Adj. Flow (vph) | 214 | 1428 | 748 | 232 | 282 | 143 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 214 | 1428 | 748 | 232 | 282 | 143 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Left | Right | Left | Right |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 1.03 | 1.00 | 0.88 |
| Turning Speed (k/h) | 24 | 1.07 | 1.01 | 1.03 | 24 | 14 |
| Number of Detectors | 1 | 2 | 2 | 14 | 1 | 14 |
| Detector Template | Left | | | | Left | |
| | | Thru | Thru | Right | | Right |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | 2.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | 2.0 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | |
| - DOLEGIOI Z GIZE(III) | | 0.0 | 0.0 | | | |

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| • | - | • | • | - | 4 |
|--------------|--|---|--|--|------------|
| EBL | EBT | WBT | WBR | SBL | SBR |
| | Cl+Ex | Cl+Ex | | | |
| | | | | | |
| | 0.0 | 0.0 | | | |
| pm+pt | NA | NA | Perm | Prot | Perm |
| 5 | 2 | 6 | | 4 | |
| 2 | | | 6 | | 4 |
| 5 | 2 | 6 | 6 | 4 | 4 |
| | | | | | |
| 5.0 | 20.0 | 20.0 | 20.0 | 8.0 | 8.0 |
| 8.0 | 32.3 | 32.3 | 32.3 | 29.0 | 29.0 |
| 14.4 | 75.6 | 61.2 | 61.2 | 44.4 | 44.4 |
| 12.0% | 63.0% | 51.0% | 51.0% | 37.0% | 37.0% |
| 11.4 | 69.3 | 54.9 | 54.9 | 38.4 | 38.4 |
| 3.0 | 4.3 | 4.3 | 4.3 | 3.3 | 3.3 |
| 0.0 | 2.0 | 2.0 | 2.0 | 2.7 | 2.7 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3.0 | 6.3 | 6.3 | 6.3 | 6.0 | 6.0 |
| Lead | | Lag | Lag | | |
| Yes | | Yes | Yes | | |
| 3.0 | 0.2 | 0.2 | 0.2 | 3.0 | 3.0 |
| None | C-Max | C-Max | C-Max | None | None |
| | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| | 19.0 | 19.0 | 19.0 | 16.0 | 16.0 |
| | 0 | 0 | 0 | 0 | 0 |
| 86.8 | 83.5 | 70.6 | 70.6 | 24.2 | 24.2 |
| 0.72 | 0.70 | 0.59 | 0.59 | 0.20 | 0.20 |
| 0.45 | 0.60 | 0.37 | 0.25 | 0.78 | 0.31 |
| 4.9 | 11.2 | 8.7 | 3.3 | 59.5 | 7.4 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4.9 | 11.2 | 8.7 | 3.3 | 59.5 | 7.4 |
| Α | В | Α | Α | Е | Α |
| | 10.4 | 7.4 | | 42.0 | |
| | В | Α | | D | |
| | | | | | |
| Other | | | | | |
| | | | | | |
| 20 | | | | | |
| | 2:EBTL | and 6:WE | 3T, Start o | of Green | |
| | | | | | |
| ordinated | | | | | |
| | | | | | |
| 13.8 | | | lr | ntersectio | n LOS: B |
| | | | | 0111 | |
| zation 63.4% |) | | 10 | SU Level | of Service |
| | pm+pt 5 2 5 5.0 8.0 14.4 12.0% 11.4 3.0 0.0 0.0 3.0 Lead Yes 3.0 None 86.8 0.72 0.45 4.9 0.0 4.9 A Other | CI+Ex 0.0 pm+pt NA 5 2 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 | CI+Ex CI+Ex 0.0 0.0 pm+pt NA NA 5 2 6 2 5 2 6 5.0 20.0 20.0 8.0 32.3 32.3 14.4 75.6 61.2 12.0% 63.0% 51.0% 11.4 69.3 54.9 3.0 4.3 4.3 0.0 2.0 2.0 0.0 0.0 0.0 3.0 6.3 6.3 Lead Lag Yes Yes 3.0 0.2 0.2 None C-Max C-Max 7.0 7.0 19.0 19.0 0 0 86.8 83.5 70.6 0.72 0.70 0.59 0.45 0.60 0.37 4.9 11.2 8.7 0.0 0.0 0.0 4.9 11.2 8.7 A B A 10.4 7.4 B A Other | CI+Ex CI+Ex 0.0 0.0 0.0 pm+pt NA NA Perm 5 2 6 2 6 6 5 2 7 6 7 6 5 2 7 7 6 5 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | O.0 |

Splits and Phases: 10: Kingston Road & Fairport Road



| | • | → | • | • | \ | 1 |
|------------------------|-------|----------|-------|------|----------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Group Flow (vph) | 214 | 1428 | 748 | 232 | 282 | 143 |
| v/c Ratio | 0.45 | 0.60 | 0.37 | 0.25 | 0.78 | 0.31 |
| Control Delay | 4.9 | 11.2 | 8.7 | 3.3 | 59.5 | 7.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 4.9 | 11.2 | 8.7 | 3.3 | 59.5 | 7.4 |
| Queue Length 50th (m) | 6.6 | 175.0 | 28.0 | 3.7 | 63.4 | 0.0 |
| Queue Length 95th (m) | m19.8 | 203.4 | 25.2 | 7.8 | 86.2 | 15.1 |
| Internal Link Dist (m) | | 400.0 | 864.0 | | 260.9 | |
| Turn Bay Length (m) | 75.0 | | | 18.5 | 15.5 | |
| Base Capacity (vph) | 490 | 2389 | 2039 | 942 | 577 | 657 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.44 | 0.60 | 0.37 | 0.25 | 0.49 | 0.22 |
| Intersection Summary | | | | | | |
| | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

| | → | \rightarrow | • | ← | 4 | / |
|--|------------|---------------|-----------|-----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ ↑ | | ሻ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 1473 | 23 | 184 | 670 | 662 | 100 |
| Future Volume (vph) | 1473 | 23 | 184 | 670 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | ۷.1 | 0% | 0% | 0.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 70 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | | 22.3 | | 2.5 | - |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Flt Protected | 0.000 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | 3311 | U | 0.073 | 3010 | 0.950 | 1017 |
| Satd. Flow (perm) | 3577 | 0 | 121 | 3618 | 3536 | 1591 |
| | 3377 | Yes | 121 | 3010 | 3330 | Yes |
| Right Turn on Red Satd. Flow (RTOR) | 2 | 168 | | | | 90 |
| | 60 | | | 60 | 50 | 90 |
| Link Speed (k/h) Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | 10.1 | | | 25.4 | 15.6 | 3 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| | 0.98 2% | 0.98 5% | 3% | 2% | 1% | 1% |
| Heavy Vehicles (%) | | | 3% 188 | 2% 684 | | 102 |
| Adj. Flow (vph) | 1503 | 23 | 100 | 004 | 676 | 102 |
| Shared Lane Traffic (%) | 1500 | 0 | 100 | 604 | 676 | 100 |
| Lane Group Flow (vph) | 1526 | 0 | 188 | 684 | 676 | 102 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | 4.00 | 4 | Yes | 0.0= | 0.00 |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | _ 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| | • | | | | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |

| | - | \rightarrow | • | ← | 1 | / |
|-------------------------|-------|---------------|-------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | pm+pt | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | 6 | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 49.2 | | 8.0 | 49.2 | 31.4 | 31.4 |
| Total Split (s) | 70.8 | | 15.6 | 86.4 | 33.6 | 33.6 |
| Total Split (%) | 59.0% | | 13.0% | 72.0% | 28.0% | 28.0% |
| Maximum Green (s) | 63.6 | | 12.6 | 79.2 | 28.2 | 28.2 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 0.0 | 3.0 | 1.7 | 1.7 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 3.0 | 7.2 | 5.4 | 5.4 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 19.0 | 19.0 |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 |
| Act Effct Green (s) | 66.1 | | 85.2 | 81.0 | 26.4 | 26.4 |
| Actuated g/C Ratio | 0.55 | | 0.71 | 0.68 | 0.22 | 0.22 |
| v/c Ratio | 0.77 | | 0.82 | 0.28 | 0.87 | 0.24 |
| Control Delay | 13.9 | | 45.5 | 15.3 | 57.5 | 11.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 13.9 | | 45.5 | 15.3 | 57.5 | 11.2 |
| LOS | В | | D | В | Е | В |
| Approach Delay | 13.9 | | | 21.8 | 51.5 | |
| Approach LOS | В | | | С | D | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 8.4 (7%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.2 Intersection LOS: C Intersection Capacity Utilization 84.6% ICU Level of Service E Analysis Period (min) 15



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| | - | • | • | 1 | / |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1526 | 188 | 684 | 676 | 102 |
| v/c Ratio | 0.77 | 0.82 | 0.28 | 0.87 | 0.24 |
| Control Delay | 13.9 | 45.5 | 15.3 | 57.5 | 11.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 13.9 | 45.5 | 15.3 | 57.5 | 11.2 |
| Queue Length 50th (m) | 124.2 | 26.4 | 58.0 | 78.1 | 2.2 |
| Queue Length 95th (m) | 139.8 | #60.5 | 74.1 | 99.4 | 16.1 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1972 | 238 | 2441 | 832 | 442 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.79 | 0.28 | 0.81 | 0.23 |
| Intersection Summary | | | | | |

⁹⁵th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

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| Lane Configurations | | ۶ | → | • | • | ← | • | 4 | † | / | > | ţ | 1 |
|--|----------------------------|-------|----------|----------|-------|----------|----------|-------|----------|-------|-------------|-------|-------|
| Traffic Volume (vph) | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Traffic Volume (vph) | Lane Configurations | ሻ | ^ | 7 | 7 | ^ | 7 | ሻ | î, | | 7 | î, | |
| Future Volume (vph) | | | | 38 | 89 | | 121 | | | 138 | 82 | | 143 |
| Ideal Flow (riphpit) 1900 | | | | | | | | | | | | | |
| Lane Width (m) | | | | | | 1900 | | | | | | | 1900 |
| Grade (%) | | | | | | | | | | | | | |
| Storage Length (m) 51.8 | | | | | | | | | | | | | |
| Storage Length (m) 35.3 2.5 | | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Taper Length (m) | | | | | | | | | | | | | |
| Laine Liffi. Factor | | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Ped Bike Factor | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fit Protected | | | | 0.98 | | | 0.94 | | | | | 0.99 | |
| Satd. Flow (prot) | Frt | | | 0.850 | | | 0.850 | | 0.864 | | | 0.862 | |
| Fit Permitted | Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Fit Permitted | Satd. Flow (prot) | 1656 | 3357 | 1549 | 1705 | 3461 | 1579 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Right Turn on Red | | 0.175 | | | 0.132 | | | 0.589 | | | 0.596 | | |
| Right Turn on Red Yes | Satd. Flow (perm) | 305 | 3357 | 1515 | 237 | 3461 | 1488 | 1096 | 1824 | 0 | 1082 | 1474 | 0 |
| Link Speed (k/h) | | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (k/h) | Satd. Flow (RTOR) | | | 60 | | | 87 | | 137 | | | 146 | |
| Link Distance (m) | , | | 60 | | | 60 | | | 30 | | | 40 | |
| Travel Time (s) | | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Confl. Peds. (#/hr) | | | 13.4 | | | 16.1 | | | | | | 15.3 | |
| Peak Hour Factor 0.98 0. | . , | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Adj. Flow (vph) | | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Shared Lane Traffic (%) Lane Group Flow (vph) 133 1371 39 91 1152 123 202 156 0 84 159 0 0 0 0 0 0 0 0 0 | | 133 | 1371 | 39 | 91 | 1152 | 123 | 202 | 15 | 141 | 84 | 13 | 146 |
| Lane Group Flow (vph) 133 1371 39 91 1152 123 202 156 0 84 159 0 | | | | | | | | | | | | | |
| Enter Blocked Intersection No No No No No No No | | 133 | 1371 | 39 | 91 | 1152 | 123 | 202 | 156 | 0 | 84 | 159 | 0 |
| Median Width(m) 3.5 3.5 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 1.10 1.07 1.06 1.08 1.03 1.00 0.87 0.99 1.06 1.13 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 14 24 14 24 14 14 24 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 | Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Median Width(m) 3.5 3.5 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 1.10 1.07 1.06 1.08 1.03 1.00 0.87 0.99 1.06 1.13 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 14 24 14 24 14 14 24 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 14 | Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Crosswalk Width(m) 1.6 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 1.10 1.07 1.06 1.08 1.03 1.00 0.87 0.99 1.06 1.13 0.99 Turning Speed (k/h) 24 14 2 | Median Width(m) | | 3.5 | <u> </u> | | 3.5 | <u> </u> | | 3.6 | | | 3.6 | |
| Two way Left Turn Lane Yes Headway Factor 1.10 1.07 1.06 1.08 1.03 1.00 0.87 0.99 1.06 1.13 0.99 Turning Speed (k/h) 24 14 24 | Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Headway Factor 1.10 1.07 1.06 1.08 1.03 1.03 1.00 0.87 0.99 1.06 1.13 0.99 Turning Speed (k/h) 24 14 | Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Turning Speed (k/h) 24 14 <td>Two way Left Turn Lane</td> <td></td> <td></td> <td></td> <td></td> <td>Yes</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Turning Speed (k/h) 24 14 <td>Headway Factor</td> <td>1.10</td> <td>1.07</td> <td>1.06</td> <td>1.08</td> <td>1.03</td> <td>1.03</td> <td>1.00</td> <td>0.87</td> <td>0.99</td> <td>1.06</td> <td>1.13</td> <td>0.99</td> | Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Detector Template Left Thru Right Left Thru Right Left Thru Left Thru Leading Detector (m) 2.0 10.0 2.0 2.0 10.0 2.0 10.0 Trailing Detector (m) 0.0 | | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Leading Detector (m) 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 10.0 2.0 10.0 2.0 10.0 2.0 10.0 | Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | | 1 | 2 | |
| Trailing Detector (m) 0.0 | Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | | Left | Thru | |
| Detector 1 Position(m) 0.0 0.6 2.0 2.0 0.6 2.0 0.6 2.0 0.6 2.0 0.6 2.0 0.6 Detector 1.0 0.0 | Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 0.6 2.0 0.6 Detector 1 Type CI+Ex CI+Ex <t< td=""><td>Trailing Detector (m)</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td></td><td>0.0</td><td>0.0</td><td></td></t<> | Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Type CI+Ex | Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Channel Detector 1 Extend (s) 0.0 <td>Detector 1 Size(m)</td> <td>2.0</td> <td>0.6</td> <td>2.0</td> <td>2.0</td> <td>0.6</td> <td>2.0</td> <td>2.0</td> <td>0.6</td> <td></td> <td>2.0</td> <td>0.6</td> <td></td> | Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Extend (s) 0.0 | Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Queue (s) 0.0 | Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | . , | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) 9.4 9.4 9.4 9.4 | Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) 0.6 0.6 0.6 | ` , | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex | | | Cl+Ex | | | CI+Ex | | | CI+Ex | | | | |

| | • | → | * | • | + | • | • | † | ~ | / | + | 4 |
|------------------------------|-------------|----------|-----------|---------|------------|-------|-------|-------|-----|----------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 8.0 | 31.9 | 31.9 | 8.0 | 31.9 | 31.9 | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 13.2 | 72.0 | 72.0 | 9.6 | 68.4 | 68.4 | 38.4 | 38.4 | | 38.4 | 38.4 | |
| Total Split (%) | 11.0% | 60.0% | 60.0% | 8.0% | 57.0% | 57.0% | 32.0% | 32.0% | | 32.0% | 32.0% | |
| Maximum Green (s) | 10.2 | 65.1 | 65.1 | 6.6 | 61.5 | 61.5 | 31.8 | 31.8 | | 31.8 | 31.8 | |
| Yellow Time (s) | 3.0 | 4.7 | 4.7 | 3.0 | 4.7 | 4.7 | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 0.0 | 2.2 | 2.2 | 0.0 | 2.2 | 2.2 | 2.8 | 2.8 | | 2.8 | 2.8 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.6 | 6.6 | | 6.6 | 6.6 | |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | None | | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | 18.0 | | 18.0 | 18.0 | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 13 | 13 | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 83.9 | 71.7 | 71.7 | 80.0 | 69.7 | 69.7 | 25.3 | 25.3 | | 25.3 | 25.3 | |
| Actuated g/C Ratio | 0.70 | 0.60 | 0.60 | 0.67 | 0.58 | 0.58 | 0.21 | 0.21 | | 0.21 | 0.21 | |
| v/c Ratio | 0.43 | 0.68 | 0.04 | 0.39 | 0.57 | 0.14 | 0.87 | 0.32 | | 0.37 | 0.37 | |
| Control Delay | 8.5 | 13.8 | 0.9 | 9.5 | 7.9 | 1.8 | 79.0 | 9.8 | | 43.4 | 9.7 | |
| Queue Delay | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 8.5 | 13.8 | 0.9 | 9.5 | 7.9 | 1.8 | 79.0 | 9.8 | | 43.4 | 9.7 | |
| LOS | Α | В | Α | Α | Α | Α | E | Α | | D | Α | |
| Approach Delay | | 13.1 | | | 7.5 | | | 48.9 | | | 21.4 | |
| Approach LOS | | В | | | Α | | | D | | | С | |
| Intersection Summary | Oll | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | 0 | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | 0 55 | T | MDTL O | | | | | | | | |
| Offset: 111.6 (93%), Referen | enced to ph | ase 2:EB | IL and 6: | WBIL, S | tart of Gr | een | | | | | | |

Natural Cycle: 90

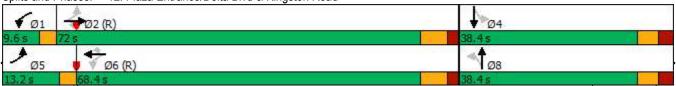
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87 Intersection Signal Delay: 15.1 Intersection Capacity Utilization 83.3%

Intersection LOS: B ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



WSP Page 23

| | • | - | • | • | ← | • | 4 | † | - | ļ | |
|------------------------|-------|-------|-------|-------|-------|------|-------|----------|------|-------|--|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 133 | 1371 | 39 | 91 | 1152 | 123 | 202 | 156 | 84 | 159 | |
| v/c Ratio | 0.43 | 0.68 | 0.04 | 0.39 | 0.57 | 0.14 | 0.87 | 0.32 | 0.37 | 0.37 | |
| Control Delay | 8.5 | 13.8 | 0.9 | 9.5 | 7.9 | 1.8 | 79.0 | 9.8 | 43.4 | 9.7 | |
| Queue Delay | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 8.5 | 13.8 | 0.9 | 9.5 | 7.9 | 1.8 | 79.0 | 9.8 | 43.4 | 9.7 | |
| Queue Length 50th (m) | 8.4 | 88.9 | 0.0 | 2.5 | 77.1 | 1.9 | 45.9 | 3.6 | 16.9 | 2.5 | |
| Queue Length 95th (m) | m12.3 | 106.5 | m0.0 | m4.9 | 116.1 | m7.7 | #74.4 | 19.3 | 30.2 | 18.6 | |
| Internal Link Dist (m) | | 198.7 | | | 244.7 | | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | | | | | |
| Base Capacity (vph) | 331 | 2006 | 929 | 238 | 2008 | 900 | 290 | 584 | 286 | 497 | |
| Starvation Cap Reductn | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.40 | 0.70 | 0.04 | 0.38 | 0.57 | 0.14 | 0.70 | 0.27 | 0.29 | 0.32 | |

Intersection Summary

Synchro 11 Report 1105-1163 Kingston Road WSP Page 24

⁹⁵th percentile volume exceeds capacity, queue may be longer.

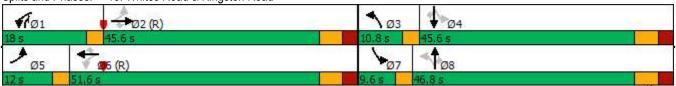
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

| | ۶ | → | • | • | ← | • | 4 | † | <i>></i> | / | ţ | 4 |
|----------------------------|---------|----------|---------|---------|----------|---------|---------|---------|-------------|----------|---------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ች | ^ | 7 | ሻ | ተተተ | 7 | * | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 722 | 358 | 231 | 724 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 722 | 358 | 231 | 724 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.284 | | | 0.213 | | , , , | 0.337 | | | 0.322 | | |
| Satd. Flow (perm) | 491 | 3400 | 1554 | 385 | 3579 | 1512 | 618 | 5255 | 1471 | 580 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 216 | | | 216 | | | 68 | | | 192 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 286.1 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.2 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | 10.1 | 75 | 37 | 0.0 | 65 | 65 | 20.1 | 37 |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 160 | 744 | 369 | 238 | 746 | 505 | 235 | 705 | 675 | 195 | 636 | 192 |
| Shared Lane Traffic (%) | 100 | | 000 | 200 | 7 10 | 000 | 200 | , 00 | 0.0 | 100 | 000 | 102 |
| Lane Group Flow (vph) | 160 | 744 | 369 | 238 | 746 | 505 | 235 | 705 | 675 | 195 | 636 | 192 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | 1.01 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX | OI · LX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| ` , | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | ۵.0 | | | ۵.0 | | | 0.0 | | | 0.0 | |

| | ۶ | → | • | • | ← | • | 1 | † | / | / | ţ | 4 |
|---|-------------|-----------|-----------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | 2 | _ | 2 | 6 | | 6 | 8 | _ | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 8.0 | 43.0 | 43.0 | 8.0 | 43.0 | 43.0 | 8.0 | 44.1 | 8.0 | 8.0 | 44.1 | 44.1 |
| Total Split (s) | 12.0 | 45.6 | 45.6 | 18.0 | 51.6 | 51.6 | 10.8 | 46.8 | 18.0 | 9.6 | 45.6 | 45.6 |
| Total Split (%) | 10.0% | 38.0% | 38.0% | 15.0% | 43.0% | 43.0% | 9.0% | 39.0% | 15.0% | 8.0% | 38.0% | 38.0% |
| Maximum Green (s) | 9.0 | 38.6 | 38.6 | 15.0 | 44.6 | 44.6 | 7.8 | 39.7 | 15.0 | 6.6 | 38.5 | 38.5 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 2.8 | 0.0 | 2.8 | 0.0 | 0.0 | 2.8 | 2.8 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 7.0 | 7.0 | 3.0 | 7.0 | 7.0 | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 30.0 | | | 30.0 | 30.0 |
| Pedestrian Calls (#/hr) | FO 0 | 13 | 13 | 00.4 | 38 | 38 | E4.0 | 20 | F7 A | 40.0 | 20 | 20 |
| Act Effet Green (s) | 52.8 | 40.0 | 40.0 | 60.4 | 44.8 | 44.8 | 51.6 | 39.7 | 57.4 | 49.2 | 38.5 | 38.5 |
| Actuated g/C Ratio | 0.44 | 0.33 | 0.33 | 0.50 | 0.37 | 0.37 | 0.43 | 0.33 | 0.48 | 0.41 | 0.32 | 0.32 |
| v/c Ratio | 0.53 | 0.66 | 0.56 | 0.69 | 0.56 | 0.72 | 0.69 | 0.41 | 0.90 | 0.65 | 0.39 | 0.31 |
| Control Delay | 23.9 | 37.9 | 16.9 | 33.9 | 18.0 | 11.6 | 35.2 | 31.9 | 40.1 | 34.2 | 32.5 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay LOS | 23.9 C | 37.9 D | 16.9 B | 33.9 C | 18.0 | 11.6 | 35.2 D | 31.9 C | 40.1 D | 34.2 C | 32.5 C | 5.5 A |
| | C | | В | C | 10 A | В | U | 35.8 | U | C | | А |
| Approach Delay Approach LOS | | 30.0 C | | | 18.4 B | | | ან.6 D | | | 27.7 C | |
| | | C | | | В | | | D | | | C | |
| Intersection Summary | Other | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 120 | | 2.EDTL | and GIMD | TI Ctort | of Croon | | | | | | | |
| Offset: 1.2 (1%), Reference Natural Cycle: 105 | · | Z.EBIL 8 | and b.vvb | TL, Start | or Green | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.90 | | | | | | | | | | | | |
| Intersection Signal Delay: 2 | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliza | ition 104.7 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |

Splits and Phases: 13: Whites Road & Kingston Road



| | • | - | • | • | • | • | • | † | / | - | ↓ | 4 |
|------------------------|-------|-------|-------|------|-------|------|------|----------|--------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 160 | 744 | 369 | 238 | 746 | 505 | 235 | 705 | 675 | 195 | 636 | 192 |
| v/c Ratio | 0.53 | 0.66 | 0.56 | 0.69 | 0.56 | 0.72 | 0.69 | 0.41 | 0.90 | 0.65 | 0.39 | 0.31 |
| Control Delay | 23.9 | 37.9 | 16.9 | 33.9 | 18.0 | 11.6 | 35.2 | 31.9 | 40.1 | 34.2 | 32.5 | 5.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.9 | 37.9 | 16.9 | 33.9 | 18.0 | 11.6 | 35.2 | 31.9 | 40.1 | 34.2 | 32.5 | 5.5 |
| Queue Length 50th (m) | 20.0 | 79.7 | 28.5 | 22.2 | 26.5 | 8.4 | 34.7 | 46.8 | 114.8 | 28.1 | 42.4 | 0.0 |
| Queue Length 95th (m) | 32.7 | 101.2 | 59.2 | 53.7 | 50.9 | 38.4 | 53.1 | 58.2 | #193.8 | 44.3 | 53.5 | 15.8 |
| Internal Link Dist (m) | | 262.1 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 305 | 1132 | 661 | 362 | 1335 | 699 | 340 | 1738 | 770 | 302 | 1637 | 627 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.52 | 0.66 | 0.56 | 0.66 | 0.56 | 0.72 | 0.69 | 0.41 | 0.88 | 0.65 | 0.39 | 0.31 |

Intersection Summary

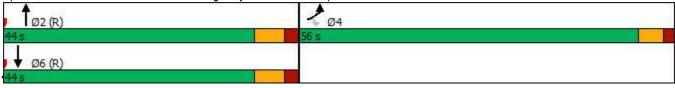
Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

| | ۶ | • | 4 | † | ↓ | 4 |
|---|-------------------|-------|------|----------|------------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | *** | 7 | | ^ | † † | |
| Traffic Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Future Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | • | 2.5 | | | , |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.00 | 0.00 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1741 | U | 0000 | 5010 | U |
| Satd. Flow (perm) | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | J 4 JJ | Yes | U | 5553 | 5010 | Yes |
| Satd. Flow (RTOR) | 7 | 138 | | | | 169 |
| Link Speed (k/h) | 50 | 130 | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 295.9 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 21.3 | 3 | 4 | 11.2 | 13.0 | 4 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| | 1% | 3% | 2% | 2% | 2% | 2% |
| Heavy Vehicles (%) | 1245 | 620 | 2% | 885 | 2% 576 | 2% |
| Adj. Flow (vph) Shared Lane Traffic (%) | 1245 | 10% | U | 000 | 3/0 | U |
| . , , | 1307 | 558 | 0 | 885 | 576 | 0 |
| Lane Group Flow (vph) | | | | | | |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | , | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |
| | | | | | | |

| | • | \rightarrow | • | † | ţ | ✓ |
|-----------------------------|------------|---------------|-----------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 46.0 | 46.0 | | 41.8 | 41.8 | |
| Actuated g/C Ratio | 0.46 | 0.46 | | 0.42 | 0.42 | |
| v/c Ratio | 0.82 | 0.78 | | 0.60 | 0.38 | |
| Control Delay | 27.9 | 24.5 | | 25.6 | 21.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 27.9 | 24.5 | | 25.6 | 21.9 | |
| LOS | С | С | | С | С | |
| Approach Delay | 26.9 | | | 25.6 | 21.9 | |
| Approach LOS | С | | | С | С | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 10 | 00 | | | | | |
| Offset: 8 (8%), Reference | | :NBT and | 6:SBT, St | art of Gr | een | |
| Natural Cycle: 60 | · | | | | | |
| Control Type: Actuated-C | oordinated | | | | | |
| Maximum v/c Ratio: 0.82 | | | | | | |
| Intersection Signal Delay: | 25.7 | | | lr | ntersection | LOS: C |
| Intersection Capacity Utili | | | | | | of Service D |
| Analysis Period (min) 15 | | | | | | |
| , , , , , | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road Synchro 11 Report Page 29 WSP

| ·9 | • | |
|--------|-----|-----|
| 12-13- | -2(|)24 |

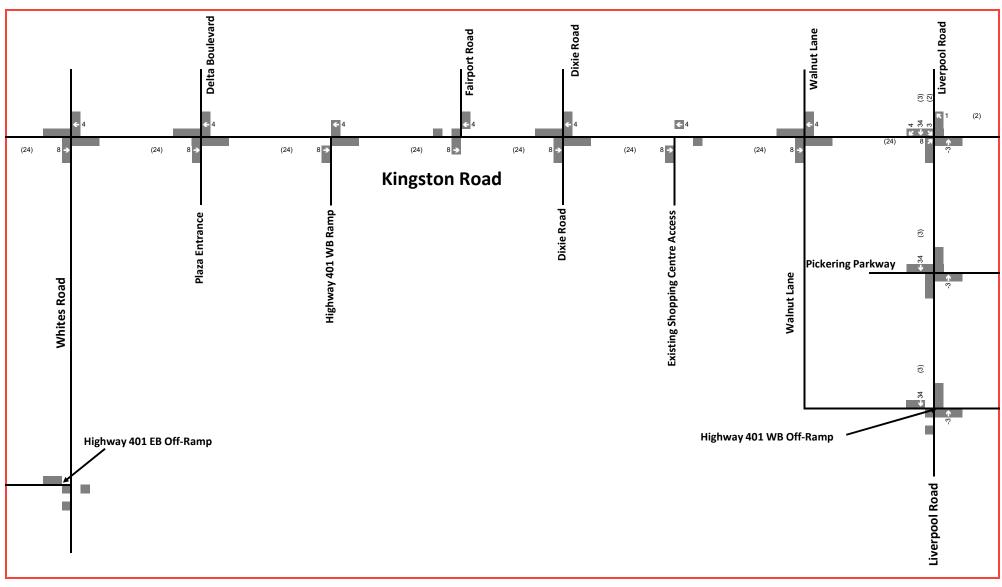
| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1307 | 558 | 885 | 576 |
| v/c Ratio | 0.82 | 0.78 | 0.60 | 0.38 |
| Control Delay | 27.9 | 24.5 | 25.6 | 21.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 27.9 | 24.5 | 25.6 | 21.9 |
| Queue Length 50th (m) | 106.7 | 72.7 | 69.8 | 40.6 |
| Queue Length 95th (m) | 124.5 | 113.7 | 95.5 | 57.8 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 777 | 1478 | 1511 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.75 | 0.72 | 0.60 | 0.38 |
| Intersection Summary | | | | |

| Lane Configurations | | • | • | † | / | - | ↓ | |
|---|----------------------------|------------|-------|----------|-------|---------|------------|-----|
| Traffic Volume (vph) 0 228 0 0 168 0 Future Volume (vph) 0 228 0 0 168 0 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Flow (prot) 1701 0 1946 0 0 1848 Fit Permitted 0 0.950 3.3 40 48 43.8 Link Speed (k/h) 30 40 48 43.8 43.8 17 12 12 12 12 12 | Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Future Volume (vph) 0 228 0 0 168 0 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor Frt 0.865 Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1848 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 1 1 1 22 Confl. Bikes (#/hr) 1 1 1 22 Confl. Bikes (#/hr) 1 1 1 12 Confl. Bikes (#/hr) 0 248 0 0 183 0 Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 183 0 Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 183 Enter Blocked Intersection No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free | Lane Configurations | W | | ĵ. | | | 4 | |
| Ideal Flow (vphpl) 1900 1000 1.00 <td>Traffic Volume (vph)</td> <td>0</td> <td>228</td> <td></td> <td>0</td> <td>168</td> <td></td> <td></td> | Traffic Volume (vph) | 0 | 228 | | 0 | 168 | | |
| Lane Width (m) | Future Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 | |
| Lane Util. Factor 1.00 1. | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Ped Bike Factor Frt 0.865 Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1848 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 43.8 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 12 Confl. Bikes (#/hr) 11 12 1 | Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 | |
| Frit Protected 0.865 Filt Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1848 Filt Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 11 12 Confl. Bikes (#/hr) 1 12 Confl. Bikes (#/hr) 0 248 0 0 183 0 Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 183 Enter Blocked Intersection No No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free | Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Satd. Flow (prot) 1701 0 1946 0 0 1848 | Ped Bike Factor | | | | | | | |
| Satd. Flow (prot) 1701 0 1946 0 0 1848 Flt Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 11 12 Confl. Bikes (#/hr) 1 1 Peak Hour Factor 0.92 0.9 | Frt | 0.865 | | | | | | |
| Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 12 Confl. Bikes (#/hr) 11 12 12 12 Confl. Bikes (#/hr) 11 12 12 12 14 | Flt Protected | | | | | | | |
| Satd. Flow (perm) 1701 0 1946 0 0 1848 Link Speed (k/h) 30 40 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 1 12 Confl. Bikes (#/hr) 0.92 0.93 0.94 0.94 | Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | | |
| Link Speed (k/h) 30 40 48 Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 1 1 Peak Hour Factor 0.92 0.93 0.90 0.0 0.0 0.0 0.0 0. | Flt Permitted | | | | | | 0.950 | |
| Link Distance (m) 193.0 106.8 43.8 Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 1 12 Confl. Bikes (#/hr) 1 1 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Adj. Flow (vph) 0 0.92 0.93 0.93 0.94 0.99 0.99 0.94 0.99 0.94 0.99 0.94 0.99 0.94 0.99 0.94 <td>Satd. Flow (perm)</td> <td></td> <td>0</td> <td>1946</td> <td>0</td> <td>0</td> <td>1848</td> <td></td> | Satd. Flow (perm) | | 0 | 1946 | 0 | 0 | 1848 | |
| Travel Time (s) 23.2 9.6 3.3 Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 1 12 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 Adj. Flow (vph) 0 248 0 0 183 0 Shared Lane Traffic (%) 248 0 0 0 183 0 Lane Group Flow (vph) 248 0 0 0 183 0 Senter Blocked Intersection No No </td <td>Link Speed (k/h)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | Link Speed (k/h) | | | | | | | |
| Confl. Peds. (#/hr) 11 12 Confl. Bikes (#/hr) 1 1 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 Adj. Flow (vph) 0 248 0 0 183 0 Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 0 183 Enter Blocked Intersection No | Link Distance (m) | | | 106.8 | | | | |
| Confl. Bikes (#/hr) 1 Peak Hour Factor 0.92 0.93 0.0 | Travel Time (s) | 23.2 | | 9.6 | | | 3.3 | |
| Peak Hour Factor 0.92 0.93 0.00 0.00 0.00 No | Confl. Peds. (#/hr) | | 11 | | | 12 | | |
| Adj. Flow (vph) 0 248 0 0 183 0 Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 0 183 Enter Blocked Intersection No | Confl. Bikes (#/hr) | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 248 0 0 0 183 Enter Blocked Intersection No No No No No Lane Alignment Left Right Left Right Left | Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | | 0.92 | |
| Lane Group Flow (vph) 248 0 0 0 0 183 Enter Blocked Intersection No No< | Adj. Flow (vph) | 0 | 248 | 0 | 0 | 183 | 0 | |
| Enter Blocked Intersection No No <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<> | | | | | | | | |
| Lane Alignment Left Right Left Right Left | Lane Group Flow (vph) | 248 | | 0 | 0 | 0 | | |
| Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane 1.6 1.6 1.6 Headway Factor 0.93 0.99 0.94 0.99 0.99 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary | Enter Blocked Intersection | No | No | No | No | No | No | |
| Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane 1.6 1.6 1.6 Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary | Lane Alignment | | Right | | Right | Left | | |
| Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane 1.6 1.6 1.6 Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 24 Sign Control Stop Free Free Free Intersection Summary | Median Width(m) | | | | | | | |
| Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary | Link Offset(m) | | | | | | | |
| Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Free Free | Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Free Free | Two way Left Turn Lane | | | | | | | |
| Sign Control Stop Free Free Intersection Summary | Headway Factor | | | 0.94 | | | 0.94 | |
| Intersection Summary | Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| • | Sign Control | Stop | | Free | | | Free | |
| • | Intersection Summary | | | | | | | |
| | | Other | | | | | | |
| Control Type: Unsignalized | Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilization 31.2% ICU Level of Service A | | tion 31.2% | | | IC | U Level | of Service | e A |
| | Analysis Period (min) 15 | | | | | | | |

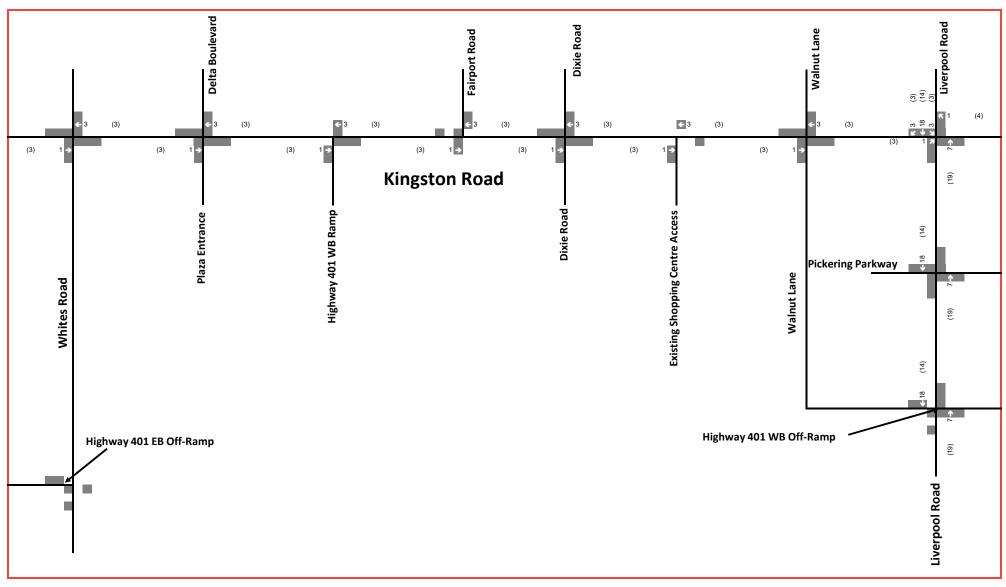
| | • | 4 | † | ~ | / | |
|-----------------------------|----------|------|----------|------|-----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | ĵ∍ | | | 4 |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 0 | 0 | 183 | | | |
| Volume Right | 248 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | 9.0 A | 0.0 | 7.0 A | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | 9.0 A | 0.0 | 7.0 | | | |
| • • | Λ | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utili | zation | | 31.2% | IC | U Level o | of Service |
| Analysis Period (min) | | | 15 | | | |

APPENDIX

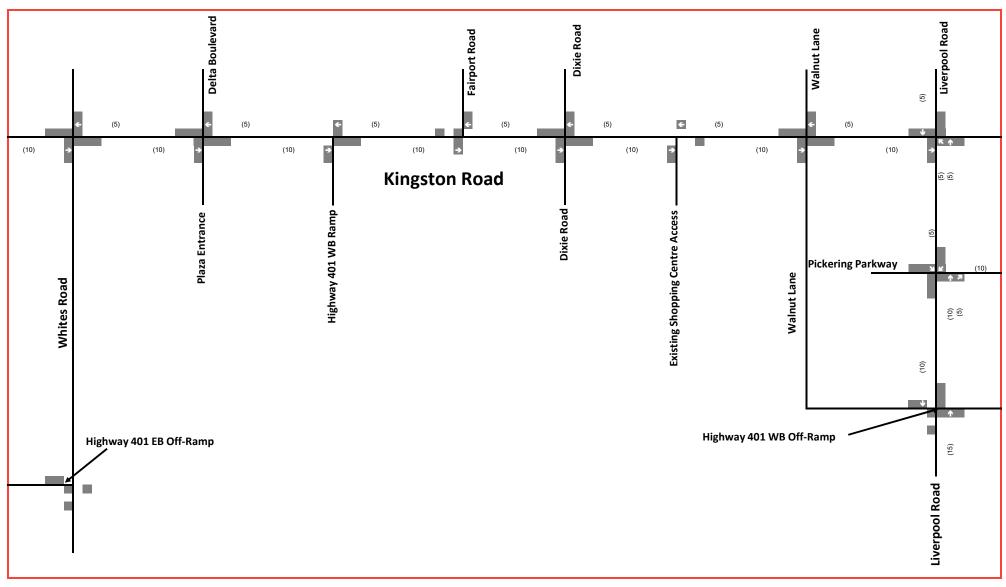
D BACKGROUND DEVELOPMENTS VOLUMES







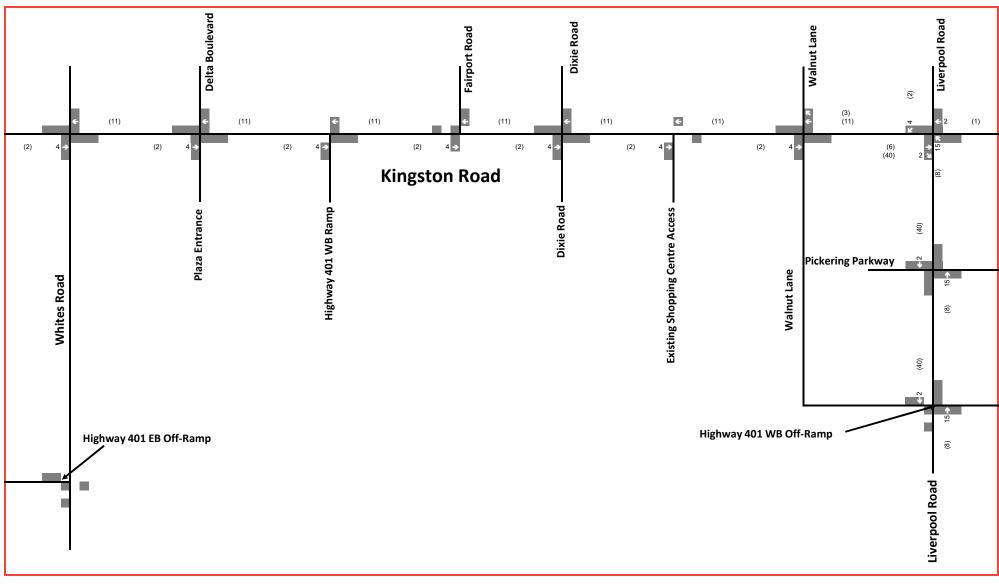




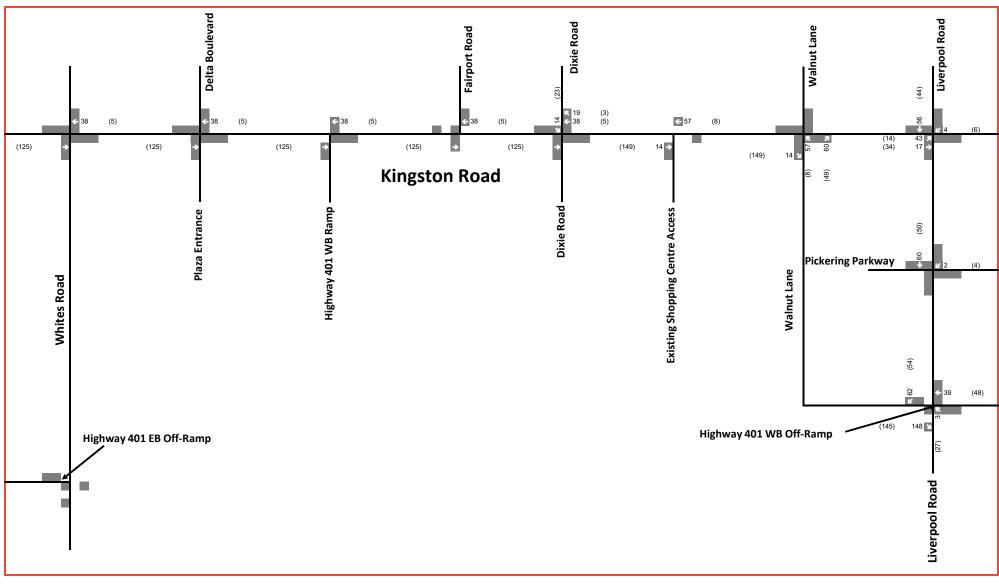


A.M. Peak Hour

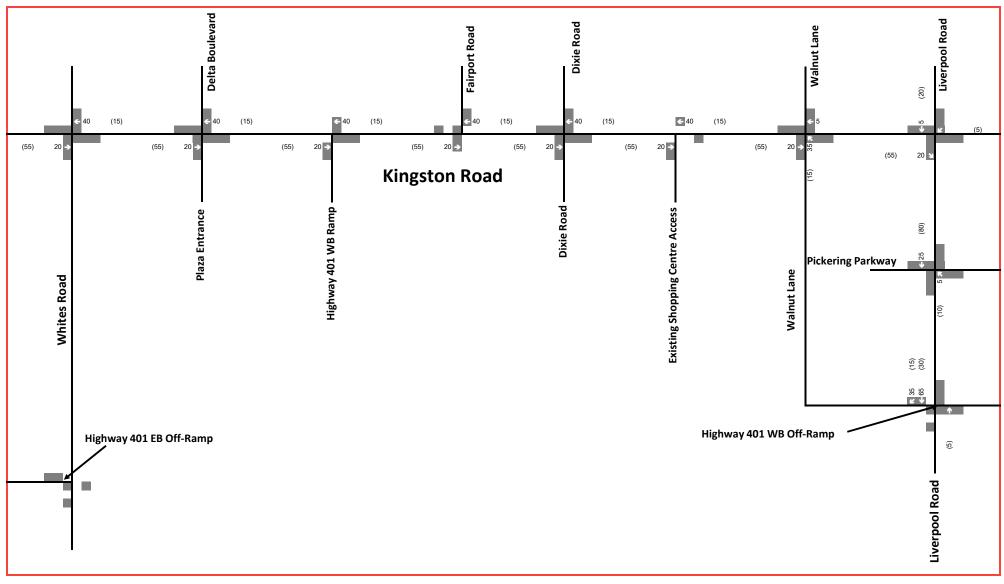
Traffic Volumes







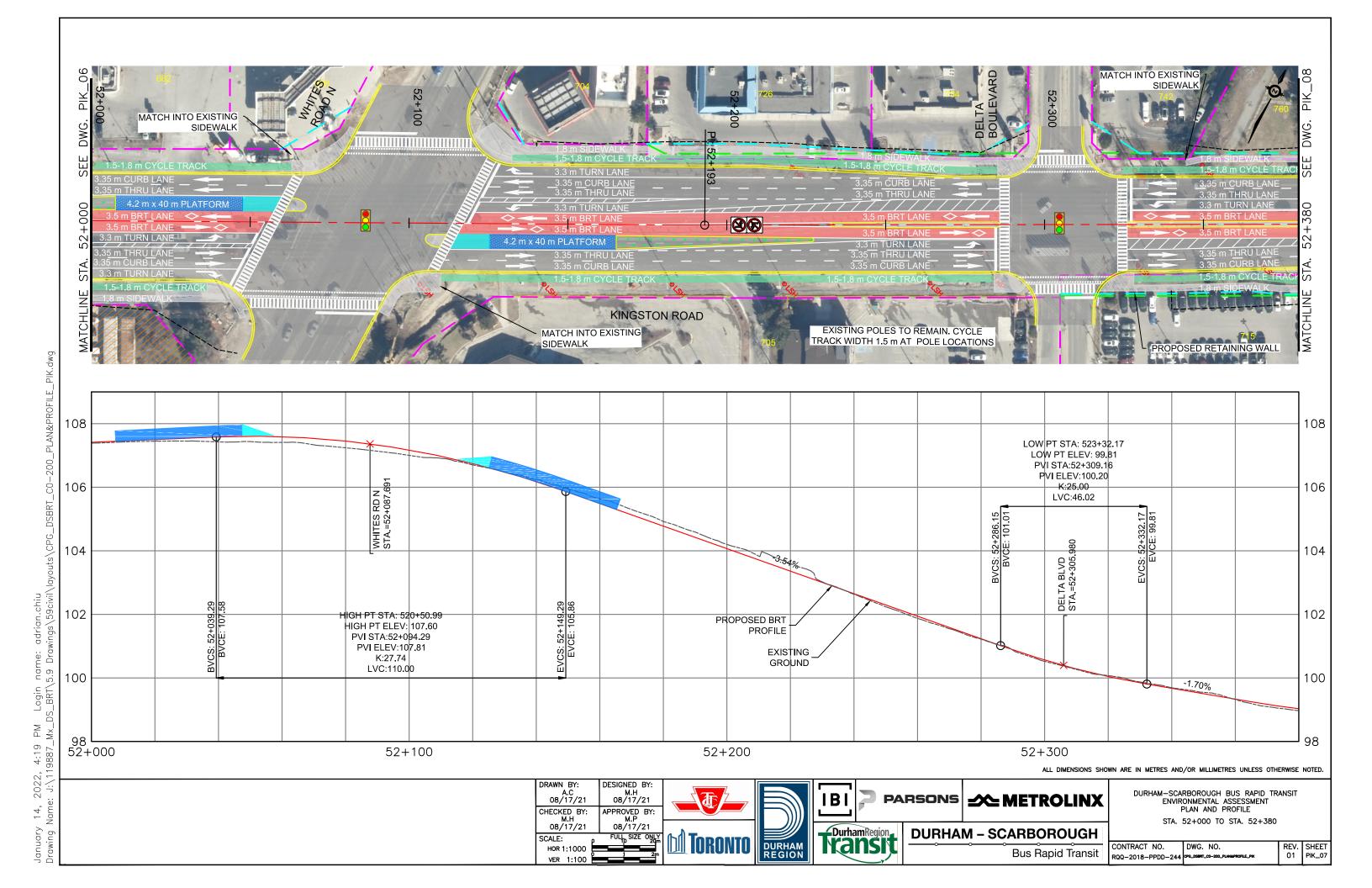






APPENDIX

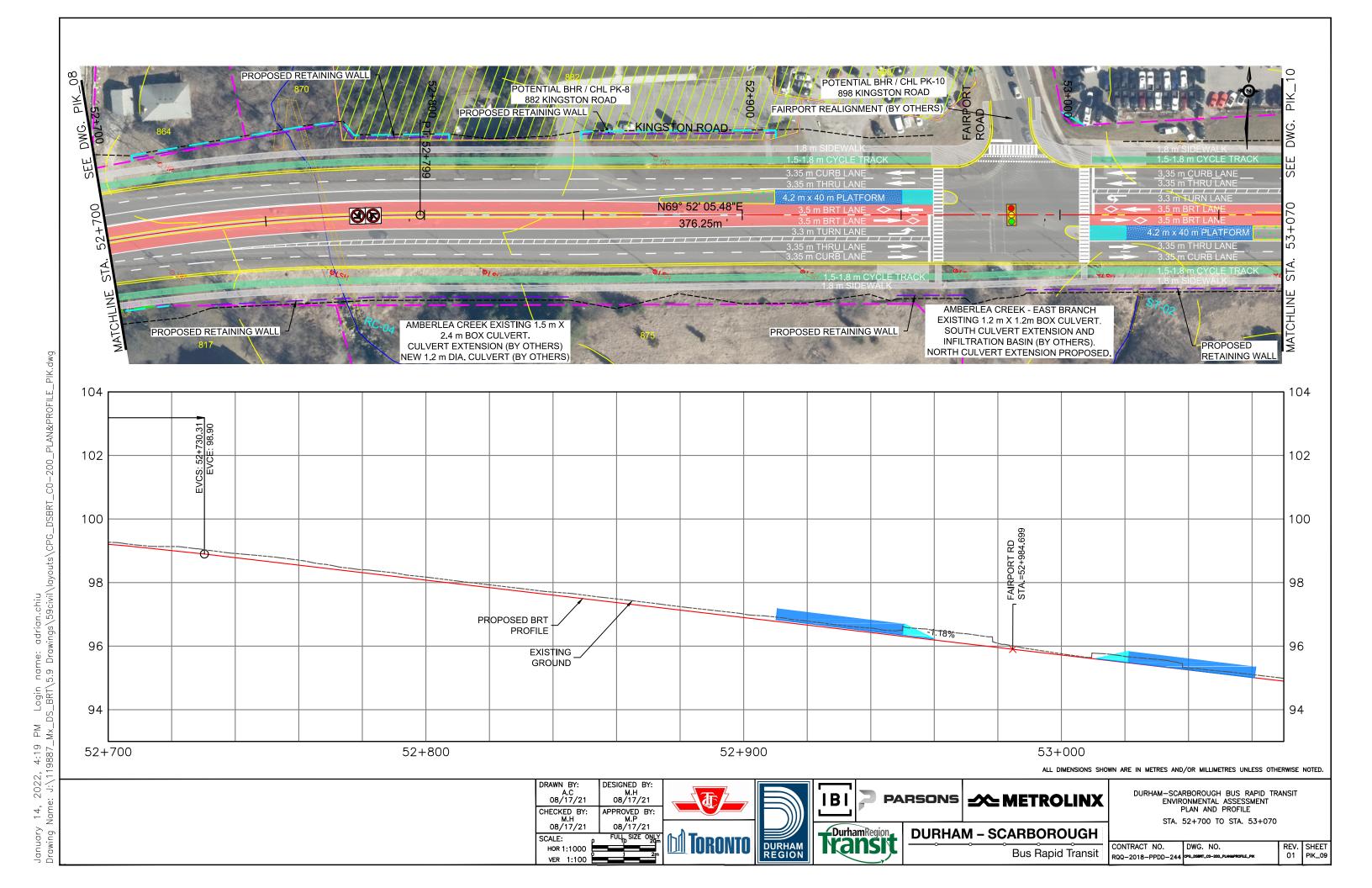
E KINGSTON BRT PRELIMINARY DESIGNS



VER 1:100

Bus Rapid Transit

RQQ-2018-PPDD-244 CPG_DSBRT_CO-200_PLANAPI



VER 1:100

RQQ-2018-PPDD-244 CPG_DSBRT_CO-200_PLANAEP

HOR 1:1000

VER 1:100

DURHAM-SCARBOROUGH BUS RAPID TRANSIT ENVIRONMENTAL ASSESSMENT PLAN AND PROFILE

STA. 53+420 TO STA. 53+690

REV. SHEET 01 PIK_11

CONTRACT NO. **Bus Rapid Transit** RQQ-2018-PPDD-244 CPG_DSBRT_C0-200_PLANAPR

POTENTIAL BHR CHL PK-11 1059 DUNBAR ON ROAD

Bus Rapid Transit

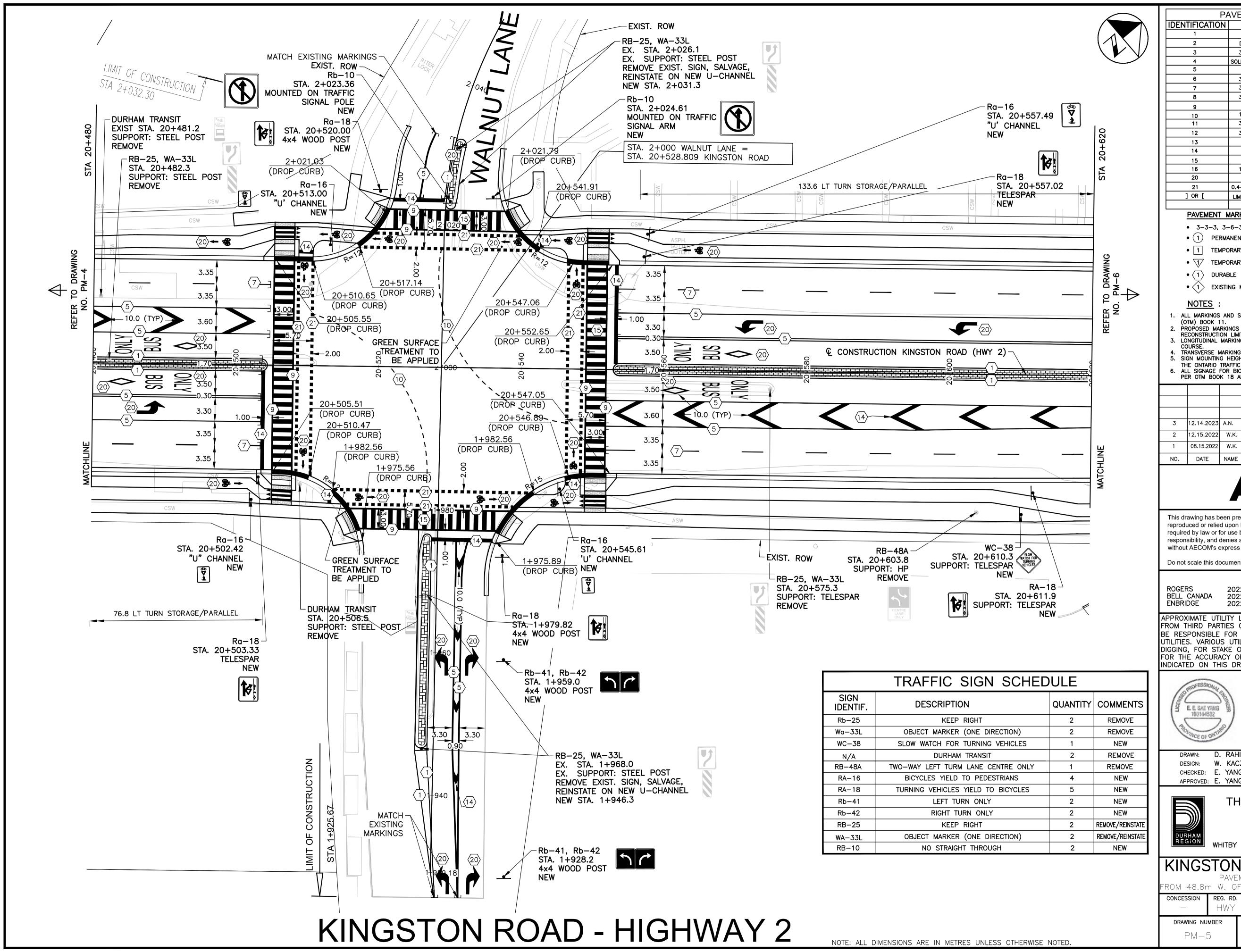
RQQ-2018-PPDD-244 CPG_DSBRT_CO-200_PLANA

HOR 1:1000

VER 1:100

VER 1:100

RQQ-2018-PPDD-244 CPG_DSBRT_C0-200_PLAN&PF



| PAVEMENT MARKING SCHEDULE | | | | | | | | | | | |
|---------------------------|--------------------|--------|------------|--|--|--|--|--|--|--|--|
| IDENTIFICATION | TYPE | COLOUR | WIDTH (cm) | | | | | | | | |
| 1 | SOLID | YELLOW | 10 | | | | | | | | |
| 2 | DOUBLE SOLID | YELLOW | 10 | | | | | | | | |
| 3 | 3-6-3 BROKEN | YELLOW | 10 | | | | | | | | |
| 4 | SOLID;3-6-3 BROKEN | YELLOW | 10 | | | | | | | | |
| 5 | SOLID | WHITE | 10 | | | | | | | | |
| 6 | 3-3-3 BROKEN | WHITE | 10 | | | | | | | | |
| 7 | 3-6-3 BROKEN | WHITE | 10 | | | | | | | | |
| 8 | 3-9-3 BROKEN | WHITE | 10 | | | | | | | | |
| 9 | SOLID | WHITE | 20 | | | | | | | | |
| 10 | 1-1-1 BROKEN | WHITE | 20 | | | | | | | | |
| 11 | 3-3-3 BROKEN | WHITE | 20 | | | | | | | | |
| 12 | 3-3-3 BROKEN | WHITE | 30 | | | | | | | | |
| 13 | SOLID | WHITE | 30 | | | | | | | | |
| 14 | SOLID | WHITE | 45 | | | | | | | | |
| 15 | SOLID | WHITE | 60 | | | | | | | | |
| 16 | 1-1-1 BROKEN | WHITE | 10 | | | | | | | | |
| 20 | SYMBOLS | - | - | | | | | | | | |
| 21 | 0.4-0.4-0.4 BROKEN | WHITE | 40 | | | | | | | | |
|] OR [| LIMITS OF MARKINGS | _ | - | | | | | | | | |
| | I | | | | | | | | | | |

PAVEMENT MARKING DENOTATIONS:

- 3-3-3, 3-6-3, 3,9,3; LINE-GAP-LINE SPACING IN METRES
- 1 PERMANENT
- 1 TEMPORARY
- 17 TEMPORARY-REMOVABLE
- (1) DURABLE
- <1> EXISTING MARKING TO BE REMOVED

- ALL MARKINGS AND SIGNS SHALL CONFORM WITH THE ONTARIO TRAFFIC MANUAL (OTM) BOOK 11.
- PROPOSED MARKINGS TO MATCH EXIST. AT ALL WORK AND/OR ROAD RECONSTRUCTION LIMITS.
- 3. LONGITUDINAL MARKINGS PAINT ON BASE COURSE AND PLASTIC ON TOP
- 4. TRANSVERSE MARKINGS SYMBOLS PLASTIC ON BOTH BASE AND TOP COURSE.
 5. SIGN MOUNTING HEIGHTS, AND LATERAL OFFSETS SHALL BE IN ACCORDANCE WITH
- THE ONTARIO TRAFFIC MANUAL (OTM) BOOK 1B, SECTION 12.

 6. ALL SIGNAGE FOR BICYCLE PATHS INTERSECTING WITH SIDEWALKS SHOULD BE AS PER OTM BOOK 18 AND WILL BE DETAILED IN 90% SUBMISSION PACKAGE.

| 3 | 12.14.2023 | A.N. | 90% DESIGN RESUBMISSION |
|---|------------|------|-------------------------|
| 2 | 12.15.2022 | W.K. | 90% DESIGN SUBMISSION |
| 1 | 08.15.2022 | W.K. | 60% DESIGN SUBMISSION |

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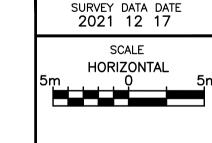
Do not scale this document. All measurements must be obtained from stated dimensions

UTILITIES VERIFIED

2022 JUNE 20 2022 JUNE 20 2022 JUNE 20 BELL CANADA ENBRIDGE

APPROXIMATE UTILITY LOCATIONS ARE SHOWN PER MARK-UPS RECEIVED FROM THIRD PARTIES ON THE DATES NOTED ABOVE. CONTRACTOR TO BE RESPONSIBLE FOR LOCATION OF ALL EXISTING U/G & OVERHEAD UTILITIES, VARIOUS UTILITIES REQUIRE ADVANCE NOTICE PRIOR TO DIGGING, FOR STAKE OUT. THE REGION ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OF EXISTING UTILITIES AS INDICATED ON THIS DRAWING.





ONTARIO

SHEET NUMBER

144 OF 369

DATE: 2023 12 D. RAHIKKA W. KACZOREK DATE: 2022 12 DESIGN: CHECKED: E. YANG DATE: 2023 12 APPROVED: E. YANG DATE: 2023 12



THE REGIONAL MUNICIPALITY OF DURHAM

WORKS DEPARTMENT

ROM 48.8m W. OF WALNUT LN. TO 91.2m E. OF WALNUT REG. RD. NO. AREA MUNICIPALITY HWY CITY OF PICKERING

> CONTRACT NUMBER DRAWING NUMBER D2023-10 PM-5

APPENDIX

FUTURE
BACKGROUND
TRAFFIC
CONDITIONS

APPENDIX

F-1 2028 FUTURE BACKGROUND CONDITIONS

EBL

20 754

20 754

1900

3.0

26.0

24.0

1.00

1.00

0.950

1685 3405

0.950

1677

4

0.92

0%

22 820

22 902

No

Left

1.09

24

0.0

0.0

0.0

6.1

0.0

0.0

Prot

5

CI+Ex CI+Ex

†

1900

0.95

1.00

0.986

3405

10

60

129.3

0.92

4%

No

Left

3.1

0.0

4.9

Yes

1.00

0.0

0.0

0.0

1.8

0.0

0.0

NA

2

3.6

WBT

443

1900

3.6

0.95

1.00

0.990

3379

3379

8

60

694.6

0.92

5%

482

515

No

Left Right

3.1

0.0

1.6

Yes

1.00

0.0

0.0

0.0

1.8

0.0

0.0

NA

6

CI+Ex

243

1900

3.3

24.4

1.00

0.99

0.950

0.732

0.92

0%

No

Left

1.04

7.5

-1.5

-1.5

9.0

0.0

0.0

8

Perm

CI+Ex

30 243

1900

3.7

0.0 63.2

0

0 1745

0 1330

Yes

0.92

14%

33 264

0 264

No

14 24

0.95

103

1900

3.0

37.0

26.0

1.00

0.99

0.950

0.950

1643

0.92

2%

112

No

0.0

0.0

0.0

6.1

0.0

0.0

Prot

CI+Ex

Left

75 103

1900

3.5

25.8

0.95

0

0 1652

0

Yes

8

0.92

6%

82

0 112

No

14 24

Right

Lane Group

Lane Configurations

Traffic Volume (vph)

Future Volume (vph)

Ideal Flow (vphpl)

Storage Length (m)

Lane Width (m)

Storage Lanes

Taper Length (m)

Lane Util, Factor

Ped Bike Factor

Satd. Flow (prot)

Satd. Flow (perm)

Right Turn on Red

Satd. Flow (RTOR)

Link Speed (k/h)

Link Distance (m)

Confl. Peds. (#/hr)

Peak Hour Factor

Heavy Vehicles (%)

Bus Blockages (#/hr) Adj. Flow (vph)

Lane Alignment

Median Width(m)

Headway Factor

Turning Speed (k/h)

Number of Detectors

Leading Detector (m)

Trailing Detector (m)

Detector 1 Position(m

Detector 1 Size(m)

Detector 1 Channel
Detector 1 Extend (s)

Detector 1 Queue (s)

Detector 1 Delay (s)

Protected Phases

Permitted Phases

Turn Type

Detector 1 Type

Detector Template

Crosswalk Width(m)

Two way Left Turn Lane

Link Offset(m)

Shared Lane Traffic (%) Lane Group Flow (vph)

Enter Blocked Intersection

Travel Time (s)

Flt Protected

Flt Permitted

1900

3.2

18.1

1.00

1.00 0.98

0.950

1725

0.950

1720

0.92

0%

15

15

No

24

0

0.0

0.0

0.0

6.1

0.0

0.0

4

Perm

CI+Ex

Left

29

3.7

0.0

0

0

Yes

0.92

4%

32

0

No

6 29

1900 1900

3.7

1.00 1.00

0.877

1601

1601

32

40

179.7

0.92

0%

7

39

No

Left Right

3.3

0.0

4.9

0.99

0.0

0.0

0.0

1.8

0.0

0.0

NA

CI+Ex

143

1900

3.7

1.00

0.99

0.850

1563

Yes

155

0.92

3%

155

No

14

Riaht

6.1

0.0

0.0

6.1

0.0

0.0

Perm

8

CI+Ex

0.0 18.5

0 143

1900

3.5

1.00

0 1585

0

114.0

0.92

0%

0

0 155

Left Right

3.3

0.0

1.01

<2028 Future Background>AM

12-20-2024

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

Intersection Capacity Utilization 62.1%

Analysis Period (min) 15

| 1. Walliut Laile & | Killiyatol | Titoau | | | | | | | | | 12.2 | .0 202 |
|---------------------------|---------------|------------|----------|-----------|-------------|----------|-------|------|----------|----------|-------|--------|
| | ۶ | → | • | • | ← | • | 1 | † | / | / | Ţ | 4 |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SB |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | | 15.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 6.7 | 58.2 | | 12.8 | 68.7 | | 29.3 | | 29.3 | 29.3 | 29.3 | |
| Actuated g/C Ratio | 0.06 | 0.48 | | 0.11 | 0.57 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.24 | 0.54 | | 0.64 | 0.27 | | 0.81 | | 0.31 | 0.04 | 0.09 | |
| Control Delay | 51.5 | 38.5 | | 49.1 | 18.5 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.5 | 38.5 | | 49.1 | 18.5 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| LOS | D | D | | D | В | | Е | | Α | С | В | |
| Approach Delay | | 38.8 | | | 24.0 | | | 41.0 | | | 17.8 | |
| Approach LOS | | D | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | | | | | | |
| Offset: 111 (93%), Refere | enced to phas | se 2:EBT a | and 6:WE | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.81 | | | | | | | | | | | | |
| Intersection Signal Delay | : 34.1 | | | li | ntersection | n LOS: C | | | | | | |
| | | | | | | | | | | | | |

| s and Phases: 1: Walnut Lane & Kingston Road | |
|--|--------------|
| Ø1 →Ø2 (R) | № 04 |
| 52 s | 49 s |
| Ø5 Ø6 (R) | ₹ /Ø8 |
| 61s | 49 s |

ICU Level of Service B

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 2

<2028 Future Background>AM 12-20-2024

1: Walnut Lane & Kingston Road

| FDI FDT MDI MDT NDI NDD ODI ODT |
|---|
| Lane Group EBL EBT WBL WBT NBL NBR SBL SBT |
| Lane Group Flow (vph) 22 902 112 515 264 155 15 39 |
| v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 |
| Control Delay 51.5 38.5 49.1 18.5 61.3 6.4 30.7 12.8 |
| Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Total Delay 51.5 38.5 49.1 18.5 61.3 6.4 30.7 12.8 |
| Queue Length 50th (m) 5.0 101.4 26.1 50.2 58.8 0.0 2.7 1.3 |
| Queue Length 95th (m) m12.2 138.0 44.6 71.8 80.8 14.2 7.3 8.8 |
| Internal Link Dist (m) 105.3 670.6 155.7 |
| Turn Bay Length (m) 26.0 37.0 63.2 18.5 |
| Base Capacity (vph) 93 1657 201 1938 454 636 587 568 |
| Starvation Cap Reductn 0 0 0 0 0 0 0 |
| Spillback Cap Reductn 0 0 0 0 0 0 0 |
| Storage Cap Reductn 0 0 0 0 0 0 0 |
| Reduced v/c Ratio 0.24 0.54 0.56 0.27 0.58 0.24 0.03 0.07 |

Intersection Summar

1105-1163 Kingston Road Synchro 11 Report WSP Page 3

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2028 Future Background>AM 12-20-2024

| | • | - | • | • | ← | • | 1 | † | ~ | - | ļ | 4 |
|----------------------------|---------|------------|-------|--------|------------|-------|---------|----------|------------|---------|------------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 1 | † } | | ሻ | † } | | ሻ | î, | | * | 1 > | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.540 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3316 | 0 | 1639 | 3301 | 0 | 993 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 826 | 88 | 85 | 602 | 93 | 40 | 16 | 32 | 142 | 38 | 157 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 87 | 914 | 0 | 85 | 695 | 0 | 40 | 48 | 0 | 142 | 195 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | 3 - | | 2.8 | 3 - | | 3.8 | J . | | 3.8 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | Ť | | | Ť | | | Ť | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | Cl+Ex | | CI+Ex | Cl+Ex | |
| Detector 1 Channel | OI · LX | J1. LX | | 31. LX | J1. LX | | 31 · LX | J1. LX | | J1. LX | 31. LX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | I CIIII | 8 | | I CIIII | 4 | |
| I TOLECTEU FITASES | 5 | | | | 0 | | | 0 | | | 4 | |

m Volume for 95th percentile queue is metered by upstream signal.

<2028 Future Background>AM

3: Dixie Road & Kingston Road

Queues

<2028 Future Background>AM 12-20-2024

| | • | - | • | • | - | * | ^ | † | - | - | ¥ | 4 |
|-------------------------|-------|-------|-----|-------|-------|-----|----------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 74.2 | | 6.0 | 70.7 | | 18.7 | 18.7 | | 18.7 | 18.7 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.71 | 0.44 | | 1.04 | 0.36 | | 0.26 | 0.16 | | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | | 147.9 | 17.9 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | | 147.9 | 17.9 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| LOS | F | В | | F | В | | D | В | | Е | В | |
| Approach Delay | | 19.8 | | | 32.1 | | | 31.5 | | | 33.8 | |

Intersection Summary

Approach LOS

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 44.8 (37%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85 Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Analysis Period (min) 15

Intersection Signal Delay: 26.7 Intersection Capacity Utilization 72.4%

Intersection LOS: C

ICU Level of Service C

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 5

| | ٠ | - | • | ← | • | † | / | ţ |
|------------------------|-------|-------|--------|----------|------|------|----------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 87 | 914 | 85 | 695 | 40 | 48 | 142 | 195 |
| v/c Ratio | 0.71 | 0.44 | 1.04 | 0.36 | 0.26 | 0.16 | 0.65 | 0.48 |
| Control Delay | 83.0 | 13.7 | 147.9 | 17.9 | 45.6 | 19.8 | 60.5 | 14.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 13.7 | 147.9 | 17.9 | 45.6 | 19.8 | 60.5 | 14.4 |
| Queue Length 50th (m) | 20.2 | 53.6 | ~21.8 | 53.5 | 8.5 | 3.3 | 32.2 | 7.9 |
| Queue Length 95th (m) | #43.5 | 88.2 | m#53.5 | 71.2 | 16.9 | 12.4 | 47.4 | 25.6 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 130 | 2054 | 82 | 1951 | 335 | 618 | 470 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.44 | 1.04 | 0.36 | 0.12 | 0.08 | 0.30 | 0.28 |

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background>AM 12-20-2024

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|----------------------------|-------|----------|-------|-------|-------|-------|-------|----------|-------|----------|----------|----------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | * | 44 | 7 | * | ^ | 7 | * | ^ | 7 |
| Traffic Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 379 | 146 | 84 | 645 | 117 |
| Future Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 379 | 146 | 84 | 645 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.284 | | | 0.491 | | |
| Satd. Flow (perm) | 1649 | 3299 | 1487 | 1677 | 3510 | 1517 | 525 | 3700 | 1536 | 1024 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 176 | | | 174 | | | 159 | | | 155 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 412 | 159 | 91 | 701 | 127 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 412 | 159 | 91 | 701 | 127 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 0.01 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | OITEX | OITEX | OITEX | OILLX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| DOLOGIOI & OILE(III) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background>AM 12-20-2024

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|------------------------------|-------------|-----------|-----------|-----------|------------|-----------|-------|-------|--------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 17.1 | 35.6 | 35.6 | 13.3 | 31.8 | 31.8 | 53.0 | 41.9 | 35.6 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.14 | 0.30 | 0.30 | 0.11 | 0.26 | 0.26 | 0.44 | 0.35 | 0.30 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.52 | 0.32 | 0.28 | 0.18 | 0.56 | 0.21 |
| Control Delay | 94.3 | 24.2 | 9.6 | 81.0 | 41.1 | 0.4 | 27.2 | 29.5 | 6.2 | 19.0 | 33.6 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 94.3 | 24.2 | 9.6 | 81.0 | 41.1 | 0.4 | 27.2 | 29.5 | 6.2 | 19.0 | 33.6 | 3.1 |
| LOS | F | С | Α | F | D | Α | С | С | Α | В | С | Α |
| Approach Delay | | 33.6 | | | 46.4 | | | 23.8 | | | 27.9 | |
| Approach LOS | | С | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 24.4 (20%), Refere | nced to pha | se 2:EBT | and 6:W | BT, Start | of Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.80 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 94.3% |) | | Į. | CU Level | of Servic | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & Kings | ston Road | l | | | | | | | | |
| √ø1 → | 1002 (R) | | | | 1 | ø3 🌓 | Ø4 | | | | | |
| 19 s 42 s | | | | | 8 s | 51 s | | | | | | |
| 1 ★ | - 4 | | | | - 1 \ | | | | | | | |

Queues

<2028 Future Background>AM 12-20-2024

6: Liverpool Road & Kingston Road

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|------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 412 | 159 | 91 | 701 | 127 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.52 | 0.32 | 0.28 | 0.18 | 0.56 | 0.21 |
| Control Delay | 94.3 | 24.2 | 9.6 | 81.0 | 41.1 | 0.4 | 27.2 | 29.5 | 6.2 | 19.0 | 33.6 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 94.3 | 24.2 | 9.6 | 81.0 | 41.1 | 0.4 | 27.2 | 29.5 | 6.2 | 19.0 | 33.6 | 3.1 |
| Queue Length 50th (m) | 45.6 | 10.6 | 0.0 | 34.5 | 54.6 | 0.0 | 19.5 | 37.1 | 0.0 | 11.7 | 69.6 | 0.0 |
| Queue Length 95th (m) | 69.1 | 51.0 | 27.9 | #65.7 | 73.4 | 0.0 | 32.4 | 50.2 | 15.4 | 21.1 | 88.5 | 8.1 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 978 | 565 | 197 | 931 | 530 | 283 | 1291 | 567 | 494 | 1263 | 607 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.58 | 0.42 | 0.76 | 0.54 | 0.10 | 0.52 | 0.32 | 0.28 | 0.18 | 0.56 | 0.21 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 Lanes, Volumes, Timings

<2028 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

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|----------------------------|-------|-------------|-------|-------|----------|-------|----------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ∱ Љ | | ሻሻ | ^ | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 528 | 272 | 146 | 782 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 528 | 272 | 146 | 782 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 3505 | 1523 | 1675 | 3500 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.297 | | | 0.382 | | |
| Satd. Flow (perm) | 0.000 | 3058 | 0 | 0 | 1858 | 1181 | 512 | 3505 | 1483 | 670 | 3500 | 1458 |
| Right Turn on Red | | 0000 | Yes | | | Yes | 0.2 | 0000 | Yes | 0.0 | 0000 | Yes |
| Satd. Flow (RTOR) | | 39 | 100 | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | 171 | | 50 | 230 | | 50 | 144 |
| Link Opeca (km) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | 3.3 | | | 20.1 | 7 | 10 | 11.7 | 11 | 11 | 10.0 | 10 |
| Confl. Bikes (#/hr) | , | | | | | , | 10 | | 1 | - 11 | | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 0.92 | 0.92 | 5% | 0.92 | 23% | 0.92 | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 % | 0 % | 0 % | 0 | 0 /0 | 10 | 0 /0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 850 | 26 |
| Shared Lane Traffic (%) | - 11 | 10 | 39 | 211 | 21 | 04 | 50 | 3/4 | 290 | 155 | 000 | 20 |
| . , | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 850 | 26 |
| Lane Group Flow (vph) | No | No | No | No | No | No | No No | No | No. | No | No | |
| Enter Blocked Intersection | Left | | | Left | Left | | Left | Left | | Left | Left | No |
| Lane Alignment | Leπ | Left 6.0 | Right | Leπ | 6.0 | Right | Leπ | 3.8 | Right | Leπ | | Right |
| Median Width(m) | | | | | | | | | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | 4.00 | 0.00 | 4.00 | 4.00 | 4.40 | 4.40 | 4.00 | 4.00 | 4.00 | 4.04 | 4.04 |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2028 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

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|-------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.15 | 0.31 | 0.32 | 0.30 | 0.43 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 14.2 | 3.8 | 9.1 | 15.5 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 14.2 | 3.8 | 9.1 | 15.5 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 10.4 | | | 14.1 | |
| Approach LOS | | С | | | D | | | В | | | В | |

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

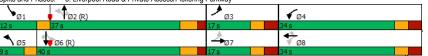
Offset: 34 (34%), Referenced to phase 2
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 15.9
Intersection Capacity Utilization 55.7%

ICU Level of Service B

Intersection LOS: B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2028 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ၨ | → | • | ← | * | 4 | † | - | \ | Ţ | 4 | |
|------------------------|------|----------|------|-------|------|------|----------|------|----------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 850 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.15 | 0.31 | 0.32 | 0.30 | 0.43 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 14.2 | 3.8 | 9.1 | 15.5 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 14.2 | 3.8 | 9.1 | 15.5 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.2 | 34.6 | 9.5 | 11.3 | 53.1 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.6 | 54.3 | 19.8 | 21.5 | 74.2 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 381 | 1824 | 913 | 536 | 1963 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.15 | 0.31 | 0.32 | 0.30 | 0.43 | 0.03 | |

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | • | + | 4 | • | † | / | / | | ✓ |
|----------------------------|------|----------|-------|-------|-------|-------|-------|----------|----------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ች | 4 | 7 | * | ^ | | | ^ ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 511 | 0 | 0 | 672 | 97 |
| Future Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 511 | 0 | 0 | 672 | 97 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | 1.00 | | | | | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.977 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 3433 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | | | | 0.950 | 0.977 | | 0.313 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 479 | 3433 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 337 | | | | | | 105 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 7 | | 14 | 14 | | 7 |
| Confl. Bikes (#/hr) | | | | | | | | | 4 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 174 | 204 | 75 | 337 | 176 | 555 | 0 | 0 | 730 | 105 |
| Shared Lane Traffic (%) | | | | 32% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 174 | 139 | 140 | 337 | 176 | 555 | 0 | 0 | 730 | 105 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | Ť | | 3.7 | Ť | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 13

<2028 Future Background>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | | → | * | • | • | _ | 7 | ı | | - | + | * |
|--|------------|-----------|-----------|-------------|------------|------------|--------|-------|---------------|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | 3 | 3 |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 110110 | 14.0 | 14.0 | 14.0 | 110110 | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0.0 | 0.0 | 0.0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | | 21.4 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 48.1 | 48.1 |
| Actuated g/C Ratio | | | 0.21 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.48 | 0.48 |
| v/c Ratio | | | 0.73 | 0.60 | 0.58 | 0.67 | 0.31 | 0.22 | | | 0.31 | 0.13 |
| Control Delay | | | 53.6 | 50.7 | 49.5 | 11.3 | 5.3 | 4.7 | | | 10.8 | 2.0 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 53.6 | 50.7 | 49.5 | 11.3 | 5.3 | 4.7 | | | 10.8 | 2.0 |
| LOS | | | D | D | D | В | A | A | | | В | A |
| Approach Delay | | 53.6 | | | 28.9 | | - ' | 4.8 | | | 9.7 | , , |
| Approach LOS | | D | | | C | | | A | | | A | |
| Intersection Summary | | | | | | | | ,, | | | | |
| | | | | | | | | | | | | |
| Area Type: Oth Cycle Length: 100 | lei | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 38 (38%), Referenced t | o nhaca ' |)-NIDTI | and G.CD | T Ctort o | f Croon | | | | | | | |
| Natural Cycle: 65 | o priase z | 2.IND I L | anu u.sd | ii, Stait u | Gleen | | | | | | | |
| | natad | | | | | | | | | | | |
| Control Type: Actuated-Coordi Maximum v/c Ratio: 0.73 | nateu | | | | | | | | | | | |
| | | | | 1. | ntersectio | - I OO. D | | | | | | |
| Intersection Signal Delay: 16.4 | | | | | | | - ^ | | | | | |
| Intersection Capacity Utilization | 1 45.9% | | | 10 | CU Level | or Service | e A | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liverp | ool Road | & Waln | ut Lane/H | lwy 401 V | VB Off-Ra | amp | | | | | | |
| ≪ † | | | | _ | | • | | | 1 ₹ Ø8 | | | |
| Ø2 (R) | | | | • | | | | | ▼ Ø8 | | | |
| 4 | | | | | d | | | | 235 | | | |
| 1 Ø5 | | | | • | ▼ Ø6 (R | .) | | | _ | | | ŀ |
| 46 s | | | | 29 |) s | | | | | | | |

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Queues

<2028 Future Background>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | — | • | 4 | † | ↓ | 1 | |
|------------------------|------|------|----------|-------|------|----------|----------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 174 | 139 | 140 | 337 | 176 | 555 | 730 | 105 | |
| v/c Ratio | 0.73 | 0.60 | 0.58 | 0.67 | 0.31 | 0.22 | 0.31 | 0.13 | |
| Control Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.3 | 4.7 | 10.8 | 2.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.3 | 4.7 | 10.8 | 2.0 | |
| Queue Length 50th (m) | 31.7 | 27.1 | 27.2 | 0.0 | 7.6 | 14.5 | 19.0 | 0.1 | |
| Queue Length 95th (m) | 48.6 | 44.3 | 44.3 | 23.2 | 16.9 | 25.1 | 23.9 | 2.3 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 459 | 323 | 335 | 567 | 770 | 2541 | 2346 | 794 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.38 | 0.43 | 0.42 | 0.59 | 0.23 | 0.22 | 0.31 | 0.13 | |
| Intersection Summary | | | | | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Background>AM 12-20-2024

| | • | - | ← | • | - | 4 | |
|----------------------------|-------|----------|-------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | ች | ^ | † 1> | | * | 7 | |
| Traffic Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | | | 0.980 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 17 | | | 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 776 | 704 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 104 | 776 | 812 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | • | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | JI-LX | JI-LX | | | | |
| DOLOGIOI & OHAIIIIGI | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 16

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Background>AM 12-20-2024

| | • | → | + | • | 1 | 1 | | |
|------------------------------|-------------|-----------|-----------|------------|-----------|------------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | _ | | | • | 4 | • | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| v/c Ratio | 0.64 | 0.33 | 0.40 | | 0.72 | 0.52 | | |
| Control Delay | 91.2 | 1.3 | 15.8 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 91.2 | 1.3 | 15.8 | | 65.5 E | 9.1 | | |
| LOS Approach Dolov | F | 11.9 | B 15.8 | | 34.1 | Α | | |
| Approach Delay | | 11.9 B | 15.8 B | | 34.1 C | | | |
| Approach LOS | | В | В | | Ü | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | |
| Offset: 95 (73%), Reference | ed to phase | e 2:EBT a | nd 6:WBT | , Start of | Green | | | |
| Natural Cycle: 85 | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| Intersection Signal Delay: | | | | | tersectio | | | |
| Intersection Capacity Utiliz | ation 52.0% |) | | IC | CU Level | of Service | : A | |
| Analysis Period (min) 15 | | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Queues 10: Kingston Road & Fairport Road <2028 Future Background>AM 12-20-2024

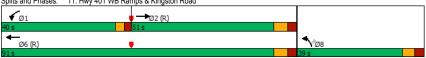
| | ၨ | → | • | - | 4 |
|------------------------|------|----------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 776 | 812 | 198 | 249 |
| v/c Ratio | 0.64 | 0.33 | 0.40 | 0.72 | 0.52 |
| Control Delay | 91.2 | 1.3 | 15.8 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.2 | 1.3 | 15.8 | 65.5 | 9.1 |
| Queue Length 50th (m) | 28.2 | 2.5 | 53.8 | 49.0 | 0.0 |
| Queue Length 95th (m) | 47.4 | 6.9 | 86.2 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2018 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.33 | 0.40 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

| | - | • | • | • | 1 | _ |
|----------------------------|-------------|-------|-------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | | * | 44 | ሻሻ | 7 |
| Traffic Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Future Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.7 | 2.1 | 0% | 0% | 0.7 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.3 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | 0.55 | 1.00 | 0.55 | 0.57 | 0.850 |
| Fit Protected | 0.550 | | 0.950 | | 0.950 | 0.000 |
| | 2470 | 0 | | 2540 | | 1633 |
| Satd. Flow (prot) | 3479 | U | 1593 | 3548 | 3442 | 1033 |
| Flt Permitted | 0.470 | ^ | 0.950 | 2542 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 813 | 13 | 309 | 665 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 826 | 0 | 309 | 665 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | 2010 | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| | | | | | 1.0 | |
| Two way Left Turn Lane | Yes | 1.02 | 1 1 4 | Yes | 0.07 | 0.00 |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | ^ | 14 | 24 | ^ | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| | UI+EX | | | UI+EX | | |
| Detector 2 Channel | 0.0 | | | 0.0 | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 19

| | - | • | • | - | 1 | ~ | | | | | |
|--|---------------|---------|--------------|--------------|--------------|--------------|--|--|--|--|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | | | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | | | | | |
| Protected Phases | 2 | | 1 | 6 | 8 | | | | | | |
| Permitted Phases | | | | | | 8 | | | | | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | | | | | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | | | | | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 | | | | | |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 | | | | | |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% | | | | | |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 | | | | | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | | | | | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | | | | | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | | | | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | | | | | |
| Lead/Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | 0.5 | | 0.5 | | 0.5 | 0.5 | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | | | | | |
| Recall Mode | C-Max | | None | C-Max | None | None | | | | | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | | | | | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | | | | | |
| Pedestrian Calls (#/hr) | 0 | | 00.4 | 3 | 3 | 3 | | | | | |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 0.19 | | | | | |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | | | | | | |
| v/c Ratio Control Delay | 0.54 12.8 | | 0.86 68.1 | 0.27 10.7 | 0.78 58.6 | 0.20 10.2 | | | | | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | | | | |
| Total Delay | 12.8 | | 68.1 | 10.7 | 58.6 | 10.2 | | | | | |
| LOS | 12.0 B | | 00.1 | 10.7 B | 30.0 E | 10.2 B | | | | | |
| Approach Delay | 12.8 | | | 28.9 | 52.6 | ۵ | | | | | |
| Approach LOS | 12.0 B | | | 20.9 C | 52.0 D | | | | | | |
| | ь | | | C | D | | | | | | |
| Intersection Summary | Other | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | |
| Cycle Length: 130 | 20 | | | | | | | | | | |
| Actuated Cycle Length: 1 | | 0.EDT | 1 C-14/D- | T 011 ' | | | | | | | |
| Offset: 81 (62%), Referen | nced to phase | z:EBT a | na 6:WB | i, Start of | Green | | | | | | |
| Natural Cycle: 110 | No | | | | | | | | | | |
| Control Type: Actuated-Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | 1. | ntersectio | -100.0 | | | | | |
| Intersection Signal Delay | | | | | | | | | | | |
| Intersection Capacity Util Analysis Period (min) 15 | 12ation 65.7% | | | IC | JU Level | of Service | | | | | |
| Analysis Pellou (IIIII) 15 | | | | | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | ₹ Kinasto | n Road | | | | | | | |
| TI. | , -01 110 | ampo C | | | | | | | | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 20 Queues

<2028 Future Background>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | — | 1 | |
|------------------------|-------|-------|----------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 826 | 309 | 665 | 501 | 71 |
| v/c Ratio | 0.54 | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 12.8 | 68.1 | 10.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.8 | 68.1 | 10.7 | 58.6 | 10.2 |
| Queue Length 50th (m) | 20.4 | 82.8 | 29.2 | 63.7 | 0.0 |
| Queue Length 95th (m) | 46.4 | 112.2 | 71.1 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.72 | 0.27 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

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<2028 Future Background>AM 12-20-2024

Lanes, Volumes, Timings
12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | + | • | • | † | ~ | / | ↓ | √ |
|----------------------------|---------|------------|--------|-------|------------|-------|-------|-------|--------|----------|----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 7 | † } | | 7 | 1> | | ሻ | 1> | |
| Traffic Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.99 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 |
| Frt | 0.00 | 0.995 | | | 0.990 | | 0.00 | 0.860 | | 1.00 | 0.864 | |
| Flt Protected | 0.950 | 0.000 | | 0.950 | 0.000 | | 0.950 | 0.000 | | 0.950 | 0.001 | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3380 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | 0200 | | 0.950 | 0000 | - 3 | 0.662 | 1700 | - 0 | 0.688 | 1 100 | - 0 |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3380 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | 1002 | 3200 | Yes | 1071 | 0000 | Yes | 1273 | 1700 | Yes | 1100 | 1700 | Yes |
| Satd. Flow (RTOR) | | 4 | 103 | | 9 | 103 | | 100 | 103 | | 135 | 103 |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Opeca (MI) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | 10.4 | | | 10.1 | 13 | 6 | 10.7 | 3 | 3 | 10.0 | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 4% | 0.32 | 2% | 3% | 3% | 0.32 | 0.32 | 2% | 5% | 0.32 | 0.32 |
| Adj. Flow (vph) | 83 | 1060 | 40 | 104 | 1065 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | 00 | 1000 | 40 | 104 | 1003 | 00 | 132 | , | 100 | 40 | 14 | 133 |
| Lane Group Flow (vph) | 83 | 1100 | 0 | 104 | 1145 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.5 | Rigiii | Leit | 3.5 | Rigit | Leit | 3.6 | Rigiii | Leit | 3.6 | Rigiil |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Two way Left Turn Lane | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Headway Factor | | 1.07 | | 24 | 1.03 | | 24 | 0.07 | | | 1.13 | |
| Turning Speed (k/h) | 24 1 | 2 | 14 | 1 | 2 | 14 | 1 | 2 | 14 | 24 | 2 | 14 |
| Number of Detectors | | | | | | | | | | | | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings

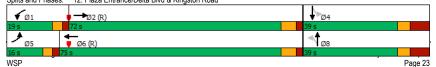
<2028 Future Background>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | → ✓ | - | • | 1 | Ť | | - | ↓ | 4 |
|-------------------------|-------|-------|------------|-------|-----|-------|-------|-----|-------|----------|-----|
| Lane Group | EBL | EBT | EBR WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 81.6 | 27.7 | 68.1 | 30.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 81.6 | 27.7 | 68.1 | 30.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | E | С | | Е | В | | D | В | |
| Approach Delay | | 31.5 | | 33.7 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | С | | | D | | | С | |

Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 66 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76 Intersection Signal Delay: 33.2 Intersection LOS: C Intersection Capacity Utilization 79.5% ICU Level of Service D Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2028 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | † | - | ţ | |
|------------------------|-------|-------|-------|-------|------|----------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1100 | 104 | 1145 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 81.6 | 27.7 | 68.1 | 30.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.6 | 27.7 | 68.1 | 30.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 21.6 | 124.4 | 26.0 | 123.8 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #40.6 | 158.0 | 43.2 | 179.0 | 57.4 | 16.2 | 20.7 | 20.6 | |
| nternal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Furn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.58 | 0.58 | 0.57 | 0.55 | 0.23 | 0.17 | 0.34 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Background>AM 12-20-2024

| Bane Corolgurations | | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|--|----------------------|---------|----------|-------|---------|----------|-------|-------|-------|-------|----------|------------|-------|
| Traffic Volume (yph) | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Future Volume (Volh) | Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ^ ^ | 7 |
| | Traffic Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Lane Width (m) | Future Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Storage Length (m) | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Storage Lanes | Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Taper Length (m) | Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Lane Utili. Factor | Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Ped Bike Factor | Taper Length (m) | | | | | | | | | | | | |
| Fit | | | 0.95 | | | 0.95 | | | 0.91 | | | 0.91 | |
| Fit Protected | Ped Bike Factor | 0.98 | | | 0.99 | | | 0.99 | | | 0.99 | | |
| Satid. Flow (prot) 1633 3335 1607 1767 3510 1606 1700 5057 1558 1750 5057 1625 Fil Permitted 0.950 0.950 0.232 0.232 0.495 Fil Permitted 0.950 0.950 0.232 0.232 0.495 Fil Permitted 0.950 0.950 0.950 0.232 0.232 Fil Permitted 0.950 0.950 0.950 0.232 Fil Permitted 0.950 0.950 0.950 0.232 0.950 0.495 Fil Permitted 0.950 0.950 0.950 0.505 0.450 Fil Permitted 0.950 0.950 0.950 0.950 0.950 0.950 Fil Permitted 0.950 0.950 0.950 0.950 0.950 0.950 Link Speed (l/h) 0.60 0.60 0.60 0.60 Link Distance (m) 297.5 222.7 158.6 385.2 Travel Time (s) 17.9 13.4 0.95 0.950 0.92 0.92 0.92 0.92 0.92 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 6% 5% 4% 4% 5% 5% 5% 6% 4% 2% 6% 3% Bus Blockages (#hr) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Fit Permitted | | | | | | | | | | | | | |
| Satd. Flow (perm) 1605 3335 1565 1752 3510 1522 413 5057 1509 902 5057 1574 Right Turn on Red Yes Ye | | | 3335 | 1607 | | 3510 | 1606 | | 5057 | 1558 | | 5057 | 1625 |
| No | | | | | | | | | | | | | |
| Said. Flow (RTOR) | | 1605 | 3335 | | 1752 | 3510 | | 413 | 5057 | | 902 | 5057 | |
| Link Speed (k/h) | | | | | | | | | | | | | |
| Link Distance (m) | | | | 155 | | | 239 | | | 193 | | | 173 |
| Travel Time (s) | | | | | | | | | | | | | |
| Confi. Peds. (#hhr) | | | | | | | | | | | | | |
| Peak Hour Factor | | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Heavy Vehicles (%) | | | | | | | | | | | | | |
| Bus Blockages (##rr) | | | | | | | | | | | | | |
| Adj. Flow (vph) | | | | | | | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 85 374 320 254 612 305 159 424 424 170 865 190 | | | | | | | | | | | | | |
| Lane Group Flow (vph) | | 85 | 3/4 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 1/0 | 865 | 190 |
| Enter Blocked Intersection | \ / | ٥٢ | 074 | 000 | 054 | 040 | 205 | 450 | 404 | 404 | 470 | 005 | 400 |
| Left Left Right Median Width(m) 3.5 | | | | | | | | | | | | | |
| Median Width(m) | | | | | | | | | | | | | |
| Crosswalk Width(m) | | Leπ | | Right | Leπ | | Right | Leπ | | Right | Leπ | | Right |
| Crosswalk Width(m) | | | | | | | | | | | | | |
| Two way Left Turn Lane Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.95 | | | | | | | | | | | | | |
| Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.95 | | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Turning Speed (k/h) | | 1.06 | 1.04 | 0.06 | 1.01 | 0.00 | 0.04 | 1.01 | 0.06 | 1.00 | 1.01 | 0.06 | 0.05 |
| Number of Detectors | | | 1.04 | | | 0.55 | | | 0.90 | | | 0.90 | |
| Detector Template | | | 2 | | | 2 | | | 2 | | | 2 | |
| Leading Detector (m) | | | | | | | | | | | | | |
| Trailing Detector (m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Position(m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 | | | | | | | | | | | | | |
| Detector 1 Type | | | | | | | | | | | | | |
| Detector 1 Channel 0.0 | | | | | | | | | | | | | |
| Detector 1 Extend (s) 0.0 | | OI - EX | OI-LX | OI LX | OI · LX | OI- EX | OI-EX | OI LX | OI-EX | OI-LX | OI- EX | OI-LX | OI LX |
| Detector 1 Queue (s) 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) 0.0 | | | | | | | | | | | | | |
| Detector 2 Position(m) 9.4 9.4 9.4 9.4 | | | | | | | | | | | | | |
| | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| | Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2028 Future Background>AM 12-20-2024

| | ۶ | → | * | • | ← | • | 1 | † | / | > | ↓ | 1 |
|------------------------------|--------------|------------|-----------|------------|------------|-------------|---------------|----------|--------|-------------|-----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | 9 | | 2000 | | | | 9 | 2000 | 2000 | 9 | ; |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 7.0 | 140110 | 7.0 | 7.0 | 110110 | 7.0 | 140110 | 140110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 38.7 | 38.7 | 22.3 | 50.9 | 50.9 | 51.0 | 40.6 | 66.3 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.30 | 0.30 | 0.17 | 0.39 | 0.39 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.17 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 62.4 | 28.8 | 15.4 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 62.4 | 28.8 | 15.4 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| LOS | 03.0 F | J0.2 | 24.0 C | 02.4 E | 20.0 C | 13.4 B | J2.0 | 04.1 | В | 30.5 | J0.7 | 7.C |
| Approach Delay | | 37.2 | U | | 32.6 | D | D | 27.1 | Ь | U | 32.7 | |
| Approach LOS | | 37.2 D | | | 32.0 C | | | Z/.1 | | | 32.7 C | |
| Approacti LOS | | D | | | U | | | U | | | U | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 0 (0%), Referenced | to phase 2 | :EBT and | 6:WBT, 9 | Start of G | reen | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.84 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | | | | lı | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | ation 105.3 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: V | Vhites Road | l & Kinasi | ton Road | | | | | | | | | |
| r' | | | | | | 4 | 4/~ | | | | | |
| √ lø1 | 1 2 | Ø2 (R) | | | | 7 0 | 33 ▼ Ø | 4 | | | | |
| 30 s | 43 s | | | | | 8 S | 49 s | | | | | |
| → Ø5 → Ø6 | (R) U | | | | | > | 37 To | 8 | | | | |
| 16 s 57 s | V~/ ▼ | | | | | 8.8 | 49 s | - | | | | |

13: Whites Road & Kingston Road

| | • | - | • | • | • | • | 4 | † | 1 | - | ļ | 4 |
|------------------------|-------|-------|-------|-------|-------|------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 62.4 | 28.8 | 15.4 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 62.4 | 28.8 | 15.4 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 40.8 | 35.7 | 68.1 | 62.3 | 36.1 | 25.9 | 29.8 | 30.7 | 27.8 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 55.7 | 67.2 | #95.1 | 93.1 | 69.4 | #50.2 | 39.1 | 52.8 | 44.1 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 992 | 574 | 339 | 1373 | 740 | 211 | 1579 | 900 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.38 | 0.56 | 0.75 | 0.45 | 0.41 | 0.75 | 0.27 | 0.47 | 0.44 | 0.55 | 0.31 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2028 Future Background>AM 12-20-2024

| | ۶ | • | 4 | † | ↓ | 4 |
|-------------------------------------|-------|------------|-------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | 77 | 7 | -1,02 | ^ | * | 05.1 |
| Traffic Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Future Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | , |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.51 | 0.01 | 1.00 | 0.55 | 0.00 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 1400 | U | 3314 | 340 I | U |
| Satd. Flow (perm) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| | 330/ | Yes | U | 3314 | 340 I | Yes |
| Right Turn on Red | 5 | Yes 262 | | | | res |
| Satd. Flow (RTOR) | | 202 | | 60 | 60 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | 7 | 11.2 | 19.0 | 7 |
| Confl. Peds. (#/hr) | 0.00 | 0.00 | 7 | 0.00 | 0.00 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 636 | 291 | 0 | 753 | 453 | 0 |
| Shared Lane Traffic (%) | 00- | 10% | | 755 | 150 | |
| Lane Group Flow (vph) | 665 | 262 | 0 | 753 | 453 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 0.0 | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Type Detector 2 Channel | | | | OITEX | CITEX | |
| Detector 2 Channel | | | | | | |

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Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | T | ¥ | * |
|----------------------------|---------------|----------|----------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | |
| Act Effct Green (s) | 27.7 | 27.7 | | 70.1 | 70.1 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | 0.64 | 0.64 | |
| v/c Ratio | 0.78 | 0.48 | | 0.35 | 0.20 | |
| Control Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| LOS | D | Α | | В | Α | |
| Approach Delay | 33.7 | | | 10.5 | 9.2 | |
| Approach LOS | С | | | В | Α | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 1 | | | | | | |
| Offset: 79.2 (72%), Refer | enced to pha | se 2:NBT | and 6:SI | BT, Start | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-C | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | |
| Intersection Signal Delay | | | | | ntersection | |
| Intersection Capacity Util | ization 48.8% | | | I | CU Level of | of Service A |
| Analysis Period (min) 15 | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2028 Future Background>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 665 | 262 | 753 | 453 |
| v/c Ratio | 0.78 | 0.48 | 0.35 | 0.20 |
| Control Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Length 50th (m) | 68.0 | 0.0 | 36.7 | 19.6 |
| Queue Length 95th (m) | 80.8 | 19.4 | 56.4 | 32.1 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1256 | 683 | 2150 | 2218 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.38 | 0.35 | 0.20 |
| Intersection Summary | | | | |

Synchro 11 Report Page 30 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2028 Future Background>AM 12-20-2024

| | • | • | † | * | / | |
|----------------------------|-------|-------|-------|-------|----------|---------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | î, | | | ન |
| Traffic Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Future Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 5 | | | 8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% |
| Adj. Flow (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 88 | 0 | 0 | 0 | 0 | 211 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Tyne: | Other | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 24.2%
Analysis Period (min) 15

ICU Level of Service A

1105-1163 Kingston Road Synchro 11 Report Page 31

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | / | - | ↓ |
|-------------------------------|-------|------|----------|------|-----------|-----------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1> | | | ની |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Future Volume (Veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | 110.10 | | | 110110 |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 430 | 13 | | | 8 | |
| vC1, stage 1 conf vol | 100 | 10 | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 430 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 87 | |
| cM capacity (veh/h) | 501 | 1053 | | | 1605 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 88 | 0 | 211 | | | |
| | | 0 | | | | |
| Volume Left | 0 | • | 211 | | | |
| Volume Right | 88 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.08 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 2.1 | 0.0 | 3.4 | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | A | | A | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 7.9 | | | |
| Intersection Capacity Utiliza | ation | | 24.2% | IC | U Level o | f Service |
| Analysis Period (min) | | | 15 | | | |
| , , | | | | | | |

Synchro 11 Report Page 32 1105-1163 Kingston Road

| Bane Croup | | ၨ | - | • | • | — | • | 4 | † | <i>></i> | / | ļ | 4 |
|--|----------------------|-------|-------------|-------|-------|-------------|-------|---------|----------------|-------------|----------|-------|-------|
| Traffic Volume (vph) | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Future Volume (vph) | Lane Configurations | ሻ | ↑ 1> | | ሻ | ∱ î₃ | | ሻ | f _a | | ሻ | f. | |
| | Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Lane Width (m) | Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Grade (%) | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Storage Lanes | Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Taper Length (m) | Storage Length (m) | | | | | | | | | | | | |
| Lane Utili. Factor | | | | 0 | | | 0 | | | 0 | | | 0 |
| Ped Bike Factor | | | | | | | | | | | | | |
| Fit | | | | 0.95 | | | 0.95 | | | 1.00 | | | 1.00 |
| Fit Protected | | 0.99 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| Satid. Flow (prot) 1564 3316 0 1645 3301 0 1752 1771 0 1827 1759 0 | | | 0.986 | | | 0.980 | | | 0.901 | | | 0.879 | |
| Fit Permitted 0.950 | | | | | | | | | | | | | |
| Satd. Flow (perm) 1553 3316 0 1639 3301 0 1069 1771 0 1397 1759 0 Right Turn on Red | | | 3316 | 0 | | 3301 | 0 | | 1771 | 0 | | 1759 | 0 |
| Right Turn on Red | | | | | | | | | | | | | |
| Said. Flow (RTOR) | | 1553 | 3316 | _ | 1639 | 3301 | - | 1069 | 1771 | • | 1397 | 1759 | |
| Link Speed (k/h) | | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Distance (m) | | | | | | | | | | | | | |
| Travel Time (s) | | | | | | | | | | | | | |
| Confi. Peds. (#/hr) | | | | | | | | | | | | | |
| Peak Hour Factor | (/ | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Heavy Vehicles (%) | | | | | | | | | | | | | |
| Bus Blockages (#/hr) | | | | | | | | | | | | | |
| Adj. Flow (vph) | | | | | | | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 80 841 0 78 640 0 37 44 0 131 179 0 | | | | | | | | | | | | | |
| Lane Group Flow (vph) 80 841 0 78 640 0 37 44 0 131 179 0 | | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Enter Blocked Intersection No No No No No No No | | | | _ | | | _ | | | | | | |
| Left Left Right | | | | | | | - | | | | | | |
| Median Width(m) | | | | | | | | | | | | | |
| Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 0.99 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 14 24 14 14 24 14 14 14 14 24 14 14 24 14 14 24 14 14 24 14 14 24 14 <td></td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> | | Left | | Right | Left | | Right | Left | | Right | Left | | Right |
| Crosswalk Width(m) | | | | | | | | | | | | | |
| Two way Left Turn Lane | | | | | | | | | | | | | |
| Headway Factor | | | 4.9 | | | | | | 4.9 | | | 4.9 | |
| Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 14 24 24 24 24 24 24 24 24 24 24 24 24 24 | | 4.47 | 4.04 | 4.07 | 4.40 | | 4.00 | 4.00 | 0.04 | 0.00 | 0.07 | 0.00 | 0.00 |
| Number of Detectors 0 0 0 0 0 0 0 1 1 1 Detector Template Leading Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.5 7.5 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.15 -1.5 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 Detector 1 Type Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Detec | | | 1.04 | | | 1.01 | | | 0.94 | | | 0.92 | |
| Detector Template Leading Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.5 7.5 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.15 -1.5 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type Prot NA Prot NA Perm NA Perm NA Perm NA | | | 0 | 14 | | ^ | 14 | | 0 | 14 | | | 14 |
| Leading Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.5 7.5 | | U | U | | U | U | | U | U | | - 1 | - 1 | |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.1 -1.5 -1.5 Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 Detector 1 Type Cl+Ex Cl-Ex < | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | | | | | | | | | | | | | |
| Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 | | | | | | | | | | | | | |
| Detector 1 Type | | | | | | | | | | | | | |
| Detector 1 Channel Detector 1 Extend (s) 0.0 <td></td> | | | | | | | | | | | | | |
| Detector 1 Extend (s) 0.0 | | CITEX | CITEX | | CITEX | CITEX | | CITEX | CITEX | | CITEX | CITEX | |
| Detector 1 Queue (s) 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type Prot NA Prot NA Perm NA Perm NA | | | | | | | | | | | | | |
| Turn Type Prot NA Prot NA Perm NA Perm NA | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | 1 CIIII | | | 1 CIIII | | |

Synchro 11 Report Page 1 1105-1163 Kingston Road

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road

| | ۶ | → | • | • | ← | • | 1 | † | ~ | / | ļ | 4 |
|----------------------------|--------------|----------|----------|----------|----------|-----|-------|-------|-----|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 74.9 | | 6.0 | 74.0 | | 18.0 | 18.0 | | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.62 | | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.66 | 0.41 | | 0.95 | 0.31 | | 0.23 | 0.15 | | 0.63 | 0.46 | |
| Control Delay | 78.8 | 12.9 | | 125.0 | 16.4 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 12.9 | | 125.0 | 16.4 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| LOS | Е | В | | F | В | | D | С | | Е | В | |
| Approach Delay | | 18.6 | | | 28.2 | | | 31.7 | | | 33.6 | |
| Approach LOS | | В | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 44.8 (37%), Refere | enced to pha | se 2:EBT | and 6:WE | T, Start | of Green | | | | | | | |

| Area Type: | Other | | |
|-----------------------|------------------------|-------------------------------|--|
| Cycle Length: 120 | | | |
| Actuated Cycle Leng | gth: 120 | | |
| Offset: 44.8 (37%), F | Referenced to phase 2: | EBT and 6:WBT, Start of Green | |
| Natural Cycle: 85 | | | |
| Control Type: Actua | ted-Coordinated | | |
| Maximum v/c Ratio: | 0.95 | | |
| Intersection Signal D | Delay: 24.8 | Intersection LOS: C | |
| Intersection Capacity | y Utilization 72.4% | ICU Level of Service C | |
| Analysis Pariod (min | \ 15 | | |

Splits and Phases: 3: Dixie Road & Kingston Road



Lanes, Volumes, Timings

1: Walnut Lane & Kingston Road

<2028 Future Background>PM 12-20-2024

| | ۶ | → | • | • | + | • | 1 | † | ~ | / | | |
|----------------------------|-------|-------------|-------|-------|-------------|-------|-------|------------|-----------|----------|--------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ∱ î> | | * | † 1> | | * | | 1 | * | 1> | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | 0.0 | 25.8 | 37.0 | 0.0 | 0.0 | 63.2 | 0.0 | 0.0 | 18.5 | 0 | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0.0 | 1 | | 1 | 1 | | 0.0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | ŭ |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | 0.00 | 1.00 | 1.00 | 0.00 | 0.98 | 1.00 | 0.98 | 0.99 | 0.98 | 1.00 |
| Frt | 1.00 | 0.976 | | 1.00 | 0.991 | | 0.00 | | 0.850 | 0.00 | 0.907 | |
| Flt Protected | 0.950 | 0.070 | | 0.950 | 0.001 | | 0.950 | | 0.000 | 0.950 | 0.001 | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | 0111 | | 0.950 | 0000 | | 0.728 | | 1000 | 0.950 | 1703 | Ü |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | 1011 | 0111 | Yes | 1002 | 0000 | Yes | 1010 | U | Yes | 17 10 | 1700 | Yes |
| Satd. Flow (RTOR) | | 26 | 103 | | 9 | 103 | | | 93 | | 28 | 103 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | 33 | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | 1.0 | 7 | 7 | 41.7 | 5 | 14 | 10.3 | 5 | 5 | 10.2 | 14 |
| Confl. Bikes (#/hr) | 3 | | 1 | | | 3 | 14 | | 5 | 3 | | 14 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.92 | 0.92 | 2% | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Bus Blockages (#/hr) | 0 % | 0 | 3 | 0 /0 | 0 | 0 % | 0 / 0 | 0 % | 0 /0 | 0 /0 | 0 % | 0 % |
| Adj. Flow (vph) | 41 | 1543 | 293 | 129 | 702 | 47 | 318 | 0 | 288 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | 41 | 1545 | 293 | 129 | 702 | 41 | 310 | U | 200 | 20 | 17 | 20 |
| | 41 | 4000 | 0 | 400 | 740 | 0 | 318 | ٥ | 288 | 26 | 45 | 0 |
| Lane Group Flow (vph) | No | 1836 No | No. | 129 | 749 No | No | No | 0 | Z88 No | | 45 No | 0 |
| Enter Blocked Intersection | | | | No | | | | No | | No | | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 0.0 | | | 3.1 0.0 | | | 3.3 0.0 | | | 3.3 | |
| Link Offset(m) | | | | | | | | | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.04 | 4.00 | Yes | 0.00 | 4.04 | 4.04 | 0.00 | 4.00 | 0.00 | 0.00 |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

| | • | - | • | • | — | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------------|---------------|-------------|----------|------------|-------------|------------|-------|----------|-------|-------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.64 | 0.99 | | 1.00 | 0.36 | | 1.02 | | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | | 149.5 | 5.4 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | | 149.5 | 5.4 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| LOS | F | D | | F | Α | | F | | D | D | С | |
| Approach Delay | | 42.2 | | | 26.6 | | | 72.0 | | | 27.1 | |
| Approach LOS | | D | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliza | ation 91.5% | 1 | | I | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | alnut Lane | 2. Kinastor | Road | | | | | | | | | |
| 2 3 | aniul Laile (| x rungalui | iitoau | | | | | - | | | | - 19 |
| √Ø1 → Ø2 (F | 2) | | | | | | | 1/2 | Ø4 | | | |
| 15 s 76 s | | | | | | | | 39 S | | | i i | |
| Ø5 Ø6 (R) | | | | | | | | V | Ø8 | | | |
| 10 s 81 s | | | | | | | | 39 s | 11120 | | | |
| | | | | | | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

1: Walnut Lane & Kingston Road

| | • | - | • | - | • | - | - | Ţ | |
|------------------------|------|--------|-------|-------|--------|------|------|-------|--|
| L O | EDI | EDT | WDI | WDT | NDI. | NDD. | CDI | CDT | |
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1836 | 129 | 749 | 318 | 288 | 26 | 45 | |
| v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | 149.5 | 5.4 | 103.9 | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | 149.5 | 5.4 | 103.9 | 36.8 | 39.0 | 20.3 | |
| Queue Length 50th (m) | 0.0 | 130.0 | 35.2 | 14.2 | ~84.2 | 45.2 | 5.2 | 3.4 | |
| Queue Length 95th (m) | m0.0 | #291.4 | #76.3 | 21.3 | #142.9 | 76.2 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 1850 | 129 | 2063 | 313 | 453 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2028 Future Background>PM

| | • | - | \rightarrow | • | ← | • | 1 | † | 1 | - | ļ | 1 |
|----------------------------|-------|-------|---------------|-------|------------|-------|----------|----------|-------|-------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ħβ | | ሻ | ↑ ₽ | | ሻ | f. | | ሻ | 1 > | |
| Traffic Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Future Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.991 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3394 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3394 | 0 | 1594 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1640 | 109 | 43 | 837 | 178 | 121 | 59 | 68 | 154 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 1749 | 0 | 43 | 1015 | 0 | 121 | 127 | 0 | 154 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| | | | | | | | - " | | | - " | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

| Lane Group EB Protected Phases | 5 2 | EBR | WBL 1 | WBT | WBR | NBL | NDT | | | | |
|--------------------------------|---------|-----|----------|-------|-----|-------|-------|-----|-------|-------|-----|
| Protected Phases | - | 2 | 1 | | | INDL | NBT | NBR | SBL | SBT | SBR |
| | 5 ' | | | 6 | | | 8 | | | 4 | |
| Permitted Phases | 5 ' | | | | | 8 | | | 4 | | |
| Detector Phase | , | 2 | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) 5. | 0 20.0 |) | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) 10. | 0 28.0 |) | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) 26. | | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) 20.09 | | 0 | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) 21. | 0 72.4 | 1 | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) 3. | 0 4.2 | 2 | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) 2. | 0 2.4 | 1 | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) 0. | | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) 5. | 0 6.6 | 3 | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag Lea | d La | 3 | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) 3. | | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode Non | e C-Max | (| None | C-Max | | None | None | | None | None | |
| Walk Time (s) | 7.0 |) | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 14.0 |) | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 1 | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) 20. | 3 84.9 | 9 | 5.0 | 67.7 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Actuated g/C Ratio 0.1 | 6 0.6 | 5 | 0.04 | 0.52 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio 0.9 | 0.79 | 9 | 0.70 | 0.57 | | 0.60 | 0.39 | | 0.74 | 0.36 | |
| Control Delay 73. | 9 26.0 |) | 112.9 | 25.5 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| Queue Delay 0. | | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay 73. | | | 112.9 | 25.5 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| LOS | Ξ (| | F | С | | Е | С | | Е | В | |
| Approach Delay | 31.4 | | | 29.0 | | | 47.7 | | | 46.2 | |
| Approach LOS | (|) | | С | | | D | | | D | |

Intersection Summary Area Type: Cycle Length: 130

Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.0

Intersection LOS: C Intersection Capacity Utilization 82.5% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 5 Queues

<2028 Future Background>PM 12-20-2024

3: Dixie Road & Kingston Road

| | • | - | • | ← | 4 | † | - | ļ |
|------------------------|--------|-------|--------|--------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 222 | 1749 | 43 | 1015 | 121 | 127 | 154 | 130 |
| v/c Ratio | 0.90 | 0.79 | 0.70 | 0.57 | 0.60 | 0.39 | 0.74 | 0.36 |
| Control Delay | 73.9 | 26.0 | 112.9 | 25.5 | 61.9 | 34.2 | 71.9 | 15.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 73.9 | 26.0 | 112.9 | 25.5 | 61.9 | 34.2 | 71.9 | 15.9 |
| Queue Length 50th (m) | 51.9 | 216.1 | 11.9 | 122.1 | 29.2 | 19.4 | 38.1 | 6.7 |
| Queue Length 95th (m) | m#88.3 | 258.6 | m#24.5 | m146.3 | 45.6 | 35.4 | 57.0 | 22.4 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 255 | 2220 | 61 | 1785 | 302 | 464 | 312 | 494 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.87 | 0.79 | 0.70 | 0.57 | 0.40 | 0.27 | 0.49 | 0.26 |
| | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 6 Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.346 | | | 0.175 | | |
| Satd. Flow (perm) | 1667 | 3461 | 1512 | 1712 | 3579 | 1517 | 645 | 3773 | 1564 | 368 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 108 | | | 160 | | | 178 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 835 | 252 | 103 | 568 | 117 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 835 | 252 | 103 | 568 | 117 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.00 | 4.04 | 0.00 | 4.00 | 0.07 | 0.00 | 0.07 | 0.00 | Yes | 4.04 |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | _ 2 | 1 | 1 | _ 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

 1105-1163 Kingston Road
 Synchro 11 Report

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background>PM 12-20-2024

| | • | - | • | • | ← | • | 1 | † | - | - | Ţ | 4 |
|--|--------------|-----------|-----------|------------|-----------|------------|---------|-----------|--------|-------|-----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Laç |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 24.5 | 40.0 | 49.1 | 19.9 | 35.4 | 35.4 | 52.0 | 40.9 | 40.0 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.19 | 0.31 | 0.38 | 0.15 | 0.27 | 0.27 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.49 | 0.21 |
| Control Delay | 47.7 | 69.0 | 25.2 | 84.1 | 45.4 | 0.6 | 34.2 | 43.1 | 13.4 | 31.8 | 38.0 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.7 | 69.0 | 25.2 | 84.1 | 45.4 | 0.6 | 34.2 | 43.1 | 13.4 | 31.8 | 38.0 | 3.6 |
| LOS Approach Delev | D | 56.7 | С | F | 51.7 | Α | С | D 35.9 | В | С | D 32.0 | P |
| Approach Delay Approach LOS | | 50.7 E | | | 51.7 D | | | 35.9 D | | | 32.0 C | |
| Approach LOS | | | | | U | | | U | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | • | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | 0 =D= | 1014/0 | - 0 | | | | | | | | |
| Offset: 53 (41%), Reference | ed to phase | e 2:EBT a | ind 6:WB | I, Start o | Green | | | | | | | |
| Natural Cycle: 125 | P () | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | 40.0 | | | | | 100 0 | | | | | | |
| Intersection Signal Delay: | | 0/ | | | | n LOS: D | . ^ | | | | | |
| Intersection Capacity Utiliz Analysis Period (min) 15 | ation 103.1 | % | | Į. | CU Level | of Service | 9 G | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | ıd & King | ston Road | i | | | | | | | | |
| √ Ø1 | ₩ ow(| R) | | | | 10 | 3 \$ 04 | 1 | | | | |
| 26 s ▶ _{Ø5} | 46 s | Ø6 (F | 2) | | | 35 | 50 s | 1 | | | | |
| 34s | 3 | 8s | V | | | 88 | 50 s | , | | | | |
| WSP | | | | | | | | | | | | Page 8 |

Queues

<2028 Future Background>PM 12-20-2024

6: Liverpool Road & Kingston Road

| | • | - | • | • | • | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|---------|---------|-------|-------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 835 | 252 | 103 | 568 | 117 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.49 | 0.21 |
| Control Delay | 47.7 | 69.0 | 25.2 | 84.1 | 45.4 | 0.6 | 34.2 | 43.1 | 13.4 | 31.8 | 38.0 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.7 | 69.0 | 25.2 | 84.1 | 45.4 | 0.6 | 34.2 | 43.1 | 13.4 | 31.8 | 38.0 | 3.6 |
| Queue Length 50th (m) | 59.4 | ~172.3 | 71.1 | 57.7 | 70.6 | 0.0 | 27.0 | 99.0 | 14.0 | 15.8 | 62.0 | 0.0 |
| Queue Length 95th (m) | m60.8 n | n#179.4 | m75.5 | #98.7 | 93.7 | 0.0 | 42.7 | 121.7 | 37.0 | 27.4 | 79.5 | 8.5 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1065 | 641 | 279 | 973 | 529 | 302 | 1187 | 604 | 210 | 1149 | 569 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.70 | 1 05 | 0.56 | 0.82 | 0.61 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.49 | 0.21 |

Lanes, Volumes, Timings

<2028 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | • | • | ← | • | 1 | † | / | / | ļ | 4 |
|----------------------------|-------|------------|-------|---------|----------|---------|---------|----------|---------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | 77 | † | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 832 | 401 | 196 | 986 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 832 | 401 | 196 | 986 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | | | 0.96 | 1.00 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 3539 | 1569 | 1708 | 3535 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.123 | | | 0.193 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 213 | 3539 | 1502 | 345 | 3535 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | | 21 | 21 | | | 21 | | 21 | 21 | | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1072 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1072 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | J LA | JX | | 5. · LA | J Z. | 5. · LA | 5. · LA | 5. · LX | 5. · LX | 5. · LA | 5 LX | J A |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| DO100101 Z 0120(111) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

Synchro 11 Report Page 10 1105-1163 Kingston Road WSP

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2028 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | \rightarrow | • | • | • | 1 | † | | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.67 | 0.65 | 0.51 | 0.85 | 0.77 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 32.3 | 26.7 | 8.0 | 51.2 | 32.8 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 32.3 | 26.7 | 8.0 | 51.2 | 32.8 | 0.2 |
| LOS | D | В | | D | С | Α | С | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 21.6 | | | 34.5 | |
| Approach LOS | | С | | | С | | | С | | | С | |

Intersection Summary Area Type: O Cycle Length: 100 Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 28.4
Intersection Capacity Utilization 72.6%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2028 Future Background>PM

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | 1 | Ť | / | - | ţ | 4 | |
|------------------------|------|------|------|-------|------|--------|--------|------|-------|--------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1072 | 50 | |
| v/c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.67 | 0.65 | 0.51 | 0.85 | 0.77 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 32.3 | 26.7 | 8.0 | 51.2 | 32.8 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 32.3 | 26.7 | 8.0 | 51.2 | 32.8 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 13.8 | 77.3 | 23.1 | 20.8 | 90.0 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#35.7 | #115.8 | 53.8 | #67.2 | #154.5 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 189 | 1400 | 857 | 250 | 1399 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.67 | 0.65 | 0.51 | 0.85 | 0.77 | 0.07 | |

Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ٠ | → | • | • | ← | • | 4 | † | <i>></i> | - | ↓ | 1 |
|----------------------------|------|----------|-------|-------|----------|-------|-------|----------|-------------|------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ની | 7 | * | ^ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1058 | 0 | 0 | 929 | 71 |
| Future Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1058 | 0 | 0 | 929 | 71 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | 0.99 | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.987 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 1825 | 3535 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.987 | | 0.191 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 365 | 3535 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 85 | | | | | | 82 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 258 | 302 | 183 | 318 | 132 | 1150 | 0 | 0 | 1010 | 77 |
| Shared Lane Traffic (%) | | | | 21% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 258 | 239 | 246 | 318 | 132 | 1150 | 0 | 0 | 1010 | 77 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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<2028 Future Background>PM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | | → | • | • | • | _ | 7 | - 1 | | * | + | * |
|-------------------------------|-------------|----------|-----------|------------|------------|----------|-------|-------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | _ |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 20.7 | 21.5 | 21.5 | 21.5 | 68.0 | 66.2 | | | 41.0 | 41.0 |
| Actuated g/C Ratio | | | 0.21 | 0.22 | 0.22 | 0.22 | 0.68 | 0.66 | | | 0.41 | 0.41 |
| v/c Ratio | | | 0.75 | 0.64 | 0.64 | 0.78 | 0.24 | 0.49 | | | 0.50 | 0.12 |
| Control Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 10.3 | | | 27.7 | 13.5 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 10.3 | | | 27.7 | 13.5 |
| LOS | | | D | D | D | D | Α | В | | | С | В |
| Approach Delay | | 50.5 | | | 41.5 | | | 10.1 | | | 26.7 | |
| Approach LOS | | D | | | D | | | В | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 |) | | | | | | | | | | | |
| Offset: 8 (8%), Referenced | | NBTL an | d 6:SBT. | Start of G | Green | | | | | | | |
| Natural Cycle: 65 | | | , | | | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | | | | | |
| Intersection Signal Delay: 2 | 5.7 | | | Ir | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliza | | | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | | | · · | | | | | | | | |
| Splits and Phases: 9: Liv | erpool Road | & Waln | ut Lane/H | lwv 401 V | VB Off-Ra | amp | | | | | | |
| 4 | | | | , | | - | 1 | Ø8 | | | | - 8 |
| Ø2 (R) | | • | | | | _ | 20 | Ø8 | | | | |
| 64s | | | | | | | 30 S | | | | | |



9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | • | • | 1 | Ť | ţ | 4 | |
|------------------------|------|------|-------|-------|------|-------|-------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 258 | 239 | 246 | 318 | 132 | 1150 | 1010 | 77 | |
| v/c Ratio | 0.75 | 0.64 | 0.64 | 0.78 | 0.24 | 0.49 | 0.50 | 0.12 | |
| Control Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 10.3 | 27.7 | 13.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 10.3 | 27.7 | 13.5 | |
| Queue Length 50th (m) | 47.2 | 44.5 | 45.7 | 43.2 | 7.9 | 53.1 | 46.9 | 0.9 | |
| Queue Length 95th (m) | 67.7 | 63.0 | 64.2 | 66.2 | 18.3 | 86.8 | 79.1 | m7.4 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 540 | 533 | 664 | 2341 | 2040 | 667 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.55 | 0.46 | 0.46 | 0.60 | 0.20 | 0.49 | 0.50 | 0.12 | |
| | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Background>PM 12-20-2024

| | ۶ | - | • | • | - | 1 | | |
|----------------------------|-------|----------|------------|-------|-------|-------|-----|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Lane Configurations | ኘ | ^ | † ‡ | | ኘ | 7 | ~ ' | |
| Traffic Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | | |
| Future Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | | |
| Grade (%) | | 6% | 0% | | 0% | | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | | |
| Taper Length (m) | 2.5 | | | | 31.3 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | | |
| Ped Bike Factor | 1.00 | | 0.99 | | | 0.99 | | |
| Frt | | | 0.966 | | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | | | |
| Satd. Flow (prot) | 1618 | 3433 | 3346 | 0 | 1805 | 1777 | | |
| Flt Permitted | 0.950 | | | | 0.950 | | | |
| Satd. Flow (perm) | 1617 | 3433 | 3346 | 0 | 1805 | 1751 | | |
| Right Turn on Red | | | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | | 39 | | | 149 | | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | | |
| Adj. Flow (vph) | 223 | 1728 | 823 | 242 | 295 | 149 | | |
| Shared Lane Traffic (%) | | | | | | | | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 0 | 295 | 149 | | |
| Enter Blocked Intersection | No | No | No | No | No | No | | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | | |
| Two way Left Turn Lane | | Yes | | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | | |
| Detector Template | Left | Thru | Thru | | Left | Right | | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | |
| Detector 1 Channel | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | | |

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Background>PM 12-20-2024

| | • | → | — | • | \ | 4 | | |
|-------------------------|-------|----------|----------|-----|----------|-------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | | |
| Detector 2 Channel | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% | |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 | |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | | 0.83 | 0.32 | | |
| Control Delay | 48.9 | 40.2 | 9.7 | | 69.5 | 8.0 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 48.9 | 40.2 | 9.7 | | 69.5 | 8.0 | | |
| LOS | D | D | Α | | Е | Α | | |
| Approach Delay | | 41.2 | 9.7 | | 48.9 | | | |
| Approach LOS | | D | Α | | D | | | |
| Intersection Summary | | | | | | | | |
| Aron Tuno: | Othor | | | | | | | |

Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 95 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.92 Intersection Signal Delay: 32.5 Intersection Capacity Utilization 70.9% ICU Level Analysis Pariod (min) 15

Intersection LOS: C
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: Kingston Road & Fairport Road



Queues

<2028 Future Background>PM 12-20-2024

10: Kingston Road & Fairport Road

m Volume for 95th percentile queue is metered by upstream signal.

| | • | - | • | - | 4 |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 295 | 149 |
| v/c Ratio | 0.92 | 0.76 | 0.62 | 0.83 | 0.32 |
| Control Delay | 48.9 | 40.2 | 9.7 | 69.5 | 8.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 48.9 | 40.2 | 9.7 | 69.5 | 8.0 |
| Queue Length 50th (m) | 51.0 | 247.6 | 26.8 | 72.7 | 0.0 |
| Queue Length 95th (m) | m50.4 | | 32.8 | 101.2 | 16.7 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 248 | 2270 | 1724 | 426 | 527 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.90 | 0.76 | 0.62 | 0.69 | 0.28 |
| Intersection Summary | | | | | |

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11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 4 | 1 |
|----------------------------|------------|-------|-----------|------------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † p | LUI | 7 | ↑ ↑ | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 3.1 | 2.1 | 0% | 0% | 3.1 |
| | 0% | 0.0 | 47 E | U% | | 52.0 |
| Storage Length (m) | | 0.0 | 47.5 1 | | 0.0 | 52.0 |
| Storage Lanes | | U | - | | | |
| Taper Length (m) | ٥٥٢ | ٥٥٢ | 22.3 | ٥٥٢ | 2.5 | 4.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | 10.1 | | | 20.1 | 10.0 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | | | | | 1% | 1% |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | | |
| Adj. Flow (vph) | 1839 | 25 | 200 | 771 | 720 | 109 |
| Shared Lane Traffic (%) | 4004 | | 000 | | 700 | 400 |
| Lane Group Flow (vph) | 1864 | 0 | 200 | 771 | 720 | 109 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 14 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | 17 | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| | 10.0 | | 2.0 | | | |
| Leading Detector (m) | | | | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Type | CITEX | | | OITEX | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & King

<2028 Future Background>PM 12-20-2024

| Ramps & | Kings | ton Ro | ad | |
|---------|-------|--------|----|--|
| - | • | • | + | |

| | - | \rightarrow | • | • | 1 | / |
|---------------------------|-------|---------------|---------|-------------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | Ū | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 |
| Act Effct Green (s) | 65.4 | | 16.0 | 86.4 | 29.7 | 29.7 |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 |
| v/c Ratio | 1.04 | | 1.03 | 0.32 | 0.89 | 0.25 |
| Control Delay | 66.9 | | 128.5 | 1.8 | 62.5 | 14.0 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 66.9 | | 128.5 | 1.8 | 62.5 | 14.0 |
| LOS | E | | F | A | E | В |
| Approach Delay | 66.9 | | | 27.9 | 56.1 | |
| Approach LOS | Е | | | С | Е | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | |
| Offset: 69 (53%), Referen | | 2:EBT ar | nd 6:WB | T. Start of | Green | |
| 11.1.1.0.1.400 | to p | | | ., ວແລະ ທ | | |

| Intersection Summary | | |
|---|-------------------------|--|
| Area Type: Other | | |
| Cycle Length: 130 | | |
| Actuated Cycle Length: 130 | | |
| Offset: 69 (53%), Referenced to phase 2:EBT and | d 6:WBT, Start of Green | |
| Natural Cycle: 130 | | |
| Control Type: Actuated-Coordinated | | |
| Maximum v/c Ratio: 1.04 | | |
| Intersection Signal Delay: 54.2 | Intersection LOS: D | |
| Intersection Capacity Utilization 93.0% | ICU Level of Service F | |
| Analysis Period (min) 15 | | |

Splits and Phases: 11: Hwy 401 WB Ramps & Kingston Road



11: Hwy 401 WB Ramps & Kingston Road

| | - | • | — | 1 | - |
|------------------------|--------|--------|----------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1864 | 200 | 771 | 720 | 109 |
| v/c Ratio | 1.04 | 1.03 | 0.32 | 0.89 | 0.25 |
| Control Delay | 66.9 | 128.5 | 1.8 | 62.5 | 14.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 66.9 | 128.5 | 1.8 | 62.5 | 14.0 |
| Queue Length 50th (m) | ~284.5 | ~47.6 | 6.4 | 91.1 | 5.0 |
| Queue Length 95th (m) | #328.0 | #101.8 | 6.1 | #114.7 | 19.8 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1799 | 194 | 2404 | 853 | 446 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.32 | 0.84 | 0.24 |

Queue shown is maximum after two cycles.

1105-1163 Kingston Road Synchro 11 Report Page 21 Lanes, Volumes, Timings

<2028 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

0.0 0.0

0.0

9.4

0.6

CI+Ex

Detector 1 Queue (s)

Detector 1 Delay (s)

Detector 2 Size(m)

Detector 2 Type

Detector 2 Position(m)

Lane Group NBT Lane Configurations Traffic Volume (vph) 130 1563 1168 121 198 82 Future Volume (vph) 130 1563 38 89 1168 121 198 15 138 82 13 143 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 3.5 3.1 3.7 3.7 Lane Width (m) 3.2 3.4 3.4 3.4 3.6 4.6 3.2 2.8 Grade (%) Storage Length (m) 51.8 148.5 100.0 18.0 0.0 0.0 0.0 0.0 Storage Lanes Taper Length (m) 35.3 2.5 2.5 2.5 Lane Util, Factor 1.00 0.95 1.00 0.95 0.95 1.00 1.00 1.00 1.00 1.00 0.95 Ped Bike Factor 0.99 1.00 1.00 0.99 1.00 0.99 0.996 0.986 0.862 Frt 0.864 Flt Protected 0.950 0.950 0.950 0.950 Satd. Flow (prot) 1656 3343 1705 1770 1725 1474 Flt Permitted 0.950 0.950 0.630 0.637 1157 1474 Satd. Flow (perm) 1647 3343 1704 3399 1172 Right Turn on Red Yes Yes Yes Yes Satd. Flow (RTOR) 129 149 Link Speed (k/h) 60 60 30 40 Link Distance (m) 222.7 268.7 130.9 169.9 Travel Time (s) 13.4 16.1 15.7 15.3 Confl. Peds. (#/hr) 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 Peak Hour Factor Heavy Vehicles (%) 2% 0% 0% 2% 0% 2% 0% 0% 0% 0% Adj. Flow (vph) 141 155 1699 41 97 1270 132 215 150 89 14 16 Shared Lane Traffic (%) Lane Group Flow (vph) 141 1740 0 97 1402 0 215 166 0 89 169 Enter Blocked Intersection No No No No No No No No No Lane Alignment Left Left Left Left Left Right Left Right Left Left Right Right Median Width(m) 3.5 3.5 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 Two way Left Turn Lane Yes Headway Factor 1.10 1.07 1.06 1.03 1.03 0.87 0.99 1.06 1.13 0.99 24 24 24 24 Turning Speed (k/h) 14 14 14 Number of Detectors Detector Template Left Thru Left Thru Left Thru Left Thru Leading Detector (m) 2.0 10.0 10.0 2.0 10.0 10.0 2.0 2.0 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0 Detector 1 Size(m) 2.0 0.6 0.6 2.0 0.6 2.0 0.6 CI+Ex CI+Ex CI+Ex Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0

CI+Ex 1105-1163 Kingston Road Synchro 11 Report WSP Page 22

0.0

0.0

9.4

0.6

0.0

0.0

9.4

0.6

CI+Ex

0.0

0.0

0.0

0.0

9.4

0.6

CI+Ex

0.0

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer

Lanes, Volumes, Timings

<2028 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | | 10.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 0.93 | 0.76 | | 0.93 | 0.36 | | 0.39 | 0.41 | |
| Control Delay | 84.2 | 22.6 | | 124.2 | 20.0 | | 93.7 | 14.4 | | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | | 0.0 | 0.0 | | 0.0 | 74.4 | | 139.0 | 0.0 | |
| Total Delay | 84.2 | 23.8 | | 124.2 | 20.0 | | 93.7 | 88.7 | | 189.3 | 12.5 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 28.3 | | | 26.8 | | | 91.6 | | | 73.5 | |
| Approach LOS | | С | | | С | | | F | | | Е | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2028 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | 1 | - | ļ | |
|------------------------|-------|--------|--------|-------|-------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1740 | 97 | 1402 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.76 | 0.93 | 0.36 | 0.39 | 0.41 | |
| Control Delay | 84.2 | 22.6 | 124.2 | 20.0 | 93.7 | 14.4 | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 74.4 | 139.0 | 0.0 | |
| Total Delay | 84.2 | 23.8 | 124.2 | 20.0 | 93.7 | 88.7 | 189.3 | 12.5 | |
| Queue Length 50th (m) | 36.9 | 135.0 | 26.3 | 72.7 | 54.0 | 7.7 | 19.7 | 4.2 | |
| Queue Length 95th (m) | m39.6 | m138.3 | m#47.8 | 95.4 | #99.2 | 26.9 | 36.4 | 23.7 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1843 | 243 | 481 | 240 | 424 | |
| Starvation Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 56 | 0 | 0 | 0 | 362 | 220 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.76 | 0.88 | 1.39 | 4.45 | 0.40 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Background>PM 12-20-2024

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|--|----------|------------|-----------|----------|-----------|--------|-----------|----------|------------|-----------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ** | 7 | 7 | ** | 7 | * | ^ | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1638 | 3400 | 1549 | 1719 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 171 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | 0.00 | 31 | 31 | 0.00 | 75 | 37 | 0.00 | 65 | 65 | 0.00 | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% 4 |
| Bus Blockages (#/hr) | 0 168 | 1023 | 389 | 0 251 | 0 829 | 533 | 0 248 | 743 | 712 | 0 205 | 0 671 | |
| Adj. Flow (vph) | 100 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | /12 | 205 | 0/1 | 202 |
| Shared Lane Traffic (%) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Lane Group Flow (vph) Enter Blocked Intersection | No | 1023 No | 389 No | No | 829 No | No | Z48 No | No | / IZ No | ZU5 No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.5 | Rigit | Leit | 3.5 | Rigiil | Leit | 3.5 | Rigit | Leit | 3.5 | Rigiti |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | 1.04 | 14 | 24 | 0.55 | 14 | 24 | 0.50 | 14 | 24 | 0.50 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

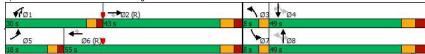
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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2028 Future Background>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | / | > | ţ | 4 |
|----------------------------|---------------|------------|----------|-----------|------------|-----------|----------------|----------|----------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SB |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | - |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | Ŭ | Ŭ | | Ŭ | Ŭ | | Ŭ | | | Ŭ | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 38.3 | 38.3 | 22.7 | 48.0 | 48.0 | 51.0 | 40.6 | 66.7 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.3 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | E | D | D | Е | D | F |
| Approach Delay | | 76.6 | | | 34.6 | | | 40.9 | | | 34.3 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | Outor | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | | | | | | |
| Offset: 32 (25%), Referen | | 2·FBT a | nd 6·WB | Start of | Green | | | | | | | |
| Natural Cycle: 120 | lood to prido | , | | , otari o | 0.00 | | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | ooramatoa | | | | | | | | | | | |
| Intersection Signal Delay | : 47.5 | | | li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Util | | % | | | CU Level | | e H | | | | | |
| Analysis Period (min) 15 | | | | | 2 2 20.01 | 2. 00. 10 | | | | | | |
| Splits and Phases: 13: | Whites Road | l & Kingsi | ton Road | | | | | | | | | |
| ₩ø1 | - 1 | Ø2 (R) | | | | 1 | 33 \$ @ | 14 | | | | |
| | | 1137 | | | | | | | | | | |



13: Whites Road & Kingston Road

| | • | - | • | • | • | • | 4 | 1 | - | / | ↓ | 4 |
|------------------------|-------|--------|-------|-------|---------|---------|-------|-------|--------|----------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | ~154.6 | 51.2 | 60.7 | 53.7 | 43.3 | 42.7 | 55.8 | 123.7 | 34.3 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #195.8 | 88.5 | m80.9 | m79.6 n | n#129.0 | #83.4 | 68.3 | #188.7 | #65.5 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 1001 | 576 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.04 | 0.68 | 0.75 | 0.63 | 0.83 | 0.88 | 0.45 | 0.86 | 0.81 | 0.42 | 0.32 |

1105-1163 Kingston Road

Synchro 11 Report

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Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2028 Future Background>PM 12-20-2024

| | • | • | 4 | † | ļ | 4 |
|----------------------------|-------|-------|------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻሻ | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Future Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | ' | 2.5 | | | 0 |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.33 | 0.53 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1421 | U | 3038 | 3010 | U |
| | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Satd. Flow (perm) | 3433 | | U | ათამ | 2010 | |
| Right Turn on Red | _ | Yes | | | | Yes |
| Satd. Flow (RTOR) | 7 | 129 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | _ | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 0.05 | 3 | 4 | 0.00 | 0.05 | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1286 | 640 | 0 | 914 | 595 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 1350 | 576 | 0 | 914 | 595 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITLX | | OITEX | OITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | | | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report 1105-1163 Kingston Road WSP Page 28

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

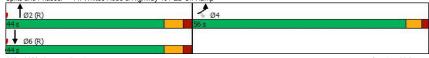
Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | T | ¥ | * |
|------------------------------|-------------|---------|----------|-------------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 46.8 | 46.8 | | 41.0 | 41.0 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | |
| v/c Ratio | 0.83 | 0.79 | | 0.63 | 0.40 | |
| Control Delay | 28.2 | 25.9 | | 26.6 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 28.2 | 25.9 | | 26.6 | 22.6 | |
| LOS | С | С | | С | С | |
| Approach Delay | 27.5 | | | 26.6 | 22.6 | |
| Approach LOS | С | | | С | С | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 10 | 0 | | | | | |
| Offset: 8 (8%), Referenced | to phase 2: | NBT and | 6:SBT, S | Start of Gr | een | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.83 | | | | | | |
| Intersection Signal Delay: | 26.4 | | | lı | ntersection | LOS: C |
| Intersection Capacity Utiliz | | | | I | CU Level o | of Service D |
| Analysis Period (min) 15 | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2028 Future Background>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1350 | 576 | 914 | 595 |
| v/c Ratio | 0.83 | 0.79 | 0.63 | 0.40 |
| Control Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Length 50th (m) | 110.4 | 77.9 | 74.2 | 42.8 |
| Queue Length 95th (m) | 131.2 | 123.7 | 99.3 | 59.7 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 772 | 1451 | 1484 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.75 | 0.63 | 0.40 |
| Intersection Summary | | | | |

Synchro 11 Report Page 30 1105-1163 Kingston Road

Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2028 Future Background>PM 12-20-2024

| | • | • | † | ~ | - | ţ |
|----------------------------|-------|-------|----------|-------|------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | f) | | | ર્ન |
| Traffic Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Future Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 248 | 0 | 0 | 0 | 0 | 183 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | Ť | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |

Control Type: Unsignalized Intersection Capacity Utilization 31.2% Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2028 Future Background>PM 12-20-2024

| | • | • | † | / | / | ţ |
|-----------------------------|--------|------|------------|------|----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1 > | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | Ö |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 0 | 0 | 183 | | | |
| Volume Right | 248 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utili | zation | | 31.2% | IC | CU Level | of Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Background_PHF>PM 12-20-2024

| | ʹ | - | \rightarrow | • | ← | • | • | † | ~ | > | ţ | 4 |
|----------------------------|---------|-------------|---------------|-------|------------|-------|---------|----------|----------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | † î> | | * | ↑ ↑ | | ň | | 7 | 7 | f) | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1710 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.730 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1317 | 0 | 1603 | 1713 | 1710 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 100 | | 26 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | - |
| Lane Group Flow (vph) | 38 | 1690 | 0 | 119 | 689 | 0 | 293 | 0 | 265 | 24 | 42 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | 3 - | | 3.1 | 9 - | | 3.3 | J | | 3.3 | 3 |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | OI - EX | OI · LX | | OI LX | OI LX | | OI · LX | | OI-LX | OI-EX | OI LX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 1 CIIII | | I CIIII | I CIIII | 4 | |
| i iototteu i iiases | J | 2 | | - 1 | U | | | | | | 4 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

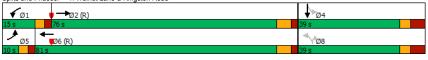
Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Background_PHF>PM

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|--------------------------|---------------|------------|----------|-------------|-------|-----|-------|----------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | • | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 70.1 | | 10.0 | 77.1 | | 30.3 | | 30.3 | 30.3 | 30.3 | |
| Actuated g/C Ratio | 0.04 | 0.54 | | 0.08 | 0.59 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.59 | 0.91 | | 0.92 | 0.33 | | 0.95 | | 0.59 | 0.06 | 0.10 | |
| Control Delay | 81.2 | 29.8 | | 134.1 | 5.0 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.2 | 29.8 | | 134.1 | 5.0 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| LOS | F | С | | F | Α | | F | | С | D | С | |
| Approach Delay | | 30.9 | | | 24.0 | | | 62.9 | | | 27.2 | |
| Approach LOS | | С | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | | | | | | |
| Offset: 77 (59%), Refere | nced to phase | e 2:EBT ar | nd 6:WBT | Γ, Start of | Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-0 | Coordinated | | | | | | | | | | | |
| | | | | | | | | | | | | |

Offset: 77 (59%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 34.7
Intersection Capacity Utilization 91.5%
Analysis Period (min) 15

Splits and Phases: 1: Walnut Lane & Kingston Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.380 | | | 0.213 | | |
| Satd. Flow (perm) | 1666 | 3461 | 1512 | 1710 | 3579 | 1517 | 708 | 3773 | 1564 | 447 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 128 | | | 160 | | | 178 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 768 | 232 | 95 | 523 | 108 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | 2 | 1 | 1 | _ 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Background_PHF>PM 12-20-2024

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|------------------------------|--------------|-----------|-----------|------------|------------|------------|-------------------|----------|-------------|-------------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 23.4 | 40.7 | 49.8 | 19.2 | 36.5 | 36.5 | 52.0 | 40.9 | 40.7 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.18 | 0.31 | 0.38 | 0.15 | 0.28 | 0.28 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.81 | 0.95 | 0.50 | 0.83 | 0.54 | 0.12 | 0.48 | 0.65 | 0.38 | 0.40 | 0.46 | 0.19 |
| Control Delay | 49.8 | 49.1 | 23.2 | 79.5 | 43.0 | 0.5 | 31.0 | 41.4 | 11.4 | 28.3 | 37.2 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 49.8 | 49.1 | 23.2 | 79.5 | 43.0 | 0.5 | 31.0 | 41.4 | 11.4 | 28.3 | 37.2 | 2.8 |
| LOS | D | D | С | Ε | D | Α | С | D | В | С | D | Α |
| Approach Delay | | 43.9 | | | 48.9 | | | 34.0 | | | 30.9 | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 53 (41%), Reference | ced to phase | e 2:EBT a | ind 6:WB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 115 | • | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: | 40.0 | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | ation 103.1 | % | | I | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Li | verpool Roa | ıd & King | ston Road | d | | | | | | | | |
| √ Ø1 | - Pop(| | | | | \$ 0 | 3 \$ ∞4 | 1 | | | | |
| 26 s | 46 s | 4 | | | | 8 s | 50 s | | | | | |
| ø ₅ | | Ø6 (F | 2) | | | ø | 7 [¶] Ø8 | 3 | | | | |
| 34 s | 3 | 8 s | | | | 8 s | 50 s | | | | , | D |
| WSP | | | | | | | | | | | | Page 4 |

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

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|-------------------------------------|-------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | ኘ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 5.7 | 2.1 | 0% | 0% | 5.7 |
| Storage Length (m) | 070 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.3 | | 2 | 1 |
| Taper Length (m) | | - 0 | 22.3 | | 2.5 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.53 | 0.53 | 1.00 | 0.53 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Fit Protected | 0.998 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| | 35// | U | 0.950 | 3018 | | 1017 |
| Flt Permitted | 2577 | 0 | | 2040 | 0.950 | 4504 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | 0.5 | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1715 | 0 | 184 | 709 | 662 | 100 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Size(m) Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Type Detector 1 Channel | UI+EX | | UI+EX | OI+EX | UI+EX | OI+EX |
| | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | | | | | | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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WSP

<2028 Future Background_PHF>PM 12-20-2024

Page 6

Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | - | 1 | | |
|------------------------------|-------------|----------|-----------|-------------|-------------|------------|-------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | 1 01111 | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | _ | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | 1.2 | 0.7 | 0.7 | |
| Lead-Lag Optimize? | Lag | | Leau | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | NOHE | 7.0 | 7.0 | 7.0 | |
| | | | | | | | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | 40.0 | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.7 | | 16.0 | 87.7 | 28.4 | 28.4 | |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| v/c Ratio | 0.93 | | 0.95 | 0.29 | 0.86 | 0.24 | |
| Control Delay | 46.2 | | 112.2 | 1.6 | 60.4 | 12.6 | |
| Queue Delay | 0.8 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 47.0 | | 112.2 | 1.6 | 60.4 | 12.6 | |
| LOS | D | | F | A | E | В | |
| Approach Delay | 47.0 | | | 24.4 | 54.2 | | |
| Approach LOS | D | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | |
| Offset: 69 (53%), Reference | ed to phase | 2:EBT ar | nd 6:WB | Γ, Start of | Green | | |
| Natural Cycle: 120 | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | |
| Intersection Capacity Utiliz | ation 93.0% | | | IC | CU Level | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 11: h | lwy 401 WB | Ramps 8 | k Kinasto | n Road | | | |
| · _ | _ | . , , - | J 344 | | | | |
| √ Ø1 71 | Ø2 (R) | | | | | | |
| Z15 /19 | | | | | | | |
| Ø6 (R) | | | | | | | 1 ï8 |
| 92 s | | | | | | | 38 s |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Background_PHF>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|---|-------|----------|------------|-------|----------|------------|-------|------------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ^ | 7 | ች | ^ | 7 | * | ^ ^ | 7 | 7 | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.323 | | |
| Satd. Flow (perm) | 1634 | 3400 | 1549 | 1717 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 187 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | J . | | 3.5 | J . | | 3.5 | 3 - | | 3.5 | 3 |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 2.0 | 9.4 | 2.0 | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| = | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2028 Future Background_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | / | > | Ţ | 4 |
|-------------------------------|-------------|------------|----------|-------------|------------|-----------|-------|----------|----------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 39.5 | 39.5 | 21.5 | 48.0 | 48.0 | 51.0 | 40.6 | 65.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.30 | 0.30 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.50 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.92 | 0.91 | 0.60 | 0.81 | 0.58 | 0.76 | 0.75 | 0.42 | 0.83 | 0.69 | 0.39 | 0.30 |
| Control Delay | 109.5 | 57.7 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 59.1 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| LOS | F | Е | С | F | С | С | D | D | С | D | D | Α |
| Approach Delay | | 55.6 | | | 32.4 | | | 36.2 | | | 31.7 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | 2:EBT a | nd 6:WB | Γ, Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliza | ation 109.1 | % | | 10 | CU Level | of Servic | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: W | /hites Road | I & Kingsi | ton Road | | | | | | | | | |
| ₩ø1 | | | | | | • | 13 | | | | | |
| | - | Ø2 (R) | | | | 1 (| | 14 | | | | |
| 30 s | 43 S | | | | | 8 S | 49 s | | | | | |
| 95 T | 6 (R) | | | | | → | o7 ₹0 | 18 | | | | |
| 18 s 55 s | - V-V- | | | | | 8.0 | 49 s | _ | | | | |

APPENDIX

F-2 2033 FUTURE BACKGROUND CONDITIONS

<2033 Future Background>AM 12-20-2024

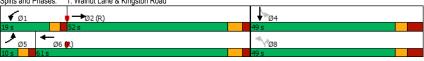
| | ᄼ | - | • | • | ← | • | • | † | <i>></i> | / | ļ | 4 |
|----------------------------|-------|------------|-------|-------|-------------|-------|-------|----------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ት Ъ | | ሻ | † 1> | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.986 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3405 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3405 | 0 | 1643 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 10 | | | 8 | | | | 155 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | | 8 | 8 | | 4 | 9 | | 2 | 2 | | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 820 | 82 | 112 | 482 | 33 | 264 | 0 | 155 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 22 | 902 | 0 | 112 | 515 | 0 | 264 | 0 | 155 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2033 Future Background>AM 12-20-2024

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|------------------------------|--------------|------------|-----------------|--------------|------------|-------|----------|-------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR WB | L WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector Phase | 5 | 2 | | 1 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5. | 0 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | 10. | | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | 19. | 0 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | 15.89 | | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | 14. | | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | 3. | 0 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | 2. | 0 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0. | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | 5. | 0 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | Lea | d Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3. | 0 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | Non | e C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 6.7 | 58.2 | 12. | | | 29.3 | | 29.3 | 29.3 | 29.3 | |
| Actuated g/C Ratio | 0.06 | 0.48 | 0.1 | 1 0.57 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.24 | 0.54 | 0.6 | 4 0.27 | | 0.81 | | 0.31 | 0.04 | 0.09 | |
| Control Delay | 81.8 | 19.1 | 50. | 1 21.9 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| Queue Delay | 0.0 | 0.0 | 0. | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.8 | 19.1 | 50. | | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| LOS | F | В | | D C | | Е | | Α | С | В | |
| Approach Delay | | 20.6 | | 26.9 | | | 41.0 | | | 17.8 | |
| Approach LOS | | С | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | |
| Offset: 1 (1%), Reference | d to phase 2 | :EBT and | 6:WBT, Start of | Green | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | |
| Maximum v/c Ratio: 0.81 | | | | | | | | | | | |
| Intersection Signal Delay: | | | | Intersection | on LOS: C | | | | | | |
| Intersection Capacity Utiliz | zation 62.1% | , 5 | | ICU Level | of Service | е В | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Splits and Phases: 1: W | /alnut Lane | & Kingstor | n Road | | | _ | | | | | |
| | | | | | | L . | | | | | |



1105-1163 Kingston Road Synchro 11 Report WSP Page 2

<2033 Future Background>AM 12-20-2024

1: Walnut Lane & Kingston Road

| Lane Group EBL EBT WBL WBT NBL NBR SBL SBT Lane Group Flow (vph) 22 902 112 515 264 155 15 39 v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 Control Delay 81.8 19.1 50.1 21.9 61.3 6.4 30.7 12.8 Queue Delay 0.0 | | • | - | • | • | 1 | | - | ¥ |
|--|------------------------|-------|-------|------|-------|------|------|------|-------|
| v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 Control Delay 81.8 19.1 50.1 21.9 61.3 6.4 30.7 12.8 Queue Delay 0.0 2.2 7.3 1.3 Queue Length 55th (m) m13.0 120.8 43.4 73.3 8.0 8 14.2 7.3 8.8 | Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT |
| Control Delay 81.8 19.1 50.1 21.9 61.3 6.4 30.7 12.8 Queue Delay 0.0 </td <td>Lane Group Flow (vph)</td> <td>22</td> <td>902</td> <td>112</td> <td>515</td> <td>264</td> <td>155</td> <td>15</td> <td>39</td> | Lane Group Flow (vph) | 22 | 902 | 112 | 515 | 264 | 155 | 15 | 39 |
| Queue Delay 0.0 1.2 8.8 1.3 1.3 0.8 1.4.2 7.3 8.8 8.8 Internal Link Dist (m) 105.3 670.6 670.6 155.7 155.7 155.7 Turn Bay Length (m) 26.0 37.0 63.2 18.5 18.5 155.7 <td>v/c Ratio</td> <td>0.24</td> <td>0.54</td> <td>0.64</td> <td>0.27</td> <td>0.81</td> <td>0.31</td> <td>0.04</td> <td>0.09</td> | v/c Ratio | 0.24 | 0.54 | 0.64 | 0.27 | 0.81 | 0.31 | 0.04 | 0.09 |
| Total Delay | Control Delay | 81.8 | 19.1 | 50.1 | 21.9 | 61.3 | 6.4 | 30.7 | 12.8 |
| Queue Lergth 50th (m) 5.4 84.7 26.7 55.7 58.8 0.0 2.7 1.3 Queue Length 95th (m) m13.0 120.8 43.4 73.3 80.8 14.2 7.3 8.8 Internal Link Dist (m) 105.3 670.6 155.7 155.7 Turn Bay Length (m) 26.0 37.0 63.2 18.5 Base Capacity (vph) 93 1657 201 1938 454 636 587 568 Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 | Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Queue Length 95th (m) m13.0 120.8 43.4 73.3 80.8 14.2 7.3 8.8 Internal Link Dist (m) 105.3 670.6 155.7 Turn Bay Length (m) 26.0 37.0 63.2 18.5 Base Capacity (vph) 93 1657 201 1938 454 636 587 568 Starvation Cap Reductn 0 <t< td=""><td>Total Delay</td><td>81.8</td><td>19.1</td><td>50.1</td><td>21.9</td><td>61.3</td><td>6.4</td><td>30.7</td><td>12.8</td></t<> | Total Delay | 81.8 | 19.1 | 50.1 | 21.9 | 61.3 | 6.4 | 30.7 | 12.8 |
| Internal Link Dist (m) | Queue Length 50th (m) | 5.4 | 84.7 | 26.7 | 55.7 | 58.8 | 0.0 | 2.7 | 1.3 |
| Turn Bay Length (m) 26.0 37.0 63.2 18.5 Base Capacity (vph) 93 1657 201 1938 454 636 587 568 Starvation Cap Reductn 0 <td< td=""><td>Queue Length 95th (m)</td><td>m13.0</td><td>120.8</td><td>43.4</td><td>73.3</td><td>80.8</td><td>14.2</td><td>7.3</td><td>8.8</td></td<> | Queue Length 95th (m) | m13.0 | 120.8 | 43.4 | 73.3 | 80.8 | 14.2 | 7.3 | 8.8 |
| Base Capacity (vph) 93 1657 201 1938 454 636 587 568 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 |
| Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | |
| Spillback Cap Reductn 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Base Capacity (vph) | 93 | 1657 | 201 | 1938 | 454 | 636 | 587 | 568 |
| Storage Cap Reductn 0 0 0 0 0 0 0 | Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio 0.24 0.54 0.56 0.27 0.58 0.24 0.03 0.07 | Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Reduced v/c Ratio | 0.24 | 0.54 | 0.56 | 0.27 | 0.58 | 0.24 | 0.03 | 0.07 |

Intersection Summar

1105-1163 Kingston Road Synchro 11 Report WSP Page 3

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2033 Future Background>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | > | ţ | 4 |
|----------------------------|---------|-------------|-------|---------|-------------|-------|---------|------------|-------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1≽ | | ሻ | ∱ î₃ | | ሻ | f a | | ሻ | f. | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.540 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3316 | 0 | 1639 | 3301 | 0 | 993 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 826 | 88 | 85 | 602 | 93 | 40 | 16 | 32 | 142 | 38 | 157 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 87 | 914 | 0 | 85 | 695 | 0 | 40 | 48 | 0 | 142 | 195 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OI · LX | OI-LX | | OI · EX | OI · LX | | OI LX | OI- EX | | OI · LX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | I CIIII | 8 | | I CIIII | 4 | |
| I TOTECTEU FITASES | 5 | | | ļ | υ | | | 0 | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 4

m Volume for 95th percentile queue is metered by upstream signal.

3: Dixie Road & Kingston Road

| | • | - | \rightarrow | • | • | • | 1 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 74.2 | | 6.0 | 70.7 | | 18.7 | 18.7 | | 18.7 | 18.7 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.71 | 0.44 | | 1.04 | 0.36 | | 0.26 | 0.16 | | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| LOS | F | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 19.8 | | | 23.7 | | | 31.5 | | | 33.8 | |
| Approach LOS | | В | | | С | | | С | | | С | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120

Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 23.8

Intersection LOS: C

Intersection Capacity Utilization 72.4% ICU Level of Service C

Analysis Period (min) 15



1105-1163 Kingston Road Synchro 11 Report Page 5 Queues

<2033 Future Background>AM

3: Dixie Road & Kingston Road

| | • | - | • | - | 1 | † | - | ţ | |
|------------------------|-------|-------|--------|-------|------|----------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 87 | 914 | 85 | 695 | 40 | 48 | 142 | 195 | |
| v/c Ratio | 0.71 | 0.44 | 1.04 | 0.36 | 0.26 | 0.16 | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 | |
| Queue Length 50th (m) | 20.2 | 53.6 | ~20.9 | 23.3 | 8.5 | 3.3 | 32.2 | 7.9 | |
| Queue Length 95th (m) | #43.5 | 88.2 | m#53.0 | 43.6 | 16.9 | 12.4 | 47.4 | 25.6 | |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 130 | 2054 | 82 | 1951 | 335 | 618 | 470 | 697 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.67 | 0.44 | 1.04 | 0.36 | 0.12 | 0.08 | 0.30 | 0.28 | |

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 6 Lanes, Volumes, Timings

Detector 2 Size(m)

<2033 Future Background>AM

| • | | | | | | | | | | | | , |
|----------------------------|------------|----------|--------|------------|----------|------------|-------|----------|---------|-------|----------|----------|
| | • | - | • | • | - | • | 1 | T | | - | ¥ | * |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBI |
| Lane Configurations | " | ^ | 7 | " | ^ | 7 | " | ^ | 7 | " | ^ | i |
| Traffic Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 388 | 146 | 84 | 658 | 11 |
| Future Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 388 | 146 | 84 | 658 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 190 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3. |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60. |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| ane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.0 |
| Ped Bike Factor | 0.99 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.9 |
| -rt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.85 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 151 |
| FIt Permitted | 0.950 | | | 0.950 | | | 0.275 | | | 0.483 | | |
| Satd. Flow (perm) | 1649 | 3299 | 1487 | 1677 | 3510 | 1517 | 509 | 3700 | 1536 | 1008 | 3618 | 145 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Υe |
| Satd. Flow (RTOR) | | | 174 | | | 174 | | | 159 | | | 15 |
| _ink Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| _ink Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | 20.0 | 21 | 34 | 10.0 | 44 | 44 | 20 | 3 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | Ĭ |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.9 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | U |
| Adj. Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 422 | 159 | 91 | 715 | 12 |
| Shared Lane Traffic (%) | 102 | 000 | 201 | 110 | 000 | 0.1 | 140 | 122 | 100 | 01 | 110 | 12 |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 422 | 159 | 91 | 715 | 12 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | N |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Rigi |
| Median Width(m) | LOIL | 3.3 | rtigit | LUIT | 3.3 | rtigiit | LOIL | 4.7 | rtigitt | LUIT | 4.7 | rtig |
| _ink Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | 1.0 | | | 1.0 | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.0 |
| Turning Speed (k/h) | 24 | 1.00 | 1.00 | 24 | 0.33 | 1.03 | 24 | 0.55 | 14 | 24 | 0.51 | 1.0 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Rig |
| | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | Rig 2 |
| Leading Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Trailing Detector (m) | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 2.0 | 0.0 | | 0.0 2.0 | 0.0 | 0.0 2.0 | 2.0 | 0.0 | | 2.0 | 0.0 | 0 |
| Detector 1 Size(m) | | | 2.0 | | | | | | 2.0 | | | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+E |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ^ |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Octoptor 2 Cizo(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

0.6

0.6

0.6

0.6

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Background>AM 12-20-2024

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|------------------------------|-------------|------------|-----------|-----------|------------|-----------|-------|-------|--------|-------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 17.1 | 35.6 | 35.6 | 13.3 | 31.8 | 31.8 | 53.0 | 41.9 | 35.6 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.14 | 0.30 | 0.30 | 0.11 | 0.26 | 0.26 | 0.44 | 0.35 | 0.30 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.53 | 0.33 | 0.28 | 0.19 | 0.57 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.0 | 81.0 | 41.1 | 0.4 | 27.7 | 29.6 | 6.2 | 19.0 | 33.8 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.0 | 81.0 | 41.1 | 0.4 | 27.7 | 29.6 | 6.2 | 19.0 | 33.8 | 3.1 |
| LOS | F | С | В | F | D | Α | С | С | Α | В | С | Α |
| Approach Delay | | 38.3 | | | 46.4 | | | 24.1 | | | 28.2 | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 0 | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | nced to pha | se 2:EBT | and 6:W | BT, Start | of Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.80 | | | | | | | | | | | | |
| Intersection Signal Delay: | 34.1 | | | li li | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | ation 94.3% | b | | 10 | CU Level | of Servic | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | ıd & Kings | ston Road | l | | | | | | | | |
| | 1002 (R) | | | | 1 | ø3 💠 | Ø4 | | | | | |
| 19 s 42 s | | | | | 8 s | 51 s | | | | | | |
| * | - | | | | 1.7 | | | | | | | |

Queues

<2033 Future Background>AM 12-20-2024

6: Liverpool Road & Kingston Road

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|------------------------|-------|-------|------|-------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 422 | 159 | 91 | 715 | 127 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.53 | 0.33 | 0.28 | 0.19 | 0.57 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.0 | 81.0 | 41.1 | 0.4 | 27.7 | 29.6 | 6.2 | 19.0 | 33.8 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.0 | 81.0 | 41.1 | 0.4 | 27.7 | 29.6 | 6.2 | 19.0 | 33.8 | 3.1 |
| Queue Length 50th (m) | 45.6 | 23.2 | 1.6 | 34.5 | 54.6 | 0.0 | 19.5 | 38.1 | 0.0 | 11.7 | 71.3 | 0.0 |
| Queue Length 95th (m) | 69.1 | 61.1 | 33.9 | #65.7 | 73.4 | 0.0 | 32.4 | 51.3 | 15.4 | 21.1 | 90.4 | 8.1 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 978 | 563 | 197 | 931 | 530 | 277 | 1291 | 567 | 487 | 1263 | 607 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.58 | 0.42 | 0.76 | 0.54 | 0.10 | 0.53 | 0.33 | 0.28 | 0.19 | 0.57 | 0.21 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 Lanes, Volumes, Timings

<2033 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

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|----------------------------|-------|------------|-------|-------|----------|-------|---------|----------|---------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ↑ ↑ | | 77 | ^ | 7 | Ţ | ^ | 7 | , N | ^ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 541 | 272 | 146 | 798 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 541 | 272 | 146 | 798 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 0.99 | | 0.97 | 0.99 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.314 | | | 0.393 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 540 | 5036 | 1483 | 689 | 5029 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 867 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 867 | 26 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | J LA | JX | | J LA | J Z. | J X | 5. · LA | 5. · LX | 5. · LX | 5. · LA | 5 LX | J X |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| בסנססנטו ב טובט(ווו) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Lanes, Volumes, Timings

<2033 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

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|-------------------------|-------|-------|-----|-------|----------|-------|-------|----------|----------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.15 | 0.22 | 0.32 | 0.30 | 0.31 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 9.8 | | | 12.6 | |
| Approach LOS | | С | | | D | | | Α | | | В | |

Intersection Summary

Intersection Summary

Area Type: Other
Cycle Length: 100

Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.9

Intersection Capacity Utilization 55.7%

ICU Level of Analysis Period (min 15) Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2033 Future Background>AM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

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|------------------------|------|------|------|-------|------|----------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 867 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.15 | 0.22 | 0.32 | 0.30 | 0.31 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.5 | 23.4 | 9.6 | 11.3 | 34.5 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 36.1 | 19.7 | 21.5 | 47.0 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 397 | 2621 | 913 | 547 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.15 | 0.22 | 0.32 | 0.29 | 0.31 | 0.03 | |
| Intersection Cummen | | | | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 12 Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2033 Future Background>AM 12-20-2024

| | • | - | • | 1 | - | • | 4 | † | 1 | - | ↓ | 4 |
|--|------|-------|-------|-------|-------|--------|-------|----------|---------|------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ર્ન | 7 | ሻ | ተተተ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 523 | 0 | 0 | 686 | 97 |
| Future Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 523 | 0 | 0 | 686 | 97 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | 1.00 | | | | | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.977 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 4932 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | | | | 0.950 | 0.977 | | 0.306 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 468 | 4932 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 337 | | | | | | 105 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 01.2 | | | 10.0 | | 7 | 20.0 | 14 | 14 | | 7 |
| Confl. Bikes (#/hr) | | | | | | | | | 4 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 174 | 204 | 75 | 337 | 176 | 568 | 0 | 0 | 746 | 105 |
| Shared Lane Traffic (%) | | | | 32% | ,,, | 001 | | 000 | · | | 7 10 | 100 |
| Lane Group Flow (vph) | 0 | 0 | 174 | 139 | 140 | 337 | 176 | 568 | 0 | 0 | 746 | 105 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | LOIL | 3.7 | ragni | LOIL | 3.7 | rtigit | LOIL | 3.7 | rtigrit | LOIL | 3.7 | rtigitt |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | 0.33 | 14 | 24 | 0.55 | 1.01 | 24 | 1.01 | 14 | 24 | 1.00 | 14 |
| Number of Detectors | 24 | | 14 | 1 | 2 | 14 | 1 | 2 | 14 | 24 | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Leading Detector (m) Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| | | | 0.0 | 0.0 | 0.0 | | | | | | | 0.0 |
| Detector 1 Position(m) | | | | | | 0.0 | 0.0 | 0.0 | | | 0.0 | |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | | > | ₹ | | _ | 7 | - 1 | | * | * | * |
|-------------------------------|--------------------|--------------|-------------|------------|-----------|-------|-------|-------------|-----|-------|-------|
| Lane Group | EBL EB | T EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | . 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | 0.0 | 0.0 | 0.0 | Lead | 0.0 | | | Lag | Lag |
| Lead-Lag Optimize? | | 2000 | | | | 2000 | | | | Lug | 9 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0.0 | 0.0 | 0.0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | 21.4 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 48.1 | 48.1 |
| Actuated g/C Ratio | | 0.21 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.48 | 0.48 |
| v/c Ratio | | 0.73 | 0.60 | 0.58 | 0.67 | 0.31 | 0.16 | | | 0.32 | 0.13 |
| Control Delay | | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | | | 11.1 | 2.0 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | | | 11.1 | 2.0 |
| LOS | | D | D | D | В | A | A | | | В | A |
| Approach Delay | 53. | | | 28.9 | | - '` | 4.5 | | | 10.0 | ,, |
| Approach LOS | | D | | C | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | |
| | Other | | | | | | | | | | |
| Cycle Length: 100 | Otriei | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 38 (38%), Reference | | TI and 6.00 | T Ctort o | of Croon | | | | | | | |
| Natural Cycle: 65 | eu to priase z.ind | IL and 0.5E | or, Start C | i Green | | | | | | | |
| | rdinata d | | | | | | | | | | |
| Control Type: Actuated-Coc | rumateu | | | | | | | | | | |
| Maximum v/c Ratio: 0.73 | C 0 | | 1. | ntersectio | - I OO. D | | | | | | |
| Intersection Signal Delay: 1 | | | | | | | | | | | |
| Intersection Capacity Utiliza | tion 45.9% | | 19 | CU Level | or Servic | e A | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Splits and Phases: 9: Live | erpool Road & Wa | alnut Lane/H | lwy 401 \ | NB Off-Ra | amp | | | | | | |
| ↑ Ø2 (R) | | | | | | | | ₹ Ø8 | | | |
| 75 s | | | <u> </u> | | | | | 25 s | | | |
| \$ ø₅ | | | | ∮ ø6 (R |) | | | | | | |
| ₹1 ₽3 | | | | + 200 (h | / | | | _ | | | I |

Queues

<2033 Future Background>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | ← | • | 1 | † | ↓ | 4 | |
|------------------------|------|------|-------|-------|------|----------|----------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 174 | 139 | 140 | 337 | 176 | 568 | 746 | 105 | |
| v/c Ratio | 0.73 | 0.60 | 0.58 | 0.67 | 0.31 | 0.16 | 0.32 | 0.13 | |
| Control Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | 11.1 | 2.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | 11.1 | 2.0 | |
| Queue Length 50th (m) | 31.7 | 27.1 | 27.2 | 0.0 | 7.6 | 9.7 | 19.2 | 0.2 | |
| Queue Length 95th (m) | 48.6 | 44.3 | 44.3 | 23.2 | 16.9 | 16.5 | 24.2 | 2.2 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 459 | 323 | 335 | 567 | 766 | 3651 | 2346 | 794 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.38 | 0.43 | 0.42 | 0.59 | 0.23 | 0.16 | 0.32 | 0.13 | |
| Intersection Summary | | | | | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Background>AM 12-20-2024

| | • | - | ← | • | > | 1 | |
|------------------------------------|----------|---------------|-------------|-------|-------------|-------------|---|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | 0 |
| Lane Configurations | <u> </u> | ^ | † 1> | | ሻ | 7 | |
| Traffic Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | 0.0 | 6% | 0% | 0.1 | 0% | 1.0 | |
| Storage Length (m) | 75.0 | 070 | 070 | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | U | 31.3 | • | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.00 | 0.980 | 0.00 | 1.00 | 0.850 | |
| Flt Protected | 0.950 | | 0.500 | | 0.950 | 0.000 | |
| Satd. Flow (prot) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | 3333 | 3313 | U | 0.950 | 1700 | |
| Satd. Flow (perm) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Right Turn on Red | 1002 | 3333 | 3313 | Yes | 1730 | Yes | |
| Satd. Flow (RTOR) | | | 17 | res | | 7 es 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | 249 | |
| Link Speed (k/n) Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| | | 424.0 25.4 | 53.8 | | 25.2 | | |
| Travel Time (s) Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| | | | | | 0.92 4% | | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | | 4% | |
| Bus Blockages (#/hr) | 0 | 770 | 704 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 776 | 704 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | 401 | 770 | 040 | • | 400 | 0.40 | |
| Lane Group Flow (vph) | 104 | 776 | 812 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | JI-LX | JI-LX | | | | |
| Detector & Orialists | | | | | | | |

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Background>AM 12-20-2024

| | ٠ | - | • | • | \ | 4 | | |
|-------------------------------|-------------|----------|----------|------------|------------|------------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| v/c Ratio | 0.64 | 0.33 | 0.40 | | 0.72 | 0.52 | | |
| Control Delay | 104.1 | 0.8 | 15.8 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 104.1 | 0.8 | 15.8 | | 65.5 | 9.1 | | |
| LOS | F | A | B | | E | Α | | |
| Approach Delay | | 13.0 | 15.8 | | 34.1 | | | |
| Approach LOS | | В | В | | С | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | |
| Offset: 105 (81%), Referen | ced to phas | se 2:EBT | and 6:WB | T, Start o | f Green | | | |
| Natural Cycle: 85 | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| Intersection Signal Delay: 1 | | | | In | tersection | n LOS: B | | |
| Intersection Capacity Utiliza | | | | | | of Service | | |

Splits and Phases: 10: Kingston Road & Fairport Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Queues

<2033 Future Background>AM 12-20-2024

10: Kingston Road & Fairport Road

| | • | - | • | - | 4 | |
|------------------------|-------|-------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 104 | 776 | 812 | 198 | 249 | |
| v/c Ratio | 0.64 | 0.33 | 0.40 | 0.72 | 0.52 | |
| Control Delay | 104.1 | 0.8 | 15.8 | 65.5 | 9.1 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 104.1 | 0.8 | 15.8 | 65.5 | 9.1 | |
| Queue Length 50th (m) | 26.1 | 2.5 | 53.8 | 49.0 | 0.0 | |
| Queue Length 95th (m) | 42.6 | 2.5 | 86.2 | 68.5 | 20.6 | |
| nternal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 209 | 2331 | 2018 | 476 | 649 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.50 | 0.33 | 0.40 | 0.42 | 0.38 | |
| Intersection Summary | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

<2033 Future Background>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 4 | 1 |
|----------------------------|-------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | LUIT | 7 | † | ሻሻ | 7 |
| Traffic Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Future Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.7 | 2.1 | 0% | 0% | 0.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | - 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.95 | 0.53 | 1.00 | 0.55 | 0.57 | 0.850 |
| Fit Protected | 0.998 | | 0.950 | | 0.950 | 0.000 |
| | 2470 | 0 | | 2540 | | 1622 |
| Satd. Flow (prot) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Flt Permitted | 0.470 | | 0.950 | 0540 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 813 | 13 | 309 | 665 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 826 | 0 | 309 | 665 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 1.03 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | 1-7 | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Trailing Detector (m) | | | | | | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |

Synchro 11 Report Page 19 1105-1163 Kingston Road

<2033 Future Background>AM 12-20-2024

Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | _ | 1 | | |
|----------------------------|-------------|--------------|--------|------------|------------|------------|---|
| Lane Group | EBT | EBR V | VBL | WBT | NBL | NBR | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 | |
| Total Split (s) | 51.0 | 4 | 40.0 | 91.0 | 39.0 | 39.0 | |
| Total Split (%) | 39.2% | 30 | .8% | 70.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 43.8 | ; | 35.0 | 83.8 | 32.3 | 32.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | L | .ead | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | N | lone | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 | |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 | |
| Actuated g/C Ratio | 0.44 | (| 0.23 | 0.71 | 0.19 | 0.19 | |
| v/c Ratio | 0.54 | (| 0.86 | 0.27 | 0.78 | 0.20 | |
| Control Delay | 12.2 | ; | 59.8 | 15.2 | 58.6 | 10.2 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 12.2 | ; | 59.8 | 15.2 | 58.6 | 10.2 | |
| LOS | В | | Е | В | Е | В | |
| Approach Delay | 12.2 | | | 29.3 | 52.6 | | |
| Approach LOS | В | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | |
| Offset: 66 (51%), Referer | | 2:EBT and 6 | :WBT | , Start of | Green | | |
| Natural Cycle: 110 | | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | | |
| ntersection Signal Delay | : 29.0 | | | Ir | ntersectio | n LOS: C | |
| Intersection Capacity Util | | | | I | CU Level | of Service | С |
| Analysis Period (min) 15 | | | | | | | |
| , , | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps & Ki | ngstor | n Road | | | |
| √ Ø1 | | → 772 | (D) | | | | 1 |



1105-1163 Kingston Road WSP Synchro 11 Report Page 20 Queues

<2033 Future Background>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | - | 1 | |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 826 | 309 | 665 | 501 | 71 |
| v/c Ratio | 0.54 | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Length 50th (m) | 19.3 | 76.0 | 61.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 46.5 | 107.1 | 80.7 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.72 | 0.27 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 21

Lanes, Volumes, Timings

<2033 Future Background>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|----------------------------|-------|------------|--------|-------|------------|--------|-------|----------|--------|-------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻ | † } | | * | f | | * | f | |
| Traffic Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3380 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | - | 0.662 | | - | 0.688 | | - |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3380 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | 1002 | 0200 | Yes | | 0000 | Yes | 12.10 | | Yes | 1100 | 1100 | Yes |
| Satd. Flow (RTOR) | | 4 | | | 9 | . 00 | | 100 | | | 135 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | 10.0 | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1060 | 40 | 104 | 1065 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1100 | 0 | 104 | 1145 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.5 | rugiit | Loit | 3.5 | rugiit | Lon | 3.6 | rugiit | Lon | 3.6 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | 1.00 | 14 | 24 | 0.01 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 17 | 1 | 2 | | 1 | 2 | 17 | 1 | 2 | 17 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITEX | | OITEX | OIILX | | OITEX | OITEX | | OILX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | OI+EX | | | ∪I+EX | | | ∪I+EX | | | ∪I+EX | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 22

Lanes, Volumes, Timings

<2033 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | € | - | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-------|------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR \ | NBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | | .6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | L | ead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | N | lone | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.58 | | 0.67 | 0.57 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 83.2 | 29.8 | | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.2 | 29.8 | | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | | Е | С | | Е | В | | D | В | |
| Approach Delay | | 33.6 | | | 32.4 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | | С | | | D | | | С | |

| Intersection Summary | | |
|---|------------------------|--|
| Area Type: Other | | |
| Cycle Length: 130 | | |
| Actuated Cycle Length: 130 | | |
| Offset: 49 (38%), Referenced to phase 2:EBT and 6:V | WBT, Start of Green | |
| Natural Cycle: 90 | | |
| Control Type: Actuated-Coordinated | | |
| Maximum v/c Ratio: 0.76 | | |
| Intersection Signal Delay: 33.6 | Intersection LOS: C | |
| Intersection Capacity Utilization 79.5% | ICU Level of Service D | |
| Analysis Period (min) 15 | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2033 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | → | 1 | • | 4 | † | - | Į. | |
|------------------------|-------|----------|-------|-------|------|----------|------|--------|--|
| | EDI | EDT | WDI | MDT | ND. | NDT | ODI | • • | |
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1100 | 104 | 1145 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 22.0 | 125.7 | 27.2 | 152.0 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #40.7 | 159.0 | 44.8 | 176.0 | 57.4 | 16.2 | 20.7 | 20.6 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.58 | 0.58 | 0.57 | 0.55 | 0.23 | 0.17 | 0.34 | |
| | | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Synchro 11 Report Page 24 1105-1163 Kingston Road

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2033 Future Background>AM 12-20-2024

| | ۶ | → | • | • | + | • | • | † | ~ | / | + | ✓ |
|----------------------------|-------|----------|-------|-------|-------|-------|-------|------------|-------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ^ | 7 | ች | 44 | 7 | * | ^ ^ | 7 | ች | ^ ^ | 7 |
| Traffic Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Future Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1605 | 3335 | 1565 | 1752 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 155 | | | 239 | | | 193 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | • | | 3.5 | • | | 3.5 | | | 3.5 | - |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2033 Future Background>AM 12-20-2024

| | ٠ | → | • | • | ← | • | 1 | † | - | - | ↓ | 1 |
|------------------------------|--------------|------------|-----------|-----------|------------|------------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 38.7 | 38.7 | 22.3 | 50.9 | 50.9 | 51.0 | 40.6 | 66.3 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.30 | 0.30 | 0.17 | 0.39 | 0.39 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| LOS | F | D | С | D | С | В | D | С | В | С | D | Α |
| Approach Delay | | 37.2 | | | 30.9 | | | 27.1 | | | 32.7 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 107 (82%), Referer | nced to phas | se 2:EBT | and 6:WE | BT, Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.84 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 105.3 | % | | I | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Dhases: 12-1 | Mhites Door | l & Kingo | on Dood | | | | | | | | | |
| r' | Whites Road | ı a Kıngsı | IOII KOAO | | | т. | 1.4 | | | | | |
| € a1 | | 772 (D) | | | | 1 🔨 , | 13 | 14 | | | | |



<2033 Future Background>AM 12-20-2024

13: Whites Road & Kingston Road

| | • | - | • | • | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|-------|-------|-------|-------|----------|------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 40.8 | 35.7 | 61.8 | 77.5 | 44.8 | 25.9 | 29.8 | 30.7 | 27.8 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 55.7 | 67.2 | #95.0 | 95.6 | 66.9 | #50.2 | 39.1 | 52.8 | 44.1 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 992 | 574 | 339 | 1373 | 740 | 211 | 1579 | 900 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.38 | 0.56 | 0.75 | 0.45 | 0.41 | 0.75 | 0.27 | 0.47 | 0.44 | 0.55 | 0.31 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 27

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2033 Future Background>AM 12-20-2024

| | ۶ | • | 4 | † | ↓ | 4 |
|-------------------------------------|-------|------------|-------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | 77 | 7 | -1,02 | ^ | * | 05.1 |
| Traffic Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Future Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | , |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.51 | 0.01 | 1.00 | 0.55 | 0.00 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 1400 | U | 3314 | 340 I | U |
| Satd. Flow (perm) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| | 330/ | Yes | U | 3314 | 340 I | Yes |
| Right Turn on Red | 5 | Yes 262 | | | | res |
| Satd. Flow (RTOR) | | 202 | | 60 | 60 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | 7 | 11.2 | 19.0 | 7 |
| Confl. Peds. (#/hr) | 0.00 | 0.00 | 7 | 0.00 | 0.00 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 636 | 291 | 0 | 753 | 453 | 0 |
| Shared Lane Traffic (%) | 00- | 10% | | 755 | 150 | |
| Lane Group Flow (vph) | 665 | 262 | 0 | 753 | 453 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 0.0 | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Type Detector 2 Channel | | | | OITEX | CITEX | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report Page 28 1105-1163 Kingston Road WSP

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

<2033 Future Background>AM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | T | ¥ | 4 |
|------------------------------|-------------|----------|----------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | |
| Act Effct Green (s) | 27.7 | 27.7 | | 70.1 | 70.1 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | 0.64 | 0.64 | |
| v/c Ratio | 0.78 | 0.48 | | 0.35 | 0.20 | |
| Control Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| LOS | D | Α | | В | Α | |
| Approach Delay | 33.7 | | | 10.5 | 9.2 | |
| Approach LOS | С | | | В | Α | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 11 | 0 | | | | | |
| Offset: 79.2 (72%), Refere | nced to pha | se 2:NBT | and 6:SE | BT, Start | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | |
| Intersection Signal Delay: | 20.3 | | | Ir | ntersection | LOS: C |
| Intersection Capacity Utiliz | | | | 10 | CU Level o | of Service A |
| Analysis Period (min) 15 | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2033 Future Background>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 665 | 262 | 753 | 453 |
| v/c Ratio | 0.78 | 0.48 | 0.35 | 0.20 |
| Control Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Length 50th (m) | 68.0 | 0.0 | 36.7 | 19.6 |
| Queue Length 95th (m) | 80.8 | 19.4 | 56.4 | 32.1 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1256 | 683 | 2150 | 2218 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.38 | 0.35 | 0.20 |
| Intersection Summary | | | | |

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Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2033 Future Background>AM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance <2033 Future Background>AM 12-20-2024

| | • | • | † | - | - | ļ |
|--------------------------------|-----------|-------|----------|-------|---------|------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | î, | | | ર્ન |
| Traffic Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Future Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 5 | | | 8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% |
| Adj. Flow (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 88 | 0 | 0 | 0 | 0 | 211 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Type: (| Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | ion 24.2% | | | IC | U Level | of Service |
| Analysis Period (min) 15 | | | | | | |
| . , , | | | | | | |

| | • | • | † | ~ | > | ↓ |
|---|----------|------|----------|------|-------------|-----------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | 1> | | | 4 |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Future Volume (Veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 430 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 430 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 87 | |
| cM capacity (veh/h) | 501 | 1053 | | | 1605 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 88 | 0 | 211 | | | |
| Volume Left | 00 | 0 | 211 | | | |
| Volume Right | 88 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.08 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 2.1 | 0.00 | 3.4 | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | 0.7 A | 0.0 | 7.0 A | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | 0.7 A | 0.0 | 1.0 | | | |
| • | А | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 7.9 | | | |
| Intersection Capacity Utiliz | ation | | 24.2% | IC | U Level o | f Service |
| Analysis Period (min) | | | 15 | | | |
| | | | | | | |

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<2033 Future Background_PHF>AM 12-20-2024 Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2033 Future Background_PHF>AM 12-20-2024

| | ၨ | - | • | • | ← | • | 4 | † | <i>></i> | / | ļ | 1 |
|----------------------------|-------|-------|---------|-------|------------|---------|--------|----------|-------------|----------|-------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ۸ħ | | ሻ | ↑ ↑ | | ሻ | î. | | ሻ | ĵ. | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.581 | | | 0.728 | | |
| Satd. Flow (perm) | 1553 | 3316 | 0 | 1639 | 3301 | 0 | 1069 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 29 | | | 144 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 80 | 841 | 0 | 78 | 640 | 0 | 37 | 44 | 0 | 131 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No. | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Lon | 2.8 | . ug.ic | 2010 | 2.8 | - ugiit | 2011 | 3.8 | . ug.ic | 2011 | 3.8 | . ug.i. |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.01 | 14 | 24 | | 14 | 24 | 0.0. | 14 | 24 | 0.02 | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | O. LX | O. LA | | O. 2x | O. LA | | O. LX | 0. 2. | | O. 2x | O. LA | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 1 CHAI | 8 | | 1 CHIII | 4 | |
| 1 TOLOGICU I TIUGOG | J | | | | J | | | J | | | - | |

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|----------------------------|---------------|------------|-----------|----------|-------------|------------|-------------|-------|-----|-------|-------|-----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 74.9 | | 6.0 | 74.0 | | 18.0 | 18.0 | | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.62 | | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.66 | 0.41 | | 0.95 | 0.31 | | 0.23 | 0.15 | | 0.63 | 0.46 | |
| Control Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| LOS | Е | В | | F | Α | | D | С | | Е | В | |
| Approach Delay | | 18.6 | | | 20.8 | | | 31.7 | | | 33.6 | |
| Approach LOS | | В | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | | | | | | |
| Offset: 107.8 (90%), Refe | erenced to ph | ase 2:EB | T and 6:W | BT, Star | t of Greer | 1 | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay | : 22.2 | | | lr | ntersection | LOS: C | | | | | | |
| Intersection Capacity Util | ization 72.4% |) | | I | CU Level | of Service | e C | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 3: [| Dixie Road & | Kingston I | Road | | | | | | | | | |
| √Ø1 →Ø2 (R) | 0 | | | | | - | Ø4 | | | | | |
| 11s 59s | a a | | | | | 50 | | | | | - 7 | |
| ≯ ø5 | 6 (R) | | | | | 4 | ↑ø8 | | | | 114 | |
| 15 s 55 s | | | | | | 50 | eralinine e | | | | | To a pro- |
| | | | | | | | | | | | | |

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<2033 Future Background>PM 12-20-2024

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|----------------------------|-------|------------|-------|-------|-------------|-------|-------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ት Ъ | | ሻ | † 1> | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.728 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 93 | | 28 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 41 | 1543 | 293 | 129 | 702 | 47 | 318 | 0 | 288 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 41 | 1836 | 0 | 129 | 749 | 0 | 318 | 0 | 288 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | | 14 | 24 | | 14 | 24 | _ | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

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Lanes, Volumes, Timings

1: Walnut Lane & Kingston Road

<2033 Future Background>PM 12-20-2024

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|------------------------------|--------------|------------|---------------|----------|-------------|------------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.64 | 0.99 | | 1.00 | 0.36 | | 1.02 | | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | | 132.8 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | | 132.8 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| LOS | F | D | | F | Α | | F | | D | D | С | |
| Approach Delay | | 42.2 | | | 27.4 | | | 72.0 | | | 27.1 | |
| Approach LOS | | D | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ced to phase | 2:EBT ar | nd 6:WBT, | Start of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: | 43.3 | | | Ir | ntersection | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | |) | | 10 | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: W | alnut Lane | & Kinastor | Road | | | | | | | | | |
| | 80% | | | | | | | 16 | | | | - 9 |
| ▼ Ø1 ▼ Ø2 (| K) | | | | | | | 39 s | Ø4 | | A | |
| 105 | | | | | | | | 335 | | | | |
| Ø5 Ø6 (R) | | | | | | | | M | Ø8 | | | |
| 10 - | | | | | | | - 8 | 20 - | (794) | | 3.0 | W- 20 |

<2033 Future Background>PM 12-20-2024

1: Walnut Lane & Kingston Road

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|------------------------|------|--------|-------|-------|--------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1836 | 129 | 749 | 318 | 288 | 26 | 45 | |
| v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | 132.8 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | 132.8 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 | |
| Queue Length 50th (m) | 0.0 | 130.0 | 34.9 | 27.4 | ~84.2 | 45.2 | 5.2 | 3.4 | |
| Queue Length 95th (m) | m0.0 | #291.4 | #75.9 | 35.4 | #142.9 | 76.2 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 1850 | 129 | 2063 | 313 | 453 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2033 Future Background>PM 12-20-2024

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|----------------------------|-------|-------------|-------|-------|------------|-------|---------|-------|-------|------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1> | | ሻ | ት Ъ | | ሻ | ĵ. | | ሻ | 1 | |
| Traffic Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Future Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.991 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3394 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3394 | 0 | 1594 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1640 | 109 | 43 | 837 | 178 | 121 | 59 | 68 | 154 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 1749 | 0 | 43 | 1015 | 0 | 121 | 127 | 0 | 154 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | J | | 2.8 | J . | | 3.8 | J | | 3.8 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | A | | | J/ | ^ | | J/ | n | | <u>-</u> / | <u>.</u> | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| · a · , po | 1 100 | 14/3 | | 1 100 | 11/1 | | 1 01111 | 14/3 | | 1 01111 | 11/7 | |

Synchro 11 Report 1105-1163 Kingston Road WSP Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

<2033 Future Background>PM

Queues 12-20-2024 3: Dixie Road & Kingston Road <2033 Future Background>PM 12-20-2024

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|------------------------|--------|----------|--------|----------|----------|----------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 222 | 1749 | 43 | 1015 | 121 | 127 | 154 | 130 | |
| v/c Ratio | 0.90 | 0.79 | 0.70 | 0.57 | 0.60 | 0.39 | 0.74 | 0.36 | |
| Control Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Length 50th (m) | 51.9 | 216.1 | 11.9 | 75.0 | 29.2 | 19.4 | 38.1 | 6.7 | |
| Queue Length 95th (m) | m#88.3 | 258.6 | m#24.5 | m85.4 | 45.6 | 35.4 | 57.0 | 22.4 | |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 255 | 2220 | 61 | 1785 | 302 | 464 | 312 | 494 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.87 | 0.79 | 0.70 | 0.57 | 0.40 | 0.27 | 0.49 | 0.26 | |
| | | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal

Lane Group WBT Protected Phases Permitted Phases 8 4 Detector Phase Switch Phase Minimum Initial (s) 20.0 20.0 8.0 8.0 5.0 5.0 Minimum Split (s) 10.0 28.0 10.0 28.0 41.0 41.0 41.0 41.0 Total Split (s) 26.0 79.0 10.0 63.0 41.0 41.0 41.0 41.0 Total Split (%) 20.0% 60.8% 7.7% 48.5% 31.5% 31.5% 31.5% 31.5% Maximum Green (s) 21.0 72.4 5.0 56.4 31.5 31.5 31.5 31.5 Yellow Time (s) 3.0 4.2 3.0 4.2 4.4 4.4 4.4 4.4 All-Red Time (s) 2.0 2.4 2.4 5.1 5.1 2.0 5.1 5.1 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 5.0 6.6 5.0 6.6 9.5 9.5 Lead/Lag Lead Lag Lead Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode None C-Max None C-Max None None None None Walk Time (s) 7.0 7.0 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 14.0 14.0 23.0 23.0 23.0 23.0 Pedestrian Calls (#/hr) Act Effct Green (s) 20.3 84.9 5.0 67.7 21.0 21.0 21.0 21.0 Actuated g/C Ratio 0.16 0.65 0.04 0.52 0.16 0.16 0.16 0.16 v/c Ratio 0.90 0.79 0.70 0.57 0.39 0.74 0.36 0.60 Control Delay 73.9 26.0 107.6 23.6 61.9 34.2 71.9 15.9 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 73.9 26.0 107.6 23.6 61.9 34.2 71.9 15.9 LOS В Approach Delay 31.4 27.0 47.7 46.2 Approach LOS D Intersection Summary Area Type: Cycle Length: 130 Actuated Cycle Length: 130 Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 110 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.90 Intersection LOS: C Intersection Signal Delay: 32.4 ICU Level of Service E Intersection Capacity Utilization 82.5% Analysis Period (min) 15 Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 5 1105-1163 Kingston Road Synchro 11 Report WSP Page 6 Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Background>PM 12-20-2024

| Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph) | EBL 244 | EBT | • | • | | | ١. | | | | | |
|---|------------|-------|-------|-----------|------------|-------|----------|------------|-------|----------|----------|-------|
| Lane Configurations Traffic Volume (vph) Future Volume (vph) | ሻ | LDI | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Traffic Volume (vph) Future Volume (vph) | | ** | T T | YVDL T | ↑ ↑ | WDIX | NDL T | † † | TADIX | JDL T | <u>↑</u> | 7 |
| Future Volume (vph) | | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Ideal Flow (vphpl) Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | 3.4 | 97.9 | 170.7 | 3.1 | 117.0 | 185.5 | 4.1 | 52.0 | 49.0 | 3.0 | 60.5 |
| Storage Length (III) | 100.0 | | 97.9 | 170.7 | | 117.0 | 100.0 | | 52.0 | 49.0 | | 1 |
| | 31.6 | | - ' | 22.7 | | - ' | 20.8 | | | 25.0 | | - |
| Taper Length (m) Lane Util, Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| | | 0.95 | | | 0.95 | | | 0.95 | | 0.99 | 0.95 | |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt Fit Doctor at a d | 0.050 | | 0.850 | 0.050 | | 0.850 | 0.050 | | 0.850 | 0.050 | | 0.850 |
| Fit Protected | 0.950 | 2404 | 4500 | 0.950 | 2570 | 4570 | 0.950 | 2772 | 4720 | 0.950 | 2054 | 4504 |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | 0.404 | 4540 | 0.950 | 0570 | 4547 | 0.337 | 0770 | 4504 | 0.164 | 0054 | 4.400 |
| Satd. Flow (perm) | 1667 | 3461 | 1512 | 1712 | 3579 | 1517 | 628 | 3773 | 1564 | 345 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 20 | 105 | | 20 | 160 | | | 174 | | =0 | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 855 | 252 | 103 | 580 | 117 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 855 | 252 | 103 | 580 | 117 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Background>PM 12-20-2024

| | • | - | • | • | • | • | 1 | † | 1 | - | Ţ | 4 |
|---|-------------|-------------|-----------|------------|----------|------------|-------------|----------|--------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8. |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50. |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50. |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.59 |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40. |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3. |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9. |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | La |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3. |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Ma |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7. |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33. |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 1: |
| Act Effct Green (s) | 24.5 | 40.0 | 49.1 | 19.9 | 35.4 | 35.4 | 52.0 | 40.9 | 40.0 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.19 | 0.31 | 0.38 | 0.15 | 0.27 | 0.27 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.3 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.57 | 0.72 | 0.42 | 0.51 | 0.50 | 0.2 |
| Control Delay | 47.2 | 87.3 | 41.6 | 84.1 | 45.4 | 0.6 | 34.9 | 43.6 | 13.9 | 32.9 | 38.2 | 3.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 41.6 | 84.1 | 45.4 | 0.6 | 34.9 | 43.6 | 13.9 | 32.9 | 38.2 | 3.0 |
| LOS | D | F | D | F | D | Α | С | D | В | С | D | 1 |
| Approach Delay | | 71.8 | | | 51.7 | | | 36.6 | | | 32.4 | |
| Approach LOS | | Е | | | D | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | e 2:EBT a | nd 6:WB | Γ, Start o | Green | | | | | | | |
| Natural Cycle: 125 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | | | | | | |
| Intersection Signal Delay: 5 | | | | | | n LOS: D | | | | | | |
| Intersection Capacity Utiliza Analysis Period (min) 15 | ation 103.1 | % | | Į. | CU Level | of Service | e G | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | ıd & Kinas | ston Road | i | | | | | | | | |
| √ Ø1 | 00g/s 58 | | | | | 10 | ₩ Ø4 | le: | | | | |
| | - D 18/ | R) | | | | | | | | | | |
| 26 s | 46 s | R) | | | | 8 s | 50 s | | | | | |
| 26 s | | K) Ø6 (F | 1) | | | 8 8 8 | 50 s | 0 | | | | |

Queues

<2033 Future Background>PM 12-20-2024

6: Liverpool Road & Kingston Road

| | • | - | • | • | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|---------|---------|-------|-------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 855 | 252 | 103 | 580 | 117 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.57 | 0.72 | 0.42 | 0.51 | 0.50 | 0.21 |
| Control Delay | 47.2 | 87.3 | 41.6 | 84.1 | 45.4 | 0.6 | 34.9 | 43.6 | 13.9 | 32.9 | 38.2 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 41.6 | 84.1 | 45.4 | 0.6 | 34.9 | 43.6 | 13.9 | 32.9 | 38.2 | 3.6 |
| Queue Length 50th (m) | 68.7 | ~172.9 | 73.7 | 57.7 | 70.6 | 0.0 | 27.0 | 102.1 | 14.8 | 15.8 | 63.7 | 0.0 |
| Queue Length 95th (m) | m73.7 r | m#182.5 | m77.1 | #98.7 | 93.7 | 0.0 | 42.7 | 125.2 | 38.0 | 27.4 | 81.2 | 8.5 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1065 | 639 | 279 | 973 | 529 | 295 | 1187 | 601 | 202 | 1149 | 569 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.70 | 1.05 | 0.56 | 0.82 | 0.61 | 0.14 | 0.57 | 0.72 | 0.42 | 0.51 | 0.50 | 0.21 |

Lanes, Volumes, Timings

<2033 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|---------|------------|-------|-------|----------|-------|---------|---------|---------|----------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | 77 | † | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 852 | 401 | 196 | 1006 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 852 | 401 | 196 | 1006 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | 0.99 | | 0.96 | 0.99 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 5085 | 1569 | 1708 | 5079 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.180 | | | 0.238 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 309 | 5085 | 1502 | 425 | 5079 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | | 21 | 21 | | | 21 | | 21 | 21 | | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1093 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1093 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 5. · LX | JX | | J LA | J Z. | J X | 5. · LA | 5. · LX | 5. · LX | 5. · LA | 5. · LX | J X |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| בסנססנטו ב טובט(ווו) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

Synchro 11 Report Page 10 1105-1163 Kingston Road WSP

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2033 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| o. Liverpoor reduc | Elforpoor read a r mate recoder lokeling r dikway | | | | | | | | | | | |
|-------------------------|---|----------|-----|-------|-------|-------|-------|----------|-------|----------|----------|-------|
| | • | → | • | • | + | • | • | † | ~ | / | ↓ | 4 |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.55 | 0.46 | 0.51 | 0.75 | 0.54 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 25.0 | 23.2 | 9.2 | 37.1 | 26.0 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 25.0 | 23.2 | 9.2 | 37.1 | 26.0 | 0.2 |
| LOS | D | В | | D | С | Α | С | С | Α | D | С | Α |
| | | | | | | | | | | | | |

Intersection Summary Area Type: O Cycle Length: 100 Actuated Cycle Length: 100

Approach Delay

Approach LOS

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

28.7

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 24.8
Intersection Capacity Utilization 68.8%

Intersection LOS: C ICU Level of Service C

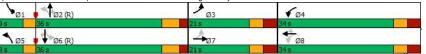
31.0

19.2

26.8

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2033 Future Background>PM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

| | • | - | • | ← | * | 1 | † | / | - | ţ | 4 | |
|------------------------|------|------|------|----------|------|--------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1093 | 50 | |
| //c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.55 | 0.46 | 0.51 | 0.75 | 0.54 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 25.0 | 23.2 | 9.2 | 37.1 | 26.0 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 25.0 | 23.2 | 9.2 | 37.1 | 26.0 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 14.9 | 50.9 | 24.5 | 20.8 | 56.6 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#34.2 | 73.2 | 54.4 | #61.0 | 84.2 | 0.0 | |
| nternal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 231 | 2012 | 857 | 284 | 2010 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.55 | 0.46 | 0.51 | 0.75 | 0.54 | 0.07 | |

Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

<2033 Future Background>PM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

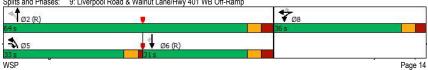
| | ۶ | - | \rightarrow | • | ← | • | 4 | † | / | - | ţ | 1 |
|---|------|-------|---------------|-------|--------------|--------|-------|----------|--------|------|----------|--------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | 7 | 4 | 7 | 7 | ^ | | | ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1084 | 0 | 0 | 950 | 71 |
| Future Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1084 | 0 | 0 | 950 | 71 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.987 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.987 | | 0.184 | 00.0 | | | 10.2 | 1000 |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 353 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | 000 | 00.0 | Yes | | 10.2 | Yes |
| Satd. Flow (RTOR) | | | 110 | | | 85 | | | 100 | | | 82 |
| Link Speed (k/h) | | 50 | | | 50 | 00 | | 50 | | | 50 | UZ. |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | J1.Z | | | 10.5 | | 17 | 20.0 | 15 | 15 | 11.7 | 17 |
| Confl. Bikes (#/hr) | | | | | | | - 17 | | 6 | 10 | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.92 | 0.92 | 0.92 | 1% | 0.92 | 1% | 6% | 2% | 2% | 0.92 |
| Adj. Flow (vph) | 0 % | 0 | 258 | 302 | 183 | 318 | 132 | 1178 | 0 % | 0 | 1033 | 77 |
| Shared Lane Traffic (%) | U | U | 230 | 21% | 103 | 310 | 132 | 1170 | U | U | 1033 | 11 |
| Lane Group Flow (vph) | 0 | 0 | 258 | 239 | 246 | 318 | 132 | 1178 | 0 | 0 | 1033 | 77 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | |
| Median Width(m) | Leit | 3.7 | Rigiil | Leit | 3.7 | Rigiil | Leit | 3.7 | Rigiil | Leit | 3.7 | Right |
| | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| | 97 | 0.99 | 97 | 0.99 | 0.99 | 1.01 | 97 | 1.01 | 14 | 24 | 1.03 | 97 |
| Turning Speed (k/h) Number of Detectors | 91 | | 1 | 1 | 2 | 14 | 1 | 2 | 14 | 24 | 2 | 1 |
| | | | Right | Left | | Right | Left | Thru | | | Thru | |
| Detector Template | | | 2.0 | 2.0 | Thru 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | Right 2.0 |
| Leading Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Trailing Detector (m) | | | 0.0 | | | | | | | | | |
| Detector 1 Position(m) | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |

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<2033 Future Background>PM 12-20-2024

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | - | • | • | • | • | 1 | Ť | ~ | - | ¥ | 4 |
|--------------------------------|-------------|----------|-------------|------------|------------|------------|-------------|------------|-----|-----|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 0.0 | 2.7 0.0 | 2.7 0.0 | 1.0 | 3.0 0.0 | | | 3.0 0.0 | 3.0 |
| Lost Time Adjust (s) | | | | | | | | | | | | 0.0 |
| Total Lost Time (s) | | | 4.5 Lead | 6.0 | 6.0 | 6.0 | 4.5 Lead | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag Lead-Lag Optimize? | | | Lead | | | | Lead | | | | Lag | Lag |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | None | 14.0 | 14.0 | 14.0 | None | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0.0 | 0.0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 20.7 | 21.5 | 21.5 | 21.5 | 68.0 | 66.2 | | | 41.0 | 41.0 |
| Actuated g/C Ratio | | | 0.21 | 0.22 | 0.22 | 0.22 | 0.68 | 0.66 | | | 0.41 | 0.41 |
| v/c Ratio | | | 0.75 | 0.64 | 0.64 | 0.78 | 0.24 | 0.35 | | | 0.51 | 0.12 |
| Control Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | | | 25.6 | 12.6 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | | | 25.6 | 12.6 |
| LOS | | | D | D | D | D | A | Α | | | С | В |
| Approach Delay | | 50.5 | | | 41.5 | | | 8.5 | | | 24.7 | |
| Approach LOS | | D | | | D | | | Α | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 8 (8%), Referenced t | to phase 2: | NBTL an | id 6:SBT, | Start of G | ereen | | | | | | | |
| Natural Cycle: 65 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | rdinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | | | | | |
| Intersection Signal Delay: 24 | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliza | tion 59.1% | | | IC | CU Level | ot Service | 6 R | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Live | erpool Road | l & Waln | ut Lane/F | lwy 401 V | VB Off-Ra | amp | | | | | | |
| King and the second | | | | | | | 1 24 | | | | | - 8 |



<2033 Future Background>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | ← | • | 1 | † | ↓ | 4 | |
|------------------------|------|------|----------|-------|------|----------|----------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 258 | 239 | 246 | 318 | 132 | 1178 | 1033 | 77 | |
| v/c Ratio | 0.75 | 0.64 | 0.64 | 0.78 | 0.24 | 0.35 | 0.51 | 0.12 | |
| Control Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | 25.6 | 12.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | 25.6 | 12.6 | |
| Queue Length 50th (m) | 47.2 | 44.5 | 45.7 | 43.2 | 7.9 | 33.2 | 37.9 | 0.9 | |
| Queue Length 95th (m) | 67.7 | 63.0 | 64.2 | 66.2 | 18.3 | 52.4 | 79.0 | m11.0 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 540 | 533 | 659 | 3364 | 2040 | 667 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.55 | 0.46 | 0.46 | 0.60 | 0.20 | 0.35 | 0.51 | 0.12 | |
| | | | | | | | | | |

Intersection Summar

10: Kingston Road & Fairport Road

Lanes, Volumes, Timings

<2033 Future Background>PM 12-20-2024

| | • | - | • | • | - | 4 | |
|-------------------------------------|-------|------------|------------|--------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | * | ^ | ↑ ₽ | | ች | 7 | |
| Traffic Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | | 0.99 | | | 0.99 | |
| Frt | | | 0.966 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1618 | 3433 | 3346 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1617 | 3433 | 3346 | 0 | 1805 | 1751 | |
| Right Turn on Red | 1011 | 0100 | 0010 | Yes | 1000 | Yes | |
| Satd. Flow (RTOR) | | | 39 | 100 | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | 140 | |
| Link Opeca (1017) Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Confl. Peds. (#/hr) | 1 | 20.1 | 00.0 | 1 | 20.2 | 2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0.32 | 0.32 | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 /8 | 0 /8 | |
| Adj. Flow (vph) | 223 | 1728 | 823 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | 220 | 1720 | 023 | 242 | 233 | 143 | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | 1726 No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | | |
| | Leit | 3.0 | 3.0 | Rigiit | 3.6 | Right | |
| Median Width(m) | | 0.0 | 0.0 | | 0.0 | | |
| Link Offset(m) | | 1.6 | 1.6 | | 1.6 | | |
| Crosswalk Width(m) | | Yes | 1.0 | | 1.0 | | |
| Two way Left Turn Lane | | | 4.04 | 0.99 | 4.00 | 0.88 | |
| Headway Factor | 1.14 | 1.04 | 1.01 | | 1.00 | | |
| Turning Speed (k/h) | 24 | _ | _ | 14 | 24 | 14 | |
| Number of Detectors | 1 | _ 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |

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m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Background>PM 12-20-2024

| To. Kingston Roa | a a r an p | ort re | чч | | | | | |
|-------------------------|------------|----------|-------|-----|----------|-------|------|--|
| | • | → | ← | • | \ | 4 | | |
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | | |
| etector 2 Channel | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| urn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| ermitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% | |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 | |
| ellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| ost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| .ead/Lag | Lead | Lag | Lag | | | | Lead | |
| _ead-Lag Optimize? | | | | | | | | |
| ehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Valk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 | |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | | |
| //c Ratio | 0.92 | 0.76 | 0.62 | | 0.83 | 0.32 | | |
| Control Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | | |
| .OS | D | D | В | | Е | Α | | |
| Approach Delay | | 41.2 | 10.1 | | 48.9 | | | |
| Approach LOS | | D | В | | D | | | |
| ntersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 32.6
Intersection Capacity Utilization 70.9%
ICU Leve

Intersection LOS: C
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2033 Future Background>PM 12-20-2024

| | ၨ | - | — | - | 4 | |
|-----------------------------|---------|-----------|-----------|-----------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 295 | 149 | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | 0.83 | 0.32 | |
| Control Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Length 50th (m) | 51.0 | 247.6 | 26.7 | 72.7 | 0.0 | |
| Queue Length 95th (m) | m50.4 | m241.9 | 36.0 | 101.2 | 16.7 | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 248 | 2270 | 1724 | 426 | 527 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.90 | 0.76 | 0.62 | 0.69 | 0.28 | |
| Intersection Summary | | | | | | |
| m Volume for 95th percentil | e queue | is metere | d by upst | ream sign | al. | |

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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | • | 4 | 1 |
|----------------------------|-------------|-------|-------|-------|-------------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | | ኘ | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | , | 0% | 0% | 0.7 |
| Storage Length (m) | 070 | 0.0 | 47.5 | 070 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 17.0 | | 2 | 1 |
| Taper Length (m) | | | 22.3 | | 2.5 | ' |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Flt Protected | 0.000 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | 0011 | J | 0.950 | 0010 | 0.950 | 1017 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | 3311 | Yes | 1377 | 3010 | 3337 | Yes |
| Satd. Flow (RTOR) | 1 | 168 | | | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | 04 |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | 10.1 | | | 20.4 | 15.0 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1839 | 25 | 200 | 771 | 720 | 109 |
| Shared Lane Traffic (%) | 1009 | 20 | 200 | 111 | 120 | 109 |
| Lane Group Flow (vph) | 1864 | 0 | 200 | 771 | 720 | 109 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| | | | | | | |
| Lane Alignment | Left 3.1 | Right | Left | Left | Left 7.6 | Right |
| Median Width(m) | | | | 3.1 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | 4.00 | 111 | Yes | 0.07 | 0.00 |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | _ | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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<2033 Future Background>PM 12-20-2024

Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | • | 1 | - | 1 | | |
|------------------------------|-------------------|-----------|-----------|-------------|-----------|------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | | | Lead | 1.2 | 0.7 | 0.7 | |
| Lead-Lag Optimize? | Lag | | Leau | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| | C-Max | | None | C-Max | None | None | |
| Recall Mode Walk Time (s) | 7.0 | | NOHE | 7.0 | 7.0 | 7.0 | |
| | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Flash Dont Walk (s) | | | | | | | |
| Pedestrian Calls (#/hr) | 0 | | 40.0 | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.4 | | 16.0 | 86.4 | 29.7 | 29.7 | |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | | 1.03 | 0.32 | 0.89 | 0.25 | |
| Control Delay | 67.7 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 67.7 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| LOS | Е | | F | Α | Е | В | |
| Approach Delay | 67.7 | | | 27.5 | 56.1 | | |
| Approach LOS | E | | | С | Е | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | Outer | | | | | | |
| Actuated Cycle Length: 1 | 130 | | | | | | |
| Offset: 69 (53%), Refere | | 0.EDT on | 4 E-/VID. | T Ctart of | Croon | | |
| Natural Cycle: 130 | niceu to priase . | Z.EDI dii | u o.vvb | i, Start Ui | Gleen | | |
| Control Type: Actuated-0 | Coordinated | | | | | | |
| | | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | 100 0 | |
| Intersection Signal Delay | | | | | tersectio | | _ |
| Intersection Capacity Util | | | | IC | CU Level | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| Outto and Dhanner 44 | . 1 1 404 14/0 | D ^ | IZ:1 | - D | | | |
| Splits and Phases: 11: | : Hwy 401 WB | Kamps & | Kingsto | n Road | | | |
| ÿ1 | Ø2 (R) | | | | | | |
| | 1 9 | | | | | | |
| | A1965. | | | | | | |
| Ø6 (R) | | | | | | | |
| 92s | | | | | | | |
| WSP | | | | | | | |
| | | | | | | | |

<2033 Future Background>PM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | 1 | |
|------------------------|--------|--------|-------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1864 | 200 | 771 | 720 | 109 |
| v/c Ratio | 1.04 | 1.03 | 0.32 | 0.89 | 0.25 |
| Control Delay | 67.7 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 67.7 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Length 50th (m) | ~284.5 | ~47.6 | 6.4 | 91.1 | 5.0 |
| Queue Length 95th (m) | #328.0 | #100.5 | 6.1 | #114.7 | 19.8 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1799 | 194 | 2404 | 853 | 446 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.32 | 0.84 | 0.24 |

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Lanes, Volumes, Timings

<2033 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 1 | † | - | - | ţ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|--------|----------|-------|--------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | 1> | | ሻ | ₽ | |
| Traffic Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.986 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3399 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1647 | 3343 | 0 | 1704 | 3399 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 13 | | | 129 | | | 149 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1699 | 41 | 97 | 1270 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1740 | 0 | 97 | 1402 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | , i | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OI-LX | JI-LX | | JI-LX | JI-LX | | JI. LX | JI. LX | | JI. LA | JI-LX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | OITEX | | | OITEX | | | ∪I+EX | | | OITEX | |

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<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

Lanes, Volumes, Timings

<2033 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | 1 | 0.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 0.93 | 0.76 | | 0.93 | 0.36 | | 0.39 | 0.41 | |
| Control Delay | 84.0 | 24.5 | | 123.6 | 20.4 | | 93.7 | 14.4 | | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | | 0.0 | 0.0 | | 0.0 | 74.4 | | 139.0 | 0.0 | |
| Total Delay | 84.0 | 25.7 | | 123.6 | 20.4 | | 93.7 | 88.7 | | 189.3 | 12.5 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 30.0 | | | 27.1 | | | 91.6 | | | 73.5 | |
| Approach LOS | | С | | | С | | | F | | | Е | |

| intersection Surr | imary | | |
|-------------------|-----------------------------|---------------------------|--|
| Area Type: | Other | | |
| Cycle Length: 13 | 30 | | |
| Actuated Cycle L | ength: 130 | | |
| Offset: 5 (4%), R | Referenced to phase 2:EBT a | and 6:WBT, Start of Green | |
| Natural Cycle: 1 | 10 | | |
| Control Type: Ac | ctuated-Coordinated | | |
| Maximum v/c Ra | itio: 0.93 | | |
| Intersection Sign | al Delay: 37.6 | Intersection LOS: D | |
| Intersection Cap | acity Utilization 96.9% | ICU Level of Service F | |
| Analysis Period | (min) 15 | | |
| | | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2033 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | ← | 1 | 1 | - | ¥ |
|------------------------|-------|--------|--------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 141 | 1740 | 97 | 1402 | 215 | 166 | 89 | 169 |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.76 | 0.93 | 0.36 | 0.39 | 0.41 |
| Control Delay | 84.0 | 24.5 | 123.6 | 20.4 | 93.7 | 14.4 | 50.3 | 12.5 |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 74.4 | 139.0 | 0.0 |
| Total Delay | 84.0 | 25.7 | 123.6 | 20.4 | 93.7 | 88.7 | 189.3 | 12.5 |
| Queue Length 50th (m) | 36.8 | 146.2 | 26.3 | 75.0 | 54.0 | 7.7 | 19.7 | 4.2 |
| Queue Length 95th (m) | m39.6 | m149.4 | m#47.6 | 97.5 | #99.2 | 26.9 | 36.4 | 23.7 |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1843 | 243 | 481 | 240 | 424 |
| Starvation Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 56 | 0 | 0 | 0 | 362 | 220 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.76 | 0.88 | 1.39 | 4.45 | 0.40 |
| | | | | | | | | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2033 Future Background>PM 12-20-2024

| | ۶ | → | • | • | + | • | • | † | ~ | / | + | -√ |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1638 | 3400 | 1549 | 1719 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 171 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

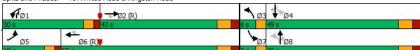
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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2033 Future Background>PM 12-20-2024

| | ٠ | → | • | • | ← | • | 1 | † | _ | - | ¥ | 4 |
|---------------------------|---------------|------------|---------|------------|------------|------------|---------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBI |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8. |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.79 |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.0 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Laç |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 38.3 | 38.3 | 22.7 | 48.0 | 48.0 | 51.0 | 40.6 | 66.7 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.3 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 80.9 | 24.8 | 25.5 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 80.9 | 24.8 | 25.5 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | Е | D | D | Е | D | F |
| Approach Delay | | 76.6 | | | 33.8 | | | 40.9 | | | 34.3 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 130 | | | | | | | | | | | |
| Offset: 34 (26%), Refere | nced to phase | 2:EBT a | nd 6:WB | , Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-0 | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay | : 47.2 | | | li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Uti | | % | | 10 | CU Level | of Service | е Н | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: | : Whites Road | l & Kingst | on Road | | | | | | | | | |
| ₩ø1 | 100 | Ø2 (R) | | | | 1 | 33 \$ 6 | 14 | | | | |
| 7101 | | DE (N) | | | _ | | | COL. | | | - | |



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13: Whites Road & Kingston Road

| | • | - | • | 1 | ← | • | 4 | † | - | - | . ↓ | 4 |
|------------------------|-------|--------|-------|-------|---------|---------|-------|----------|--------|-------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 80.9 | 24.8 | 25.5 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 80.9 | 24.8 | 25.5 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | ~154.6 | 51.2 | 57.7 | 60.1 | 58.6 | 42.7 | 55.8 | 123.7 | 34.3 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #195.8 | 88.5 | m78.9 | m79.8 n | n#129.1 | #83.4 | 68.3 | #188.7 | #65.5 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 1001 | 576 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.04 | 0.68 | 0.75 | 0.63 | 0.83 | 0.88 | 0.45 | 0.86 | 0.81 | 0.42 | 0.32 |

1105-1163 Kingston Road Synchro 11 Report Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2033 Future Background>PM 12-20-2024

| | • | • | 4 | † | ļ | 4 |
|----------------------------|-------|-------|------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻሻ | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Future Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | ' | 2.5 | | | J |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.33 | 0.53 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1421 | U | 3038 | 3010 | U |
| | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Satd. Flow (perm) | 3433 | | U | ათამ | 2010 | |
| Right Turn on Red | _ | Yes | | | | Yes |
| Satd. Flow (RTOR) | 7 | 129 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | _ | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 0.05 | 3 | 4 | 0.00 | 0.05 | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1286 | 640 | 0 | 914 | 595 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 1350 | 576 | 0 | 914 | 595 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITLX | | OITEX | OITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | | | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Ø6 (R)

1105-1163 Kingston Road WSP

<2033 Future Background>PM 12-20-2024

Synchro 11 Report Page 29

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | | T | ¥ | ∢ |
|------------------------------|-------------|-----------|-------------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | 4 | 4.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | 0.0 | 0.0 | | 0.1 | 0.1 | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | ^ | -Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | U | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0.0 | 0.0 | | 0 | 0 | |
| Act Effct Green (s) | 46.8 | 46.8 | | 41.0 | 41.0 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | |
| v/c Ratio | 0.47 | 0.47 | | 0.63 | 0.41 | |
| Control Delay | 28.2 | 25.9 | | 26.6 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 28.2 | 25.9 | | 26.6 | 22.6 | |
| Total Delay | 28.2 C | 25.9 C | | 20.0 C | 22.6 C | |
| LOS | 27.5 | C | | 26.6 | 22.6 | |
| Approach Delay | 27.5 C | | | 20.0 C | 22.6 C | |
| Approach LOS | C | | | C | U | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 10 | | | | | | |
| Offset: 8 (8%), Referenced | to phase 2 | :NBT and | 6:SBT, Star | t of Gr | een | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.83 | | | | | | |
| Intersection Signal Delay: | 26.4 | | | lr | ntersection | n LOS: C |
| Intersection Capacity Utiliz | ation 73.4% | | | 10 | CU Level o | of Service D |
| Analysis Period (min) 15 | | | | | | |
| Splits and Phases: 14: V | Whites Road | & Highwa | av 401 ER (|)ff Rar | np | |
| Ø2 (R) | | | ., | | Ø4 | |
| 1 22 (R) | | | | - | W4 | |

Queues

14: Whites Road & Highway 401 EB Off Ramp

<2033 Future Background>PM 12-20-2024

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1350 | 576 | 914 | 595 |
| v/c Ratio | 0.83 | 0.79 | 0.63 | 0.40 |
| Control Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Length 50th (m) | 110.4 | 77.9 | 74.2 | 42.8 |
| Queue Length 95th (m) | 131.2 | 123.7 | 99.3 | 59.7 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 772 | 1451 | 1484 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.75 | 0.63 | 0.40 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 30 Lanes, Volumes, Timings
15: Dixie Road & Shopping Plaza Entrance

<2033 Future Background>PM 12-20-2024

| | • | • | † | ~ | - | ţ |
|----------------------------|-------|-------|----------|-------|------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | - 1> | | | ર્ન |
| Traffic Volume (vph) | 0 | 228 | 0 | 0 | 168 | Ö |
| Future Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 248 | 0 | 0 | 0 | 0 | 183 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | , i | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Type: | Othor | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 31.2%
Analysis Period (min) 15

ICU Level of Service A

1105-1163 Kingston Road Synchro 11 Report WSP Page 31

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance <2033 Future Background>PM 12-20-2024

| | • | • | † | / | / | ţ |
|-----------------------------|--------|------|------------|------|----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1 > | | | ની |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | Ö |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 0 | 0 | 183 | | | |
| Volume Right | 248 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utili | zation | | 31.2% | IC | CU Level | of Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2033 Future Background_PHF>PM 12-20-2024

| | ۶ | → | • | • | + | • | 4 | † | ~ | / | | |
|----------------------------|-------|-------------|-------|-------|-------------|-------|--------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ↑ 1> | | * | † 1> | | * | | 7 | * | ĵ. | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1710 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.730 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1317 | 0 | 1603 | 1713 | 1710 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 100 | | 26 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 1690 | 0 | 119 | 689 | 0 | 293 | 0 | 265 | 24 | 42 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.01 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | Cl+Ex | CI+Ex | | Cl+Ex | Cl+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OILLX | | OITEX | OILLX | | OITEX | | OITEX | OITEX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 1NA 6 | | Feiiil | | Fenil | Fellill | 1NA 4 | |
| I IUICUICU FIIASES | 5 | | | | 0 | | | | | | 4 | |

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Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2033 Future Background_PHF>PM 12-20-2024

| | ٠ | → | \rightarrow | • | ← | • | 4 | † | / | > | ļ | 4 |
|------------------------------|-------------|------------|---------------|------------|-------------|------------|-------|----------|-------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 70.1 | | 10.0 | 77.1 | | 30.3 | | 30.3 | 30.3 | 30.3 | |
| Actuated g/C Ratio | 0.04 | 0.54 | | 0.08 | 0.59 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.59 | 0.91 | | 0.92 | 0.33 | | 0.95 | | 0.59 | 0.06 | 0.10 | |
| Control Delay | 81.2 | 29.8 | | 117.1 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.2 | 29.8 | | 117.1 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| LOS | F | С | | F | Α | | F | | С | D | С | |
| Approach Delay | | 30.9 | | | 25.0 | | | 62.9 | | | 27.2 | |
| Approach LOS | | С | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | e 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | 35.0 | | | li | ntersection | LOS: C | | | | | | |
| Intersection Capacity Utiliz | ation 91.5% | 5 | | 10 | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 2

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Background_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ٦ | ^ | 7 | 7 | ** | 7 | ٦ | ^ | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.372 | | | 0.202 | | |
| Satd. Flow (perm) | 1666 | 3461 | 1512 | 1710 | 3579 | 1517 | 693 | 3773 | 1564 | 424 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 126 | | | 160 | | | 174 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 787 | 232 | 95 | 534 | 108 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Background_PHF>PM 12-20-2024

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|------------|---|--|--|--|-------------|--------------|-------------|-------------|---|-------------|---|
| EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| | | | | | | | | | | | |
| | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| | | | | | | | | | | | |
| 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| | | | | | | | | | | | |
| 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| 23.4 | 40.7 | 49.8 | 19.2 | 36.5 | 36.5 | 52.0 | 40.9 | 40.7 | 52.0 | 40.9 | 40.9 |
| 0.18 | 0.31 | 0.38 | 0.15 | 0.28 | 0.28 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| 0.81 | 0.95 | 0.50 | 0.83 | 0.54 | 0.12 | 0.49 | 0.66 | 0.38 | 0.41 | 0.46 | 0.19 |
| 49.4 | 69.4 | 37.7 | 79.5 | 43.0 | 0.5 | 31.3 | 41.8 | 11.9 | 28.7 | 37.4 | 2.8 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 49.4 | 69.4 | 37.7 | 79.5 | 43.0 | 0.5 | 31.3 | 41.8 | 11.9 | 28.7 | 37.4 | 2.8 |
| D | Е | D | E | D | Α | С | D | В | С | D | A |
| | | | | 48.9 | | | 34.5 | | | 31.2 | |
| | Е | | | D | | | С | | | С | |
| | | | | | | | | | | | |
| Other | | | | | | | | | | | |
| 0 11 10 1 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | 2:EBT a | nd 6:WB | T. Start of | Green | | | | | | | |
| | | | , | | | | | | | | |
| ordinated | | | | | | | | | | | |
| | | | | | | | | | | | |
| 6.0 | | | - I | ntersectio | n LOS: D | | | | | | |
| | % | | | | | G G | | | | | |
| | | | | | | | | | | | |
| ernool Roa | d & Kinas | ston Road | ł | | | | | | | | |
| ₩ø. | | | - | | \$ ø | \$ 04 | | | | | |
| | 4 | | | | 8 s | 50 s | | | | | |
| 46 s | | | | | _ | | | | | | |
| 46 s | 4 [®] Ø6 (F | 2) | | | Ø | ↑ †ø8 | | | | | |
| | Prot 5 5 5.0 10.0 34.0 26.2% 29.0 3.0 2.0 0.0 5.0 Lead 3.0 None 23.4 0.18 0.81 49.4 0.0 49.4 D Other det to phase ordinated 6.0 erpool Roa | 0.0 Prot NA 5 2 5 2 5.0 20.0 10.0 36.0 34.0 46.0 26.2% 35.4% 29.0 38.9 3.0 4.3 2.0 2.8 0.0 0.0 5.0 7.1 Lead Lag 3.0 3.0 None C-Max 7.0 21.0 15 23.4 40.7 0.18 0.31 0.81 0.95 49.4 69.4 0.0 0.0 49.4 69.4 D E 59.8 E Other Other ordinated 6.0 erpool Road & Kings | 0.0 Prot NA pm+ov 5 2 3 5 2 3 5.0 20.0 5.0 10.0 36.0 8.0 34.0 46.0 8.0 26.2% 35.4% 6.2% 29.0 38.9 5.0 3.0 4.3 3.0 2.0 2.8 0.0 0.0 0.0 0.0 5.0 7.1 3.0 Lead Lag Lead 3.0 3.0 3.0 3.0 None C-Max None 7.0 21.0 15 23.4 40.7 49.8 0.18 0.31 0.38 0.81 0.95 0.50 49.4 69.4 37.7 0.0 0.0 0.0 0.0 49.4 69.4 37.7 D E D 59.8 E Other Other | 0.0 Prot NA pm+ov Prot 5 2 3 1 2 2 3 1 5 2 3 1 1 5 2 3 1 1 5 0 20.0 5.0 5.0 10.0 34.0 46.0 8.0 26.0 26.2% 35.4% 62.2% 20.0% 29.0 38.9 5.0 21.0 3.0 4.3 3.0 3.0 2.0 2.8 0.0 0.0 0.0 0.0 5.0 7.1 3.0 5.0 Lead Lag Lead Lead 3.0 3.0 3.0 3.0 None C-Max None None 7.0 21.0 15 23.4 40.7 49.8 19.2 0.18 0.31 0.38 0.15 0.81 0.95 0.50 0.83 49.4 69.4 37.7 79.5 0.0 0.0 0.0 0.0 49.4 69.4 37.7 79.5 D E D E S9.8 E | 0.0 | 0.0 | Description | Description | Description Description | Description | Prot NA pm+ov Prot NA Perm pm+pt NA custom pm+pt NA |

<2033 Future Background_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| Lane Group EBT EBR WBL WBT NBL NBR Lane Configurations ↑↑ ↑ ↑ ↑ |
|---|
| |
| |
| Traffic Volume (vph) 1692 23 184 709 662 100 |
| Future Volume (vph) 1692 23 184 709 662 100 |
| Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 |
| Lane Width (m) 4.0 3.7 2.7 3.8 3.8 3.7 |
| Grade (%) 6% 0% 0% |
| Storage Length (m) 0.0 47.5 0.0 52.0 |
| Storage Lanes 0 1 2 1 |
| Taper Length (m) 22.3 2.5 |
| Lane Util, Factor 0.95 0.95 1.00 0.95 0.97 1.00 |
| Ped Bike Factor 1.00 0.98 |
| Frt 0.998 0.850 |
| Fit 0.990 0.950 0.950 |
| Satd. Flow (prot) 3577 0 1577 3618 3544 1617 |
| Fit Permitted 0.950 0.950 |
| Satd. Flow (perm) 3577 0 1577 3618 3537 1591 |
| · · · · · · · · · · · · · · · · · · · |
| |
| |
| |
| |
| |
| Confl. Peds. (#/hr) 1 3 |
| Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00 |
| Heavy Vehicles (%) 2% 5% 3% 2% 1% 1% 1% Add 1000 000 000 000 000 000 000 000 000 |
| Adj. Flow (vph) 1692 23 184 709 662 100 |
| Shared Lane Traffic (%) |
| Lane Group Flow (vph) 1715 0 184 709 662 100 |
| Enter Blocked Intersection No No No No No No No |
| Lane Alignment Left Right Left Left Right |
| Median Width(m) 3.1 7.6 |
| Link Offset(m) 0.0 0.0 0.0 |
| Crosswalk Width(m) 1.6 1.6 1.6 |
| Two way Left Turn Lane Yes Yes |
| Headway Factor 0.98 1.03 1.14 0.97 0.97 0.99 |
| Turning Speed (k/h) 14 24 24 14 |
| Number of Detectors 2 1 2 1 |
| Detector Template Thru Left Thru Left Right |
| Leading Detector (m) 10.0 2.0 10.0 2.0 2.0 |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Size(m) 0.6 2.0 0.6 2.0 2.0 |
| Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex |
| Detector 1 Channel |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 |
| |
| |
| |

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<2033 Future Background_PHF>PM 12-20-2024

Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | * * | • | 1 | ~ | |
|-----------------------------------|----------------|---|--------------|--------------|-------------|-------------|
| ane Group | EBT | EBR WE | L WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | 0.0 | | | |
| Furn Type | NA | Pr | | Prot | Perm | |
| Protected Phases | 2 | • | 1 6 | 8 | 1 01111 | |
| Permitted Phases | | | | Ŭ | 8 | |
| Detector Phase | 2 | | 1 6 | 8 | 8 | |
| Switch Phase | | | | Ŭ | | |
| Minimum Initial (s) | 20.0 | 5 | 0 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | 10 | | 38.0 | 38.0 | |
| Fotal Split (s) | 71.0 | 21 | | 38.0 | 38.0 | |
| Fotal Split (%) | 54.6% | 16.2 | | | 29.2% | |
| Maximum Green (s) | 63.8 | 16.2 | | 31.3 | 31.3 | |
| rellow Time (s) | 4.2 | | 0 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | 2 | | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | 0 | | 0.0 | 0.0 | |
| | 7.2 | 5 | | 6.7 | | |
| Total Lost Time (s) Lead/Lag | | Lea | | 0.7 | 6.7 | |
| | Lag | Lea | u | | | |
| Lead-Lag Optimize? | 0.2 | 3 | 0 0.2 | 3.0 | 3.0 | |
| /ehicle Extension (s) Recall Mode | | | | None | 3.0 None | |
| | C-Max | Nor | | | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | 40 | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.7 | 16 | | 28.4 | 28.4 | |
| Actuated g/C Ratio | 0.51 | 0.1 | | 0.22 | 0.22 | |
| /c Ratio | 0.93 | 0.9 | | 0.86 | 0.24 | |
| Control Delay | 46.2 | 110 | | 60.4 | 12.6 | |
| Queue Delay | 0.8 | 0 | | 0.0 | 0.0 | |
| Total Delay | 47.0 | 110 | | 60.4 | 12.6 | |
| .OS | D | | F A | Е | В | |
| Approach Delay | 47.0 | | 24.0 | 54.2 | | |
| Approach LOS | D | | С | D | | |
| ntersection Summary | | | | | | |
| rea Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | |
| Offset: 69 (53%), Referer | | 2:EBT and 6:V | /BT, Start o | f Green | | |
| Natural Cycle: 120 | p | 2. 22 0 | , | | | |
| Control Type: Actuated-C | coordinated | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | |
| ntersection Signal Delay: | 42.5 | | | Intersection | n LOS: D | |
| ntersection Capacity Utili | | | | | of Service | F |
| Analysis Period (min) 15 | 200011 30.0 /0 | | | CO LUVEI | 01 001 1100 | <u>'</u> |
| anaryono i onou (milli) 10 | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Damne & Kina | eton Doad | | | |
| ppino dilu Filases. 11. | IIWY 4U I WD | namps a ring | Stoll Rodu | | | |
| ∠ | ₩Ø2 (R) | | | | | I |
| √ Ø1 •- | 67 | | | | | |
| ▼ Ø1 21s 71 | . S | | | | | |
| | . S | | | | | √ Ø8 |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2033 Future Background_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.323 | | |
| Satd. Flow (perm) | 1634 | 3400 | 1549 | 1717 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 187 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2033 Future Background_PHF>PM 12-20-2024

| | ۶ | → | • | • | + | 4 | 1 | † | / | / | + | 4 |
|------------------------------|--------------|------------|---------|-------------|------------|------------|--------|----------|----------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | 3 | | 3 | 3 | | 3 | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 39.5 | 39.5 | 21.5 | 48.0 | 48.0 | 51.0 | 40.6 | 65.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.30 | 0.30 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.50 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.92 | 0.91 | 0.60 | 0.81 | 0.58 | 0.76 | 0.75 | 0.42 | 0.83 | 0.69 | 0.39 | 0.30 |
| Control Delay | 109.5 | 57.7 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 59.1 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| LOS | F | Е | С | F | С | С | D | D | С | D | D | Α |
| Approach Delay | | 55.6 | | | 32.4 | | | 36.2 | | | 31.7 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ced to phase | 2:EBT a | nd 6:WB | Γ, Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | | | | | | |
| Intersection Signal Delay: | 39.5 | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | ation 109.1 | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: \ | Whites Road | l & Kingst | on Road | | | | | | | | | |
| ₩ø1 | | Ø2 (R) | | | | 1 | 33 💠 0 | 4 | | | | |
| 30 s | 43 s | 62 (K) | | | | 8 s | 49 s | 7 | | | | |
| | | | | | | 1 . | | | | | | |

APPENDIX

F-3 2038 FUTURE BACKGROUND CONDITIONS

<2038 Future Background>AM 12-20-2024

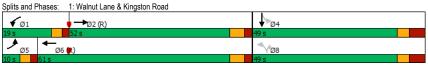
| | ۶ | - | • | • | ← | • | 4 | † | ~ | / | ļ | 1 |
|----------------------------|-------|------------|--------|-------|------------|--------|-------|-------|--------|----------|-----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | Ţ | ↑ ↑ | | Ţ | ↑ ↑ | | 7 | | 7 | 7 | î» | |
| Traffic Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.986 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3405 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3405 | 0 | 1643 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 10 | | | 8 | | | | 155 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | 1.0 | 8 | 8 | | 4 | 9 | 10.0 | 2 | 2 | 10.2 | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 820 | 82 | 112 | 482 | 33 | 264 | 0 | 155 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | 020 | | | .02 | | | | 100 | | | |
| Lane Group Flow (vph) | 22 | 902 | 0 | 112 | 515 | 0 | 264 | 0 | 155 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.1 | rugiit | Loit | 3.1 | rugiit | Loit | 3.3 | rugiit | Lon | 3.3 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.01 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 0 | 0 | 14 | 0 | 0 | 14 | 1 | | 1 | 0 | 0 | 14 |
| Detector Template | U | U | | U | U | | | | Right | U | U | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | CITEX | | CITEX | CITEX | | CITEX | | CITEX | CITEX | CITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | | | | | | | | | 0.0 NA | |
| Turn Type | Prot | NA 2 | | Prot | NA | | Perm | | Perm | Perm | | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | _ | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2038 Future Background>AM 12-20-2024

| | • | - | • | • | ← | • | | † | / | - | ţ | 4 |
|------------------------------|---------------|------------|------------|----------|-------------|--------|-------|----------|----------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | | 15.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | , i | | | Ť | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 6.7 | 58.2 | | 12.8 | 68.7 | | 29.3 | | 29.3 | 29.3 | 29.3 | |
| Actuated g/C Ratio | 0.06 | 0.48 | | 0.11 | 0.57 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.24 | 0.54 | | 0.64 | 0.27 | | 0.81 | | 0.31 | 0.04 | 0.09 | |
| Control Delay | 81.8 | 19.1 | | 50.1 | 21.9 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.8 | 19.1 | | 50.1 | 21.9 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| LOS | F | В | | D | С | | Е | | Α | С | В | |
| Approach Delay | | 20.6 | | | 26.9 | | | 41.0 | | | 17.8 | |
| Approach LOS | | С | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | | |
| Offset: 1 (1%), Referenced | | :EBT and | 6:WBT, Sta | art of G | reen | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.81 | | | | | | | | | | | | |
| Intersection Signal Delay: | 26.7 | | | Ir | ntersection | LOS: C | | | | | | |
| Intersection Capacity Utiliz | | , D | | | CU Level | | В | | | | | |
| Analysis Period (min) 15 | | | | | | 22 | | | | | | |
| Splits and Phases: 1: W | /alnut Lane : | & Kinastor | Road | | | | | | | | | |



1105-1163 Kingston Road Synchro 11 Report WSP Page 2

<2038 Future Background>AM 12-20-2024

1: Walnut Lane & Kingston Road

| Lane Group EBL EBT WBL WBT NBL NBR SBL SBT Lane Group Flow (vph) 22 902 112 515 264 155 15 39 v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 |
|---|
| (-p |
| v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 |
| |
| Control Delay 81.8 19.1 50.1 21.9 61.3 6.4 30.7 12.8 |
| Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Total Delay 81.8 19.1 50.1 21.9 61.3 6.4 30.7 12.8 |
| Queue Length 50th (m) 5.4 84.7 26.7 55.7 58.8 0.0 2.7 1.3 |
| Queue Length 95th (m) m13.0 120.8 43.4 73.2 80.8 14.2 7.3 8.8 |
| Internal Link Dist (m) 105.3 670.6 155.7 |
| Turn Bay Length (m) 26.0 37.0 63.2 18.5 |
| Base Capacity (vph) 93 1657 201 1938 454 636 587 568 |
| Starvation Cap Reductn 0 0 0 0 0 0 0 |
| Spillback Cap Reductn 0 0 0 0 0 0 0 |
| Storage Cap Reductn 0 0 0 0 0 0 0 |
| Reduced v/c Ratio 0.24 0.54 0.56 0.27 0.58 0.24 0.03 0.07 |

Intersection Summar

1105-1163 Kingston Road Synchro 11 Report WSP Page 3

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2038 Future Background>AM

| | • | - | • | • | - | • | 1 | † | 1 | - | ţ | 4 |
|--|-------|------------|---------|-------|-------------|---------|-------|----------|---------|-------|------------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † î> | | ሻ | î» | | 7 | f ə | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.540 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3316 | 0 | 1639 | 3301 | 0 | 993 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 826 | 88 | 85 | 602 | 93 | 40 | 16 | 32 | 142 | 38 | 157 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 87 | 914 | 0 | 85 | 695 | 0 | 40 | 48 | 0 | 142 | 195 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 2.8 | . ugiit | 2011 | 2.8 | · ugiit | 2010 | 3.8 | . ug.it | 2011 | 3.8 | · ug·ii |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.01 | 14 | 24 | 1.01 | 14 | 24 | 0.01 | 14 | 24 | 0.02 | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | · | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | OITEX | | OITEX | CITEX | | OITEX | OITEX | | OITEX | OITEX | |
| Detector 1 Channel Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | | 0.0 | | | | | | | | | | |
| Detector 1 Delay (s) | 0.0 | | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

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m Volume for 95th percentile queue is metered by upstream signal.

3: Dixie Road & Kingston Road

| | • | - | \rightarrow | • | ← | • | 4 | † | <i>></i> | > | ļ | 4 |
|-------------------------|-------|-------|---------------|-------|----------|-----|-------|----------|-------------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 74.2 | | 6.0 | 70.7 | | 18.7 | 18.7 | | 18.7 | 18.7 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.71 | 0.44 | | 1.04 | 0.36 | | 0.26 | 0.16 | | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | • | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | • | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| LOS | F | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 19.8 | | | 23.7 | | | 31.5 | | | 33.8 | |
| Approach LOS | | В | | | С | | | С | | | С | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 23.8

Intersection Capacity Utilization 72.4%

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



Intersection LOS: C

ICU Level of Service C

1105-1163 Kingston Road Synchro 11 Report Page 5

Queues

<2038 Future Background>AM

3: Dixie Road & Kingston Road

| | • | - | • | • | 1 | Ť | - | ţ | |
|------------------------|-------|-------|--------|-------|------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 87 | 914 | 85 | 695 | 40 | 48 | 142 | 195 | |
| v/c Ratio | 0.71 | 0.44 | 1.04 | 0.36 | 0.26 | 0.16 | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 | |
| Queue Length 50th (m) | 20.2 | 53.6 | ~20.9 | 23.3 | 8.5 | 3.3 | 32.2 | 7.9 | |
| Queue Length 95th (m) | #43.5 | 88.2 | m#53.1 | 43.7 | 16.9 | 12.4 | 47.4 | 25.6 | |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 130 | 2054 | 82 | 1951 | 335 | 618 | 470 | 697 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.67 | 0.44 | 1.04 | 0.36 | 0.12 | 0.08 | 0.30 | 0.28 | |
| | | | | | | | | | |

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 6 Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Background>AM 12-20-2024

| | ۶ | - | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 398 | 146 | 84 | 672 | 117 |
| Future Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 398 | 146 | 84 | 672 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.266 | | | 0.474 | | |
| Satd. Flow (perm) | 1649 | 3299 | 1487 | 1677 | 3510 | 1517 | 492 | 3700 | 1536 | 989 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 172 | | | 174 | | | 159 | | | 155 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 433 | 159 | 91 | 730 | 127 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 433 | 159 | 91 | 730 | 127 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

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<2038 Future Background>AM 12-20-2024

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|------------------------------|-------------------|------------|-----------|-----------|------------|----------|-------|----------|--------|----------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | Ŭ | | | Ŭ | , i | | Ŭ | Ĭ | | Ŭ | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 17.1 | 35.6 | 35.6 | 13.3 | 31.8 | 31.8 | 53.0 | 41.9 | 35.6 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.14 | 0.30 | 0.30 | 0.11 | 0.26 | 0.26 | 0.44 | 0.35 | 0.30 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.54 | 0.34 | 0.28 | 0.19 | 0.58 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.1 | 81.0 | 41.1 | 0.4 | 28.3 | 29.7 | 6.2 | 19.1 | 34.1 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.1 | 81.0 | 41.1 | 0.4 | 28.3 | 29.7 | 6.2 | 19.1 | 34.1 | 3.1 |
| LOS | F | С | В | F | D | Α | С | С | Α | В | С | P |
| Approach Delay | | 38.3 | | | 46.4 | | | 24.4 | | | 28.5 | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | | se 2:EBT | and 6:WI | 3T. Start | of Green | | | | | | | |
| Natural Cycle: 105 | | | | , | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.80 | | | | | | | | | | | | |
| Intersection Signal Delay: | 34.2 | | | - 1 | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | | 5 | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | | | | | 20 | | | | | | |
| Splits and Phases: 6: Li | iverpool Roa | ıd & Kinas | ston Road | | | | | | | | | |
| i | - 1 | 191 | | | - | 45 | | | | | | |
| ï1 42 s | ₹ 19 2 (R) | | | | 8.0 | Ø3 🔻 | Ø4 | | | | | |
| 19 8 42 9 | , | | | | 0.5 | 51 S | | | | | | |

Queues

<2038 Future Background>AM 12-20-2024

6: Liverpool Road & Kingston Road

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|------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 433 | 159 | 91 | 730 | 127 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.54 | 0.34 | 0.28 | 0.19 | 0.58 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.1 | 81.0 | 41.1 | 0.4 | 28.3 | 29.7 | 6.2 | 19.1 | 34.1 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.1 | 81.0 | 41.1 | 0.4 | 28.3 | 29.7 | 6.2 | 19.1 | 34.1 | 3.1 |
| Queue Length 50th (m) | 45.6 | 23.2 | 1.7 | 34.5 | 54.6 | 0.0 | 19.5 | 39.2 | 0.0 | 11.7 | 73.3 | 0.0 |
| Queue Length 95th (m) | 69.1 | 61.1 | 34.0 | #65.7 | 73.4 | 0.0 | 32.4 | 52.6 | 15.4 | 21.1 | 92.6 | 8.1 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 978 | 562 | 197 | 931 | 530 | 270 | 1291 | 567 | 480 | 1263 | 607 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.58 | 0.42 | 0.76 | 0.54 | 0.10 | 0.54 | 0.34 | 0.28 | 0.19 | 0.58 | 0.21 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 Lanes, Volumes, Timings

<2038 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | ← | • | 4 | † | ~ | - | ↓ | 4 |
|----------------------------|-------|------------|-------|-------|----------|-------|-------|------------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻሻ | ^ | 7 | * | ^ ^ | 7 | * | ተተተ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 554 | 272 | 146 | 815 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 554 | 272 | 146 | 815 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 0.99 | | 0.97 | 0.99 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.306 | | | 0.386 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 527 | 5036 | 1483 | 677 | 5029 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | . 00 | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 886 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 886 | 26 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | · · | · · | | | | | · · | · · | | · | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| בסנסטוסו ב טובט(ווו) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

Synchro 11 Report Page 10 1105-1163 Kingston Road WSP

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2038 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | ← | * | 1 | † | 1 | - | ¥ | 4 |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.15 | 0.23 | 0.32 | 0.30 | 0.31 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 9.9 | | | 12.7 | |
| Approach LOS | | С | | | D | | | Α | | | В | |

Intersection Summary

Intersection Summary

Area Type: Other
Cycle Length: 100

Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.9

Intersection Capacity Utilization 55.7%

ICU Level of Analysis Period (min 15)

Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2038 Future Background>AM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

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|----------------------------|------|------|------|-------|------|------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 886 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.15 | 0.23 | 0.32 | 0.30 | 0.31 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.0 | 13.7 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.4 | 24.0 | 9.7 | 11.3 | 35.3 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 37.0 | 19.9 | 21.5 | 48.0 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 390 | 2621 | 913 | 540 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.15 | 0.23 | 0.32 | 0.29 | 0.31 | 0.03 | |
| latana a stiana Occidenta. | | | | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 12

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBT Lane Configurations 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 1 1 1 0 0 0 0 1 188 69 310 162 536 0 0 0 700 9 9 1 1 1 1 1 1 1 1 1 0 |
|--|
| Lane Configurations 7 7 4 7 7 4 7 7 4 7 7 4 7 7 4 7 7 4 7 7 4 7 7 4 7 7 4 7 8 7 8 9 310 162 536 0 0 700 9 9 9 10 1900 < |
| Traffic Volume (vph) 0 0 160 188 69 310 162 536 0 0 700 9 Future Volume (vph) 0 0 160 188 69 310 162 536 0 0 700 9 Ideal Flow (vphpl) 1900 </td |
| Future Volume (vph) 0 0 160 188 69 310 162 536 0 0 700 9 Ideal Flow (vphpl) 1900 |
| Ideal Flow (vphpt) 1900 |
| Lane Width (m) 3.7 3.7 3.7 3.7 3.5 3.7 3.5 3.7 3.5 3.7 3.4 3 Storage Length (m) 0.0 0.0 0.0 125.0 50.0 0.0 0.0 0.0 |
| Storage Length (m) 0.0 0.0 0.0 125.0 50.0 0.0 0.0 0 |
| |
| SIUIAUE LAIRES U I I I I U U |
| Taper Length (m) 2.5 2.5 30.0 2.5 |
| Lane Util. Factor 1.00 1.00 1.00 0.95 0.95 1.00 1.00 0.91 1.00 1.00 0.91 1.0 |
| Ped Bike Factor 1.00 0.9 |
| Frt 0.865 0.850 0.81 |
| Fit Protected 0.950 0.977 0.950 |
| Satd. Flow (prot) 0 0 1108 1700 1767 1551 1460 4932 0 0 4877 160 |
| Fit Permitted 0.950 0.977 0.300 |
| Satd. Flow (perm) 0 0 1108 1700 1767 1551 459 4932 0 0 4877 155 |
| Right Turn on Red No Yes Yes Yi |
| Satd. Flow (RTOR) 337 |
| Link Speed (k/h) 50 50 50 50 |
| Link Distance (m) 433.1 226.7 372.2 162.3 |
| Travel Time (s) 31.2 16.3 26.8 11.7 |
| Confl. Peds. (#/hr) 7 14 14 |
| Confl. Bikes (#/hr) 4 |
| Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 |
| Heavy Vehicles (%) 0% 2% 50% 2% 0% 3% 25% 4% 4% 2% 4% 2 |
| Adj. Flow (vph) 0 0 174 204 75 337 176 583 0 0 761 11 |
| Shared Lane Traffic (%) 32% |
| Lane Group Flow (vph) 0 0 174 139 140 337 176 583 0 0 761 10 |
| Enter Blocked Intersection No |
| Lane Alignment Left Left Right Left Left Right Right Left Right Left Right Left Right Righ |
| Median Width(m) 3.7 3.7 3.7 3.7 |
| Link Offset(m) 0.0 0.0 0.0 0.0 |
| Crosswalk Width(m) 1.6 1.6 1.6 1.6 |
| Two way Left Turn Lane |
| Headway Factor 0.99 0.99 0.99 0.99 1.01 0.99 1.01 0.99 0.99 |
| Turning Speed (k/h) 24 14 24 14 24 14 24 |
| Number of Detectors 1 1 2 1 1 2 2 |
| Detector Template Right Left Thru Right Left Thru Thru Rig |
| Leading Detector (m) 2.0 2.0 10.0 2.0 2.0 10.0 10.0 2 |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Size(m) 2.0 2.0 0.6 2.0 2.0 0.6 0.6 2 |
| Detector 1 Type CI+Ex CI |
| Detector 1 Channel |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Detector 2 Position(m) 9.4 9.4 9.4 |
| Detector 2 Size(m) 0.6 0.6 0.6 |
| Detector 2 Type CI+Ex CI+Ex CI+Ex |

1105-1163 Kingston Road WSP Synchro 11 Report Page 13

<2038 Future Background>AM
12-20-2024

Page 14

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | - | • | • | • | * | 4 | † | - | / | ↓ | 1 |
|-----------------------------------|-----------|---------|-----------|-------------|------------|-----------|----------|----------|-----------------|-----|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Pern |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | 0.0 | 0.0 | 0.0 | Lead | 0.0 | | | Lag | Lac |
| Lead-Lag Optimize? | | | LCau | | | | LCdd | | | | Lag | Lag |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 140110 | 14.0 | 14.0 | 14.0 | INOTIC | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0.0 | 0.0 | 0.0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | | 21.4 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 48.1 | 48.1 |
| Actuated g/C Ratio | | | 0.21 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.48 | 0.48 |
| v/c Ratio | | | 0.73 | 0.60 | 0.14 | 0.14 | 0.70 | 0.14 | | | 0.40 | 0.40 |
| Control Delay | | | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | | | 11.1 | 1.9 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | | | 11.1 | 1.9 |
| LOS | | | 33.0 D | J0.7 | 43.3 D | 11.3 B | J.4 A | 4.5 A | | | В | Α |
| Approach Delay | | 53.6 | U | U | 28.9 | U | | 4.6 | | | 10.0 | |
| Approach LOS | | D | | | 20.3 C | | | 4.0 A | | | Α | |
| ** | | D | | | U | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| | ther | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | 4 | O.AIDTI | | T 04-4- | | | | | | | | |
| Offset: 38 (38%), Referenced | to phase | Z:NB1L | and 6:SB | ii, Start c | f Green | | | | | | | |
| Natural Cycle: 65 | | | | | | | | | | | | |
| Control Type: Actuated-Coord | ainated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.73 | • | | | | | | | | | | | |
| Intersection Signal Delay: 16. | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utilization | on 45.9% | | | 10 | CU Level | of Servic | e A | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liver | pool Road | & Waln | ut Lane/H | lwy 401 \ | VB Off-Ra | amp | | | | | | |
| ↑ ø2 (R) | | | | | | | | | ₹ _{Ø8} | | | |
| 75 s | | | | | | | | | 25 s | | | |
| \$ ø₅ | | | | • | ₩ Ø6 (R | .) | | | | | | |
| 46 c | | | | 100 | 0.0 | | | | | | | |

Queues

<2038 Future Background>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | — | • | 4 | † | ↓ | 4 | |
|------------------------|------|------|----------|-------|------|----------|----------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 174 | 139 | 140 | 337 | 176 | 583 | 761 | 105 | |
| v/c Ratio | 0.73 | 0.60 | 0.58 | 0.67 | 0.31 | 0.16 | 0.32 | 0.13 | |
| Control Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | 11.1 | 1.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.6 | 50.7 | 49.5 | 11.3 | 5.4 | 4.3 | 11.1 | 1.9 | |
| Queue Length 50th (m) | 31.7 | 27.1 | 27.2 | 0.0 | 7.6 | 10.0 | 19.5 | 0.2 | |
| Queue Length 95th (m) | 48.6 | 44.3 | 44.3 | 23.2 | 16.9 | 16.9 | 24.3 | 2.1 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 459 | 323 | 335 | 567 | 763 | 3651 | 2346 | 794 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.38 | 0.43 | 0.42 | 0.59 | 0.23 | 0.16 | 0.32 | 0.13 | |
| Intersection Summary | | | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 15

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Background>AM 12-20-2024

| | • | - | ← | • | > | 1 | |
|------------------------------------|----------|---------------|-------------|-------|-------------|-------------|---|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | 0 |
| Lane Configurations | <u> </u> | ^ | † 1> | | ሻ | 7 | |
| Traffic Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | 0.0 | 6% | 0% | 0.1 | 0% | 1.0 | |
| Storage Length (m) | 75.0 | 070 | 070 | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | U | 31.3 | • | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.00 | 0.980 | 0.00 | 1.00 | 0.850 | |
| Flt Protected | 0.950 | | 0.500 | | 0.950 | 0.000 | |
| Satd. Flow (prot) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | 3333 | 3313 | U | 0.950 | 1700 | |
| Satd. Flow (perm) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Right Turn on Red | 1002 | 3333 | 3313 | Yes | 1730 | Yes | |
| Satd. Flow (RTOR) | | | 17 | res | | 7 es 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | 249 | |
| Link Speed (k/n) Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| | | 424.0 25.4 | 53.8 | | 25.2 | | |
| Travel Time (s) Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| | | | | | 0.92 4% | | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | | 4% | |
| Bus Blockages (#/hr) | 0 | 770 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 776 | 704 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | 401 | 770 | 040 | • | 400 | 0.40 | |
| Lane Group Flow (vph) | 104 | 776 | 812 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | JI-LX | JI-LX | | | | |
| Detector & Orialists | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 16

Lanes, Volumes, Timings

10: Kingston Road & Fairport Road

<2038 Future Background>AM 12-20-2024

| | | - | • | _ | * | * | | |
|------------------------------|------------|----------|----------|------------|-------------|------------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | Ť | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| v/c Ratio | 0.64 | 0.33 | 0.40 | | 0.72 | 0.52 | | |
| Control Delay | 104.1 | 8.0 | 15.8 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 104.1 | 0.8 | 15.8 | | 65.5 | 9.1 | | |
| LOS | F | Α | В | | Е | Α | | |
| Approach Delay | | 13.0 | 15.8 | | 34.1 | | | |
| Approach LOS | | В | В | | С | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | |
| Offset: 105 (81%), Referen | | se 2:EBT | and 6:WB | T. Start o | of Green | | | |
| Natural Cycle: 85 | - 15 prior | | | , 215 | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| Intersection Signal Delay: | 18.5 | | | Ir | ntersection | n LOS: B | | |
| Intersection Capacity Utiliz | | , D | | | | of Service | A | |
| Analysis Period (min) 15 | | | | | | | | |
| . , , | | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Queues

<2038 Future Background>AM 12-20-2024

10: Kingston Road & Fairport Road

| | • | - | ← | - | 1 |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 776 | 812 | 198 | 249 |
| v/c Ratio | 0.64 | 0.33 | 0.40 | 0.72 | 0.52 |
| Control Delay | 104.1 | 0.8 | 15.8 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 104.1 | 8.0 | 15.8 | 65.5 | 9.1 |
| Queue Length 50th (m) | 26.1 | 2.5 | 53.8 | 49.0 | 0.0 |
| Queue Length 95th (m) | 42.6 | 2.5 | 86.2 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2018 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.33 | 0.40 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 4 | 1 |
|----------------------------|-------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | ኘ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Future Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.7 | 2.1 | 0% | 0% | 0.1 |
| Storage Length (m) | 0,0 | 0.0 | 47.5 | 0,0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | - 3 | 22.3 | | 2.5 | - |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | 0.33 | 1.00 | 0.93 | 0.31 | 0.850 |
| Flt Protected | 0.550 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Fit Permitted | 3419 | U | 0.950 | JJ40 | 0.950 | 1033 |
| | 2470 | 0 | 1593 | 25/0 | 3442 | 1622 |
| Satd. Flow (perm) | 3479 | - | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | 00 | 50 | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | 2.05 | 0.00 | 25.4 | 15.6 | 0.05 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 813 | 13 | 309 | 665 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 826 | 0 | 309 | 665 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.0 | | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| | CITEX | | CITEX | OITEX | OITEX | OITEX |
| Detector 1 Channel | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |

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<2038 Future Background>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | ← | 1 | ~ |
|----------------------------|-----------------|---------------|-----------|-------------|------------|------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 |
| v/c Ratio | 0.54 | | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 12.2 | | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.2 | | 59.8 | 15.2 | 58.6 | 10.2 |
| LOS | В | | Е | В | E | В |
| Approach Delay | 12.2 | | | 29.3 | 52.6 | |
| Approach LOS | В | | | С | D | |
| Intersection Summary | 0.11 | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 1 | | | | | | |
| Offset: 66 (51%), Referen | nced to phase : | 2:EBT ar | nd 6:WB | Γ, Start of | Green | |
| Natural Cycle: 110 | | | | | | |
| Control Type: Actuated-C | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | 100.0 |
| Intersection Signal Delay | | | | | ntersectio | |
| Intersection Capacity Util | | | | I | CU Level | ot Service |
| Analysis Period (min) 15 | | | | | | |
| 0.111 1.51 | | | | | | |
| Splits and Phases: 11: | : Hwy 401 WB | Ramps 8 | & Kingsto | n Road | | |
| _ | | ⊥ | | | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 20 Queues

<2038 Future Background>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | - | 1 | |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 826 | 309 | 665 | 501 | 71 |
| v/c Ratio | 0.54 | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Length 50th (m) | 19.3 | 76.0 | 61.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 46.5 | 107.1 | 80.7 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.72 | 0.27 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 21

Lanes, Volumes, Timings

<2038 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|----------------------------|-------|------------|--------|-------|------------|--------|-------|----------|--------|-------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻ | † } | | * | f | | * | f | |
| Traffic Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3380 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | - | 0.662 | | - | 0.688 | | - |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3380 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | 1002 | 0200 | Yes | | 0000 | Yes | 12.10 | | Yes | 1100 | 1100 | Yes |
| Satd. Flow (RTOR) | | 4 | | | 9 | . 00 | | 100 | | | 135 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | 10.0 | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1060 | 40 | 104 | 1065 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1100 | 0 | 104 | 1145 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.5 | rugiit | Loit | 3.5 | rugiit | Lon | 3.6 | rugiit | Lon | 3.6 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | 1.00 | 14 | 24 | 0.01 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 17 | 1 | 2 | | 1 | 2 | 17 | 1 | 2 | 17 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITEX | | OITEX | OIILX | | OITEX | OITEX | | OILX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | OI+EX | | | ∪I+EX | | | ∪I+EX | | | ∪I+EX | |

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Lanes, Volumes, Timings

<2038 Future Background>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | → ✓ | - | • | 1 | Ť | | - | ↓ | 4 |
|-------------------------|-------|-------|------------|-------|-----|-------|-------|-----|-------|----------|-----|
| Lane Group | EBL | EBT | EBR WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 83.2 | 29.8 | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.2 | 29.8 | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | E | С | | Е | В | | D | В | |
| Approach Delay | | 33.6 | | 32.4 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | С | | | D | | | С | |

Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 49 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76 Intersection Signal Delay: 33.6 Intersection LOS: C Intersection Capacity Utilization 79.5% ICU Level of Service D Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2038 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | † | - | ţ | |
|------------------------|-------|-------|-------|-------|------|----------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1100 | 104 | 1145 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 22.0 | 125.7 | 27.2 | 152.0 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #40.7 | 159.0 | 44.8 | 176.0 | 57.4 | 16.2 | 20.7 | 20.6 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.58 | 0.58 | 0.57 | 0.55 | 0.23 | 0.17 | 0.34 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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 Synchro 11 Report

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Background>AM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ች | ^ | 7 | ሻ | ተተተ | 7 | 7 | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Future Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1605 | 3335 | 1565 | 1752 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 155 | | | 239 | | | 193 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

 1105-1163 Kingston Road
 Synchro 11 Report

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

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<2038 Future Background>AM 12-20-2024

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|------------------------------|--------------|------------|----------|----------|------------|------------|--------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.79 |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | Ŭ | Ŭ | | Ŭ | Ŭ | | Ŭ | | | Ŭ | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 38.7 | 38.7 | 22.3 | 50.9 | 50.9 | 51.0 | 40.6 | 66.3 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.30 | 0.30 | 0.17 | 0.39 | 0.39 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| LOS | F | D | C | D | С | В | D | С | В | С | D | F |
| Approach Delay | | 37.2 | | | 30.9 | | | 27.1 | | | 32.7 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 107 (82%), Referen | | se 2:EBT | and 6:WE | T, Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.84 | | | | | | | | | | | | |
| Intersection Signal Delay: | 31.7 | | | - I | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | zation 105.3 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: \ | Whites Road | d & Kingst | ton Road | | | | | | | | | |
| r' | | | | | | 4 | 4 | | | | | |
| √ ø1 | | Ø2 (R) | | | | | 03 ¥ Ø | 14 | | | | |
| 30 s | 43 s | | | | | 8 S | 49 s | | | | | |

V_{Ø7} √V_{Ø8}

13: Whites Road & Kingston Road

| | • | - | • | • | • | • | 1 | Ť | 1 | - | ţ | 4 |
|------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 40.8 | 35.7 | 61.8 | 77.5 | 44.8 | 25.9 | 29.8 | 30.7 | 27.8 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 55.7 | 67.2 | #95.0 | 95.6 | 66.9 | #50.2 | 39.1 | 52.8 | 44.1 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 992 | 574 | 339 | 1373 | 740 | 211 | 1579 | 900 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.38 | 0.56 | 0.75 | 0.45 | 0.41 | 0.75 | 0.27 | 0.47 | 0.44 | 0.55 | 0.31 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 27

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2038 Future Background>AM 12-20-2024

| | • | • | 4 | † | ↓ | 4 |
|----------------------------|-------|-------|------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | *** | 7 | | ^ | * | -05.1 |
| Traffic Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Future Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| | 2.5 | - 1 | 2.5 | | | U |
| Taper Length (m) | | 0.04 | | 0.05 | 0.05 | 4.00 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.005 | 0.055 | | | | |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.954 | | | | | |
| Satd. Flow (prot) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | | | | | |
| Satd. Flow (perm) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 5 | 262 | | | | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 21.0 | | 7 | 11.2 | 10.0 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | 3% | 5% | 2% | 7% | 6% | 2% |
| Heavy Vehicles (%) | | | | | | |
| Adj. Flow (vph) | 636 | 291 | 0 | 753 | 453 | 0 |
| Shared Lane Traffic (%) | 00- | 10% | • | 750 | 450 | • |
| Lane Group Flow (vph) | 665 | 262 | 0 | 753 | 453 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | 2.7 | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| | | | | | 10.0 | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| | | | | OITEX | OI+LX | |
| Detector 2 Channel | | | | | | |

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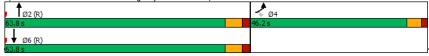
^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | Ī | ¥ | 4 | | |
|--|------------|----------|----------|-----------|-------------|--------------|--|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | | |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | | | |
| Turn Type | Prot | Perm | | NA | NA | | | |
| Protected Phases | 4 | | | 2 | 6 | | | |
| Permitted Phases | | 4 | | | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | | | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | | | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | | | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | | | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | | | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | | | |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | | | |
| Recall Mode | None | None | | C-Max | C-Max | | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | | | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | | | |
| Act Effct Green (s) | 27.7 | 27.7 | | 70.1 | 70.1 | | | |
| Actuated q/C Ratio | 0.25 | 0.25 | | 0.64 | 0.64 | | | |
| v/c Ratio | 0.78 | 0.48 | | 0.35 | 0.20 | | | |
| Control Delay | 44.3 | 6.7 | | 10.5 | 9.2 | | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | |
| Total Delay | 44.3 | 6.7 | | 10.5 | 9.2 | | | |
| LOS | D | A | | В | Α.Δ | | | |
| Approach Delay | 33.7 | | | 10.5 | 9.2 | | | |
| Approach LOS | C | | | В | A | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 110 | | | | | | | | |
| Actuated Cycle Length: 11 | 10 | | | | | | | |
| Offset: 79.2 (72%), Refere | | se 2:NBT | and 6:SE | BT, Start | of Green | | | |
| Natural Cycle: 60 | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | |
| Intersection Signal Delay: | 20.3 | | | li | ntersection | LOS: C | | |
| | | | | į. | CU Level | of Service A | | |
| Intersection Capacity Utiliz Analysis Period (min) 15 | |) | | I | CU Level o | of Service A | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2038 Future Background>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 665 | 262 | 753 | 453 |
| v/c Ratio | 0.78 | 0.48 | 0.35 | 0.20 |
| Control Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Length 50th (m) | 68.0 | 0.0 | 36.7 | 19.6 |
| Queue Length 95th (m) | 80.8 | 19.4 | 56.4 | 32.1 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1256 | 683 | 2150 | 2218 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.38 | 0.35 | 0.20 |
| Intersection Summary | | | | |

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Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2038 Future Background>AM 12-20-2024

| Lane Group WBL WBR NBT NBR SBL SBT Lane Configurations □ |
|---|
| Traffic Volume (vph) 0 81 0 0 194 0 Future Volume (vph) 0 81 0 0 194 0 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Lane With (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor Tr 0.865 Tr Tr 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.90 0.94 0 40 40 40 1867 |
| Traffic Volume (vph) 0 81 0 0 194 0 Future Volume (vph) 0 81 0 0 194 0 Ideal Flow (vphpl) 1900 100 1.80 1.00 1.867 1.80 1.80 1.80 1.80 1.80 1.80 1.80 |
| Ideal Flow (vphpl) 1900 |
| Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Util. Factor 1.00 |
| Lane Util. Factor 1.00 |
| Ped Bike Factor Frt |
| Fit Protected 0.865 Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 Link Distance (m) 193.0 106.6 44.0 Link Distance (m) 193.0 106.6 44.0 Confl. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 2% 2% 2% 2% 2% 1% 2% 2% 14% 2% 43, Flow (vph) 0 88 0 0 211 0 Shared Lane Traffic (%) Lane Group Flow (vph) 88 0 0 0 211 0 Shared Lane Traffic (%) Lane Group Flow (vph) 88 0 0 0 211 Enter Blocked Intersection No |
| Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0.950 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 40 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 |
| Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0,950 0,950 0,950 0 1867 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 40 Link Distance (m) 193.0 106.6 44.0 Confl. Peds. (#hr) 5 8 8 Peak Hour Factor 0.92 |
| Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 40 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 40 Confl. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 <td< td=""></td<> |
| Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 40 Link Distance (m) 193.0 106.6 44.0 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#/hr) 5 8 8 Peak Hour Factor 0.92 |
| Link Speed (k/h) 30 40 40 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Confil. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.9 |
| Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.93 0.99 |
| Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#hr) 5 8 Peak Hour Factor 0.92 0.93 0.93 0.99 0.94 0.99 |
| Confl. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.93 0.99 0.94 0.99 0.99 0.94 0.99 0.99 0.94 |
| Peak Hour Factor 0.92 |
| Heavy Vehicles (%) |
| Adj. Flow (vph) 0 88 0 0 211 0 Shared Lane Traffic (%) 8 0 0 0 0 211 Lane Group Flow (vph) 88 0 0 0 0 211 Enter Blocked Intersection No No No No No No No Lane Alignment Left Right Left Right Left Left Left Left Left Left J.6 3.6 3.6 3.6 Link Offset(m) 0.0 |
| Adj. Flow (vph) 0 88 0 0 211 0 Shared Lane Traffic (%) 88 0 0 0 0 211 Lane Group Flow (vph) 88 0 0 0 0 211 Enter Blocked Intersection No No No No No No No Lane Alignment Left Right Left Right Left |
| Shared Lane Traffic (%) Lane Group Flow (vph) 88 0 0 0 0 211 |
| Enter Blocked Intersection No No <th< td=""></th<> |
| Lane Alignment Left Median Width(m) 4.1 3.6 Left Median Width(m) 4.0 3.6< |
| Lane Alignment Left Median Width(m) 4.1 3.6 Left St. Left Left Alignment 3.6 |
| Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane 0.93 0.99 0.94 0.99 0.99 0.94 |
| Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 |
| Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane 0.93 0.99 0.94 0.99 0.99 0.90 Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 |
| Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 |
| Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 |
| |
| |
| Sign Control Stop Free Free |
| Intersection Summary |
| Area Type: Other |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 24.2%
Analysis Period (min) 15 ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | ~ | - | ļ |
|--|----------|------|--------------|------|---------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 0 | 194 | Ö |
| Future Volume (Veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 430 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 430 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 87 | |
| cM capacity (veh/h) | 501 | 1053 | | | 1605 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 88 | 0 | 211 | | | |
| Volume Left | 0 | 0 | 211 | | | |
| Volume Right | 88 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| | 0.08 | 0.00 | 0.13 | | | |
| Volume to Capacity | 2.1 | | 3.4 | | | |
| Queue Length 95th (m) | | 0.0 | | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | A | | A | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| intorocotion cummary | | | | | | |
| | | | 7.9 | | | |
| Average Delay Intersection Capacity Uti | lization | | 7.9 24.2% | IC | U Level | of Service |

<2038 Future Background_PHF>AM 12-20-2024

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|-------------------------------|-----------|------------|---------------|-------|------------|---------|-------|----------|-------------|-------------|---------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | ↑ ↑ | | ሻ | 1≽ | | ሻ | 1> | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | • | 0.950 | | - | 0.581 | | - | 0.728 | | - |
| Satd. Flow (perm) | 1553 | 3316 | 0 | 1639 | 3301 | 0 | 1069 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | 1000 | 00.0 | Yes | 1000 | 0001 | Yes | 1000 | | Yes | 1001 | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 29 | . 00 | | 144 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | 11.0 | 6 | 3 | 1.0 | 2 | 2 | 17.2 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0,0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Shared Lane Traffic (%) | 00 | 700 | 01 | 10 | 001 | 00 | 01 | 10 | 20 | 101 | 00 | |
| Lane Group Flow (vph) | 80 | 841 | 0 | 78 | 640 | 0 | 37 | 44 | 0 | 131 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 2.8 | rtigitt | Loit | 2.8 | rtigiit | LOIL | 3.8 | ragni | Loit | 3.8 | ragiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 7.0 | | | Yes | | | 7.5 | | | 7.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 1.00 | 24 | 0.54 | 14 | 24 | 0.52 | 14 |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 17 | 1 | 1 | 17 |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | | | | | | | | | | | | |
| Turn Type Protected Phases | Prot 5 | NA 2 | | Prot | NA 6 | | Perm | NA 8 | | Perm | NA 4 | |
| Protected Phases | 5 | 2 | | 1 | Ö | | | ď | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2038 Future Background_PHF>AM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | / | - | ↓ | 4 |
|----------------------------|---------------|------------|------------|----------|-------------|------------|-------|----------|-----|-------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 74.9 | | 6.0 | 74.0 | | 18.0 | 18.0 | | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.62 | | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.66 | 0.41 | | 0.95 | 0.31 | | 0.23 | 0.15 | | 0.63 | 0.46 | |
| Control Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| LOS | Е | В | | F | Α | | D | С | | Е | В | |
| Approach Delay | | 18.6 | | | 20.8 | | | 31.7 | | | 33.6 | |
| Approach LOS | | В | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | | | | | | |
| Offset: 107.8 (90%), Refe | erenced to ph | ase 2:EB | T and 6:WI | 3T, Star | t of Greer | l | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-C | | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay | | | | | ntersection | | | | | | | |
| Intersection Capacity Util | ization 72.4% |) | | I(| CU Level | of Service | e C | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 3: [| Dixie Road & | Kingston I | Road | | | | | | | | | |
| √Ø1 →Ø2 (R) | | | | | | 1 | Ø4 | | | | | |
| 11s 59s | a a | | | | | 50 : | | | | | | 1 4 |
| | 6 (R) | | | | | 4 | †ø8 | | | | | |
| 15 s 55 s | - XX | | | | <u> </u> | 50 : | фина | | | | | |
| | | | | | | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Lanes, Volumes, Timings

1: Walnut Lane & Kingston Road

| | ۶ | - | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|-------|------------|-------|-------|-------------|-------|-------|-------------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | † } | | ሻ | ↑ ↑ | | 7 | | 7 | ሻ | 1> | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | 0 | | 0.950 | 0000 | | 0.728 | | 1000 | 0.950 | | Ŭ |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | 1077 | 0111 | Yes | 1002 | 0000 | Yes | 1010 | | Yes | 17.10 | 1100 | Yes |
| Satd. Flow (RTOR) | | 26 | 103 | | 9 | 103 | | | 93 | | 28 | 103 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | 33 | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | 1.0 | 7 | 7 | 41.7 | 5 | 14 | 10.5 | 5 | 5 | 10.2 | 14 |
| Confl. Bikes (#/hr) | J | | 1 | , | | 3 | 14 | | J | 3 | | 14 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.92 | 0.92 | 2% | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Bus Blockages (#/hr) | 0% | 2% | 3 | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 41 | 1543 | 293 | 129 | 702 | 47 | 318 | 0 | 288 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | 41 | 1543 | 293 | 129 | 702 | 41 | 310 | U | 200 | 20 | 17 | 20 |
| | 41 | 1836 | 0 | 129 | 749 | 0 | 318 | 0 | 288 | 26 | 45 | 0 |
| Lane Group Flow (vph) | | | | | | - | | | | | | |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left 3.1 | Right | Left | Left 3.3 | Right | Left | Left | Right |
| Median Width(m) | | 3.1 0.0 | | | 0.0 | | | | | | 3.3 | |
| Link Offset(m) | | 4.9 | | | | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.04 | 4.00 | Yes | 0.00 | 4.04 | 4.04 | 0.00 | 4.00 | 0.00 | 0.00 |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | _ | 14 | 24 | | 14 | 24 | _ | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

| | • | - | • | • | • | • | 1 | Ť | ~ | - | ţ | 4 |
|-------------------------------|--------------|------------|----------|------------|-------------|------------|-------|------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.64 | 0.99 | | 1.00 | 0.36 | | 1.02 | | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | | 132.8 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | | 132.8 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| LOS | F | D | | F | Α | | F | | D | D | С | |
| Approach Delay | | 42.2 | | | 27.4 | | | 72.0 | | | 27.1 | |
| Approach LOS | | D | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliza | ation 91.5% | | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | alnut Lane 8 | & Kingstor | Road | | | | | | | | | |
| √Ø1 →Ø2 (F | 2) | | | | | | | 1/2 | Ø4 | | - | |
| 15 s 76 s | <i>y</i> | | | | | | | 39 s | | | ji. | 17 |
| ≯ ← | | | | | | | | - A. | | | | |
| Ø5 Ø6 (R) | | | | | | | | Y | Ø8 | | | |
| 10 s 81 s | | | | | | | | 39 5 | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

1: Walnut Lane & Kingston Road

| | • | - | • | - | 1 | | - | ↓ |
|------------------------|------|--------|-------|-------|--------|------|------|----------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT |
| Lane Group Flow (vph) | 41 | 1836 | 129 | 749 | 318 | 288 | 26 | 45 |
| v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 |
| Control Delay | 85.6 | 41.2 | 132.8 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 85.6 | 41.2 | 132.8 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 |
| Queue Length 50th (m) | 0.0 | 130.0 | 34.9 | 27.4 | ~84.2 | 45.2 | 5.2 | 3.4 |
| Queue Length 95th (m) | m0.0 | #291.4 | #75.7 | 35.4 | #142.9 | 76.2 | 12.9 | 13.3 |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | |
| Base Capacity (vph) | 64 | 1850 | 129 | 2063 | 313 | 453 | 408 | 428 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 |

1105-1163 Kingston Road Synchro 11 Report Page 3 Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2038 Future Background>PM 12-20-2024

| | ۶ | → | • | • | ← | 4 | 1 | † | ~ | / | ↓ | 4 |
|----------------------------|-------|------------|---------|-------|------------|---------|-------|-------|-------|-------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | 7 | † } | | 7 | 1> | | ሻ | f. | |
| Traffic Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Future Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.991 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | 0.020 | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3394 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | 0001 | • | 0.950 | 0.01 | | 0.674 | 1100 | • | 0.676 | | Ū |
| Satd. Flow (perm) | 1578 | 3394 | 0 | 1594 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | 1010 | 0001 | Yes | 1001 | 0101 | Yes | 1200 | 1100 | Yes | 1200 | 1700 | Yes |
| Satd. Flow (RTOR) | | 8 | 100 | | 24 | 100 | | 42 | 100 | | 100 | 100 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | 00.0 | 6 | 6 | 11.0 | 1 | 4 | 1.0 | 7 | 7 | 17.2 | 4 |
| Confl. Bikes (#/hr) | | | 1 | U | | | 7 | | , | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1640 | 109 | 43 | 837 | 178 | 121 | 59 | 68 | 154 | 30 | 100 |
| Shared Lane Traffic (%) | | 1010 | 100 | -10 | 001 | 110 | | 00 | 00 | 101 | - 00 | 100 |
| Lane Group Flow (vph) | 222 | 1749 | 0 | 43 | 1015 | 0 | 121 | 127 | 0 | 154 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 2.8 | rtigitt | Lon | 2.8 | rtigrit | Loit | 3.8 | ragni | LOIL | 3.8 | rtigiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 7.0 | | | Yes | | | т.5 | | | 7.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 1.00 | 24 | 0.34 | 14 | 24 | 0.32 | 14 |
| Number of Detectors | 0 | 0 | 14 | 0 | 0 | 14 | 0 | 0 | 14 | 1 | 1 | 14 |
| Detector Template | U | U | | U | U | | U | U | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Size(m) | Cl+Ex | CI+Ex | | | CI+Ex | | Cl+Ex | | | CI+Ex | CI+Ex | |
| Detector 1 Type | UI+EX | OI+EX | | CI+Ex | UI+EX | | OI+EX | CI+Ex | | OI+EX | UI+EX | |
| Detector 1 Channel | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | | | | 0.0 | | | | | | | | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

| | • | - | • | • | ← | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 26.0 | 79.0 | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 20.0% | 60.8% | | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) | 21.0 | 72.4 | | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 4 | | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 20.3 | 84.9 | | 5.0 | 67.7 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| Actuated g/C Ratio | 0.16 | 0.65 | | 0.04 | 0.52 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.90 | 0.79 | | 0.70 | 0.57 | | 0.60 | 0.39 | | 0.74 | 0.36 | |
| Control Delay | 73.9 | 26.0 | | 107.6 | 23.6 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 73.9 | 26.0 | | 107.6 | 23.6 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| LOS | Е | С | | F | С | | Е | С | | Е | В | |
| Approach Delay | | 31.4 | | | 27.0 | | | 47.7 | | | 46.2 | |
| Approach LOS | | С | | | С | | | D | | | D | |

Intersection Summary Area Type:

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.4 Intersection Capacity Utilization 82.5% Intersection LOS: C ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 5 Queues

<2038 Future Background>PM

3: Dixie Road & Kingston Road

| | • | → | • | ← | 1 | † | - | ļ | |
|------------------------|--------|----------|--------|-------|------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 222 | 1749 | 43 | 1015 | 121 | 127 | 154 | 130 | |
| v/c Ratio | 0.90 | 0.79 | 0.70 | 0.57 | 0.60 | 0.39 | 0.74 | 0.36 | |
| Control Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Length 50th (m) | 51.9 | 216.1 | 11.9 | 75.0 | 29.2 | 19.4 | 38.1 | 6.7 | |
| Queue Length 95th (m) | m#88.3 | 258.6 | m#24.5 | m85.4 | 45.6 | 35.4 | 57.0 | 22.4 | |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 255 | 2220 | 61 | 1785 | 302 | 464 | 312 | 494 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.87 | 0.79 | 0.70 | 0.57 | 0.40 | 0.27 | 0.49 | 0.26 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Background>PM 12-20-2024

| Lane Group | SBR 108 108 1900 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes 143 |
|--|--|
| Traffic Volume (vph) | 108 108 1900 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes |
| Traffic Volume (vph) | 108 108 1900 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes |
| Future Volume (vph) 244 1028 329 212 545 67 155 806 232 95 546 Ideal Flow (vphpl) 1900 <td>1900 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes</td> | 1900 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes |
| Ideal Flow (vphpl) | 3.3 60.5 1 1.00 0.96 0.850 1561 1499 Yes |
| Lane Width (m) | 1.00 0.96 0.850 1561 1499 Yes |
| Storage Length (m) | 1.00 0.96 0.850 1561 1499 Yes |
| Storage Lanes | 1.00 0.96 0.850 1561 1499 Yes |
| Taper Length (m) 31.6 22.7 20.8 25.0 Lane Util. Factor 1.00 0.95 1.00 1.00 0.95 1.00 1.00 0.95 1.00 1.00 0.99 <td< td=""><td>0.96 0.850 1561 1499 Yes</td></td<> | 0.96 0.850 1561 1499 Yes |
| Ped Bike Factor 0.99 0.95 0.99 0.95 0.99 0.96 0.99 0.90 0.99 Fit Protected 0.950 0.850 0.850 0.850 0.850 0.850 Satd. Flow (prot) 1688 3461 1599 1728 3579 1579 1791 3773 1732 2026 3654 Fit Permitted 0.950 0.950 0.328 0.153 0.153 Satd. Flow (perm) 1667 3461 1512 1712 3579 1517 612 3773 1564 322 3654 Right Turn on Red Yes Yes Yes Yes Yes Yes 169 169 169 160 169 169 169 169 160 169 169 257.7 348.6 160 257.7 348.6 257.7 348.6 257.7 348.6 257.7 25.1 25.1 25.1 25.1 25.1 25.1 25.1 25.1 25.1 25.1 | 0.96 0.850 1561 1499 Yes |
| Frt 0.850 0.850 0.850 0.850 0.850 0.850 0.850 0.850 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.328 0.153 0 | 0.850 1561 1499 Yes |
| Fit Protected 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.950 0.328 0.020 0.053 0.050 | 1561 1499 Yes |
| Fit Protected 0.950 0.950 0.950 0.950 0.950 0.950 365 565 <td>1561 1499 Yes</td> | 1561 1499 Yes |
| Satd. Flow (prot) 1688 3461 1599 1728 3579 1579 1791 3773 1732 2026 3654 Fit Permitted 0.950 0.950 0.950 0.328 0.153 3654 Satd. Flow (perm) 1667 3461 1512 1712 3579 1517 612 3773 1564 322 3654 Right Turn on Red Yes Yes Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 103 160 50 169 160 50 </td <td>1499 Yes</td> | 1499 Yes |
| Satd. Flow (perm) 1667 3461 1512 1712 3579 1517 612 3773 1564 322 3654 Right Turn on Red Yes Yes Yes Yes Yes Yes Yes 3654 Yes Yes Yes Yes 3654 Yes | Yes |
| Right Turn on Red Yes Yes Yes Yes Satd. Flow (RTOR) 103 160 169 169 169 160 160 160 160 50 60 25 25 25 25 25 25 25 25 25 20 | Yes |
| Satd. Flow (RTOR) 103 160 169 Link Speed (k/h) 60 60 50 50 Link Distance (m) 694.6 396.4 257.7 348.6 Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#/hr) 20 31 31 20 29 62 62 Peak Hour Factor 0.92 0.9 | |
| Satd. Flow (RTOR) 103 160 169 Link Speed (k/h) 60 60 50 50 Link Distance (m) 694.6 396.4 257.7 348.6 Link Distance (m) 694.6 396.4 257.7 348.6 Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#/hr) 20 31 31 20 29 62 62 Peak Hour Factor 0.92 | |
| Link Speed (k/h) 60 50 50 Link Distance (m) 694.6 396.4 257.7 348.6 Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#/hr) 20 31 31 20 29 62 62 Peak Hour Factor 0.92 <td></td> | |
| Link Distance (m) 694.6 396.4 257.7 348.6 Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#hr) 20 31 31 20 29 62 62 Peak Hour Factor 0.92 | |
| Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#/hr) 20 31 31 20 29 62 62 Peak Hour Factor 0.92 0.9 | |
| Peak Hour Factor 0.92 | |
| Heavy Vehicles (%) 1% 2% 1% 1% 2% 0% 3% 1% 4% 0% 1% Bus Blockages (#/hr) 0 | 29 |
| Bus Blockages (#/hr) 0 0 0 0 0 0 0 4 0 0 Adj. Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Shared Lane Traffic (%) Lane Group Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Enter Blocked Intersection No No <td< td=""><td>0.92</td></td<> | 0.92 |
| Bus Blockages (#/hr) 0 0 0 0 0 0 0 4 0 0 Adj. Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Shared Lane Traffic (%) Lane Group Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Enter Blocked Intersection No No <td< td=""><td>0%</td></td<> | 0% |
| Adj. Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Shared Lane Traffic (%) Lane Group Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Enter Blocked Intersection No No <td>0</td> | 0 |
| Lane Group Flow (vph) 265 1117 358 230 592 73 168 876 252 103 593 Enter Blocked Intersection No | 117 |
| Enter Blocked Intersection No | |
| Lane Alignment Left Left Right Left Right Left Right Left Right Left Left <td>117</td> | 117 |
| Median Width(m) 3.3 3.3 4.7 4.7 | No |
| Median Width(m) 3.3 3.3 4.7 4.7 | Right |
| Link Offset(m) 0.0 0.0 0.0 | |
| | |
| Crosswalk Width(m) 1.6 1.6 1.6 1.6 | |
| Two way Left Turn Lane Yes Yes | |
| Headway Factor 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 | 1.04 |
| Turning Speed (k/h) 24 14 24 14 24 14 24 | 14 |
| Number of Detectors 1 2 1 1 2 1 1 2 1 1 2 | 1 |
| Detector Template Left Thru Right Left Thru Right Left Thru Right Left Thru | Right |
| Leading Detector (m) 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 10.0 | 2.0 |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | 0.0 |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | 0.0 |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 0.6 0.6 0.0 0.6 | 2.0 |
| Detector 1 Type CI+Ex CI | CI+Ex |
| Detector 1 Channel | |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | 0.0 |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | 0.0 |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | |
| Detector 2 Position(m) 9.4 9.4 9.4 | 0.0 |
| Detector 2 Size(m) 0.6 0.6 0.6 0.6 | 0.0 |
| Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex | 0.0 |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Background>PM 12-20-2024

| | • | → | • | • | ← | • | 4 | † | / | > | ļ | 4 |
|----------------------------|----------------|-----------|-----------|------------|------------|------------|-------|----------|--------|-------------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | . 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 24.5 | 40.0 | 49.1 | 19.9 | 35.4 | 35.4 | 52.0 | 40.9 | 40.0 | 52.0 | 40.9 | 40.9 |
| Actuated q/C Ratio | 0.19 | 0.31 | 0.38 | 0.15 | 0.27 | 0.27 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.58 | 0.74 | 0.42 | 0.53 | 0.52 | 0.21 |
| Control Delay | 47.2 | 87.3 | 41.8 | 84.1 | 45.4 | 0.6 | 35.4 | 44.3 | 14.5 | 34.1 | 38.4 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 41.8 | 84.1 | 45.4 | 0.6 | 35.4 | 44.3 | 14.5 | 34.1 | 38.4 | 3.6 |
| LOS | D | F | D | F | D | Α | D | D | В | С | D | Α |
| Approach Delay | | 71.8 | | | 51.7 | | | 37.3 | | | 32.8 | |
| Approach LOS | | E | | | D | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | 0 | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | | | | | | |
| Offset: 78 (60%), Referen | | 2·FRT a | nd 6·WB | T Start o | f Green | | | | | | | |
| Natural Cycle: 125 | nood to pridoc | | 0.112 | i, otait o | 0.00 | | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | | | | | | |
| Intersection Signal Delay | | | | 1 | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Util | | % | | | | of Service | | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: I | _iverpool Roa | ıd & Kina | ston Road | ł | | | | | | | | |
| √ Ø1 | - Pop(| es e | | | | 10 | 3 104 | 1 | | | | |
| 26 s | 46 s | | | | | 8.8 | 50 s | | | | | |
| ≯ Ø5 | | Ø6 (F | 3) | | | Vø | 7 ¶øs | 3 | | | | |
| 34 s WQD | 3 | 88 | | | | 8.5 | 50 s | | | | | Page 8 |
| WSP | | | | | | | | | | | | |

Queues

<2038 Future Background>PM 12-20-2024

6: Liverpool Road & Kingston Road

| | • | - | • | • | — | • | 4 | † | ~ | - | ţ | 4 |
|------------------------|---------|---------|-------|-------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 876 | 252 | 103 | 593 | 117 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.58 | 0.74 | 0.42 | 0.53 | 0.52 | 0.21 |
| Control Delay | 47.2 | 87.3 | 41.8 | 84.1 | 45.4 | 0.6 | 35.4 | 44.3 | 14.5 | 34.1 | 38.4 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 41.8 | 84.1 | 45.4 | 0.6 | 35.4 | 44.3 | 14.5 | 34.1 | 38.4 | 3.6 |
| Queue Length 50th (m) | 68.7 | ~172.9 | 74.1 | 57.7 | 70.6 | 0.0 | 27.0 | 105.3 | 15.8 | 15.8 | 65.3 | 0.0 |
| Queue Length 95th (m) | m73.7 r | n#182.5 | m77.4 | #98.7 | 93.7 | 0.0 | 42.7 | 128.8 | 39.1 | 27.4 | 83.3 | 8.5 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1065 | 638 | 279 | 973 | 529 | 290 | 1187 | 598 | 194 | 1149 | 569 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.70 | 1.05 | 0.56 | 0.82 | 0.61 | 0.14 | 0.58 | 0.74 | 0.42 | 0.53 | 0.52 | 0.21 |

Lanes, Volumes, Timings

<2038 Future Background>PM

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | • | 1 | † | ~ | - | ţ | 4 |
|----------------------------|-------|------------|-------|-------|----------|-------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ↑ Ъ | | 77 | ^ | 7 | * | ^ | 7 | * | ^ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 873 | 401 | 196 | 1027 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 873 | 401 | 196 | 1027 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | 0.99 | | 0.96 | 0.99 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 5085 | 1569 | 1708 | 5079 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.173 | | | 0.230 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 297 | 5085 | 1502 | 411 | 5079 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | | 21 | 21 | | | 21 | | 21 | 21 | | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1116 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1116 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| | | | | | | | | | | | | |

Synchro 11 Report Page 10 1105-1163 Kingston Road WSP

1105-1163 Kingston Road Synchro 11 Report Page 9

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2038 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ٠ | - | • | • | — | • | 1 | † | ~ | / | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-------|-------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.56 | 0.47 | 0.51 | 0.77 | 0.56 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 25.6 | 23.2 | 9.2 | 38.9 | 26.2 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 25.6 | 23.2 | 9.2 | 38.9 | 26.2 | 0.2 |
| LOS | D | В | | D | С | Α | С | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 19.4 | | | 27.2 | |
| Approach LOS | | С | | | С | | | В | | | С | |

Intersection Summary Area Type:

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

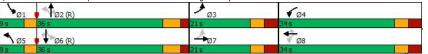
Intersection Signal Delay: 25.0

Intersection LOS: C ICU Level of Service C

Intersection Capacity Utilization 68.8%

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2038 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | 4 | † | - | - | ↓ | 1 | |
|------------------------|------|------|------|-------|------|--------|----------|------|-------|----------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1116 | 50 | |
| v/c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.56 | 0.47 | 0.51 | 0.77 | 0.56 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 25.6 | 23.2 | 9.2 | 38.9 | 26.2 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 25.6 | 23.2 | 9.2 | 38.9 | 26.2 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 14.8 | 52.3 | 24.5 | 20.8 | 58.2 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#35.1 | 75.2 | 55.0 | #62.0 | 86.4 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 225 | 2012 | 857 | 278 | 2010 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Reduced v/c Ratio

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 12

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | - | • | • | ← | • | 4 | † | / | - | ţ | 1 |
|----------------------------|------|-------|-------|-------|----------|-------|-------|------------|-------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ર્ન | 7 | ሻ | ^ ^ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1110 | 0 | 0 | 972 | 71 |
| Future Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1110 | 0 | 0 | 972 | 71 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.987 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.987 | | 0.177 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 340 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 85 | | | | | | 82 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 258 | 302 | 183 | 318 | 132 | 1207 | 0 | 0 | 1057 | 77 |
| Shared Lane Traffic (%) | | | | 21% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 258 | 239 | 246 | 318 | 132 | 1207 | 0 | 0 | 1057 | 77 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 13

<2038 Future Background>PM 12-20-2024

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Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ≯ → | • | • | • | • | 1 | † | - | - | ↓ | 4 |
|-----------------------------------|----------------|------------|------------|------------|-----------|-------|----------|-----|-----|----------|-------|
| Lane Group | EBL EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lac |
| Lead-Lag Optimize? | | | | | | | | | | - 3 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0.0 | 0.0 | 0.0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | 20.7 | 21.5 | 21.5 | 21.5 | 68.0 | 66.2 | | | 41.0 | 41.0 |
| Actuated g/C Ratio | | 0.21 | 0.22 | 0.22 | 0.22 | 0.68 | 0.66 | | | 0.41 | 0.41 |
| v/c Ratio | | 0.75 | 0.64 | 0.64 | 0.78 | 0.25 | 0.36 | | | 0.52 | 0.12 |
| Control Delay | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | | | 25.9 | 12.8 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | | | 25.9 | 12.8 |
| LOS | | D | D | D | D | A | A | | | C | В |
| Approach Delay | 50.5 | | | 41.5 | | - '` | 8.6 | | | 25.0 | |
| Approach LOS | D | | | D | | | A.S | | | C | |
| •• | | | | | | | - / (| | | | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Othe | er | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | |
| Actuated Cycle Length: 100 | ONDT | LCODE | 01 1 6 | | | | | | | | |
| Offset: 8 (8%), Referenced to ph | iase 2:NBTL ar | 10 6:SB1, | Start of C | reen | | | | | | | |
| Natural Cycle: 65 | | | | | | | | | | | |
| Control Type: Actuated-Coordina | ated | | | | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | | | | |
| Intersection Signal Delay: 24.4 | | | | ntersectio | | | | | | | |
| Intersection Capacity Utilization | 59.6% | | 10 | CU Level | of Servic | е В | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Splits and Phases: 9: Liverpoo | ol Road & Walr | nut Lane/H | lwy 401 \ | NB Off-Ra | amp | | | | | | |
| Ø2 (R) | _ | | , | | | 1 | Ø8 | | | | - 1 |
| 1 02 (R) 64s | • | | | | | 36 s | Ø8 | | | | |
| 4 | | \$ Ø6 (F | | | | | | | | | |
| → Ø5 | | ▼ Ø6 (F | 2) | | | | | | | | |

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | — | • | 1 | † | ţ | 4 | |
|------------------------|------|------|----------|-------|------|----------|-------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 258 | 239 | 246 | 318 | 132 | 1207 | 1057 | 77 | |
| v/c Ratio | 0.75 | 0.64 | 0.64 | 0.78 | 0.25 | 0.36 | 0.52 | 0.12 | |
| Control Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | 25.9 | 12.8 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 50.5 | 42.8 | 42.3 | 39.9 | 7.9 | 8.6 | 25.9 | 12.8 | |
| Queue Length 50th (m) | 47.2 | 44.5 | 45.7 | 43.2 | 7.9 | 34.3 | 38.5 | 0.9 | |
| Queue Length 95th (m) | 67.7 | 63.0 | 64.2 | 66.2 | 18.3 | 54.1 | 80.7 | m11.0 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 540 | 533 | 654 | 3364 | 2040 | 667 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.55 | 0.46 | 0.46 | 0.60 | 0.20 | 0.36 | 0.52 | 0.12 | |
| | | | | | | | | | |

m Volume for 95th percentile queue is metered by upstream signal.

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Background>PM 12-20-2024

| | ۶ | - | • | • | - | 1 | | |
|----------------------------|-------|----------|------------|-------|-------|-------|-----|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Lane Configurations | ኘ | ^ | † ‡ | | ኘ | 7 | ~ ' | |
| Traffic Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | | |
| Future Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | | |
| Grade (%) | | 6% | 0% | | 0% | | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | | |
| Taper Length (m) | 2.5 | | | | 31.3 | | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | | |
| Ped Bike Factor | 1.00 | | 0.99 | | | 0.99 | | |
| Frt | | | 0.966 | | | 0.850 | | |
| Flt Protected | 0.950 | | | | 0.950 | | | |
| Satd. Flow (prot) | 1618 | 3433 | 3346 | 0 | 1805 | 1777 | | |
| Flt Permitted | 0.950 | | | | 0.950 | | | |
| Satd. Flow (perm) | 1617 | 3433 | 3346 | 0 | 1805 | 1751 | | |
| Right Turn on Red | | | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | | 39 | | | 149 | | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | | |
| Adj. Flow (vph) | 223 | 1728 | 823 | 242 | 295 | 149 | | |
| Shared Lane Traffic (%) | | | | | | | | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 0 | 295 | 149 | | |
| Enter Blocked Intersection | No | No | No | No | No | No | | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | | |
| Two way Left Turn Lane | | Yes | | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | | |
| Detector Template | Left | Thru | Thru | | Left | Right | | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | |
| Detector 1 Channel | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 16

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Background>PM 12-20-2024

| | - | - | | - | _ | • | | |
|-------------------------|-------|-------|-------|-----|-------|-------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | | |
| Detector 2 Channel | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% | |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 | |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | | 0.83 | 0.32 | | |
| Control Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | | |
| LOS | D | D | В | | Е | Α | | |
| Approach Delay | | 41.2 | 10.1 | | 48.9 | | | |
| Approach LOS | | D | В | | D | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 32.6
Intersection Capacity Utilization 70.9%
ICU Leve

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2038 Future Background>PM 12-20-2024

| | • | - | - | - | 4 | |
|--------------------------|------------|-----------|-----------|-----------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 295 | 149 | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | 0.83 | 0.32 | |
| Control Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Length 50th (m) | 51.0 | 247.6 | 26.7 | 72.7 | 0.0 | |
| Queue Length 95th (m) | m50.4 | m241.9 | 36.0 | 101.2 | 16.7 | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 248 | 2270 | 1724 | 426 | 527 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.90 | 0.76 | 0.62 | 0.69 | 0.28 | |
| Intersection Summary | | | | | | |
| m Volume for 95th percen | tile queue | is metere | d by upst | ream sign | al. | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | - |
|----------------------------|-------------|-------|-------|-----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | LUI | 7 | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 5.1 | 2.1 | 0% | 0% | 3.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| • | | U | | | | - 1 |
| Taper Length (m) | 0.05 | 0.05 | 22.3 | 0.05 | 2.5 | 4.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | • |
| Link Opeca (km) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | 10.1 | | | 20.4 | 10.0 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | | | | | | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1839 | 25 | 200 | 771 | 720 | 109 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1864 | 0 | 200 | 771 | 720 | 109 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 14 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | 14 | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| | | | 2.0 | | 2.0 | |
| Leading Detector (m) | 10.0 | | | 10.0 | | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| () | Cl+Ex | | | Cl+Ex | | |
| Detector 2 Type | OITEX | | | ∪i⊤⊑X | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 19 Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

<2038 Future Background>PM 12-20-2024

| | - | • | • | _ | 1 | | |
|-------------------------------|-----------|---------|-----------|-------------|-------------|------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | 3 | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.4 | | 16.0 | 86.4 | 29.7 | 29.7 | |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | | 1.03 | 0.32 | 0.89 | 0.25 | |
| Control Delay | 66.9 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 66.9 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| LOS | E | | F | Α | E | В | |
| Approach Delay | 66.9 | | | 27.5 | 56.1 | | |
| Approach LOS | E | | | С | Е | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 130 |) | | | | | | |
| Offset: 69 (53%), Reference | | 2:EBT a | nd 6:WB | Γ, Start of | Green | | |
| Natural Cycle: 130 | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | | |
| Intersection Signal Delay: 5 | 4.1 | | | Ir | ntersection | n LOS: D | |
| Intersection Capacity Utiliza | | | | | | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| , , , | | | | | | | |
| Splits and Phases: 11: H | wy 401 WB | Ramps 8 | & Kingsto | n Road | | | |
| €a1 - | m2 (p) | | | | | | |



11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | 1 | |
|------------------------|--------|--------|-------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1864 | 200 | 771 | 720 | 109 |
| v/c Ratio | 1.04 | 1.03 | 0.32 | 0.89 | 0.25 |
| Control Delay | 66.9 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 66.9 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Length 50th (m) | ~284.5 | ~47.6 | 6.4 | 91.1 | 5.0 |
| Queue Length 95th (m) | #328.0 | #100.5 | 6.1 | #114.7 | 19.8 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1799 | 194 | 2404 | 853 | 446 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.32 | 0.84 | 0.24 |

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Lanes, Volumes, Timings

<2038 Future Background>PM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | • | • | 1 | Ť | | - | ¥ | 4 |
|----------------------------|-------|------------|---------|-------|------------|---------|-------|-------|---------|-------|-------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | f. | | ሻ | ₽ | |
| Traffic Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.986 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3399 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1647 | 3343 | 0 | 1704 | 3399 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 13 | | | 129 | | | 149 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | 10.0 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0.32 | 0.32 | 2% | 0.32 | 2% | 0.32 | 0.52 | 0.32 | 0.32 | 0.52 |
| Adj. Flow (vph) | 141 | 1699 | 41 | 97 | 1270 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | 171 | 1000 | 71 | 31 | 1210 | 102 | 210 | 10 | 100 | 0.0 | | 100 |
| Lane Group Flow (vph) | 141 | 1740 | 0 | 97 | 1402 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.5 | rtigitt | Leit | 3.5 | rtigrit | Leit | 3.6 | rtigrit | Leit | 3.6 | rtigrit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| , | 24 | 1.07 | 1.00 | 24 | 1.03 | 1.03 | 24 | 0.07 | 14 | 24 | 1.13 | |
| Turning Speed (k/h) | 1 | 2 | 14 | 1 | 2 | 14 | | 2 | 14 | | 2 | 14 |
| Number of Detectors | | | | | | | 1 | _ | | 1 | _ | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2038 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | → • | · • | • | 1 | Ť | ~ | - | ¥ | 4 |
|-------------------------|-------|-------|------------|---------|-----|-------|-------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR WE | L WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Pr | ot NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5 | 0 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | 10 | 0 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | 13 | 0 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | 10.0 | % 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | 8 | | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 0 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 0 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | 5 | 0 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | Lea | id Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | Nor | | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 0 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | 0.0 | | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | 0.9 | | | 0.93 | 0.36 | | 0.39 | 0.41 | |
| Control Delay | 84.2 | 22.6 | 124 | | | 93.7 | 14.4 | | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | 0 | | | 0.0 | 74.4 | | 139.0 | 0.0 | |
| Total Delay | 84.2 | 23.8 | 124 | | | 93.7 | 88.7 | | 189.3 | 12.5 | |
| LOS | F | С | | F C | | F | F | | F | В | |
| Approach Delay | | 28.3 | | 26.8 | | | 91.6 | | | 73.5 | |
| Approach LOS | | С | | С | | | F | | | E | |

| Intersection Summary | |
|--|------------------------|
| Area Type: Other | |
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 6 (5%), Referenced to phase 2:EBT and 6:WBT, Sta | irt of Green |
| Natural Cycle: 110 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.93 | |
| Intersection Signal Delay: 36.6 | Intersection LOS: D |
| Intersection Capacity Utilization 96.9% | ICU Level of Service F |
| Analysis Period (min) 15 | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2038 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | 1 | - | ţ | |
|------------------------|-------|--------|--------|-------|-------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1740 | 97 | 1402 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.76 | 0.93 | 0.36 | 0.39 | 0.41 | |
| Control Delay | 84.2 | 22.6 | 124.2 | 20.0 | 93.7 | 14.4 | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 74.4 | 139.0 | 0.0 | |
| Total Delay | 84.2 | 23.8 | 124.2 | 20.0 | 93.7 | 88.7 | 189.3 | 12.5 | |
| Queue Length 50th (m) | 36.9 | 135.0 | 26.3 | 72.7 | 54.0 | 7.7 | 19.7 | 4.2 | |
| Queue Length 95th (m) | m39.6 | m138.3 | m#47.8 | 95.4 | #99.2 | 26.9 | 36.4 | 23.7 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1843 | 243 | 481 | 240 | 424 | |
| Starvation Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 56 | 0 | 0 | 0 | 362 | 220 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.76 | 0.88 | 1.39 | 4.45 | 0.40 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Background>PM 12-20-2024

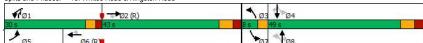
| | ۶ | → | • | • | + | • | • | † | ~ | / | + | -√ |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1638 | 3400 | 1549 | 1719 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 171 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2038 Future Background>PM 12-20-2024

| | • | - | • | • | ← | • | 1 | † | / | - | ţ | 1 |
|-------------------------------|-------------|------------|----------|------------|------------|------------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 38.3 | 38.3 | 22.7 | 48.0 | 48.0 | 51.0 | 40.6 | 66.7 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | Е | D | D | Е | D | Α |
| Approach Delay | | 76.6 | | | 34.6 | | | 40.9 | | | 34.3 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 |) | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | 2:EBT a | nd 6:WB1 | , Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | 17.5 | | | Ir | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliza | ation 109.1 | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Splits and Phases: 13: W | /hites Road | l & Kingst | on Road | | | | | | | | | |



13: Whites Road & Kingston Road

| | • | - | • | • | ← | * | 4 | † | - | - | ↓ | 4 |
|------------------------|-------|--------|-------|-------|---------|---------|-------|----------|--------|-------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | ~154.6 | 51.2 | 60.7 | 53.7 | 43.3 | 42.7 | 55.8 | 123.7 | 34.3 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #195.8 | 88.5 | m80.9 | m79.6 n | n#129.0 | #83.4 | 68.3 | #188.7 | #65.5 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 1001 | 576 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.04 | 0.68 | 0.75 | 0.63 | 0.83 | 0.88 | 0.45 | 0.86 | 0.81 | 0.42 | 0.32 |

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2038 Future Background>PM 12-20-2024

| | • | • | 4 | † | ļ | 4 |
|----------------------------|-------|-------|------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻሻ | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Future Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | ' | 2.5 | | | 0 |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.33 | 0.53 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1421 | U | 3038 | 3010 | U |
| | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Satd. Flow (perm) | 3433 | | U | ათამ | 2010 | |
| Right Turn on Red | _ | Yes | | | | Yes |
| Satd. Flow (RTOR) | 7 | 129 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | _ | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 0.05 | 3 | 4 | 0.00 | 0.05 | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1286 | 640 | 0 | 914 | 595 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 1350 | 576 | 0 | 914 | 595 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITLX | | OITEX | OITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | | | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report 1105-1163 Kingston Road WSP Page 28

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

↑ø2 (R)

<2038 Future Background>PM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| • | • | `` | • | † | + | 4 |
|-------------------------------|-------------|----------|----------|-------------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | LUL | LDIX | .,,,,, | 0.0 | 0.0 | - U.S. (|
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | - | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 46.8 | 46.8 | | 41.0 | 41.0 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | |
| v/c Ratio | 0.83 | 0.79 | | 0.63 | 0.40 | |
| Control Delay | 28.2 | 25.9 | | 26.6 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 28.2 | 25.9 | | 26.6 | 22.6 | |
| LOS | С | С | | С | С | |
| Approach Delay | 27.5 | | | 26.6 | 22.6 | |
| Approach LOS | С | | | С | С | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 100 | 0 | | | | | |
| Offset: 8 (8%), Referenced | | NBT and | 6:SBT, S | Start of Gr | een | |
| Natural Cycle: 60 | | | , | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.83 | | | | | | |
| Intersection Signal Delay: 2 | 26.4 | | | lr | ntersection | LOS: C |
| Intersection Capacity Utiliza | | | | | | of Service D |
| Analysis Period (min) 15 | | | | | | |
| 0.111 1.111 | | | 404 = | | | |
| Splits and Phases: 14: W | Vhites Road | & Highwa | ay 401 E | B Off Ran | np | |

Ø6 (R)

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1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2038 Future Background>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1350 | 576 | 914 | 595 |
| v/c Ratio | 0.83 | 0.79 | 0.63 | 0.40 |
| Control Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Length 50th (m) | 110.4 | 77.9 | 74.2 | 42.8 |
| Queue Length 95th (m) | 131.2 | 123.7 | 99.3 | 59.7 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 772 | 1451 | 1484 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.75 | 0.63 | 0.40 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 30 Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2038 Future Background>PM 12-20-2024

| WBL | WBR | | | | • |
|------------|---|---|---|--|---|
| W | | NBT | NBR | SBL | SBT |
| | | 1 | | | ની |
| 0 | 228 | 0 | 0 | 168 | Ö |
| 0 | 228 | 0 | 0 | 168 | 0 |
| 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | | | | | |
| 0.865 | | | | | |
| | | | | | 0.950 |
| 1701 | 0 | 1946 | 0 | 0 | 1848 |
| | | | | | 0.950 |
| 1701 | 0 | 1946 | 0 | 0 | 1848 |
| 30 | | 40 | | | 40 |
| 193.0 | | 106.6 | | | 44.0 |
| 23.2 | | 9.6 | | | 4.0 |
| | 11 | | | 12 | |
| | | | | 1 | |
| 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| 0 | 248 | 0 | 0 | 183 | 0 |
| | | | | | |
| 248 | 0 | 0 | 0 | 0 | 183 |
| No | No | No | No | No | No |
| Left | Right | Left | Right | Left | Left |
| 4.1 | , , , , , , , , , , , , , , , , , , , | 3.6 | , | | 3.6 |
| 0.0 | | 0.0 | | | 0.0 |
| 1.6 | | 1.6 | | | 1.6 |
| | | | | | |
| 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| 97 | 97 | | 97 | 97 | |
| Stop | | Free | | | Free |
| | | | | | |
| Other | | | | | |
| | | | | | |
| tion 31.2% | | | IC | U Level | of Service |
| | 1900 4.1 1.00 0.865 1701 1701 30 193.0 23.2 0.92 0 248 No Left 4.1 0.0 0.93 97 Stop | 1900 1900 4.1 3.7 1.00 1.00 0.865 1701 0 1701 0 193.0 23.2 11 0.92 0.92 0 248 248 0 No No Left Right 4.1 0.0 1.6 0.93 0.99 97 97 Stop | 1900 1900 1900 4.1 3.7 4.0 1.00 1.00 1.00 0.865 1701 0 1946 1701 0 1946 30 40 193.0 106.6 23.2 9.6 11 0.92 0.92 0.92 0 248 0 0 No No No No Left Right Left 4.1 3.6 0.0 0.0 1.6 1.6 0.93 0.99 0.94 97 97 Stop Free | 1900 1900 1900 1900 4.1 3.7 4.0 3.7 1.00 1.00 1.00 1.00 0.865 1701 0 1946 0 1701 0 1946 0 193.0 40 193.0 106.6 23.2 9.6 11 0.92 0.92 0.92 0.92 0 248 0 0 0 248 0 0 0 No N | 1900 1900 1900 1900 1900 1900 4.1 3.7 4.0 3.7 3.7 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1. |

1105-1163 Kingston Road Synchro 11 Report Page 31

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2038 Future Background>PM 12-20-2024

| | € | • | † | <i>></i> | > | ţ |
|-----------------------------|--------|------|----------|-------------|-------------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | Ö |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | 010 | 20 | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| . , , | | | 00.4 | | 1001 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 0 | 0 | 183 | | | |
| Volume Right | 248 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utili | zation | | 31.2% | IC | U Level o | of Service |
| Analysis Period (min) | | | 15 | | | |
| raidiyolo i Gilou (ililli) | | | 10 | | | |

Synchro 11 Report Page 32 1105-1163 Kingston Road

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2038 Future Background_PHF>PM 12-20-2024

| | • | → | • | • | 1 | • | 1 | † | ~ | / | | -√ |
|----------------------------|-------|-------------|-------|-------|-------------|-------|-------|----------|-------|----------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ች | † 1> | | * | † 1> | | * | | 1 | * | 1> | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1710 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.730 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1317 | 0 | 1603 | 1713 | 1710 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 100 | | 26 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 1690 | 0 | 119 | 689 | 0 | 293 | 0 | 265 | 24 | 42 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2038 Future Background_PHF>PM 12-20-2024

| | ۶ | - | \rightarrow | • | ← | • | 1 | † | / | - | ↓ | 1 |
|-------------------------------|-------------|------------|---------------|------------|-------------|------------|-------|------|-------|-------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | • | | | • | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 70.1 | | 10.0 | 77.1 | | 30.3 | | 30.3 | 30.3 | 30.3 | |
| Actuated g/C Ratio | 0.04 | 0.54 | | 0.08 | 0.59 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.59 | 0.91 | | 0.92 | 0.33 | | 0.95 | | 0.59 | 0.06 | 0.10 | |
| Control Delay | 81.2 | 29.8 | | 117.0 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.2 | 29.8 | | 117.0 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| LOS | F | С | | F | Α | | F | | С | D | С | |
| Approach Delay | | 30.9 | | | 25.0 | | | 62.9 | | | 27.2 | |
| Approach LOS | | С | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | 0 | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | 35.0 | | | lr | ntersection | LOS: C | | | | | | |
| Intersection Capacity Utiliza | ation 91.5% |) | | I | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | alnut Lane | & Kinastor | n Road | | | | | | | | | |
| | | <u> </u> | | | | | | -1 | Ø4 | | | |
| ▼ Ø1 ▼ Ø2 (F | V | | | | | | | 39 s | D-1 | | | |
| Ø5 ₩06 (R) | | | | | | | | 4 | Ø8 | | | |
| 10 s 81 s | | | | | | | | 39 s | 20 | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Background_PHF>PM 12-20-2024

| | ۶ | → | • | • | — | • | 1 | † | <i>></i> | / | + | -√ |
|----------------------------|-------|----------|---------|-------|----------|-------|---------|----------|-------------|----------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 806 | 232 | 95 | 546 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 806 | 232 | 95 | 546 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util, Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.362 | | | 0.191 | | |
| Satd. Flow (perm) | 1666 | 3461 | 1512 | 1710 | 3579 | 1517 | 674 | 3773 | 1564 | 401 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 122 | | | 160 | | | 170 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 806 | 232 | 95 | 546 | 108 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 806 | 232 | 95 | 546 | 108 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 3.3 | · ug.ic | 20.0 | 3.3 | | 20.0 | 4.7 | · ug.ic | 20.0 | 4.7 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | 0.00 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | OI-LX | OITEX | OITEX | OI LX | OITEX | OI · LX | OI-LX | OI LX | OI- LX | OITEX | OITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | Cl+Ex | | | CI+Ex | |
| DOLOGIO Z 19PE | | OLITEX | | | OITLX | | | OLICEX | | | OLITEX | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Background_PHF>PM 12-20-2024

| | • | - | • | • | — | • | 4 | † | ~ | - | ↓ | 4 |
|--|-------------|-----------|-------------|------------|------------|------------|---------------------------|----------|--------|-------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 23.4 | 40.7 | 49.8 | 19.2 | 36.5 | 36.5 | 52.0 | 40.9 | 40.7 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.18 | 0.31 | 0.38 | 0.15 | 0.28 | 0.28 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.81 | 0.95 | 0.50 | 0.83 | 0.54 | 0.12 | 0.50 | 0.68 | 0.38 | 0.43 | 0.48 | 0.19 |
| Control Delay | 49.4 | 69.4 | 38.1 | 79.5 | 43.0 | 0.5 | 31.7 | 42.3 | 12.4 | 29.4 | 37.6 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 49.4 | 69.4 | 38.1 | 79.5 | 43.0 | 0.5 | 31.7 | 42.3 | 12.4 | 29.4 | 37.6 | 2.8 |
| LOS | D | Е | D | Е | D | Α | С | D | В | С | D | Α |
| Approach Delay | | 59.9 | | | 48.9 | | | 35.1 | | | 31.5 | |
| Approach LOS | | Е | | | D | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | e 2:EBT a | and 6:WB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 115 Control Type: Actuated-Co | ardinated | | | | | | | | | | | |
| | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | 10.0 | | | | | - I OO. D | | | | | | |
| Intersection Signal Delay: | | 0/ | | | ntersectio | | . ^ | | | | | |
| Intersection Capacity Utiliz Analysis Period (min) 15 | ation 103.1 | % | | Į, | CU Level | of Service | 9 G | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | nd & Kina | ston Roar | 1 | | | | | | | | |
| √ Ø1 | | | otori rtout | | | 1 10 | \$ ₩ _{Ø4} | | | | | |
| 26 s | 46 s | K) | | | | 8 s | 50 s | T. | | | | |
| . ≯ ø5 | • | Ø6 (I | ₹) | | | Ø | √ ¶ øs | 3 | | | | |
| 34 s | 3 | 8 s | | | | 8 s | 50 s | | | | , T | |
| WSP | | | | | | | | | | | | Page 4 |

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | 1 | • | 4 | 1 |
|----------------------------|-------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | * | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.7 | E.1 | 0% | 0% | 0.7 |
| Storage Length (m) | 0,0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | - 3 | 22.3 | | 2.5 | - |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.33 | 0.33 | 1.00 | 0.55 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Fit Protected | 0.550 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| | 3311 | U | 0.950 | 3010 | | 1017 |
| Flt Permitted | 2577 | 0 | | 2042 | 0.950 | 1501 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | - | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1715 | 0 | 184 | 709 | 662 | 100 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 1.03 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | 14 | 1 | 2 | 1 | 14 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Leading Detector (m) | | | | | | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5

<2038 Future Background_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | • | 4 | / | |
|-----------------------------|----------------|---------------|----------|-------------|------------|--------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.7 | | 16.0 | 87.7 | 28.4 | 28.4 | |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| v/c Ratio | 0.93 | | 0.95 | 0.29 | 0.86 | 0.24 | |
| Control Delay | 46.2 | | 110.5 | 1.6 | 60.4 | 12.6 | |
| Queue Delay | 0.8 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 47.0 | | 110.5 | 1.6 | 60.4 | 12.6 | |
| LOS | D | | F | Α | E | В | |
| Approach Delay | 47.0 | | | 24.0 | 54.2 | | |
| Approach LOS | D | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | Outer | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | |
| Offset: 69 (53%), Referen | | 0-ERT or | od 6-WRT | T Start of | Groon | | |
| Natural Cycle: 120 | iceu to priase | z.LDT at | IU U.VVD | i, olait ui | Gleen | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | oordinated | | | | | | |
| Intersection Signal Delay: | 12 E | | | l. | ntersectio | ~ I ∩0· D | |
| Intersection Capacity Utili | | | | | | of Service F | - |
| Analysis Period (min) 15 | Zali011 93.0% | | | 10 | JU Level | oi service r | |
| Analysis Fellou (IIIII) 15 | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | Kingsto | n Road | | | |
| | - (n) | | | | | | |
| √ Ø1 | Ø2 (R) | | | | | | |
| 21 S /1 | S | | | | | | |
| Ø6 (R) | | | | | | | |
| 92.6 | | | | | | | |



Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Background_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.323 | | |
| Satd. Flow (perm) | 1634 | 3400 | 1549 | 1717 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 187 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 7

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Background_PHF>PM 12-20-2024

| | • | → | • | • | ← | • | 4 | † | / | - | ţ | 4 |
|------------------------------|--------------|------------|-----------|------------|------------|------------|--------------|-----------|-----------|-----------|-----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Loud | Loud | Lug | Lug |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | 140110 | 7.0 | 7.0 | INOTIC | 7.0 | 7.0 | IVOIIC | 7.0 | NOTIC | NONC | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 39.5 | 39.5 | 21.5 | 48.0 | 48.0 | 51.0 | 40.6 | 65.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.30 | 0.30 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.50 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.10 | 0.50 | 0.60 | 0.17 | 0.57 | 0.76 | 0.75 | 0.42 | 0.83 | 0.69 | 0.39 | 0.30 |
| Control Delay | 109.5 | 57.7 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 59.1 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| LOS | 109.5 F | 59.1 E | 23.1 C | 04.0 F | 24.5 C | 20.2 C | 47.4 D | 30.3 D | 32.1 C | 43.0 D | 35.6 D | 5.0 A |
| | Г | 55.6 | C | Г | 32.4 | C | U | 36.2 | U | U | 31.7 | H |
| Approach Delay Approach LOS | | 55.6 E | | | 32.4 C | | | 30.2 D | | | 31.7 C | |
| Approach LOS | | | | | C | | | U | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ced to phase | 2:EBT a | nd 6:WB | , Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | | | | | | |
| Intersection Signal Delay: | 39.5 | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | zation 109.1 | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: \ | Whites Road | l & Kingst | on Road | | | | | | | | | |
| ۯ1 | | Ø2 (R) | | | | 1 | 33 \$ | 4 | | | | |
| 30 s | 43 s | - ` ' | | | | 8 s | 49 s | | | | | |

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Lanes, Volumes, Timings

<2038 Future Background_PHF>PM 12-20-2024

15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | 1 | - | ↓ |
|----------------------------|-------|-------|----------|-------|------|----------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | ĵ» | | | ર્ન |
| Traffic Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Future Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 248 | 0 | 0 | 0 | 0 | 183 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 31.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2038 Future Background_PHF>PM 12-20-2024

| | € | • | † | 1 | - | ţ |
|------------------------------|--------|------|------------|------|---------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1 > | | | 4 |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | *** | | | | ·- | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 0 | 0 | 183 | | | |
| Volume Right | 248 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | Α. | 0.0 | Α. | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | J.0 | 0.0 | 7.0 | | | |
| | ,, | | | | | |
| Intersection Summary | | | 0 = | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utiliz | zation | | 31.2% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |

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APPENDIX

F-4 2043 FUTURE BACKGROUND CONDITIONS

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Background>AM 12-20-2024

| | ᄼ | - | • | • | ← | • | 4 | † | <i>></i> | / | ļ | 4 |
|----------------------------|-------|------------|-------|-------|-------------|-------|-------|----------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ት Ъ | | ሻ | † 1> | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 754 | 75 | 103 | 443 | 30 | 243 | 0 | 143 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.986 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3405 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3405 | 0 | 1643 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 10 | | | 8 | | | | 155 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | | 8 | 8 | | 4 | 9 | | 2 | 2 | | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 820 | 82 | 112 | 482 | 33 | 264 | 0 | 155 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 22 | 902 | 0 | 112 | 515 | 0 | 264 | 0 | 155 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Background>AM 12-20-2024

| | • | - | • | • | ← | • | | † | 1 | - | ţ | 4 |
|------------------------------|--------------|------------|----------|-----------|-----------------|--------|-------|----------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | | 15.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | , in the second | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 6.7 | 58.2 | | 12.8 | 68.7 | | 29.3 | | 29.3 | 29.3 | 29.3 | |
| Actuated g/C Ratio | 0.06 | 0.48 | | 0.11 | 0.57 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.24 | 0.54 | | 0.64 | 0.27 | | 0.81 | | 0.31 | 0.04 | 0.09 | |
| Control Delay | 81.8 | 19.1 | | 50.0 | 21.9 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.8 | 19.1 | | 50.0 | 21.9 | | 61.3 | | 6.4 | 30.7 | 12.8 | |
| LOS | F | В | | D | C | | Е | | Α | С | В | |
| Approach Delay | | 20.6 | | | 26.9 | | | 41.0 | | | 17.8 | |
| Approach LOS | | С | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | | |
| Offset: 1 (1%), Referenced | d to phase 2 | :EBT and | 6:WBT, S | tart of G | reen | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.81 | | | | | | | | | | | | |
| Intersection Signal Delay: | 26.7 | | | Ir | ntersection | LOS: C | | | | | | |
| Intersection Capacity Utiliz | |) | | | CU Level | | В | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: W | /alnut Lane | R Kinastor | Road | | | | | | | | | |



1: Walnut Lane & Kingston Road

| TOUR TOTAL WIND WIND WIND COLUMN |
|---|
| Lane Group EBL EBT WBL WBT NBL NBR SBL SBT |
| Lane Group Flow (vph) 22 902 112 515 264 155 15 39 |
| v/c Ratio 0.24 0.54 0.64 0.27 0.81 0.31 0.04 0.09 |
| Control Delay 81.8 19.1 50.0 21.9 61.3 6.4 30.7 12.8 |
| Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 |
| Total Delay 81.8 19.1 50.0 21.9 61.3 6.4 30.7 12.8 |
| Queue Length 50th (m) 5.4 84.7 26.7 55.7 58.8 0.0 2.7 1.3 |
| Queue Length 95th (m) m13.0 120.8 43.4 73.1 80.8 14.2 7.3 8.8 |
| Internal Link Dist (m) 105.3 670.6 155.7 |
| Turn Bay Length (m) 26.0 37.0 63.2 18.5 |
| Base Capacity (vph) 93 1657 201 1938 454 636 587 568 |
| Starvation Cap Reductn 0 0 0 0 0 0 0 |
| Spillback Cap Reductn 0 0 0 0 0 0 0 |
| Storage Cap Reductn 0 0 0 0 0 0 0 |
| Reduced v/c Ratio 0.24 0.54 0.56 0.27 0.58 0.24 0.03 0.07 |

Intersection Summar

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Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2043 Future Background>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | - | ţ | 1 |
|----------------------------|-------|-------------|--------|-------|-------------|-------|-------|-------|--------|-------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1≽ | | ሻ | † 1> | | ሻ | f. | | ሻ | f. | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | * | 0.540 | | - | 0.726 | | - |
| Satd. Flow (perm) | 1554 | 3316 | 0 | 1639 | 3301 | 0 | 993 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | 1001 | 00.0 | Yes | 1000 | 0001 | Yes | 000 | | Yes | 1000 | | Yes |
| Satd. Flow (RTOR) | | 12 | | | 17 | | | 32 | . 00 | | 157 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0,0 | 0 | 6 | 0 | 0 | 0,0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 826 | 88 | 85 | 602 | 93 | 40 | 16 | 32 | 142 | 38 | 157 |
| Shared Lane Traffic (%) | 0. | 020 | 00 | | 002 | 00 | | | 02 | | 00 | |
| Lane Group Flow (vph) | 87 | 914 | 0 | 85 | 695 | 0 | 40 | 48 | 0 | 142 | 195 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 2.8 | rugiit | Lon | 2.8 | rugin | Loit | 3.8 | rugiit | Lon | 3.8 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 14 | 24 | 0.54 | 14 | 24 | 0.52 | 14 |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | 14 | 0 | 0 | 14 | 1 | 1 | 14 |
| Detector Template | U | | | | · · | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | Cl+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | Cl+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | OITEX | | OITEX | CITEX | | OITEX | OITEX | | OITEX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | | | | | | | | | | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

m Volume for 95th percentile queue is metered by upstream signal.

| | • | - | • | • | ← | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 74.2 | | 6.0 | 70.7 | | 18.7 | 18.7 | | 18.7 | 18.7 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.71 | 0.44 | | 1.04 | 0.36 | | 0.26 | 0.16 | | 0.65 | 0.48 | |
| Control Delay | 83.0 | 13.7 | | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 13.7 | | 171.5 | 5.6 | | 45.6 | 19.8 | | 60.5 | 14.4 | |
| LOS | F | В | | F | Α | | D | В | | E | В | |
| Approach Delay | | 19.8 | | | 23.7 | | | 31.5 | | | 33.8 | |
| Approach LOS | | В | | | С | | | С | | | С | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120

Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 23.8

Intersection LOS: C

Intersection Capacity Utilization 72.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



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Queues

<2043 Future Background>AM 12-20-2024

3: Dixie Road & Kingston Road

| | • | \rightarrow | • | • | 1 | Ť | - | ¥ |
|------------------------|-------|---------------|--------|-------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 87 | 914 | 85 | 695 | 40 | 48 | 142 | 195 |
| v/c Ratio | 0.71 | 0.44 | 1.04 | 0.36 | 0.26 | 0.16 | 0.65 | 0.48 |
| Control Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 13.7 | 171.5 | 5.6 | 45.6 | 19.8 | 60.5 | 14.4 |
| Queue Length 50th (m) | 20.2 | 53.6 | ~20.8 | 23.3 | 8.5 | 3.3 | 32.2 | 7.9 |
| Queue Length 95th (m) | #43.5 | 88.2 | m#53.0 | 44.1 | 16.9 | 12.4 | 47.4 | 25.6 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 130 | 2054 | 82 | 1951 | 335 | 618 | 470 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.44 | 1.04 | 0.36 | 0.12 | 0.08 | 0.30 | 0.28 |
| | | | | | | | | |

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background>AM 12-20-2024

| | • | → | \rightarrow | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|----------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|-------------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 408 | 146 | 84 | 686 | 117 |
| Future Volume (vph) | 167 | 523 | 218 | 137 | 465 | 50 | 134 | 408 | 146 | 84 | 686 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util, Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.257 | | | 0.466 | | |
| Satd. Flow (perm) | 1649 | 3299 | 1487 | 1677 | 3510 | 1517 | 476 | 3700 | 1536 | 973 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 169 | | | 174 | | | 159 | | | 155 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 443 | 159 | 91 | 746 | 127 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 443 | 159 | 91 | 746 | 127 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | • | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background>AM 12-20-2024

| Lane Group Detector 2 Type Detector 2 Channel Detector 2 Extend (s) Turn Type Protected Phases Permitted Phases | Prot 5 | CI+Ex 0.0 NA | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---------------|---------------|-----------|-----------|-----------|--------------|-------|-------|--------|-------|-------|--------|
| Detector 2 Channel Detector 2 Extend (s) Turn Type Protected Phases | | 0.0 | | | | | | 1101 | INDIX | ODL | ושט | انان |
| Detector 2 Extend (s) Turn Type Protected Phases | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Turn Type Protected Phases | | | | | | | | | | | | |
| Protected Phases | | NIA | | | 0.0 | | | 0.0 | | | 0.0 | |
| Protected Phases | 5 | INA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Pern |
| Permitted Phases | | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | 3 | 3 | | 3 | 3 | | 3 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 17.1 | 35.6 | 35.6 | 13.3 | 31.8 | 31.8 | 53.0 | 41.9 | 35.6 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.14 | 0.30 | 0.30 | 0.11 | 0.26 | 0.26 | 0.44 | 0.35 | 0.30 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.55 | 0.34 | 0.28 | 0.19 | 0.59 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.3 | 81.0 | 41.1 | 0.4 | 29.0 | 29.8 | 6.2 | 19.1 | 34.4 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.3 | 81.0 | 41.1 | 0.4 | 29.0 | 29.8 | 6.2 | 19.1 | 34.4 | 3. |
| LOS | F | C | В | F | D | A | C | C | A | В | C | , , |
| Approach Delay | • | 38.4 | _ | • | 46.4 | | | 24.6 | | = | 28.8 | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | 0 11.01 | | | | | | | | | | | |
| Actuated Cycle Length: 120 |) | | | | | | | | | | | |
| Offset: 29.4 (25%), Referer | | se 2:EBT | and 6:WI | 3T. Start | of Green | | | | | | | |
| Natural Cycle: 105 | | | | ., | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.80 | or an ratio a | | | | | | | | | | | |
| Intersection Signal Delay: 3 | 34.3 | | | Ir | tersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliza | |) | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | | | | 2 20.01 | 2. 00. 110 | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & Kinas | ston Road | | | | | | | | | |
| _ | | o rung | | | 14 | ø3 \$ | 74 | | | | | |
| 19 s 42 s | 1002 (R) | | | | 8 8 | 51s | Ø4 | | | | | |

Queues

<2043 Future Background>AM 12-20-2024

6: Liverpool Road & Kingston Road

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|------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 182 | 568 | 237 | 149 | 505 | 54 | 146 | 443 | 159 | 91 | 746 | 127 |
| v/c Ratio | 0.77 | 0.58 | 0.42 | 0.80 | 0.54 | 0.10 | 0.55 | 0.34 | 0.28 | 0.19 | 0.59 | 0.21 |
| Control Delay | 91.5 | 31.9 | 13.3 | 81.0 | 41.1 | 0.4 | 29.0 | 29.8 | 6.2 | 19.1 | 34.4 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 91.5 | 31.9 | 13.3 | 81.0 | 41.1 | 0.4 | 29.0 | 29.8 | 6.2 | 19.1 | 34.4 | 3.1 |
| Queue Length 50th (m) | 45.6 | 23.2 | 1.8 | 34.5 | 54.6 | 0.0 | 19.5 | 40.3 | 0.0 | 11.7 | 75.3 | 0.0 |
| Queue Length 95th (m) | 69.1 | 61.1 | 34.2 | #65.7 | 73.4 | 0.0 | 32.4 | 54.0 | 15.4 | 21.1 | 95.0 | 8.1 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 978 | 560 | 197 | 931 | 530 | 264 | 1291 | 567 | 473 | 1263 | 607 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.58 | 0.42 | 0.76 | 0.54 | 0.10 | 0.55 | 0.34 | 0.28 | 0.19 | 0.59 | 0.21 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 Lanes, Volumes, Timings

<2043 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | • | • | ← | • | 4 | † | / | > | ļ | 4 |
|----------------------------|-------|------------|-------|-------|------------|--------|-------|----------|---------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 77 | † | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 568 | 272 | 146 | 832 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 568 | 272 | 146 | 832 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 0.99 | | 0.97 | 0.99 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.299 | | | 0.379 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 515 | 5036 | 1483 | 665 | 5029 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 904 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 904 | 26 |
| Enter Blocked Intersection | No | No. | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 6.0 | rugin | 2011 | 6.0 | . ugut | 2010 | 3.8 | . ug.it | Lon | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI+LX | OITEX | | OITEX | OITEX | OITEX | OI+LX | OI+LX | OITEX | OITLX | OITEX | OI+EX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Position(m) | | 9.4 0.6 | | | 9.4 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | 0.0 | | | U.U | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings

<2043 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | • | 1 | † | 1 | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.15 | 0.24 | 0.32 | 0.30 | 0.32 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.1 | 13.8 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.1 | 13.8 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 9.9 | | | 12.8 | |
| Approach LOS | | С | | | D | | | Α | | | В | |

Intersection Summary

Intersection Summary

Area Type: Other
Cycle Length: 100

Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.9

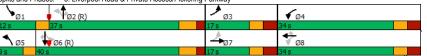
Intersection Capacity Utilization 55.7%

ICU Level of Analysis Period (min 15)

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2043 Future Background>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | 1 | † | 1 | - | ţ | 4 | |
|------------------------|------|------|------|-------|------|------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 904 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.15 | 0.24 | 0.32 | 0.30 | 0.32 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.1 | 13.8 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.7 | 13.1 | 4.0 | 9.1 | 13.8 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.4 | 24.8 | 9.8 | 11.3 | 36.3 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 37.9 | 20.1 | 21.5 | 49.1 | 0.0 | |
| nternal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 383 | 2621 | 913 | 533 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.15 | 0.24 | 0.32 | 0.30 | 0.32 | 0.03 | |

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2043 Future Background>AM

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2043 Future Background>AM 12-20-2024

| 9: Liverpool Road & | ٠ | | - | - | _ | A | | • | | | . 1 | | |
|--|------|----------|-------|-------|-------|----------|-------|-------|----------|------|----------|---------|--|
| | | → | • | • | | _ | 1 | † | / | * | ÷ | * | |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations | | | 7 | ሻ | ની | 7 | ሻ | ተተተ | | | ^ | 7 | |
| Traffic Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 549 | 0 | 0 | 715 | 97 | |
| Future Volume (vph) | 0 | 0 | 160 | 188 | 69 | 310 | 162 | 549 | 0 | 0 | 715 | 97 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 | |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 | |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 | |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | |
| Ped Bike Factor | | | | | | | 1.00 | | | | | 0.96 | |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 | |
| Flt Protected | | | | 0.950 | 0.977 | | 0.950 | | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 4932 | 0 | 0 | 4877 | 1601 | |
| Flt Permitted | | | | 0.950 | 0.977 | | 0.293 | | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 448 | 4932 | 0 | 0 | 4877 | 1538 | |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes | |
| Satd. Flow (RTOR) | | | | | | 336 | | | | | | 105 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | | |
| Confl. Peds. (#/hr) | | • | | | | | 7 | | 14 | 14 | | 7 | |
| Confl. Bikes (#/hr) | | | | | | | | | 4 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% | |
| Adj. Flow (vph) | 0 | 0 | 174 | 204 | 75 | 337 | 176 | 597 | 0 | 0 | 777 | 105 | |
| Shared Lane Traffic (%) | | | | 32% | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 174 | 139 | 140 | 337 | 176 | 597 | 0 | 0 | 777 | 105 | |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No. | No | No | No | No | |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right | |
| Median Width(m) | LOIL | 3.7 | ragni | LOIL | 3.7 | rtigit | LOIL | 3.7 | rtigitt | LOIL | 3.7 | rtigiti | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 | |
| Turning Speed (k/h) | 24 | 0.55 | 14 | 24 | 0.55 | 14 | 24 | 1.01 | 14 | 24 | 1.00 | 14 | |
| Number of Detectors | 24 | | 14 | 1 | 2 | 1 | 1 | 2 | 14 | 24 | 2 | 17 | |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right | |
| | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 | |
| Leading Detector (m) Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 | |
| | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex | |
| Detector 1 Type | | | CI+EX | CI+EX | CI+EX | CI+EX | CI+EX | CI+EX | | | CI+EX | CI+EX | |
| Detector 1 Channel | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| | |
| WSP | Page 13 |

| | ٠ - | → • | • | ← | • | 4 | † | - | - | ļ | 4 |
|--|---------------|----------------|-------------|------------|-----------|-------|----------|--------------|-----|-------|--------|
| Lane Group | EBL E | BT EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perr |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15. |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24. |
| Total Split (s) | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29. |
| Total Split (%) | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.09 |
| Maximum Green (s) | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22. |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3. |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3. |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0. |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6. |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | La |
| Lead-Lag Optimize? | | | | | | | | | | . 3 | - |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3. |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Ma: |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5. |
| Pedestrian Calls (#/hr) | | | 0 | 0 | 0 | | 15 | | | 17 | 1 |
| Act Effct Green (s) | | 21.4 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 48.1 | 48. |
| Actuated g/C Ratio | | 0.21 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.48 | 0.48 |
| v/c Ratio | | 0.73 | 0.60 | 0.58 | 0.67 | 0.32 | 0.16 | | | 0.33 | 0.13 |
| Control Delay | | 53.6 | 50.7 | 49.5 | 11.5 | 5.4 | 4.3 | | | 11.0 | 1.9 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 53.6 | 50.7 | 49.5 | 11.5 | 5.4 | 4.3 | | | 11.0 | 1.5 |
| LOS | | D | D | D | В | Α | Α | | | В | - |
| Approach Delay | 5 | 3.6 | | 28.9 | | | 4.6 | | | 9.9 | |
| Approach LOS | | D | | С | | | Α | | | Α | |
| Intersection Summary | | | | | | | | | | | |
| | ther | | | | | | | | | | |
| | uiei | | | | | | | | | | |
| Cycle Length: 100 Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 38 (38%), Referenced | to phase 2:NI | BTI and 6.91 | RT Start o | of Groon | | | | | | | |
| Natural Cycle: 65 | to phase 2.14 | DIL allu 0.01 | or, otali c | JI GIEEII | | | | | | | |
| Control Type: Actuated-Coord | linated | | | | | | | | | | |
| Maximum v/c Ratio: 0.73 | iii ialeu | | | | | | | | | | |
| Intersection Signal Delay: 16. | 1 | | I. | ntersectio | n I OC: D | | | | | | |
| Intersection Capacity Utilization | | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | JII 43.370 | | | CO Level | oi seivio | e A | | | | | |
| , , | 15 141 | | | MD 0% D | | | | | | | |
| + | pool Road & \ | /Valnut Lane/I | Hwy 401 \ | NB Off-Ra | amp | | | ₽ ø8 | | | |
| 75 s | | | • | | | | | ♥ Ø8 25 s | | | |
| \$ ø₅ | | | | ∯ ø6 (R | 0) | | | | | | |
| 46 s | | | 2 | 9 s | | | | | | | |
| WSP | | · | | | | | | | · | | Page 1 |

Queues

<2043 Future Background>AM

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | • | • | 1 | Ť | ţ | 4 | |
|-------------------------|------|------|-------|-------|------|-------|-------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 174 | 139 | 140 | 337 | 176 | 597 | 777 | 105 | |
| v/c Ratio | 0.73 | 0.60 | 0.58 | 0.67 | 0.32 | 0.16 | 0.33 | 0.13 | |
| Control Delay | 53.6 | 50.7 | 49.5 | 11.5 | 5.4 | 4.3 | 11.0 | 1.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.6 | 50.7 | 49.5 | 11.5 | 5.4 | 4.3 | 11.0 | 1.9 | |
| Queue Length 50th (m) | 31.7 | 27.1 | 27.2 | 0.2 | 7.6 | 10.3 | 19.7 | 0.1 | |
| Queue Length 95th (m) | 48.6 | 44.3 | 44.3 | 23.5 | 16.9 | 17.3 | 24.6 | 2.1 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 459 | 323 | 335 | 566 | 759 | 3651 | 2346 | 794 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.38 | 0.43 | 0.42 | 0.60 | 0.23 | 0.16 | 0.33 | 0.13 | |
| latera estima Communica | | | | | | | | | |

10: Kingston Road & Fairport Road

Lanes, Volumes, Timings

<2043 Future Background>AM 12-20-2024

| | • | - | • | • | - | 4 | |
|----------------------------|-------|----------|------------|---------|-------|------------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | ሻ | ^ | ↑ ₽ | | ሻ | 7 | |
| Traffic Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 714 | 648 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | | | 0.980 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 17 | . 00 | | 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 776 | 704 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | 101 | 110 | 701 | 100 | 100 | 210 | |
| Lane Group Flow (vph) | 104 | 776 | 812 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | Leit | 3.0 | 3.0 | rtigrit | 3.6 | rtigrit | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | 1.0 | | 1.0 | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | 1.04 | 1.01 | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | 14 | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | 0.0 | | 0.0 | | |
| Detector 1 Position(m) | 2.0 | 0.0 | 0.0 | | 2.0 | 0.0 2.0 | |
| Detector 1 Size(m) | | | | | | | |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 16

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Background>AM 12-20-2024

| | ٠ | → | ← | • | \ | 4 | |
|------------------------------|-------------|----------|----------|------------|-----------|------------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 |
| Permitted Phases | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead |
| Lead-Lag Optimize? | | Ŭ | Ů | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | | None | None | None |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | |
| v/c Ratio | 0.64 | 0.33 | 0.40 | | 0.72 | 0.52 | |
| Control Delay | 104.1 | 0.8 | 15.8 | | 65.5 | 9.1 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 104.1 | 0.8 | 15.8 | | 65.5 | 9.1 | |
| LOS | F | Α | В | | Е | Α | |
| Approach Delay | | 13.0 | 15.8 | | 34.1 | | |
| Approach LOS | | В | В | | С | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | |
| Offset: 105 (81%), Referen | ced to phas | se 2:EBT | and 6:WB | T, Start o | f Green | | |
| Natural Cycle: 85 | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | |
| Intersection Signal Delay: | 18.5 | | | Ir | tersectio | n LOS: B | |
| Intersection Capacity Utiliz | ation 52.0% | 1 | | IC | CU Level | of Service | · A |
| Analysis Period (min) 15 | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Queues

<2043 Future Background>AM 12-20-2024

10: Kingston Road & Fairport Road

| | • | - | • | - | 4 |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 776 | 812 | 198 | 249 |
| v/c Ratio | 0.64 | 0.33 | 0.40 | 0.72 | 0.52 |
| Control Delay | 104.1 | 0.8 | 15.8 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 104.1 | 8.0 | 15.8 | 65.5 | 9.1 |
| Queue Length 50th (m) | 26.1 | 2.5 | 53.8 | 49.0 | 0.0 |
| Queue Length 95th (m) | 42.6 | 2.5 | 86.2 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2018 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.33 | 0.40 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

Ø6 (R)

| • | | | | — | _ | |
|----------------------------|------------|--------|-------|----------|-------|--------|
| | → | * | ₹ | • | 7 | |
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ∱ ∱ | | ሻ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Future Volume (vph) | 748 | 12 | 284 | 612 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | | | 0% | 0% | |
| Storage Length (m) | | 0.0 | 47.5 | | 0.0 | 52.0 |
| Storage Lanes | | 0 | 1 | | 2 | 1 |
| Taper Length (m) | | | 22.3 | | 2.5 | |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 813 | 13 | 309 | 665 | 501 | 71 |
| Shared Lane Traffic (%) | 0.0 | | 000 | | | |
| Lane Group Flow (vph) | 826 | 0 | 309 | 665 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | ragiit | Loit | 3.1 | 7.6 | ragilt |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| | Yes | | | Yes | 1.0 | |
| Two way Left Turn Lane | | 1.03 | 1.14 | | 0.97 | 0.99 |
| Headway Factor | 0.98 | | 1.14 | 0.97 | | 0.99 |
| Turning Speed (k/h) | 2 | 14 | | 2 | 24 | 14 |
| Number of Detectors | | | 1 | | 1 | |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

| Detector 2 Extend (s) | 0.0 | 0.0 | |
|--------------------------------|-----|-----|------------------------------|
| 1105-1163 Kingston Road WSP | | | Synchro 11 Report Page 19 |

| | - | • | • | • | 1 | ~ | |
|------------------------------|------------------|---------|------------|-------------|-------------|------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 | |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 | |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 | |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 | |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 | |
| v/c Ratio | 0.54 | | 0.86 | 0.27 | 0.78 | 0.20 | |
| Control Delay | 12.2 | | 59.8 | 15.2 | 58.6 | 10.2 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 12.2 | | 59.8 | 15.2 | 58.6 | 10.2 | |
| LOS | В | | Е | В | Е | В | |
| Approach Delay | 12.2 | | | 29.3 | 52.6 | | |
| Approach LOS | В | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | Outer | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | |
| Offset: 66 (51%), Referer | | 2·FRT a | nd 6·WRT | T Start of | Green | | |
| Natural Cycle: 110 | iced to priase | Z.LDI a | iu U.VVD i | i, otari ui | Gleen | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 0.86 | oordinated | | | | | | |
| Intersection Signal Delay | · 20 N | | | Ir | ntersection | n LOS: C | |
| Intersection Capacity Util | | | | | | of Service | C |
| Analysis Period (min) 15 | 12411011 05.7 /6 | | | | JO LEVEI | UI GEIVICE | U |
| Analysis i ellou (Illill) 15 | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | & Kingsto | n Road | | | |
| | , | | | | | | |
| ï1 | | • | Ø2 (R) | | | | |

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | — | 1 | |
|------------------------|-------|-------|----------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 826 | 309 | 665 | 501 | 71 |
| v/c Ratio | 0.54 | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.2 | 59.8 | 15.2 | 58.6 | 10.2 |
| Queue Length 50th (m) | 19.3 | 76.0 | 61.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 46.5 | 107.1 | 80.7 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.72 | 0.27 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

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<2043 Future Background>AM 12-20-2024

Lanes, Volumes, Timings
12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | → | • | • | + | • | 1 | † | ~ | / | ļ. | 4 |
|----------------------------|-------|------------|--------|-------|------------|---------|---------|-------|---------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 7 | ↑ ↑ | | 7 | 1> | | ሻ | 1> | |
| Traffic Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 975 | 37 | 96 | 980 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3380 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.662 | | | 0.688 | | |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3380 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 9 | | | 100 | | | 135 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1060 | 40 | 104 | 1065 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1100 | 0 | 104 | 1145 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 20.0 | 3.5 | · ug.u | 2010 | 3.5 | . ug.it | 20.0 | 3.6 | · ug.i. | | 3.6 | rugin |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OI LX | | JI-LX | JI-LX | | OI · LX | SILLX | | OI LX | SILLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | OI+EX | | | OI+EX | | | OI+EX | | | OI+EX | |

Lanes, Volumes, Timings

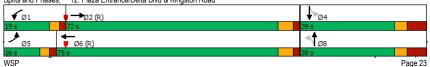
<2043 Future Background>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | → ✓ | - | • | 1 | Ť | | - | ↓ | 4 |
|-------------------------|-------|-------|------------|-------|-----|-------|-------|-----|-------|----------|-----|
| Lane Group | EBL | EBT | EBR WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 83.2 | 29.8 | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.2 | 29.8 | 78.6 | 28.2 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | E | С | | Е | В | | D | В | |
| Approach Delay | | 33.6 | | 32.4 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | С | | | D | | | С | |

Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 49 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76 Intersection Signal Delay: 33.6 Intersection LOS: C Intersection Capacity Utilization 79.5% ICU Level of Service D Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2043 Future Background>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | 1 | • | 4 | † | - | ↓ |
|------------------------|-------|-------|-------|-------|------|----------|------|----------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 83 | 1100 | 104 | 1145 | 152 | 107 | 46 | 149 |
| v/c Ratio | 0.65 | 0.58 | 0.67 | 0.57 | 0.76 | 0.29 | 0.24 | 0.43 |
| Control Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.2 | 29.8 | 78.6 | 28.2 | 74.1 | 11.5 | 48.1 | 12.9 |
| Queue Length 50th (m) | 22.0 | 125.7 | 27.2 | 152.0 | 37.6 | 1.5 | 10.4 | 3.1 |
| Queue Length 95th (m) | #40.7 | 159.0 | 44.8 | 176.0 | 57.4 | 16.2 | 20.7 | 20.6 |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.59 | 0.58 | 0.58 | 0.57 | 0.55 | 0.23 | 0.17 | 0.34 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

 1105-1163 Kingston Road
 Synchro 11 Report

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Background>AM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|------------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | 7 | ^ | 7 | ሻ | ^ ^ | 7 | 7 | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Future Volume (vph) | 78 | 344 | 294 | 234 | 563 | 281 | 146 | 390 | 390 | 156 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1605 | 3335 | 1565 | 1752 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 155 | | | 239 | | | 193 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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 Synchro 11 Report

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

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<2043 Future Background>AM 12-20-2024

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|------------------------------|--------------|------------|----------|----------|------------|------------|---------------|----------|-------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | 3 | | 3 | 3 | | 3 | | | | 3 |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 38.7 | 38.7 | 22.3 | 50.9 | 50.9 | 51.0 | 40.6 | 66.3 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.30 | 0.30 | 0.17 | 0.39 | 0.39 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| LOS | F | D | C | D | C | В | D | C | В | C | D | A |
| Approach Delay | • | 37.2 | | | 30.9 | | | 27.1 | | Ū | 32.7 | ,, |
| Approach LOS | | D | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 107 (82%), Refere | nced to phas | se 2:EBT | and 6:WE | T, Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.84 | | | | | | | | | | | | |
| Intersection Signal Delay: | 31.7 | | | - II | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | , | | | | | | | | | | |
| Splits and Phases: 13: | Whites Road | I & Kingst | on Road | | | | | | | | | |
| 1 | | | | | | 4 | 4 | | | | | |
| √ rø1 | | Ø2 (R) | | | | 7.0 | 33 ▼ 2 | 14 | | | | |
| 30 s | 43 s | | | | | 8 s | 49 s | | | | | |

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13: Whites Road & Kingston Road

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|------------------------|-------|-------|-------|-------|-------|------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 374 | 320 | 254 | 612 | 305 | 159 | 424 | 424 | 170 | 865 | 190 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.84 | 0.45 | 0.41 | 0.75 | 0.27 | 0.49 | 0.44 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.2 | 24.0 | 52.6 | 29.8 | 14.8 | 52.0 | 34.1 | 10.7 | 30.5 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 40.8 | 35.7 | 61.8 | 77.5 | 44.8 | 25.9 | 29.8 | 30.7 | 27.8 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 55.7 | 67.2 | #95.0 | 95.6 | 66.9 | #50.2 | 39.1 | 52.8 | 44.1 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 992 | 574 | 339 | 1373 | 740 | 211 | 1579 | 900 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.38 | 0.56 | 0.75 | 0.45 | 0.41 | 0.75 | 0.27 | 0.47 | 0.44 | 0.55 | 0.31 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2043 Future Background>AM 12-20-2024

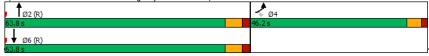
| | • | • | 4 | † | ļ | 4 |
|----------------------------|-------|---------|------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ħ₩ | 7 | 1102 | * | * | ODIN |
| Traffic Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Future Volume (vph) | 585 | 268 | 0 | 693 | 417 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 5.0 | 5.0 | 0.0 |
| Storage Length (III) | 2 | 225.0 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | - 1 | 2.5 | | | U |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| | 0.97 | 0.91 | 1.00 | 0.95 | 0.90 | 1.00 |
| Ped Bike Factor | 0.002 | 0.050 | | | | |
| Frt Elt Drotostod | 0.993 | 0.850 | | | | |
| Fit Protected | 0.954 | 1100 | | 2274 | 2404 | _ |
| Satd. Flow (prot) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 4400 | | | 0.40 | |
| Satd. Flow (perm) | 3387 | 1400 | 0 | 3374 | 3481 | 0 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 5 | 262 | | | | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | | | 7 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 636 | 291 | 0 | 753 | 453 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 665 | 262 | 0 | 753 | 453 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | rtigrit | Leit | 0.0 | 0.0 | ragnt |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| | 1.6 | | | | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | 1.00 | 4.00 | 0.00 | 4.00 | 0.07 | 0.00 |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 0.0 | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| | | | | | CI+Ex | |
| Detector 2 Type | | | | CI+Ex | OI+EX | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report Page 28 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | ٠ | • | • | † | ↓ | 4 |
|---|-------------|----------|----------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 6.7 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | |
| Act Effct Green (s) | 27.7 | 27.7 | | 70.1 | 70.1 | |
| Actuated g/C Ratio | 0.25 | 0.25 | | 0.64 | 0.64 | |
| v/c Ratio | 0.23 | 0.48 | | 0.35 | 0.20 | |
| Control Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 44.3 | 6.7 | | 10.5 | 9.2 | |
| LOS | D | A | | В | Α.Δ | |
| Approach Delay | 33.7 | | | 10.5 | 9.2 | |
| Approach LOS | C | | | В | A | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 11 | 0 | | | | | |
| Offset: 79.2 (72%), Refere | nced to pha | se 2:NBT | and 6:SE | 3T, Start | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | |
| Intersection Signal Delay: | | | | lr | ntersection | LOS: C |
| Intersection Capacity Utiliz | ation 48.8% |) | | 10 | CU Level o | of Service A |
| Analysis Period (min) 15 | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2043 Future Background>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 665 | 262 | 753 | 453 |
| v/c Ratio | 0.78 | 0.48 | 0.35 | 0.20 |
| Control Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.3 | 6.7 | 10.5 | 9.2 |
| Queue Length 50th (m) | 68.0 | 0.0 | 36.7 | 19.6 |
| Queue Length 95th (m) | 80.8 | 19.4 | 56.4 | 32.1 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1256 | 683 | 2150 | 2218 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.53 | 0.38 | 0.35 | 0.20 |
| Intersection Summary | | | | |

Synchro 11 Report Page 30 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2043 Future Background>AM 12-20-2024

| | • | 4 | † | <i>></i> | / | |
|----------------------------|-------|-------|-------|-------------|----------|--------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Traffic Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Future Volume (vph) | 0 | 81 | 0 | 0 | 194 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 5 | | | 8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% |
| Adj. Flow (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 88 | 0 | 0 | 0 | 0 | 211 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Tyne: | Other | | | | | |

Area Type: Other Control Type: Unsignalized Intersection Capacity Utilization 24.2% Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2043 Future Background>AM 12-20-2024

| | • | • | † | ~ | - | ļ |
|--|----------|------|--------------|------|---------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 0 | 194 | Ö |
| Future Volume (Veh/h) | 0 | 81 | 0 | 0 | 194 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 88 | 0 | 0 | 211 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 430 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 430 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 87 | |
| cM capacity (veh/h) | 501 | 1053 | | | 1605 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 88 | 0 | 211 | | | |
| Volume Left | 0 | 0 | 211 | | | |
| Volume Right | 88 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| | 0.08 | 0.00 | 0.13 | | | |
| Volume to Capacity | 2.1 | | 3.4 | | | |
| Queue Length 95th (m) | | 0.0 | | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | A | | A | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| interecedent cummary | | | | | | |
| | | | 7.9 | | | |
| Average Delay Intersection Capacity Uti | lization | | 7.9 24.2% | IC | U Level | of Service |

<2043 Future Background_PHF>AM 12-20-2024

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2043 Future Background_PHF>AM _____12-20-2024

| | ᄼ | - | • | • | ← | • | 4 | † | <i>></i> | / | ţ | 4 |
|-------------------------------|-----------|------------|---------|-----------|------------|---------|-------|----------|-------------|----------|---------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ٦ | ↑ ↑ | | 7 | ↑ ↑ | | ٦ | f) | | 7 | f) | |
| Traffic Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Future Volume (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.986 | | | 0.980 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3316 | 0 | 1645 | 3301 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | - | 0.950 | | • | 0.581 | | | 0.728 | | = |
| Satd. Flow (perm) | 1553 | 3316 | 0 | 1639 | 3301 | 0 | 1069 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | 1000 | 00.0 | Yes | 1000 | 0001 | Yes | 1000 | | Yes | 1001 | | Yes |
| Satd. Flow (RTOR) | | 12 | . 00 | | 17 | | | 29 | | | 144 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | 11.0 | 6 | 3 | 1.0 | 2 | 2 | 17.2 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0,0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 80 | 760 | 81 | 78 | 554 | 86 | 37 | 15 | 29 | 131 | 35 | 144 |
| Shared Lane Traffic (%) | 00 | 700 | 01 | 10 | 001 | 00 | 01 | 10 | 20 | 101 | 00 | |
| Lane Group Flow (vph) | 80 | 841 | 0 | 78 | 640 | 0 | 37 | 44 | 0 | 131 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | LUIT | 2.8 | rtigiit | LUIT | 2.8 | rtigitt | LOIL | 3.8 | rtigiit | LOIL | 3.8 | rtigit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 1.00 | 24 | 0.54 | 14 | 24 | 0.52 | 14 |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 17 | 1 | 1 | 17 |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | |
| Detector 1 Channel | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Turn Type Protected Phases | Prot 5 | NA 2 | | Prot 1 | NA 6 | | Penn | NA 8 | | Pelili | NA 4 | |
| FIDIECIEU FIIASES | 0 | 2 | | - 1 | 0 | | | 0 | | | 4 | |

| | • | - | • | • | ← | * | 4 | † | ~ | - | ţ | 4 |
|------------------------------|-------------|------------|----------|---------|-------------|----------|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 74.9 | | 6.0 | 74.0 | | 18.0 | 18.0 | | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.62 | | 0.15 | 0.15 | | 0.15 | 0.15 | |
| v/c Ratio | 0.66 | 0.41 | | 0.95 | 0.31 | | 0.23 | 0.15 | | 0.63 | 0.46 | |
| Control Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 12.9 | | 150.7 | 5.0 | | 45.1 | 20.4 | | 59.6 | 14.6 | |
| LOS | E | В | | F | Α | | D | С | | Е | В | |
| Approach Delay | | 18.6 | | | 20.8 | | | 31.7 | | | 33.6 | |
| Approach LOS | | В | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | | |
| Offset: 107.8 (90%), Refer | | ase 2:EBT | and 6:WE | T, Star | t of Greer | 1 | | | | | | |
| Natural Cycle: 85 | | | | , | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: | 22.2 | | | lr | ntersection | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | | 5 | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 3: Di | ixie Road & | Kinaston [| Dood | | | | | | | | | |
| r - T | ixie Roau a | Kingston | 10au | | | | | | | | | |
| √Ø1 → Ø2 (R) | | | | | | 1 1 | Ø4 | | | | | |
| 11 s 59 s | | | | | | 50 | s | | | | | |
| | (R) | | | | | 4 | †ø8 | | | | | |
| 15 55 55 5 | VV | | | | | 50 | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 1 1105-1163 Kingston Road WSP Synchro 11 Report Page 2

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|----------------------------|-------|------------|-------|-------|-------------|-------|-------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ት Ъ | | ሻ | † 1> | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.728 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 93 | | 28 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 41 | 1543 | 293 | 129 | 702 | 47 | 318 | 0 | 288 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 41 | 1836 | 0 | 129 | 749 | 0 | 318 | 0 | 288 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | | 14 | 24 | | 14 | 24 | _ | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 1 Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Background>PM

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|---|-------------|------------|---------------|------------|-------------|------------|------------|-----------|-----------|-----------|-----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | 9 | | | 9 | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | 110110 | 7.0 | | 110110 | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 22.0 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| //c Ratio | 0.64 | 0.99 | | 1.00 | 0.36 | | 1.02 | | 0.64 | 0.06 | 0.11 | |
| Control Delay | 85.6 | 41.2 | | 132.7 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 85.6 | 41.2 | | 132.7 | 9.2 | | 103.9 | | 36.8 | 39.0 | 20.3 | |
| LOS | 65.0 F | 41.2 D | | 132.7 F | 9.2 A | | 103.9 F | | 30.0 D | 39.0 D | 20.3 C | |
| Approach Delay | Г | 42.2 | | Г | 27.3 | | Г | 72.0 | U | U | 27.1 | |
| | | 42.2 D | | | 21.3 C | | | 72.0 E | | | 27.1 C | |
| Approach LOS | | U | | | U | | | E | | | C | |
| Intersection Summary | <u> </u> | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | e 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | rdinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliza | tion 91.5% | 5 | | IC | CU Level of | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | Inut Lane | & Kingston | Road | | | | | | | | | |
| √ø1 • • • • • • • • • • • • • • • • • • • |) | | | | | | | 4 | Ø4 | | | |
| 15 s 76 s | | | | | | | | 39 s | | | | |
| ∮ø5 (R) | | | | | | | | - 1 | Ø8 | | | |
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1105-1163 Kingston Road WSP Synchro 11 Report Page 2

1: Walnut Lane & Kingston Road

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|------------------------|------|--------|-------|----------|--------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT |
| Lane Group Flow (vph) | 41 | 1836 | 129 | 749 | 318 | 288 | 26 | 45 |
| v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 |
| Control Delay | 85.6 | 41.2 | 132.7 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 85.6 | 41.2 | 132.7 | 9.2 | 103.9 | 36.8 | 39.0 | 20.3 |
| Queue Length 50th (m) | 0.0 | 130.0 | 34.9 | 27.4 | ~84.2 | 45.2 | 5.2 | 3.4 |
| Queue Length 95th (m) | m0.0 | #291.4 | #75.5 | 35.4 | #142.9 | 76.2 | 12.9 | 13.3 |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | |
| Base Capacity (vph) | 64 | 1850 | 129 | 2063 | 313 | 453 | 408 | 428 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.64 | 0.99 | 1.00 | 0.36 | 1.02 | 0.64 | 0.06 | 0.11 |

Intersection Summar

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 3

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2043 Future Background>PM 12-20-2024

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|----------------------------|-------|-------------|-------|-------|------------|-------|---------|-------|-------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1≽ | | ሻ | ት Ъ | | ሻ | ĵ. | | ሻ | 1 | |
| Traffic Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Future Volume (vph) | 204 | 1509 | 100 | 40 | 770 | 164 | 111 | 54 | 63 | 142 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.991 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3394 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3394 | 0 | 1594 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | • | | 1 | | | • | • | | | • | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1640 | 109 | 43 | 837 | 178 | 121 | 59 | 68 | 154 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 1749 | 0 | 43 | 1015 | 0 | 121 | 127 | 0 | 154 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | Ŭ |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OX | JX | | JX | JX | | 5X | J LX | | 5. LX | JX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| rum rype | 1 101 | 11/7 | | 1 101 | 11/7 | | i Giill | 11/7 | | i Giill | 11/7 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 4

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues 3: Dixie Road & Kingston Road <2043 Future Background>PM 12-20-2024

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|------------------------|--------|-------|--------|-------|------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 222 | 1749 | 43 | 1015 | 121 | 127 | 154 | 130 | |
| v/c Ratio | 0.90 | 0.79 | 0.70 | 0.57 | 0.60 | 0.39 | 0.74 | 0.36 | |
| Control Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 73.9 | 26.0 | 107.6 | 23.6 | 61.9 | 34.2 | 71.9 | 15.9 | |
| Queue Length 50th (m) | 51.9 | 216.1 | 11.9 | 75.0 | 29.2 | 19.4 | 38.1 | 6.7 | |
| Queue Length 95th (m) | m#88.3 | 258.6 | m#24.5 | m85.4 | 45.6 | 35.4 | 57.0 | 22.4 | |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| Base Capacity (vph) | 255 | 2220 | 61 | 1785 | 302 | 464 | 312 | 494 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.87 | 0.79 | 0.70 | 0.57 | 0.40 | 0.27 | 0.49 | 0.26 | |

- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.

 Modume for 95th percentile queue is metered by upstream signal.

| | | 1 | T | | - | ¥ | * |
|--------------|------------|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| 6 | | | 8 | | | 4 | |
| | | 8 | | | 4 | | |
| 6 | | 8 | 8 | | 4 | 4 | |
| | | | | | | | |
| 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lag | | | | | | | |
| | | | | | | | |
| 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| C-Max | | None | None | | None | None | |
| 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| 6 | | 2 | 2 | | 3 | 3 | |
| 67.7 | | 21.0 | 21.0 | | 21.0 | 21.0 | |
| 0.52 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| 0.57 | | 0.60 | 0.39 | | 0.74 | 0.36 | |
| 23.6 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| 23.6 | | 61.9 | 34.2 | | 71.9 | 15.9 | |
| С | | Е | С | | Е | В | |
| 27.0 | | | 47.7 | | | 46.2 | |
| С | | | D | | | D | |
| | | | | | | | |
| | | | | | | | |
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| of Green | | | | | | | |
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| | | | | | | | |
| Intersection | on LOS: C | | | | | | |
| | | Ε | | | | | |
| | 2. 20.1100 | | | | | | |
| | ICU Level | ICU Level of Service | ICU Level of Service E | ICU Level of Service E | ICO Fenel of Selvice F | ICU Level of Service E | ICU Level of Service E |

Splits and Phases: 3: Dixie Road & Kingston Road **↑**†ø8

1105-1163 Kingston Road Synchro 11 Report Page 5

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background>PM
12-20-2024

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background>PM
12-20-2024

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| | ۶ | - | • | • | ← | • | 4 | † | - | - | ↓ | 4 |
|----------------------------|-------|-------|-------|-------|----------|-------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | 44 | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.319 | | | 0.142 | | |
| Satd. Flow (perm) | 1667 | 3461 | 1512 | 1712 | 3579 | 1517 | 595 | 3773 | 1564 | 299 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 100 | | | 160 | | | 165 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 898 | 252 | 103 | 605 | 117 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 898 | 252 | 103 | 605 | 117 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | Cl+Ex | | | CI+Ex | |

| 1105-1163 Kingston Road | Synchro 11 Repor |
|-------------------------|------------------|
| WSP | Page 7 |

| | • | - | • | • | • | * | 4 | † | 1 | - | ↓ | 4 |
|---|----------------------------|-----------|-----------|-------------|------------|------------|-------|----------|--------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | 3 | | | 3 | 3 | | 9 | 3 | | 3 | 3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 24.5 | 40.0 | 49.1 | 19.9 | 35.4 | 35.4 | 52.0 | 40.9 | 40.0 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.19 | 0.31 | 0.38 | 0.15 | 0.27 | 0.27 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.59 | 0.76 | 0.42 | 0.55 | 0.53 | 0.21 |
| Control Delay | 47.2 | 87.3 | 42.2 | 84.1 | 45.4 | 0.6 | 36.1 | 45.0 | 15.0 | 35.6 | 38.6 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 42.2 | 84.1 | 45.4 | 0.6 | 36.1 | 45.0 | 15.0 | 35.6 | 38.6 | 3.6 |
| LOS | D | F | D | F | D | A | D | D | В | D | D | A |
| Approach Delay | _ | 71.9 | | | 51.7 | | _ | 38.1 | _ | _ | 33.3 | |
| Approach LOS | | Е | | | D | | | D | | | С | |
| • | | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | e 2:EBT a | ind 6:WB | Γ, Start of | Green | | | | | | | |
| Natural Cycle: 125 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | rdinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | | | | | | |
| Intersection Signal Delay: 5 | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliza | ition 103.1 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Live | erpool Roa | d & King | ston Road | i | | | | | | | | |
| √ Ø1 | st o ≱ (| R) | | | | \$ 0 | 3 ₩ø | 1 | | | | |
| 26 s | 46 s | | | | | 8 s | 50 s | | | | | |
| . ♣ _{Ø5} | | Ø6 (F | 8) | | | → Ø | √ Tøs | 3 | | | | |

Queues

<2043 Future Background>PM 12-20-2024

6: Liverpool Road & Kingston Road

| | • | - | • | • | • | * | 4 | † | ~ | - | ↓ | 4 |
|------------------------|---------|---------|-------|-------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 265 | 1117 | 358 | 230 | 592 | 73 | 168 | 898 | 252 | 103 | 605 | 117 |
| v/c Ratio | 0.83 | 1.05 | 0.56 | 0.87 | 0.61 | 0.14 | 0.59 | 0.76 | 0.42 | 0.55 | 0.53 | 0.21 |
| Control Delay | 47.2 | 87.3 | 42.2 | 84.1 | 45.4 | 0.6 | 36.1 | 45.0 | 15.0 | 35.6 | 38.6 | 3.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.2 | 87.3 | 42.2 | 84.1 | 45.4 | 0.6 | 36.1 | 45.0 | 15.0 | 35.6 | 38.6 | 3.6 |
| Queue Length 50th (m) | 68.7 | ~172.9 | 74.6 | 57.7 | 70.6 | 0.0 | 27.0 | 108.8 | 16.6 | 15.8 | 66.9 | 0.0 |
| Queue Length 95th (m) | m73.7 r | n#182.5 | m77.9 | #98.7 | 93.7 | 0.0 | 42.7 | 132.7 | 40.1 | 27.4 | 85.1 | 8.5 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1065 | 636 | 279 | 973 | 529 | 284 | 1187 | 595 | 186 | 1149 | 569 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.70 | 1.05 | 0.56 | 0.82 | 0.61 | 0.14 | 0.59 | 0.76 | 0.42 | 0.55 | 0.53 | 0.21 |

1105-1163 Kingston Road

Synchro 11 Report

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Lanes, Volumes, Timings

<2043 Future Background>PM

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | - | \rightarrow | • | • | • | 4 | † | 1 | - | ļ | 4 |
|----------------------------|---------|-------------|---------------|---------|----------|-------|-------|----------|---------|-------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ↑ 1> | | ሻሻ | ↑ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 894 | 401 | 196 | 1048 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 894 | 401 | 196 | 1048 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | 0.99 | | 0.96 | 0.99 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 5085 | 1569 | 1708 | 5079 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.166 | | | 0.221 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 286 | 5085 | 1502 | 395 | 5079 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | | 21 | 21 | | | 21 | | 21 | 21 | | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 972 | 436 | 213 | 1139 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 972 | 436 | 213 | 1139 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 6.0 | . ug.ic | 2011 | 6.0 | rugin | 20.0 | 3.8 | . ug.it | 2011 | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI · LX | OITEX | | OI · LX | OI · LX | OI LX | OI LX | OI LX | OI LX | OI LX | OI-EX | OI · LX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(III) | | U.U | | | 0.0 | | | U.U | | | 0.0 | |

Synchro 11 Report Page 10 1105-1163 Kingston Road WSP

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2043 Future Background>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | \rightarrow | • | ← | • | 1 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.57 | 0.48 | 0.51 | 0.78 | 0.57 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 26.1 | 23.2 | 9.2 | 41.2 | 26.4 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 26.1 | 23.2 | 9.2 | 41.2 | 26.4 | 0.2 |
| LOS | D | В | | D | С | Α | С | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 19.5 | | | 27.7 | |
| Approach LOS | | С | | | С | | | В | | | С | |

Intersection Summary Area Type: Ot Cycle Length: 100 Actuated Cycle Length: 100

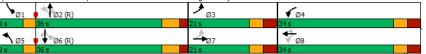
Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 25.2
Intersection Capacity Utilization 68.8%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2043 Future Background>PM

8: Liverpool Road & Private Access/Pickering Parkway

| • | 12-20-20 |
|---|----------|
| | |

| | • | - | • | • | * | 1 | † | | - | ţ | 4 | |
|------------------------|------|------|------|-------|------|--------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 972 | 436 | 213 | 1139 | 50 | |
| v/c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.57 | 0.48 | 0.51 | 0.78 | 0.57 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 26.1 | 23.2 | 9.2 | 41.2 | 26.4 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 26.1 | 23.2 | 9.2 | 41.2 | 26.4 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 14.8 | 53.8 | 24.8 | 20.8 | 59.7 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#35.6 | 77.1 | 55.5 | #63.3 | 88.5 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 221 | 2012 | 857 | 272 | 2010 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.57 | 0.48 | 0.51 | 0.78 | 0.57 | 0.07 | |

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2043 Future Background>PM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2043 Future Background>PM 12-20-2024

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| | • | - | • | • | • | • | 4 | † | 1 | - | ↓ | 4 |
|----------------------------|------|-------|---------|-------|-------|---------|-------|----------|---------|------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ની | 7 | ሻ | ተተተ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1137 | 0 | 0 | 994 | 71 |
| Future Volume (vph) | 0 | 0 | 237 | 278 | 168 | 293 | 121 | 1137 | 0 | 0 | 994 | 71 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.987 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.987 | | 0.170 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1801 | 1581 | 327 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 85 | | | | | | 82 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | • | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 258 | 302 | 183 | 318 | 132 | 1236 | 0 | 0 | 1080 | 77 |
| Shared Lane Traffic (%) | | | | 21% | | 0.0 | | 1200 | | | 1000 | |
| Lane Group Flow (vph) | 0 | 0 | 258 | 239 | 246 | 318 | 132 | 1236 | 0 | 0 | 1080 | 77 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 20.0 | 3.7 | . ug.ii | 20.0 | 3.7 | , again | 20.0 | 3.7 | . ug.ic | 20.0 | 3.7 | . tigin |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | 1.0 | | | 1.0 | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | 0.00 | 97 | 24 | 0.00 | 14 | 97 | | 14 | 24 | 1.00 | 97 |
| Number of Detectors | 01 | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | OI. LX | SILLX | SILLX | SILLX | OI LX | SILLX | | | JI-LX | OI. LX |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | | | 9.4 | 0.0 |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | | | | ∪I⊤EX | | | ∪i≠⊑X | | | OITEX | |

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|-----------------------------------|-----------|----------------|-----------|------------|------------|------------|-------|----------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | . 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 20.7 | 21.5 | 21.5 | 21.5 | 68.0 | 66.2 | | | 41.0 | 41.0 |
| Actuated g/C Ratio | | | 0.21 | 0.22 | 0.22 | 0.22 | 0.68 | 0.66 | | | 0.41 | 0.41 |
| v/c Ratio | | | 0.75 | 0.64 | 0.64 | 0.78 | 0.25 | 0.37 | | | 0.53 | 0.12 |
| Control Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 8.0 | 8.7 | | | 26.1 | 12.9 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 50.5 | 42.8 | 42.3 | 39.9 | 8.0 | 8.7 | | | 26.1 | 12.9 |
| LOS | | | D | D | D | D | Α | Α | | | С | В |
| Approach Delay | | 50.5 | | | 41.5 | | | 8.6 | | | 25.3 | |
| Approach LOS | | D | | | D | | | Α | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: Othe | er | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to ph | ase 2:NB | BTL and | d 6:SBT, | Start of G | reen | | | | | | | |
| Natural Cycle: 65 | | | | | | | | | | | | |
| Control Type: Actuated-Coordina | ated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | | | | | |
| Intersection Signal Delay: 24.4 | | | | Ir | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utilization | 60.0% | | | I | CU Level | of Service | в | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liverpoo | ol Road 8 | <u> Wal</u> nı | ut Lane/H | lwy 401 V | VB Off-Ra | ımp | | | | | | |
| ↑ Ø2 (R) | | • | | | | | 7 | Ø8 | | | | |

∮ Ø6 (R)

Queues

<2043 Future Background>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | 1 | • | • | 1 | † | ↓ | 4 | |
|------------------------|------|------|-------|-------|------|----------|-------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 258 | 239 | 246 | 318 | 132 | 1236 | 1080 | 77 | |
| v/c Ratio | 0.75 | 0.64 | 0.64 | 0.78 | 0.25 | 0.37 | 0.53 | 0.12 | |
| Control Delay | 50.5 | 42.8 | 42.3 | 39.9 | 8.0 | 8.7 | 26.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 50.5 | 42.8 | 42.3 | 39.9 | 8.0 | 8.7 | 26.1 | 12.9 | |
| Queue Length 50th (m) | 47.2 | 44.5 | 45.7 | 43.2 | 7.9 | 35.4 | 39.2 | 0.8 | |
| Queue Length 95th (m) | 67.7 | 63.0 | 64.2 | 66.2 | 18.3 | 55.6 | #82.5 | m11.0 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 540 | 533 | 649 | 3364 | 2040 | 667 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.55 | 0.46 | 0.46 | 0.60 | 0.20 | 0.37 | 0.53 | 0.12 | |

Intersection Summar

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings
10: Kingston Road & Fairport Road

<2043 Future Background>PM 12-20-2024

| | ᄼ | - | • | • | - | 4 | |
|--|-------|----------|-------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | * | ^ | † 1> | | * | 7 | |
| Traffic Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1590 | 757 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | | 0.99 | | | 0.99 | |
| Frt | | | 0.966 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1618 | 3433 | 3346 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1617 | 3433 | 3346 | 0 | 1805 | 1751 | |
| Right Turn on Red | | 0.00 | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 39 | . 55 | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 223 | 1728 | 823 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | 1.5 | | 1.5 | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | 1.04 | 1.01 | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | 17 | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) Detector 1 Size(m) | 2.0 | 0.0 | 0.0 | | 2.0 | 2.0 | |
| | CI+Ex | CI+Ex | | | CI+Ex | | |
| Detector 1 Type | UI+EX | UI+EX | CI+Ex | | UI+EX | CI+Ex | |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | | | | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Background>PM 12-20-2024

| | ۶ | → | + | • | / | 4 | |
|-----------------------------|-------|----------|----------|------------|----------|-------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 |
| Permitted Phases | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | | None | None | None |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | | 0.83 | 0.32 | |
| Control Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 48.9 | 40.2 | 10.1 | | 69.5 | 8.0 | |
| LOS | D | D | В | | Е | Α | |
| Approach Delay | | 41.2 | 10.1 | | 48.9 | | |
| Approach LOS | | D | В | | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | 80 | | | | | | |
| Offset: 27 (21%), Reference | | 2:EBT a | nd 6:WBT | , Start of | Green | | |
| Natural Cycle: 95 | | | | , | | | |

Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 32.6
Intersection Capacity Utilization 70.9%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service C

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2043 Future Background>PM 12-20-2024

| | • | - | - | - | 4 | |
|--|------------|-----------|-----------|-----------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 223 | 1728 | 1065 | 295 | 149 | |
| v/c Ratio | 0.92 | 0.76 | 0.62 | 0.83 | 0.32 | |
| Control Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 48.9 | 40.2 | 10.1 | 69.5 | 8.0 | |
| Queue Length 50th (m) | 51.0 | 247.6 | 26.7 | 72.7 | 0.0 | |
| Queue Length 95th (m) | m50.4 | m241.9 | 36.0 | 101.2 | 16.7 | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 248 | 2270 | 1724 | 426 | 527 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.90 | 0.76 | 0.62 | 0.69 | 0.28 | |
| Intersection Summary m Volume for 95th percent | tile queue | is metere | d by upst | ream sign | al. | |

Synchro 11 Report Page 18 1105-1163 Kingston Road WSP

Page 20

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | 1 | • | 4 | - |
|--|-------------|-------|-------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | | ኘ | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | 2.1 | 0% | 0% | 0.7 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0,0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | | 22.3 | | 2.5 | - |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Flt Protected | 0.550 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | 3311 | U | 0.950 | 3010 | 0.950 | 1017 |
| | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Satd. Flow (perm) Right Turn on Red | 3311 | Yes | 10// | 3018 | 333/ | Yes |
| | 4 | res | | | | |
| Satd. Flow (RTOR) | 1 60 | | | 60 | 50 | 84 |
| Link Speed (k/h) | | | | | | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | ^ |
| Confl. Peds. (#/hr) | 0.00 | 0.00 | 0.00 | 0.00 | 1 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1839 | 25 | 200 | 771 | 720 | 109 |
| Shared Lane Traffic (%) | 400: | | 205 | | 700 | 400 |
| Lane Group Flow (vph) | 1864 | 0 | 200 | 771 | 720 | 109 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | - | - | | - |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Type | UI+EX | | | U+EX | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 19 Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | • | 1 | | |
|---|--------------|---------|------------|-------------|-------------|------------|-------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | 9 | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.4 | | 16.0 | 86.4 | 29.7 | 29.7 | |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | | 1.03 | 0.32 | 0.89 | 0.25 | |
| Control Delay | 66.9 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 66.9 | | 126.5 | 1.8 | 62.5 | 14.0 | |
| LOS | E | | 120.0 F | Α | 62.6 E | В | |
| Approach Delay | 66.9 | | | 27.5 | 56.1 | | |
| Approach LOS | 00.5 E | | | Z7.5 | 50.1 E | | |
| • | | | | | | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | |
| Offset: 69 (53%), Referen | ced to phase | 2:EBT a | nd 6:WBT | Γ, Start of | Green | | |
| Natural Cycle: 130 | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | |
| Intersection Capacity Utili | zation 93.0% | | | IC | CU Level | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | k Kingsto | n Road | | | |
| √ Ø1 - | →Ø2 (R) | | _ | | | | |
| 21 s 71 | | | | | | | |
| ← Ø6 (R) | | | | | | | √ ∞8 |

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | 1 | ~ |
|------------------------|--------|--------|-------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1864 | 200 | 771 | 720 | 109 |
| v/c Ratio | 1.04 | 1.03 | 0.32 | 0.89 | 0.25 |
| Control Delay | 66.9 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 66.9 | 126.5 | 1.8 | 62.5 | 14.0 |
| Queue Length 50th (m) | ~284.5 | ~47.6 | 6.4 | 91.1 | 5.0 |
| Queue Length 95th (m) | #328.0 | #100.5 | 6.1 | #114.7 | 19.8 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1799 | 194 | 2404 | 853 | 446 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.32 | 0.84 | 0.24 |

1105-1163 Kingston Road Synchro 11 Report Page 21

Lanes, Volumes, Timings

<2043 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|-------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | ĵ» | | ሻ | ^ | |
| Traffic Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1563 | 38 | 89 | 1168 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.986 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3399 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1647 | 3343 | 0 | 1704 | 3399 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 13 | | | 129 | | | 149 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1699 | 41 | 97 | 1270 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1740 | 0 | 97 | 1402 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | Cl+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

Synchro 11 Report Page 22 1105-1163 Kingston Road WSP

<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

Lanes, Volumes, Timings

<2043 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | — | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | | 10.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 0.93 | 0.76 | | 0.93 | 0.36 | | 0.39 | 0.41 | |
| Control Delay | 84.2 | 22.6 | | 124.2 | 20.0 | | 93.7 | 14.4 | | 50.3 | 12.5 | |
| Queue Delay | 0.0 | 1.2 | | 0.0 | 0.0 | | 0.0 | 74.4 | | 139.0 | 0.0 | |
| Total Delay | 84.2 | 23.8 | | 124.2 | 20.0 | | 93.7 | 88.7 | | 189.3 | 12.5 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 28.3 | | | 26.8 | | | 91.6 | | | 73.5 | |
| Approach LOS | | С | | | С | | | F | | | Е | |

| Intersection Summa | ary | |
|----------------------|-----------------------|---------------------------|
| Area Type: | Other | |
| Cycle Length: 130 | | |
| Actuated Cycle Ler | igth: 130 | |
| Offset: 6 (5%), Refe | erenced to phase 2:EB | and 6:WBT, Start of Green |
| Natural Cycle: 110 | | |
| Control Type: Actua | ated-Coordinated | |
| Maximum v/c Ratio | : 0.93 | |
| Intersection Signal | Delay: 36.6 | Intersection LOS: D |
| Intersection Capaci | ty Utilization 96.9% | ICU Level of Service F |
| Analysis Period (mi | n) 15 | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2043 Future Background>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | † | > | ↓ |
|------------------------|-------|--------|--------|-------|-------|----------|-------------|----------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 141 | 1740 | 97 | 1402 | 215 | 166 | 89 | 169 |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.76 | 0.93 | 0.36 | 0.39 | 0.41 |
| Control Delay | 84.2 | 22.6 | 124.2 | 20.0 | 93.7 | 14.4 | 50.3 | 12.5 |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 74.4 | 139.0 | 0.0 |
| Total Delay | 84.2 | 23.8 | 124.2 | 20.0 | 93.7 | 88.7 | 189.3 | 12.5 |
| Queue Length 50th (m) | 36.9 | 135.0 | 26.3 | 72.7 | 54.0 | 7.7 | 19.7 | 4.2 |
| Queue Length 95th (m) | m39.6 | m138.3 | m#47.8 | 95.4 | #99.2 | 26.9 | 36.4 | 23.7 |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1843 | 243 | 481 | 240 | 424 |
| Starvation Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 56 | 0 | 0 | 0 | 362 | 220 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.76 | 0.88 | 1.39 | 4.45 | 0.40 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Background>PM 12-20-2024

| | ۶ | → | • | € | + | • | • | † | ~ | / | + | - |
|--|--------|-------------------|--------|----------|----------|---------|--------|----------|---------|----------|----------|--------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | <u>ነ</u> | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | -,- | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | 0.00 | 0.96 | 0.99 | 0.00 | 0.91 | 0.99 | 0.01 | 0.93 | 0.98 | 0.01 | 0.95 |
| Frt | 0.01 | | 0.850 | 0.00 | | 0.850 | 0.00 | | 0.850 | 0.00 | | 0.850 |
| Flt Protected | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | 0100 | 1022 | 0.950 | 0010 | 1001 | 0.331 | 0200 | 1000 | 0.292 | 0100 | 1021 |
| Satd. Flow (perm) | 1638 | 3400 | 1549 | 1719 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | 1000 | 0 1 00 | Yes | 1713 | 0010 | Yes | 000 | 0200 | Yes | JLI | 3103 | Yes |
| Satd. Flow (RTOR) | | | 171 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | 17.1 | | 60 | 100 | | 60 | 55 | | 60 | 202 |
| Link Opeca (NT) Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | 17.5 | 31 | 31 | 10.4 | 75 | 37 | 3.5 | 65 | 65 | 20.1 | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 /0 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Shared Lane Traffic (%) | 100 | 1020 | 000 | 201 | 020 | 000 | 210 | 7-10 | 7.12 | 200 | 0/ 1 | 202 |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | LOIL | 3.5 | rugiit | Lon | 3.5 | rtigitt | LOIL | 3.5 | rtigiit | LUIT | 3.5 | rtigit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | 1.01 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI. LX | JI-LX | JI. LX | JI.LX | JI. LX | JI-LX | JI. LX | JI-LX | JI. LX | JI. LX | JI.LX | JI. LX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Position(m) Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(III) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2043 Future Background>PM 12-20-2024

| | • | - | • | • | — | • | 1 | † | - | - | ↓ | 4 |
|--|-------------------|------------|-----------|------------|------------|------------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | 3 | 3 | | 3 | 3 | | 3 | | | | 3 |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 38.3 | 38.3 | 22.7 | 48.0 | 48.0 | 51.0 | 40.6 | 66.7 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| LOS | F | F | C | F | C | C | E | D | D | E | D | A |
| Approach Delay | | 76.6 | - | • | 34.6 | - | _ | 40.9 | | _ | 34.3 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | Other | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 20 | | | | | | | | | | | |
| Offset: 32 (25%), Referen | | 2.EDT a | nd 6:\N/D | T Ctart of | Croon | | | | | | | |
| Natural Cycle: 120 | ceu to priast | 2.EDI a | IIU U.VVD | i, Start U | Gleen | | | | | | | |
| | a a ratio a to al | | | | | | | | | | | |
| Control Type: Actuated-Co Maximum v/c Ratio: 1.02 | Jordinaled | | | | | | | | | | | |
| | 17 E | | | | ntersectio | ~ I OC: D | | | | | | |
| Intersection Signal Delay: Intersection Capacity Utiliz | | 0/ | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | zau011 109.1 | /0 | | 10 | ou Level | OI SEIVICE | 5 IT | | | | | |
| Splits and Phases: 13: \ | Whites Road | l & Kinast | on Road | | | | | | | | | |
| ₩Ø1 | | | on rodu | | | ١. | 4 | | | | | |
| | | Ø2 (R) | | | | | | 14 | | | | |
| 30 s | 43 s | | | | | 8 s | 49 s | | | | | |

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13: Whites Road & Kingston Road

| | • | - | • | 1 | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|-------|--------|-------|-------|---------|---------|-------|----------|--------|-------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 251 | 829 | 533 | 248 | 743 | 712 | 205 | 671 | 202 |
| v/c Ratio | 1.00 | 1.02 | 0.68 | 0.83 | 0.63 | 0.83 | 0.88 | 0.45 | 0.89 | 0.81 | 0.42 | 0.32 |
| Control Delay | 127.6 | 79.3 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 6.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 86.2 | 29.2 | 83.6 | 25.4 | 25.9 | 63.3 | 36.9 | 37.4 | 55.8 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | ~154.6 | 51.2 | 60.7 | 53.7 | 43.3 | 42.7 | 55.8 | 123.7 | 34.3 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #195.8 | 88.5 | m80.9 | m79.6 n | n#129.0 | #83.4 | 68.3 | #188.7 | #65.5 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 1001 | 576 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.04 | 0.68 | 0.75 | 0.63 | 0.83 | 0.88 | 0.45 | 0.86 | 0.81 | 0.42 | 0.32 |

<2043 Future Background>PM 12-20-2024

| | • | • | 4 | † | ↓ | 1 |
|----------------------------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | 77 | 7 | -1,02 | ^ | ^ | 05.1 |
| Traffic Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Future Volume (vph) | 1183 | 589 | 0 | 841 | 547 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | , |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.55 | 0.55 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1421 | U | 3333 | 3010 | U |
| Satd. Flow (perm) | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | 3433 | Yes | U | 3039 | 3010 | Yes |
| | 7 | 129 | | | | res |
| Satd. Flow (RTOR) | 50 | 129 | | 60 | 60 | |
| Link Speed (k/h) | 295.9 | | | 185.9 | 316.9 | |
| Link Distance (m) | 295.9 | | | 11.2 | 19.0 | |
| Travel Time (s) | 21.3 | 3 | 4 | 11.2 | 19.0 | 4 |
| Confl. Peds. (#/hr) | 0.00 | | | 0.00 | 0.00 | - |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1286 | 640 | 0 | 914 | 595 | 0 |
| Shared Lane Traffic (%) | 4050 | 10% | 0 | 044 | 505 | 0 |
| Lane Group Flow (vph) | 1350 | 576 | 0 | 914 | 595 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | JI-LX | JI-LX | |
| Detector & Originite | | | | | | |

Lanes, Volumes, Timings

14: Whites Road & Highway 401 EB Off Ramp

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Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

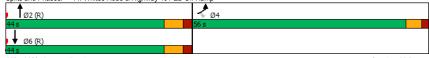
^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | * | 7 | T | ¥ | ∢ | |
|----------------------------------|-----------|------------|----------|------------|-------------|-------------|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | | |
| Turn Type | Prot | Perm | | NA | NA | | |
| Protected Phases | 4 | | | 2 | 6 | | |
| Permitted Phases | | 4 | | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| /ehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | | |
| Recall Mode | None | None | | C-Max | C-Max | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | |
| Act Effct Green (s) | 46.8 | 46.8 | | 41.0 | 41.0 | | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | | |
| //c Ratio | 0.83 | 0.79 | | 0.63 | 0.40 | | |
| Control Delay | 28.2 | 25.9 | | 26.6 | 22.6 | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 28.2 | 25.9 | | 26.6 | 22.6 | | |
| _OS | С | С | | С | С | | |
| Approach Delay | 27.5 | | | 26.6 | 22.6 | | |
| Approach LOS | С | | | С | С | | |
| ntersection Summary | | | | | | | |
| | ther | | | | | | |
| Cycle Length: 100 | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | |
| Offset: 8 (8%), Referenced to | phase 2 | :NBT and | 6:SBT, S | tart of Gr | reen | | |
| Natural Cycle: 60 | , | - | , - | | | | |
| Control Type: Actuated-Coord | dinated | | | | | | |
| Maximum v/c Ratio: 0.83 | | | | | | | |
| ntersection Signal Delay: 26. | .4 | | | lr | ntersection | LOS: C | |
| ntersection Capacity Utilization | | , | | | | f Service D | |
| Analysis Period (min) 15 | | | | | | | |
| , | | | | | | | |
| Splits and Phases: 14: Whi | ites Road | I & Highwa | y 401 El | B Off Rar | mp | | |
| † ga (a) | | - | | 12 | L | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 29 Queues

<2043 Future Background>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ¥ |
|------------------------|-------|-------|----------|-------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1350 | 576 | 914 | 595 |
| v/c Ratio | 0.83 | 0.79 | 0.63 | 0.40 |
| Control Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.2 | 25.9 | 26.6 | 22.6 |
| Queue Length 50th (m) | 110.4 | 77.9 | 74.2 | 42.8 |
| Queue Length 95th (m) | 131.2 | 123.7 | 99.3 | 59.7 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 772 | 1451 | 1484 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.77 | 0.75 | 0.63 | 0.40 |
| Intersection Summary | | | | |

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Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance

<2043 Future Background>PM 12-20-2024

| | • | 4 | † | <u> </u> | <u> </u> | 1 |
|----------------------------|-------|-------|------------|----------|----------|----------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1 > | | | 4 |
| Traffic Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Future Volume (vph) | 0 | 228 | 0 | 0 | 168 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 248 | 0 | 0 | 0 | 0 | 183 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | Ť | 3.6 | , i | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |

Control Type: Unsignalized Intersection Capacity Utilization 31.2% Analysis Period (min) 15

ICU Level of Service A

1105-1163 Kingston Road Synchro 11 Report Page 31

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2043 Future Background>PM 12-20-2024

| | • | • | † | <i>></i> | > | ļ |
|------------------------------|-------|------|----------|-------------|-------------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1> | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 228 | 0 | 0 | 168 | Ö |
| Future Volume (Veh/h) | 0 | 228 | 0 | 0 | 168 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 248 | 0 | 0 | 183 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 378 | 23 | | | 12 | |
| vC1, stage 1 conf vol | | | | | ·- | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 76 | | | 88 | |
| cM capacity (veh/h) | 545 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 248 | 0 | 183 | | | |
| Volume Left | 240 | 0 | 183 | | | |
| Volume Lett Volume Right | 248 | 0 | 183 | | | |
| volume Right cSH | | • | 1587 | | | |
| | 1029 | 1700 | | | | |
| Volume to Capacity | 0.24 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 7.2 | 0.0 | 3.0 | | | |
| Control Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 9.6 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utiliz | ation | | 31.2% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| | | | 10 | | | |

Synchro 11 Report Page 32 1105-1163 Kingston Road WSP

| | ʹ | - | \rightarrow | • | ← | • | • | † | ~ | > | ļ | 4 |
|----------------------------|-------|------------|---------------|-------|------------|-------|--------|----------|---------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | | ↑ ↑ | | ሻ | | 7 | ሻ | 1> | |
| Traffic Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1710 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.730 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1317 | 0 | 1603 | 1713 | 1710 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 100 | | 26 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 38 | 1420 | 270 | 119 | 646 | 43 | 293 | 0 | 265 | 24 | 16 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 1690 | 0 | 119 | 689 | 0 | 293 | 0 | 265 | 24 | 42 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | • | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | O. LA | O. LX | | O. LA | O. LA | | 0. 2. | | 0. Lx | 0. Lx | O. LA | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | i Giii | | 1 Citil | 1 Gill | 4 | |
| 1 10100100 1 110303 | J | | | | J | | | | | | 7 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Background_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | / | - | ţ | 4 |
|---|-------------|------------|----------|------------|-------------|------------|-----------|-----------|-----------|-----------|-----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | 9 | | _000 | 9 | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | | | None | | None | None | None | |
| Walk Time (s) | 140110 | 7.0 | | 140110 | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 70.1 | | 10.0 | 77.1 | | 30.3 | | 30.3 | 30.3 | 30.3 | |
| Actuated g/C Ratio | 0.04 | 0.54 | | 0.08 | 0.59 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.59 | 0.91 | | 0.92 | 0.33 | | 0.25 | | 0.59 | 0.06 | 0.10 | |
| Control Delay | 81.2 | 29.8 | | 117.0 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 81.2 | 29.8 | | 117.0 | 9.1 | | 90.1 | | 32.8 | 38.9 | 20.6 | |
| LOS | 01.2 F | 23.0 C | | F | 9.1 A | | 30.1 F | | 32.0 C | 30.9 D | 20.0 C | |
| Approach Delay | ' | 30.9 | | | 25.0 | | ' | 62.9 | U | U | 27.2 | |
| Approach LOS | | 30.9 C | | | 23.0 C | | | 02.3 E | | | 21.2 C | |
| • | | C | | | C | | | | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 |) | 0.555 | 10145 | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliza | ation 91.5% | | | I | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | alnut Lane | & Kingston | Road | | | | | | | | | |
| √ø1 →ø2 (R | 0) | | | | | | | 1 | Ø4 | | | |
| 15 s 76 s | , | | | | | | | 39 s | - | _ | | |
| <i>▶</i> ← | | | | | | | | 46.5 | | | | |
| Ø5 Ø6 (R) | | | | | | | | | Ø8 | | | |
| 10 s 81 s | | | | | | | | 39 s | | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background_PHF>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Future Volume (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.354 | | | 0.180 | | |
| Satd. Flow (perm) | 1666 | 3461 | 1512 | 1710 | 3579 | 1517 | 660 | 3773 | 1564 | 378 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 120 | | | 160 | | | 165 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 244 | 1028 | 329 | 212 | 545 | 67 | 155 | 826 | 232 | 95 | 557 | 108 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.00 | 4.04 | 0.00 | 4.00 | 0.07 | 0.00 | 0.07 | 0.00 | Yes | 4.04 |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | 2 | 1 | 1 | _ 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Background_PHF>PM 12-20-2024

| | • | - | • | • | • | • | 4 | † | ~ | - | ↓ | 4 |
|---|-------------|-----------|-----------|------------|------------|------------|---------------|-----------|-----------|-----------|-----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | . 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | 2000 | Lug | 2000 | 2000 | | Lug | 2000 | Lug | | 2000 | 9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | 140110 | 7.0 | 110110 | 110110 | 7.0 | 7.0 | 140110 | 7.0 | 7.0 | 140110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 23.4 | 40.7 | 49.8 | 19.2 | 36.5 | 36.5 | 52.0 | 40.9 | 40.7 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.18 | 0.31 | 0.38 | 0.15 | 0.28 | 0.28 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.10 | 0.95 | 0.50 | 0.13 | 0.54 | 0.12 | 0.50 | 0.70 | 0.39 | 0.44 | 0.48 | 0.19 |
| Control Delay | 49.4 | 69.4 | 38.3 | 79.5 | 43.0 | 0.12 | 32.0 | 42.8 | 13.0 | 30.0 | 37.8 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 49.4 | 69.4 | 38.3 | 79.5 | 43.0 | 0.5 | 32.0 | 42.8 | 13.0 | 30.0 | 37.8 | 2.8 |
| LOS | 43.4 D | 03.4 E | 30.3 D | 19.5 E | 43.0 D | 0.5 A | 32.0 C | 42.0 D | 13.0 B | 30.0 C | 57.0 D | 2.0 A |
| Approach Delay | U | 59.9 | U | | 48.9 | | U | 35.7 | D | U | 31.8 | |
| Approach LOS | | 55.5 E | | | 40.9 D | | | 33.7 D | | | 31.0 C | |
| • | | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference Natural Cycle: 115 | ed to phase | e 2:EBT a | and 6:WB | T, Start o | f Green | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: | 46.3 | | | l l | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | ation 103.1 | % | | I I | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | nd & King | ston Road | d | | | | | | | | |
| ÿ1 | ₩ 102(| 'R) | | | | \$ 0 | 3 \$ 04 | 1 | | | | |
| 26 s | 46 s | | | | | 8 s | 50 s | | | | | |
| _ ≯ ø5 | • | Ø6 (I | ₹) | | | Ø | 7 1 Ø8 | 3 | | | | |
| 34 s | 3 | 8 s | | | | 8 s | 50 s | | | | , | لبب |
| WSP | | | | | | | | | | | | Page 4 |

<2043 Future Background_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 4 | - |
|-------------------------------------|------------|-------|-------|------------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ Ъ | LUI | 7 | ↑ ↑ | ሻሻ | 7 |
| Traffic Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Future Volume (vph) | 1692 | 23 | 184 | 709 | 662 | 100 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 3.1 | 2.1 | 0% | 0% | 3.1 |
| | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Length (m) Storage Lanes | | 0.0 | 47.5 | | 2 | 52.0 |
| • | | U | | | | - 1 |
| Taper Length (m) | 0.05 | 0.05 | 22.3 | 0.05 | 2.5 | 4.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 84 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | 20 | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1.00 |
| | 1692 | 23 | 184 | 709 | 662 | 100 |
| Adj. Flow (vph) | 1092 | 23 | 104 | 709 | 002 | 100 |
| Shared Lane Traffic (%) | 1715 | 0 | 184 | 709 | 662 | 100 |
| Lane Group Flow (vph) | | - | | | | |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Size(m) Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| | CI+EX | | CI+EX | CI+EX | CI+EX | CI+EX |
| Detector 1 Channel | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | • | 4 | 1 |
|----------------------------|---------------|---------------|-----------|-------------|------------|------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Detector 2 Channel | | | | | .,,,,, | ., |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | , i | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | . 3 | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 |
| Act Effct Green (s) | 66.7 | | 16.0 | 87.7 | 28.4 | 28.4 |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 |
| v/c Ratio | 0.93 | | 0.95 | 0.29 | 0.86 | 0.24 |
| Control Delay | 46.2 | | 110.5 | 1.6 | 60.4 | 12.6 |
| Queue Delay | 0.8 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.0 | | 110.5 | 1.6 | 60.4 | 12.6 |
| LOS | D | | F | Α | Е | В |
| Approach Delay | 47.0 | | | 24.0 | 54.2 | |
| Approach LOS | D | | | С | D | |
| Intersection Summary | | | | | | |
| | Other | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | 20 | | | | | |
| Actuated Cycle Length: 1 | | 0.EDT | -4 C/ND | T Ctort - | Croon | |
| Offset: 69 (53%), Referen | nced to phase | z:EBI ai | id o:WB | i, Start of | Green | |
| Natural Cycle: 120 | `oordinated | | | | | |
| Control Type: Actuated-C | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | - 1 00. 5 |
| Intersection Signal Delay | | | | | ntersectio | |
| Intersection Capacity Util | ization 93.0% | | | I | U Level | of Service |
| Analysis Period (min) 15 | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | k Kinasto | n Road | | |
| √ Ø1 | | | | | | |
| | →Ø2 (R) Ls | | | | | |
| ← | | | | | | |
| Ø6 (R) | | | | | | |
| 92 s | | | | | | |
| WSP | | | | | | |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Background_PHF>PM 12-20-2024

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|--|------------|--------------|--------------|------------|--------------|------------|-----------|--------------|------------|------------|--------------|--------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ^ | 7 | 7 | ** | 7 | * | ^ | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.323 | | |
| Satd. Flow (perm) | 1634 | 3400 | 1549 | 1717 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 187 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 941 | 358 | 231 | 763 | 490 | 228 | 684 | 655 | 189 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | 4.04 | 0.00 | 4.04 | 0.00 | 0.04 | 4.04 | 0.00 | 4.00 | 4.04 | 0.00 | 0.00 |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | 2 | | 24 | 2 | | 24 | 2 | | 24 | 2 | 14 |
| Number of Detectors | 1 Left | | 1 | 1 Left | | 1 | 1 Left | | 1 | 1 Left | | 1 |
| Detector Template | Leπ 2.0 | Thru 10.0 | Right 2.0 | Leπ 2.0 | Thru 10.0 | Right 2.0 | 2.0 | Thru 10.0 | Right 2.0 | Leπ 2.0 | Thru 10.0 | Right 2.0 |
| Leading Detector (m) | 0.0 | | | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 |
| Detector 1 Position(m) | 2.0 | 0.0 | 2.0 | 0.0 2.0 | 0.0 | 0.0 2.0 | 2.0 | 0.0 | 0.0 2.0 | 0.0 2.0 | 0.0 | 2.0 |
| Detector 1 Size(m) | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex |
| Detector 1 Type Detector 1 Channel | CI+EX | CI+EX | CI+Ex | CI+Ex | CI+EX | CI+EX | CI+EX | CI+EX | CI+Ex | CI+EX | CI+Ex | CI+EX |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2043 Future Background_PHF>PM 12-20-2024

| _ | • | → | • | • | + | 4 | 1 | † | ~ | 1 | | 1 |
|------------------------------|-------------|------------|---------|-------------|------------|------------|-------|-------|-------|-------|--------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 39.5 | 39.5 | 21.5 | 48.0 | 48.0 | 51.0 | 40.6 | 65.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.30 | 0.30 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.50 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.92 | 0.91 | 0.60 | 0.81 | 0.58 | 0.76 | 0.75 | 0.42 | 0.83 | 0.69 | 0.39 | 0.30 |
| Control Delay | 109.5 | 57.7 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 59.1 | 23.1 | 84.6 | 24.5 | 20.2 | 47.4 | 36.3 | 32.1 | 43.6 | 35.8 | 5.8 |
| LOS | F | Е | С | F | С | С | D | D | С | D | D | Α |
| Approach Delay | | 55.6 | | | 32.4 | | | 36.2 | | | 31.7 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | 2:EBT a | nd 6:WB | Γ, Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | | | | | | |
| Intersection Signal Delay: | 39.5 | | | lı | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | ation 109.1 | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: V | Vhites Road | l & Kinast | on Road | | | | | | | | | |
| r' | | | | | | 14 | 13 | | | | | |
| √ rø1 30 s | 43.0 | Ø2 (R) | | | | 1 | 49 s | 14 | | | | |
| <u></u> | TO S | | | | | 0.5 | 49 S | | | | | |

APPENDIX

G TTS DATA & MULTI-USE SHARE FACTOR

Fri May 07 2021 23:27:06 GMT-0400 (Eastern Daylight Time) - Run Time: 2435ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of destination - gta06_dest In 1041 1043 1039 1040

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of destination - purp_dest In H)

| | Pickering | Mode Splits |
|----------------|-----------|-------------|
| Auto driver | 221 | 79% |
| Auto passenger | 10 | 4% |
| Walk | 50 | 18% |

Fri May 07 2021 23:28:22 GMT-0400 (Eastern Daylight Time) - Run Time: 2576ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of origin - gta06_orig In 1041 1043 1039 1040

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of origin - purp_orig In H)

| | Pickering | Mode Splits |
|---------------------------------|-----------|-------------|
| Transit excluding GO rail | 456 | 8% |
| Cycle | 10 | 0% |
| Auto driver | 3082 | 56% |
| GO rail only | 305 | 6% |
| Joint GO rail and local transit | 461 | 8% |
| Auto passenger | 365 | 7% |
| School bus | 491 | 9% |
| Taxi passenger | 48 | 1% |
| Walk | 302 | 5% |

Fri May 07 2021 23:22:53 GMT-0400 (Eastern Daylight Time) - Run Time: 2776ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of destination - gta06_dest In 1041 1043 1039 1040

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of destination - purp_dest In H)

| | Pickering | Mode Splits |
|---------------------------------|-----------|-------------|
| Transit excluding GO rail | 177 | 4% |
| Cycle | 9 | 0% |
| Auto driver | 3005 | 65% |
| GO rail only | 425 | 9% |
| Joint GO rail and local transit | 311 | 7% |
| Auto passenger | 284 | 6% |
| School bus | 226 | 5% |
| Paid rideshare | 33 | 1% |
| Walk | 170 | 4% |

Fri May 07 2021 23:29:44 GMT-0400 (Eastern Daylight Time) - Run Time: 2591ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of origin - gta06_orig In 1041 1043 1039 1040

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of origin - purp_orig In H)

| | Pickering | Mode Splits |
|---------------------------|-----------|-------------|
| Transit excluding GO rail | 30 | 3% |
| Auto driver | 738 | 83% |
| Auto passenger | 118 | 13% |

Tue Sep 19 2023 16:00:53 GMT-0400 (Eastern Daylight Time) - Run Time: 2527ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of destination - gta06_dest In 1041 1043 1039 1040

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of destination - purp_dest In M

Trip 2016 Table:

| | PD 16 of Toronto | Pickering | Ajax | Clarington | Mode Splits |
|----------------|------------------|-----------|------|------------|-------------|
| Auto driver | 11 | 62 | 45 | 0 | 79% |
| Auto passenger | 0 | 16 | 5 0 | 12 | 21% |

)

Tue Sep 19 2023 16:45:48 GMT-0400 (Eastern Daylight Time) - Run Time: 2968ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of origin - gta06 orig In 1041 1043 1039 1040

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of origin - purp_orig In M)

| | PD 16 of TcPicker | ing Ajax | Mo | ode Splits |
|----------------|-------------------|----------|----|------------|
| Auto driver | 11 | 41 | 23 | 80% |
| Auto passenger | 0 | 10 | 0 | 20% |

Tue Sep 19 2023 16:04:54 GMT-0400 (Eastern Daylight Time) - Run Time: 3482ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of destination - gta06_dest In 1041 1043 1039 1040

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of destination - purp_dest In M)

| | PD 6 of To PD 15 | of Tor Pic | kering Ajax | | Whitby | Oshawa | Mode Splits |
|----------------|------------------|------------|-------------|-----|--------|--------|-------------|
| Auto driver | 8 | 29 | 498 | 110 | 13 | 13 | 93% |
| Auto passenger | 8 | 0 | 38 | 0 | 0 | 0 | 7% |

Tue Sep 19 2023 16:46:44 GMT-0400 (Eastern Daylight Time) - Run Time: 2712ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime Column: Planning district of household - pd_hhld

Filters:

(2006 GTA zone of origin - gta06_orig In 1041 1043 1039 1040

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of origin - purp_orig In M)

| | PD 6 of TorPD 1 | 5 of Tor Scug | og P | ickering Ajax | Wh | itby Osl | nawa Cla | rington | Mode Splits |
|---------------------------|-----------------|---------------|------|---------------|----|----------|----------|---------|-------------|
| Transit excluding GO rail | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0% |
| Cycle | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 1% |
| Auto driver | 8 | 41 | 10 | 802 | 98 | 19 | 0 | 22 | 88% |
| GO rail only | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0% |
| Auto passenger | 8 | 10 | 10 | 102 | 0 | 0 | 0 | 0 | 11% |

TTS Trip Distribution Summary

In order to inform the trip assignment stage of the analysis, informaton about the general trip distribution is required to inform the analysis. The distribution represents the proportion of trips to and away from the site in any given direction. The following pages summarizes the general trip distribution results, which were calculated using Transportation Tomorrow Survey (TTS) 2016 trip origin and destination data. Trips were grouped under cardinal directions based on the relative angle between trip origin and destination, and appropriate adjustments were made to the calculation to conform to local geography and street grid.

The "TTS Directional Distribution Summary" on the next page presents a summary of the calculations described above, along with notes on any details specific to the analysis in this report. The table shows the total number of trips to and from the subject site categorized into general directions (North, Northeast, East etc.) and the percentage share of trips in each general direction in all directions.

The pages after show graphical illustrations of the categorizations for all Traffic Analysis Zones (TAZ) in the TTS survey area. Note that the latest survey zones were last updated in 2006.

These results are used as reference information for the trip assignment. They do not directly determine the trip assignment on the study network. The final trip assignments are completed based on a combination of local context, engineering experience, and engineering judgement, with the trip distribution information presented here to illustrate general travel behaviour.

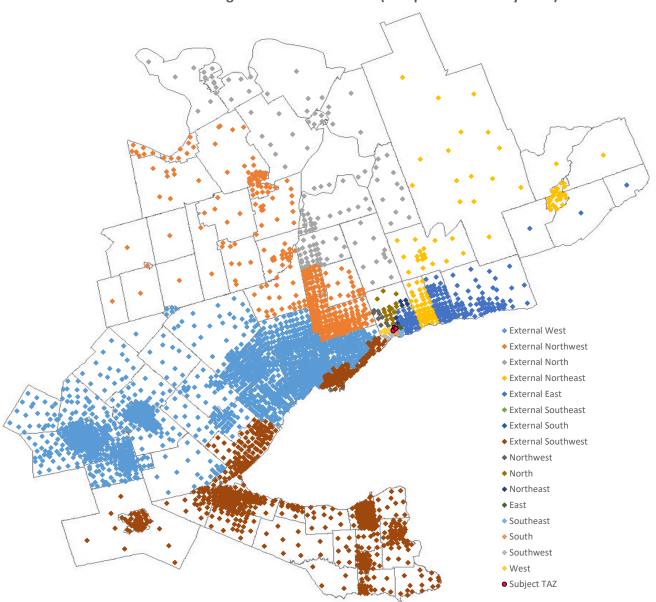
TTS Directional Distribution Summary: Tribute - Liverpool, Pickering

Notes:

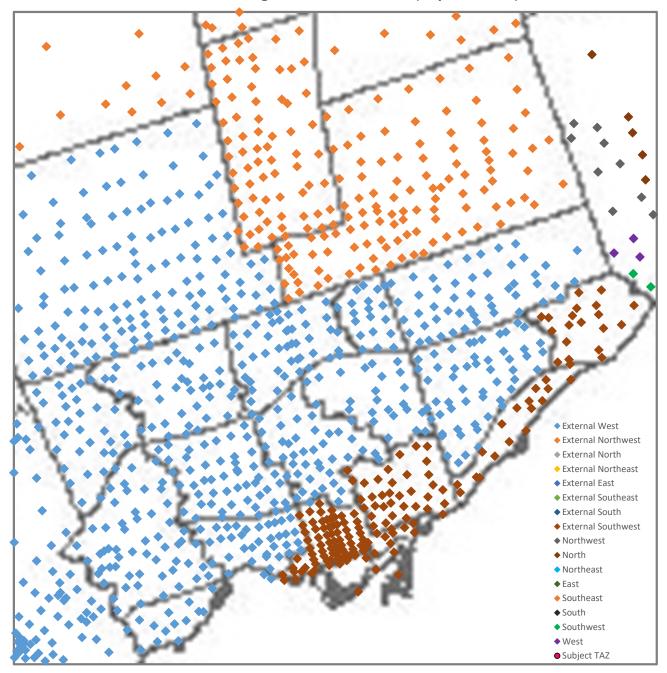
- 1. Directions determined based on centroid coordinates of destination/origin planning districts.
- 2. 'Internal' refers to local trips made within the home planning district(s), while 'External' refers to trips made to areas outside of the home planning district(s).

| | | | | Internal | | | | | External | | | | | | | | | | | |
|-------------|-------------|-----------|----|----------|----|-----|-----|-----|----------|-----|-------|-----|----|-----|-----|----|----|-----|------|-------|
| | Time Period | Direction | NW | N | NE | E | SE | S | SW | W | Total | NW | N | NE | E | SE | S | SW | W | Total |
| | A.M. | Inbound | 0 | 111 | 0 | 13 | 21 | 0 | 0 | 0 | 145 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 42 |
| Trips | A.W. | Outbound | 0 | 446 | 53 | 13 | 260 | 151 | 208 | 137 | 1268 | 601 | 0 | 376 | 431 | 0 | 0 | 375 | 1149 | 2932 |
| Trips | P.M. | Inbound | 0 | 251 | 10 | 59 | 299 | 53 | 103 | 73 | 848 | 774 | 0 | 119 | 319 | 0 | 0 | 227 | 1556 | 2995 |
| | P.IVI. | Outbound | 0 | 47 | 10 | 94 | 96 | 87 | 29 | 25 | 388 | 0 | 0 | 53 | 204 | 0 | 0 | 68 | 38 | 363 |
| | A.M. | Inbound | 0% | 48% | 0% | 6% | 9% | 0% | 0% | 0% | 63% | 0% | 0% | 0% | 18% | 0% | 0% | 0% | 0% | 18% |
| Percentage | | Outbound | 0% | 10% | 1% | 0% | 6% | 3% | 5% | 3% | 28% | 13% | 0% | 8% | 10% | 0% | 0% | 8% | 26% | 65% |
| reiceillage | P.M. | Inbound | 0% | 6% | 0% | 1% | 7% | 1% | 3% | 2% | 21% | 19% | 0% | 3% | 8% | 0% | 0% | 6% | 38% | 74% |
| | F.IVI. | Outbound | 0% | 5% | 1% | 11% | 11% | 10% | 3% | 3% | 45% | 0% | 0% | 6% | 24% | 0% | 0% | 8% | 4% | 42% |

TAZ Directional Categorisation Visualisation (Complete TTS Survey Area)



TAZ Directional Categorisation Visualisation (City of Toronto)



2028 Horizon Year

New Internal Trip Capture Methodology for Multi-Use Developments

Based on NCHRP Project 8-51

Note: Saturday is assumed to be the same as PM Peak Hour for Multi-Use Reductions, if Saturday Multi-Use is assumed, this must be disclosed

Do not modify values in Grey Cells

INPUTS

Volumes

| Use | AM Vo | olumes | PM Vo | olumes | Saturday Volumes | | |
|---------------|----------|---------|----------|---------|------------------|---------|--|
| Ose | Entering | Exiting | Entering | Exiting | Entering | Exiting | |
| Office | | | | | | | |
| Retail | 112 | 69 | 246 | 267 | | | |
| Restaurant | | | | | | | |
| Cinema/ | | | | | | | |
| Entertainment | | | | | | | |
| Residential | 41 | 116 | 116 | 71 | | | |
| Hotel | | | | | | | |

Proximity of Uses

| | Separation Distance (In Feet) | | | | | | | | | |
|---------------|-------------------------------|--------|------------|--------------------------|-------------|-------|--|--|--|--|
| Use | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | |
| 065 | | 1 0 | 0 | Lintertalliment | 0 | 0 | | | | |
| Office | | 0 | Į U | 0 | 0 | U | | | | |
| Retail | | | 0 | 0 | 0 | 0 | | | | |
| Restaurant | | | | 0 | 0 | 0 | | | | |
| Cinema/ | | | | | 0 | 0 | | | | |
| Entertainment | | | | | U | 0 | | | | |
| Residential | | | | | | 0 | | | | |
| Hotel | | | | | | | | | | |

OUTPUTS

AM Peak Hour Multi-Use Reduction Summary

| | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | In | In% |
|--------------------------|--------|--------|------------|--------------------------|-------------|-------|----|-----|
| Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Retail | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1% |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Cinema/ Entertainment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Residential | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2% |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Out | 0 | 1 | 0 | 0 | 1 | 0 | | |
| Out % | 0% | 1% | 0% | 0% | 1% | 0% | | |

PM Peak Hour Multi-Use Reduction Summary (Contains Proximity Factors)

| | | | | (Container reximity ractions) | | | | | |
|--------------------------|--------|--------|------------|-------------------------------|-------------|-------|----|-----|--|
| | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | In | In% | |
| Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% | |
| Retail | 0 | 0 | 0 | 0 | 25 | 0 | 25 | 10% | |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% | |
| Cinema/ Entertainment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% | |
| Residential | 0 | 53 | 0 | 0 | 0 | 0 | 53 | 46% | |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% | |
| Out | 0 | 53 | 0 | 0 | 25 | 0 | | | |
| Out % | 0% | 20% | 0% | 0% | 35% | 0% | | | |

Supporting Data

Percentages from ITE Journal August 2010: "Improved Estimation of Internal Trip Capture for Mixed-Use Developments"

| | AM From-To Percentages Matrix | | | | | | | | | |
|---------------|-------------------------------|--------|------------|--------------------------|-------------|-------|--|--|--|--|
| | | From | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | |
| Office | | 29% | 31% | | 2% | 75% | | | | |
| Retail | 28% | | 14% | | 1% | 14% | | | | |
| Restaurant | 63% | 13% | | | 20% | 9% | | | | |
| Cinema/ | | | | | | | | | | |
| Entertainment | | | | | | | | | | |
| Residential | 1% | 14% | 4% | | | 0% | | | | |
| Hotel | 0% | 0% | 3% | | 0% | | | | | |

| | AM To-From Percentages Matrix | | | | | | | | | |
|---------------|-------------------------------|--------|------------|--------------------------|-------------|-------|--|--|--|--|
| | | From | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | |
| Office | | 4% | 14% | | 3% | 3% | | | | |
| Retail | 32% | | 8% | | 17% | 4% | | | | |
| Restaurant | 23% | 50% | | | 20% | 6% | | | | |
| Cinema/ | | | | | | | | | | |
| Entertainment | | | | | | | | | | |
| Residential | 0% | 2% | 5% | | | 0% | | | | |
| Hotel | 0% | 0% | 4% | | 0% | | | | | |

| | PM (Saturday) From-To Percentages Matrix | | | | | | | | | | |
|--------------------------|--|--------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | | From | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | | 2% | 3% | 2% | 4% | 0% | | | | | |
| Retail | 20% | | 41% | 21% | 42% | 16% | | | | | |
| Restaurant | 4% | 29% | | 31% | 21% | 68% | | | | | |
| Cinema/ Entertainment | 0% | 4% | 8% | | 0% | 68% | | | | | |
| Residential | 2% | 26% | 18% | 8% | | 0% | | | | | |
| Hotel | 0% | 5% | 7% | 2% | 3% | 2% | | | | | |

| | PM (Saturday) To-From Percentages Matrix | | | | | | | | | | |
|--------------------------|--|--------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | | From | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | | 31% | 30% | 6% | 57% | 0% | | | | | |
| Retail | 8% | 3111 | 50% | 4% | 10% | 2% | | | | | |
| Restaurant | 2% | 29% | | 3% | 14% | 5% | | | | | |
| Cinema/ Entertainment | 1% | 26% | 32% | | 0% | 0% | | | | | |
| Residential | 4% | 46% | 16% | 4% | | 0% | | | | | |
| Hotel | 0% | 17% | 71% | 1% | 12% | | | | | | |

| | PM (Saturday) Only From-To Proximity Factors Matrix | | | | | | |
|--------------------------|---|--------|------------|--------------------------|-------------|-------|--|
| | | | Fr | om | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | |
| Office | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Retail | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Restaurant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Cinema/ Entertainment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Residential | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Hotel | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |

| | PM (Saturday) Only To-From Proximity Factors Matrix | | | | | | | | | | |
|---|---|--------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | | From | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Retail | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Restaurant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Cinema/ Entertainment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Residential | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Hotel | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Red numbers for those land use pairs with proximity factors | | | | | | | | | | | |

2033/2038/2043 Horizon Year

New Internal Trip Capture Methodology for Multi-Use Developments

Based on NCHRP Project 8-51

Note: Saturday is assumed to be the same as PM Peak Hour for Multi-Use Reductions, if Saturday Multi-Use is assumed, this must be disclosed

Do not modify values in Grey Cells

INPUTS

| Vol | umes |
|-----|------|
|-----|------|

| Use - | AM Vo | lumes | PM Vo | olumes | Saturday Volumes | | |
|---------------|------------------|-------|----------|---------|------------------|---------|--|
| Use | Entering Exiting | | Entering | Exiting | Entering | Exiting | |
| Office | | | | | | | |
| Retail | 155 | 95 | 318 | 344 | | | |
| Restaurant | | | | | | | |
| Cinema/ | | | | | | | |
| Entertainment | | | | | | | |
| Residential | 370 | 1052 | 1044 | 640 | | | |
| Hotel | | | | | | | |

Proximity of Uses

| | | | Separation Dis | stance (In Feet) | | |
|---------------|--------|--------|----------------|--------------------------|-------------|-------|
| Use | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel |
| 065 | | 1 0 | 0 | Lintertalliment | 0 | 0 |
| Office | | 0 | Į U | 0 | 0 | U |
| Retail | | | 0 | 0 | 0 | 0 |
| Restaurant | | | | 0 | 0 | 0 |
| Cinema/ | | | | | 0 | 0 |
| Entertainment | | | | | U | 0 |
| Residential | | | | | | 0 |
| Hotel | | | | | | |

OUTPUTS

AM Peak Hour Multi-Use Reduction Summary

| | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | In | In% |
|--------------------------|--------|--------|------------|--------------------------|-------------|-------|----|-----|
| Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Retail | 0 | 0 | 0 | 0 | 11 | 0 | 11 | 7% |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Cinema/ Entertainment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Residential | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 2% |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Out | 0 | 7 | 0 | 0 | 11 | 0 | | |
| Out % | 0% | 8% | 0% | 0% | 1% | 0% | | |

PM Peak Hour Multi-Use Reduction Summary (Contains Proximity Factors)

| | | | | a o a o a o a o a o a o a o a o a o a o | | | | |
|--------------------------|--------|--------|------------|---|-------------|-------|----|-----|
| | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | In | In% |
| Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Retail | 0 | 0 | 0 | 0 | 32 | 0 | 32 | 10% |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Cinema/ Entertainment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Residential | 0 | 90 | 0 | 0 | 0 | 0 | 90 | 9% |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Out | 0 | 90 | 0 | 0 | 32 | 0 | | |
| Out % | 0% | 26% | 0% | 0% | 5% | 0% | | |

Supporting Data

Percentages from ITE Journal August 2010: "Improved Estimation of Internal Trip Capture for Mixed-Use Developments"

| | AM From-To Percentages Matrix | | | | | | | | | | |
|---------------|-------------------------------|--------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | From | | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | | 29% | 31% | | 2% | 75% | | | | | |
| Retail | 28% | | 14% | | 1% | 14% | | | | | |
| Restaurant | 63% | 13% | | | 20% | 9% | | | | | |
| Cinema/ | | | | | | | | | | | |
| Entertainment | | | | | | | | | | | |
| Residential | 1% | 14% | 4% | | | 0% | | | | | |
| Hotel | 0% | 0% | 3% | | 0% | | | | | | |

| | AM To-From Percentages Matrix | | | | | | | | | | |
|---------------|-------------------------------|-------------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | From | | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | | 4% | 14% | | 3% | 3% | | | | | |
| Retail | 32% | | 8% | | 17% | 4% | | | | | |
| Restaurant | 23% | 50% | | | 20% | 6% | | | | | |
| Cinema/ | | | | | | | | | | | |
| Entertainment | | | | | | | | | | | |
| Residential | 0% | 0% 2% 5% 0% | | | | | | | | | |
| Hotel | 0% | 0% | 4% | | 0% | | | | | | |

| | | PM (Saturday |) From-To Perce | ntages Matrix | | | | | | | |
|--------------------------|--------|--------------|-----------------|--------------------------|-------------|-------|--|--|--|--|--|
| | From | | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| Office | 2% | | 3% | 2% | 4% | 0% | | | | | |
| Retail | 20% | | 41% | 21% | 42% | 16% | | | | | |
| Restaurant | 4% | 29% | | 31% | 21% | 68% | | | | | |
| Cinema/ Entertainment | 0% | 4% | 8% | | 0% | 68% | | | | | |
| Residential | 2% | 26% | 18% | 8% | | 0% | | | | | |
| Hotel | 0% | 5% | 7% | 2% | 3% | 2% | | | | | |

| | PM (Saturday) To-From Percentages Matrix | | | | | | | | | | |
|--------------------------|--|-----|--------------------------|-------------|-------|----|--|--|--|--|--|
| | From | | | | | | | | | | |
| То | | | Cinema/ Entertainment | Residential | Hotel | | | | | | |
| Office | | 31% | 30% | 6% | 57% | 0% | | | | | |
| Retail | 8% | | 50% | 4% | 10% | 2% | | | | | |
| Restaurant | 2% | 29% | | 3% | 14% | 5% | | | | | |
| Cinema/ Entertainment | 1% | 26% | 32% | | 0% | 0% | | | | | |
| Residential | 4% | 46% | 16% | 4% | | 0% | | | | | |
| Hotel | 0% | 17% | 71% | 1% | 12% | | | | | | |

| | PM (Saturday) Only From-To Proximity Factors Matrix | | | | | | | | | | |
|--------------------------|---|--------|------------|--------------------------|-------------|-------|--|--|--|--|--|
| | From | | | | | | | | | | |
| То | Office | Retail | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | |
| 240 | | | | | | | | | | | |
| Office | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Retail | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Restaurant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Cinema/ Entertainment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Residential | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |
| Hotel | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | |

| | PM (Saturday) Only To-From Proximity Factors Matrix | | | | | | | | | | | |
|---|---|-------------------------------|------------|--------------------------|-------------|-------|--|--|--|--|--|--|
| | From | | | | | | | | | | | |
| То | Office Retail Restaurant | | Restaurant | Cinema/ Entertainment | Residential | Hotel | | | | | | |
| Office | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | |
| Retail | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | |
| Restaurant | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | |
| Cinema/ Entertainment | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | |
| Residential | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | | | |
| Hotel | 1.00 | 1.00 1.00 1.00 1.00 1.00 1.00 | | | | | | | | | | |
| Red numbers for those land use pairs with proximity factors | | | | | | | | | | | | |

APPENDIX

H FUTURE TOTAL CONDITIONS

APPENDIX

H-1 2028 FUTURE TOTAL CONDITIONS

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Total>AM 12-20-2024

| | ۶ | → | • | • | — | • | 1 | † | ~ | / | ţ | -√ |
|----------------------------|-------|------------|---------|-------|------------|---------|-------|----------|--------|----------|-------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | † } | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 20 | 770 | 75 | 131 | 443 | 30 | 251 | 0 | 209 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 770 | 75 | 131 | 443 | 30 | 251 | 0 | 209 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 0.00 | 0.99 | 1.00 | 0.00 | 0.99 | | 0.99 | 1.00 | 0.98 | 1.00 |
| Frt | 1.00 | 0.987 | | 0.00 | 0.990 | | 0.00 | | 0.850 | 1.00 | 0.877 | |
| Flt Protected | 0.950 | 0.001 | | 0.950 | 0.000 | | 0.950 | | 0.000 | 0.950 | 0.011 | |
| Satd. Flow (prot) | 1685 | 3409 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | 0.00 | | 0.950 | 00.0 | | 0.732 | | 1000 | 0.950 | | ŭ |
| Satd. Flow (perm) | 1677 | 3409 | 0 | 1643 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | 0.00 | Yes | 10.0 | 00.0 | Yes | .000 | | Yes | 0 | | Yes |
| Satd. Flow (RTOR) | | 10 | . 00 | | 8 | . 00 | | | 225 | | 32 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | 220 | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | 1.0 | 8 | 8 | 41.7 | 4 | 9 | 10.0 | 2 | 2 | 10.2 | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 837 | 82 | 142 | 482 | 33 | 273 | 0 | 227 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | 001 | 02 | | 102 | | 2.10 | · | LL! | | | O.L |
| Lane Group Flow (vph) | 22 | 919 | 0 | 142 | 515 | 0 | 273 | 0 | 227 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Lon | 3.1 | rtigiit | LOIL | 3.1 | rtigiit | LOIL | 3.3 | rtigit | Lon | 3.3 | rtigrit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | 7.5 | | | 7.0 | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 1.00 | 1.01 | 24 | 1.00 | 14 | 24 | 1.01 | 14 | 24 | 0.55 | 14 |
| Number of Detectors | 0 | 0 | 14 | 0 | 0 | 14 | 1 | | 1 | 0 | 0 | 14 |
| Detector Template | U | U | | U | U | | | | Right | U | U | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | Cl+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | CITEX | | CITEX | CITEX | | CITEX | | CITEX | CITEX | CITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| \ / | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | | | | | | | | | | | | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | _ | | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

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Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Total>AM

| | • | - | • | \checkmark | - | • | 1 | 1 | - | / | ţ | 4 |
|------------------------------|--------------|------------|------------|--------------|-------------|------------|-------|------|-------|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | 1 | 5.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 6.4 | 55.6 | | 14.6 | 68.1 | | 30.2 | | 30.2 | 30.2 | 30.2 | |
| Actuated g/C Ratio | 0.05 | 0.46 | | 0.12 | 0.57 | | 0.25 | | 0.25 | 0.25 | 0.25 | |
| v/c Ratio | 0.25 | 0.58 | | 0.71 | 0.27 | | 0.82 | | 0.40 | 0.03 | 0.09 | |
| Control Delay | 53.0 | 40.7 | | 53.7 | 18.0 | | 60.6 | | 6.2 | 29.9 | 12.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.0 | 40.7 | | 53.7 | 18.0 | | 60.6 | | 6.2 | 29.9 | 12.4 | |
| LOS | D | D | | D | В | | Е | | Α | С | В | |
| Approach Delay | | 41.0 | | | 25.7 | | | 35.9 | | | 17.3 | |
| Approach LOS | | D | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 111 (93%), Referer | nced to phas | se 2:EBT a | and 6:WBT, | Start o | of Green | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.82 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliz | ation 64.6% | 5 | | IC | CU Level | of Service | C | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| 0.10 1.01 4.14 | | 0.14: 1 | Б . | | | | | | | | | |



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Queues

<2028 Future Total>AM 12-20-2024 1: Walnut Lane & Kingston Road

| | • | - | 1 | ← | 4 | ~ | - | Į. | |
|------------------------|-------|-------|-------|-------|------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 22 | 919 | 142 | 515 | 273 | 227 | 15 | 39 | |
| v/c Ratio | 0.25 | 0.58 | 0.71 | 0.27 | 0.82 | 0.40 | 0.03 | 0.09 | |
| Control Delay | 53.0 | 40.7 | 53.7 | 18.0 | 60.6 | 6.2 | 29.9 | 12.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 53.0 | 40.7 | 53.7 | 18.0 | 60.6 | 6.2 | 29.9 | 12.4 | |
| Queue Length 50th (m) | 5.0 | 111.5 | 33.5 | 49.8 | 60.7 | 0.4 | 2.7 | 1.2 | |
| Queue Length 95th (m) | m12.1 | 139.8 | #60.6 | 70.3 | 82.4 | 16.9 | 7.2 | 8.7 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 89 | 1584 | 211 | 1921 | 454 | 682 | 587 | 568 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.25 | 0.58 | 0.67 | 0.27 | 0.60 | 0.33 | 0.03 | 0.07 | |

Lanes, Volumes, Timings 2: Street B & Kingston Road <2028 Future Total>AM 12-20-2024

| | - | • | • | ← | 4 | / |
|----------------------------|----------|-------|------|----------|-------|----------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 1 | | ^ | | 7 |
| Traffic Volume (vph) | 837 | 94 | 0 | 727 | 0 | 29 |
| Future Volume (vph) | 837 | 94 | 0 | 727 | 0 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | | 45.0 | 0.0 | | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Link Speed (k/h) | 60 | | | 60 | 30 | |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | | 4 | | 7.0 | . 1.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 4% | 3% | 2% | 5% | 2% | 0% |
| Adj. Flow (vph) | 910 | 102 | 0 | 790 | 0 | 32 |
| Shared Lane Traffic (%) | 010 | 102 | - 3 | 100 | - 3 | 02 |
| Lane Group Flow (vph) | 910 | 102 | 0 | 790 | 0 | 32 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | ragnt | LOIL | 3.0 | 0.0 | rugiit |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | 1.01 | 14 | 24 | 1.01 | 24 | 14 |
| Sign Control | Free | 17 | 4 | Free | Stop | 17 |
| | . 100 | | | | 0.0p | |
| Intersection Summary | | | | | | |

| Intersection Summ | ary | | |
|--------------------|-----------------------|------------------------|--|
| Area Type: | Other | | |
| Control Type: Unsi | gnalized | | |
| Intersection Capac | ity Utilization 33.1% | ICU Level of Service A | |
| Analysis Period (m | in) 15 | | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

| | - | • | 1 | • | 4 | - |
|------------------------------|----------|------|-------|-------|----------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | 44 | | 1 |
| Traffic Volume (veh/h) | 837 | 94 | 0 | 727 | 0 | 29 |
| Future Volume (Veh/h) | 837 | 94 | 0 | 727 | 0 | 29 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 910 | 102 | 0 | 790 | 0 | 32 |
| Pedestrians | | | | | 4 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX, platoon unblocked | | | 0.88 | | 0.91 | 0.88 |
| vC, conflicting volume | | | 914 | | 1309 | 459 |
| vC1, stage 1 conf vol | | | | | 914 | 100 |
| vC2, stage 2 conf vol | | | | | 395 | |
| vCu, unblocked vol | | | 620 | | 794 | 101 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | 0.0 |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 96 |
| cM capacity (veh/h) | | | 835 | | 416 | 821 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 455 | 455 | 102 | 395 | 395 | 32 |
| Volume Lotal Volume Left | | | | | | |
| | 0 | 0 | 102 | 0 | 0 | 0 32 |
| Volume Right | 0 | 0 | | 0 | 0 | |
| cSH " | 1700 | 1700 | 1700 | 1700 | 1700 | 821 |
| Volume to Capacity | 0.27 | 0.27 | 0.06 | 0.23 | 0.23 | 0.04 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.6 |
| Lane LOS | | | | | | Α |
| Approach Delay (s) | 0.0 | | | 0.0 | | 9.6 |
| Approach LOS | | | | | | Α |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.2 | | | |
| Intersection Capacity Utiliz | zation | | 33.1% | IC | CU Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| , , , | | | | | | |

| | • | - | * | • | • | • | 1 | Ť | ~ | - | ¥ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|-------|--------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | " | ∱ ∱ | | " | ∱ β | | " | ₽ | | " | f) | |
| Traffic Volume (vph) | 80 | 770 | 96 | 78 | 560 | 88 | 41 | 15 | 29 | 137 | 35 | 144 |
| Future Volume (vph) | 80 | 770 | 96 | 78 | 560 | 88 | 41 | 15 | 29 | 137 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.983 | | | 0.980 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3305 | 0 | 1645 | 3301 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.543 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3305 | 0 | 1639 | 3301 | 0 | 999 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 18 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0.32 | 6% | 2% | 3% | 0.32 | 0.32 | 1% | 0.32 | 0.32 |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 837 | 104 | 85 | 609 | 96 | 45 | 16 | 32 | 149 | 38 | 157 |
| Shared Lane Traffic (%) | 01 | 001 | 104 | 00 | 003 | 30 | 70 | 10 | 02 | 173 | 30 | 107 |
| Lane Group Flow (vph) | 87 | 941 | 0 | 85 | 705 | 0 | 45 | 48 | 0 | 149 | 195 | 0 |
| Enter Blocked Intersection | No | No No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 2.8 | Rigit | Leit | 2.8 | Rigit | Leit | 3.8 | Rigiil | Leit | 3.8 | Rigit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 4.5 | | | Yes | | | 4.9 | | | 4.5 | |
| | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Headway Factor | | 1.04 | | | 1.01 | | | 0.94 | 0.99 | | 0.92 | |
| Turning Speed (k/h) | 24 | 0 | 14 | 24 | 0 | 14 | 24 | 0 | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | U | 0 | | 1 | 1 | |
| Detector Template | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | | 7.5 | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5 1105-1163 Kingston Road WSP Synchro 11 Report Page 6 Lanes, Volumes, Timings

<2028 Future Total>AM

3: Dixie Road & Kingston Road

| | • | - | • | • | - | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 73.8 | | 6.0 | 70.3 | | 19.1 | 19.1 | | 19.1 | 19.1 | |
| Actuated g/C Ratio | 0.08 | 0.62 | | 0.05 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.71 | 0.46 | | 1.04 | 0.36 | | 0.28 | 0.16 | | 0.67 | 0.47 | |
| Control Delay | 83.0 | 14.2 | | 147.9 | 18.1 | | 46.0 | 19.6 | | 61.1 | 14.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 14.2 | | 147.9 | 18.1 | | 46.0 | 19.6 | | 61.1 | 14.1 | |
| LOS | F | В | | F | В | | D | В | | Е | В | |
| Approach Delay | | 20.0 | | | 32.0 | | | 32.4 | | | 34.5 | |
| Approach LOS | | В | | | С | | | С | | | С | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 44.8 (37%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

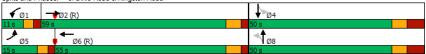
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 26.9

Intersection LOS: C Intersection Capacity Utilization 73.2% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 7 Queues

<2028 Future Total>AM 12-20-2024

3: Dixie Road & Kingston Road

| | • | - | • | ← | 1 | Ť | - | ¥ |
|------------------------|-------|-------|--------|-------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 87 | 941 | 85 | 705 | 45 | 48 | 149 | 195 |
| v/c Ratio | 0.71 | 0.46 | 1.04 | 0.36 | 0.28 | 0.16 | 0.67 | 0.47 |
| Control Delay | 83.0 | 14.2 | 147.9 | 18.1 | 46.0 | 19.6 | 61.1 | 14.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 14.2 | 147.9 | 18.1 | 46.0 | 19.6 | 61.1 | 14.1 |
| Queue Length 50th (m) | 20.2 | 56.6 | ~22.0 | 53.4 | 9.5 | 3.3 | 33.7 | 7.9 |
| Queue Length 95th (m) | #43.5 | 91.6 | m#53.3 | 72.4 | 18.6 | 12.4 | 49.6 | 25.6 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 130 | 2036 | 82 | 1940 | 337 | 618 | 470 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.46 | 1.04 | 0.36 | 0.13 | 0.08 | 0.32 | 0.28 |
| | | | | | | | | |

- Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 8 Lanes, Volumes, Timings

<2028 Future Total>AM 12-20-2024

4: Street B & Shopping Plaza Entrance

| | • | • | 1 | Ī | ¥ | 4 | |
|---------------------------------|-----------|-------|------|-------|---------------|------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | W | | | 4 | ₽ | | |
| Traffic Volume (vph) | 28 | 27 | 6 | 11 | 28 | 40 | |
| Future Volume (vph) | 28 | 27 | 6 | 11 | 28 | 40 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.934 | | | | 0.920 | | |
| Flt Protected | 0.975 | | | 0.982 | | | |
| Satd. Flow (prot) | 1716 | 0 | 0 | 1887 | 1739 | 0 | |
| Flt Permitted | 0.975 | | | 0.982 | | | |
| Satd. Flow (perm) | 1716 | 0 | 0 | 1887 | 1739 | 0 | |
| Link Speed (k/h) | 30 | | | 30 | 30 | | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | |
| Adj. Flow (vph) | 30 | 29 | 7 | 12 | 30 | 43 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 59 | 0 | 0 | 19 | 73 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | |
| Sign Control | Stop | | | Stop | Stop | | |
| Intersection Summary | | | | | | | |
| 71 | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Canacity Litilizat | ion 15 9% | | | IC | ا امریم ا ا ا | of Service | Δ |

Intersection Capacity Utilization 15.9% Analysis Period (min) 15 ICU Level of Service A HCM Unsignalized Intersection Capacity Analysis
4: Street B & Shopping Plaza Entrance

<2028 Future Total>AM 12-20-2024

| | • | • | 1 | † | ţ | 4 | |
|-----------------------------------|-------|------|-------|----------|------------|---------|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | ¥ | | | ર્ન | î | | |
| Sign Control | Stop | | | Stop | Stop | | |
| Traffic Volume (vph) | 28 | 27 | 6 | 11 | 28 | 40 | |
| Future Volume (vph) | 28 | 27 | 6 | 11 | 28 | 40 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 30 | 29 | 7 | 12 | 30 | 43 | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 59 | 19 | 73 | | | | |
| Volume Left (vph) | 30 | 7 | 0 | | | | |
| Volume Right (vph) | 29 | 0 | 43 | | | | |
| Hadj (s) | -0.16 | 0.07 | -0.33 | | | | |
| Departure Headway (s) | 3.9 | 4.2 | 3.7 | | | | |
| Degree Utilization, x | 0.06 | 0.02 | 0.08 | | | | |
| Capacity (veh/h) | 892 | 838 | 948 | | | | |
| Control Delay (s) | 7.2 | 7.3 | 7.0 | | | | |
| Approach Delay (s) | 7.2 | 7.3 | 7.0 | | | | |
| Approach LOS | Α | Α | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 7.1 | | | | |
| Level of Service | | | Α | | | | |
| Intersection Capacity Utilization | on | | 15.9% | IC | U Level of | Service | |
| Analysis Period (min) | | | 15 | | | | |

Lanes, Volumes, Timings 5: Street B & Street A

| <2028 | Future | Total>AM |
|-------|--------|------------|
| | | 12-20-2024 |

| | • | • | † | 7 | \ | Ţ | | |
|--------------------------------|------------|-------|----------|-------|----------|------------|-----|--|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations | ¥ | | f | | | ર્ન | | |
| Traffic Volume (vph) | 1 | 15 | 0 | 1 | 42 | 1 | | |
| Future Volume (vph) | 1 | 15 | 0 | 1 | 42 | 1 | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Ped Bike Factor | | | | | | | | |
| Frt | 0.873 | | 0.865 | | | | | |
| Flt Protected | 0.997 | | | | | 0.953 | | |
| Satd. Flow (prot) | 1579 | 0 | 1662 | 0 | 0 | 1779 | | |
| FIt Permitted | 0.997 | | | | | 0.953 | | |
| Satd. Flow (perm) | 1579 | 0 | 1662 | 0 | 0 | 1779 | | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | | |
| Link Distance (m) | 193.3 | | 78.3 | | | 49.0 | | |
| Travel Time (s) | 23.2 | | 9.4 | | | 5.9 | | |
| Confl. Peds. (#/hr) | 1 | 4 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Heavy Vehicles (%) | 100% | 0% | 2% | 0% | 3% | 0% | | |
| Adj. Flow (vph) | 1 | 16 | 0 | 1 | 46 | 1 | | |
| Shared Lane Traffic (%) | | | | | | | | |
| Lane Group Flow (vph) | 17 | 0 | 1 | 0 | 0 | 47 | | |
| Enter Blocked Intersection | No | No | No | No | No | No | | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | | |
| Median Width(m) | 3.7 | _ | 0.0 | | | 0.0 | | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | | |
| Two way Left Turn Lane | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | | |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | | |
| Sign Control | Stop | | Stop | | | Stop | | |
| Intersection Summary | | | | | | | | |
| | Other | | | | | | | |
| Control Type: Unsignalized | | | | | | | | |
| Intersection Capacity Utilizat | tion 20.3% | | | IC | U Level | of Service | e A | |
| Analysis Period (min) 15 | | | | | | | | |
| . , | | | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 11

HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

<2028 Future Total>AM 12-20-2024

| | • | * | † | ~ | - | ļ |
|-------------------------------|-------|-------|----------|------|------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | ₽ | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 1 | 15 | 0 | 1 | 42 | 1 |
| Future Volume (vph) | 1 | 15 | 0 | 1 | 42 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1 | 16 | 0 | 1 | 46 | 1 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 17 | 1 | 47 | | | |
| Volume Left (vph) | 1 | 0 | 46 | | | |
| Volume Right (vph) | 16 | 1 | 0 | | | |
| Hadj (s) | -0.45 | -0.60 | 0.25 | | | |
| Departure Headway (s) | 3.6 | 3.4 | 4.2 | | | |
| Degree Utilization, x | 0.02 | 0.00 | 0.05 | | | |
| Capacity (veh/h) | 993 | 1054 | 853 | | | |
| Control Delay (s) | 6.6 | 6.4 | 7.4 | | | |
| Approach Delay (s) | 6.6 | 6.4 | 7.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.2 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliza | ation | | 20.3% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

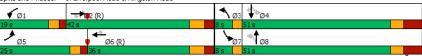
Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total>AM 12-20-2024

| | ۶ | → | • | € | + | • | • | † | ~ | / | + | √ |
|---|------------|----------|------------|------------|----------|------------|-------|----------|------------|------------|----------|------------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | 7 | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 181 | 532 | 277 | 149 | 465 | 50 | 134 | 379 | 146 | 84 | 664 | 145 |
| Future Volume (vph) | 181 | 532 | 277 | 149 | 465 | 50 | 134 | 379 | 146 | 84 | 664 | 145 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util, Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.00 | 0.97 | 0.99 | 0.00 | 0.96 | 0.99 | 0.00 | 0.93 | 0.98 | 0.00 | 0.96 |
| Frt | 0.00 | | 0.850 | 0.00 | | 0.850 | 0.00 | | 0.850 | 0.00 | | 0.850 |
| Flt Protected | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | 0200 | 1000 | 0.950 | 0010 | 1010 | 0.271 | 0,00 | 1011 | 0.491 | 0010 | 1010 |
| Satd. Flow (perm) | 1649 | 3299 | 1487 | 1677 | 3510 | 1517 | 501 | 3700 | 1536 | 1024 | 3618 | 1452 |
| Right Turn on Red | 1010 | 0200 | Yes | 1011 | 0010 | Yes | 001 | 0,00 | Yes | 1021 | 0010 | Yes |
| Satd. Flow (RTOR) | | | 166 | | | 174 | | | 159 | | | 158 |
| Link Speed (k/h) | | 60 | 100 | | 60 | 177 | | 50 | 100 | | 50 | 100 |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | 71.7 | 17 | 17 | 20.0 | 21 | 34 | 10.0 | 44 | 44 | 20.1 | 34 |
| Confl. Bikes (#/hr) | 21 | | 17 | - 17 | | 1 | 34 | | 77 | | | J4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0.32 | 4% | 3% | 8% | 0.92 | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 4 /0 | 0 /0 | 4 /0 | 0 | 7 | 0 /0 | 0 | 0 |
| Adj. Flow (vph) | 197 | 578 | 301 | 162 | 505 | 54 | 146 | 412 | 159 | 91 | 722 | 158 |
| Shared Lane Traffic (%) | 131 | 310 | 301 | 102 | 303 | J4 | 140 | 412 | 100 | 31 | 122 | 150 |
| Lane Group Flow (vph) | 197 | 578 | 301 | 162 | 505 | 54 | 146 | 412 | 159 | 91 | 722 | 158 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.3 | Rigit | Leit | 3.3 | Rigit | Leit | 4.7 | Rigiil | Leit | 4.7 | Rigili |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | 1.0 | | | 1.0 | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | 1.03 | 1.00 | 24 | 0.99 | 1.03 | 24 | 0.93 | 14 | 24 | 0.97 | 1.04 |
| Number of Detectors | 1 | 2 | 14 | 1 | 2 | 14 | 1 | 2 | 14 | 1 | 2 | 14 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | | 0.0 | | | | | |
| Detector 1 Position(m) Detector 1 Size(m) | 0.0 2.0 | 0.0 | 0.0 2.0 | 0.0 2.0 | 0.0 | 0.0 2.0 | 2.0 | 0.0 | 0.0 2.0 | 0.0 2.0 | 0.0 | 0.0 2.0 |
| | | | CI+Ex | | CI+Ex | | | | | | | CI+Ex |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+EX | Cl+Ex | CI+EX | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+EX |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 13

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 1 | † | / | > | ↓ | 4 |
|---------------------------|----------------|-----------|-----------|-----------|------------|------------|-------|----------|--------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | Ť | | | Ť | Ť | | Ĭ | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 17.8 | 35.3 | 35.3 | 13.6 | 31.1 | 31.1 | 53.0 | 41.9 | 35.3 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.15 | 0.29 | 0.29 | 0.11 | 0.26 | 0.26 | 0.44 | 0.35 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.80 | 0.60 | 0.54 | 0.85 | 0.56 | 0.10 | 0.53 | 0.32 | 0.28 | 0.18 | 0.57 | 0.26 |
| Control Delay | 93.1 | 27.7 | 14.6 | 87.7 | 41.8 | 0.4 | 28.0 | 29.5 | 6.3 | 19.0 | 33.9 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 93.1 | 27.7 | 14.6 | 87.7 | 41.8 | 0.4 | 28.0 | 29.5 | 6.3 | 19.0 | 33.9 | 5.3 |
| LOS | F | С | В | F | D | Α | С | С | Α | В | С | Α |
| Approach Delay | | 36.0 | | | 49.0 | | | 24.0 | | | 27.9 | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: | 120 | | | | | | | | | | | |
| Offset: 24.4 (20%), Refe | renced to pha | se 2:EBT | and 6:WE | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-0 | Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.85 | | | | | | | | | | | | |
| Intersection Signal Delay | r: 34.0 | | | li | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Uti | lization 95.1% |) | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Splits and Phases: 6: | Liverpool Roa | d & Kinas | ston Road | | | | | | | | | |



Queues 6: Liverpool Road & Kingston Road <2028 Future Total>AM 12-20-2024

| | • | - | \rightarrow | • | • | • | • | † | - | - | . ↓ | 4 |
|------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 197 | 578 | 301 | 162 | 505 | 54 | 146 | 412 | 159 | 91 | 722 | 158 |
| v/c Ratio | 0.80 | 0.60 | 0.54 | 0.85 | 0.56 | 0.10 | 0.53 | 0.32 | 0.28 | 0.18 | 0.57 | 0.26 |
| Control Delay | 93.1 | 27.7 | 14.6 | 87.7 | 41.8 | 0.4 | 28.0 | 29.5 | 6.3 | 19.0 | 33.9 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 93.1 | 27.7 | 14.6 | 87.7 | 41.8 | 0.4 | 28.0 | 29.5 | 6.3 | 19.0 | 33.9 | 5.3 |
| Queue Length 50th (m) | 48.9 | 18.3 | 0.0 | 37.8 | 55.5 | 0.0 | 19.5 | 37.1 | 0.0 | 11.7 | 72.2 | 0.0 |
| Queue Length 95th (m) | #76.3 | 54.2 | 37.3 | #73.6 | 73.4 | 0.0 | 32.4 | 50.2 | 15.4 | 21.1 | 91.4 | 13.9 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 971 | 555 | 197 | 909 | 521 | 274 | 1291 | 564 | 494 | 1263 | 609 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.71 | 0.60 | 0.54 | 0.82 | 0.56 | 0.10 | 0.53 | 0.32 | 0.28 | 0.18 | 0.57 | 0.26 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 15 Lanes, Volumes, Timings

<2028 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | - | • | • | ← | • | 4 | † | / | > | ļ | 4 |
|----------------------------|-------|------------|-------|-------|----------|--------|--------|----------|---------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ₽ | | 77 | † | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 528 | 272 | 146 | 871 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 528 | 272 | 146 | 871 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 1.00 | | 0.97 | 1.00 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 3505 | 1523 | 1675 | 3500 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.255 | | | 0.382 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 440 | 3505 | 1483 | 670 | 3500 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 947 | 26 |
| Shared Lane Traffic (%) | | | | | | | | • • • • | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 947 | 26 |
| Enter Blocked Intersection | No | No. | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 6.0 | | 2011 | 6.0 | . ugut | 2010 | 3.8 | . ug.it | Lon | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.01 | 14 |
| Number of Detectors | 1 | 2 | 17 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | CITEX | OITEX | | OITEX | OITEX | OITEX | OITEX. | OITEX | OITEX | OITEX. | OITEX | CITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | | | | | | | 0.0 | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2028 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ٠ | → | • | • | • | 4 | 4 | † | 1 | - | ţ | 4 |
|-------------------------|-------|----------|-----|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.17 | 0.31 | 0.32 | 0.30 | 0.48 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.9 | 14.2 | 3.8 | 9.1 | 16.2 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 6.9 | 14.2 | 3.8 | 9.1 | 16.2 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 10.4 | | | 14.9 | |
| Approach LOS | | С | | | D | | | В | | | В | |

Intersection Summary

Area Type: Of Cycle Length: 100 Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 16.1
Intersection Capacity Utilization 56.7%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2028 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ᄼ | → | • | • | • | 1 | † | / | - | ↓ | 4 | |
|------------------------|------|----------|------|-------|------|----------|----------|----------|-------|----------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 574 | 296 | 159 | 947 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.17 | 0.31 | 0.32 | 0.30 | 0.48 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.9 | 14.2 | 3.8 | 9.1 | 16.2 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 6.9 | 14.2 | 3.8 | 9.1 | 16.2 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.2 | 34.6 | 9.5 | 11.3 | 61.5 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.6 | 54.3 | 19.8 | 21.5 | 85.2 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 342 | 1824 | 913 | 536 | 1963 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.17 | 0.31 | 0.32 | 0.30 | 0.48 | 0.03 | |

m Volume for 95th percentile queue is metered by upstream signal.

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<2028 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | - | • | • | ← | • | 4 | † | / | - | ļ | 4 |
|----------------------------|------|-------|-------|-------|----------|-------|-------|----------|-------|------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ની | 7 | ሻ | ^ | | | ^ ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 186 | 188 | 69 | 310 | 173 | 511 | 0 | 0 | 731 | 128 |
| Future Volume (vph) | 0 | 0 | 186 | 188 | 69 | 310 | 173 | 511 | 0 | 0 | 731 | 128 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | 1.00 | | | | | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.977 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 3433 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | | | | 0.950 | 0.977 | | 0.280 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 429 | 3433 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 337 | | | | | | 139 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 7 | | 14 | 14 | | 7 |
| Confl. Bikes (#/hr) | | | | | | | | | 4 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 202 | 204 | 75 | 337 | 188 | 555 | 0 | 0 | 795 | 139 |
| Shared Lane Traffic (%) | | | | 32% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 202 | 139 | 140 | 337 | 188 | 555 | 0 | 0 | 795 | 139 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | 0.0 | | | | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 19

<2028 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | - | • | • | ← | • | 4 | † | ~ | - | Į. | 1 |
|-----------------------------------|----------|--------|-----------|------------|------------|------------|-------|----------|-------------|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | J | - J |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | | 24.0 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 45.6 | 45.6 |
| Actuated g/C Ratio | | | 0.24 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.46 | 0.46 |
| v/c Ratio | | | 0.76 | 0.60 | 0.58 | 0.67 | 0.33 | 0.22 | | | 0.36 | 0.18 |
| Control Delay | | | 52.6 | 50.7 | 49.5 | 11.3 | 5.5 | 4.7 | | | 11.9 | 1.8 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 52.6 | 50.7 | 49.5 | 11.3 | 5.5 | 4.7 | | | 11.9 | 1.8 |
| LOS | | | D | D | D | В | Α | Α | | | В | Α |
| Approach Delay | | 52.6 | | | 28.9 | | | 4.9 | | | 10.4 | |
| Approach LOS | | D | | | С | | | Α | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: Otl | ner | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 38 (38%), Referenced t | o phase | 2:NBTL | and 6:SB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 70 | | | | | | | | | | | | |
| Control Type: Actuated-Coordi | nated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.76 | | | | | | | | | | | | |
| Intersection Signal Delay: 16.7 | | | | lr | ntersectio | n LOS: B | | | | | | |
| Intersection Capacity Utilization | n 47.5% | | | I | CU Level | of Service | e A | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liverp | ool Road | & Waln | ut Lane/H | lwv 401 V | VB Off-Ra | amp | | | | | | |
| ↑ Ø2 (R) | | | | | | г | | | ₹ Ø8 | | | |
| 75 s | | | | | | | | | 25 s | | | |
| \$ ø₅ | | | | | Ø6 (D | | | | | | | |

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Queues
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

<2028 Future Total>AM 12-20-2024

| | • | • | • | • | 1 | T | ¥ | 4 | |
|------------------------|------|------|-------|-------|------|-------|-------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 202 | 139 | 140 | 337 | 188 | 555 | 795 | 139 | |
| v/c Ratio | 0.76 | 0.60 | 0.58 | 0.67 | 0.33 | 0.22 | 0.36 | 0.18 | |
| Control Delay | 52.6 | 50.7 | 49.5 | 11.3 | 5.5 | 4.7 | 11.9 | 1.8 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 52.6 | 50.7 | 49.5 | 11.3 | 5.5 | 4.7 | 11.9 | 1.8 | |
| Queue Length 50th (m) | 36.5 | 27.1 | 27.2 | 0.0 | 8.2 | 14.5 | 19.8 | 0.2 | |
| Queue Length 95th (m) | 54.1 | 44.3 | 44.3 | 23.2 | 18.0 | 25.1 | 32.6 | 2.4 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 459 | 323 | 335 | 567 | 753 | 2541 | 2221 | 776 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.44 | 0.43 | 0.42 | 0.59 | 0.25 | 0.22 | 0.36 | 0.18 | |
| Intersection Summary | | | | | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report WSP

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Total>AM 12-20-2024

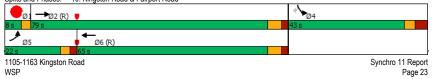
| | • | - | ← | • | - | 4 | |
|------------------------------------|-------|----------|-------------|----------|-------|----------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | ች | ^ | † 1> | | ሻ | 7 | |
| Traffic Volume (vph) | 96 | 738 | 658 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 738 | 658 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | | | 0.980 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1602 | 3335 | 3379 | 0 | 1736 | 1708 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 17 | | | 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 802 | 715 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 104 | 802 | 823 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | J | 3.6 | J | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITEX | OITEX | OITLX | | OI+LX | OITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | 9.4 | | 0.0 | 0.0 | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Type Detector 2 Channel | | OI+EX | UI+EX | | | | |
| DETECTOR & CHAINIE | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 22

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Total>AM 12-20-2024

| | • | → | ← | • | - | 1 | | |
|-------------------------------|-------------|-----------|----------|------------|------------|------------|------|---|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | Ī |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| v/c Ratio | 0.64 | 0.34 | 0.41 | | 0.72 | 0.52 | | |
| Control Delay | 90.8 | 1.3 | 15.8 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 90.8 | 1.3 | 15.8 | | 65.5 | 9.1 | | |
| LOS | F | Α | В | | E | Α | | |
| Approach Delay | | 11.6 | 15.8 | | 34.1 | | | |
| Approach LOS | | В | В | | С | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | |
| Offset: 95 (73%), Reference | ed to phase | e 2:EBT a | nd 6:WBT | , Start of | Green | | | |
| Natural Cycle: 85 | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| Intersection Signal Delay: 1 | | | | | ntersectio | | | |
| Intersection Capacity Utiliza | ation 52.2% |) | | IC | CU Level | of Service | A | |
| Analysis Period (min) 15 | | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



10: Kingston Road & Fairport Road

Queues

<2028 Future Total>AM 12-20-2024

| | • | - | ← | \ | 4 |
|------------------------|-------------|-------|-------|----------|------|
| | 5 0. | | MOT | 001 | 000 |
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 802 | 823 | 198 | 249 |
| v/c Ratio | 0.64 | 0.34 | 0.41 | 0.72 | 0.52 |
| Control Delay | 90.8 | 1.3 | 15.8 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 90.8 | 1.3 | 15.8 | 65.5 | 9.1 |
| Queue Length 50th (m) | 28.3 | 2.6 | 54.9 | 49.0 | 0.0 |
| Queue Length 95th (m) | 47.5 | 6.9 | 87.6 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2018 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.34 | 0.41 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 24

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | • | 4 | 1 |
|----------------------------|-------------|-------|---------------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | LUIT | ኘ | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 772 | 12 | 284 | 622 | 461 | 65 |
| Future Volume (vph) | 772 | 12 | 284 | 622 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 5.7 | ۷.۱ | 0% | 0% | 5.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | - 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | 0.53 | 1.00 | 0.55 | 0.57 | 0.850 |
| Fit Protected | 0.998 | | 0.950 | | 0.950 | 0.000 |
| | 3479 | 0 | | 3548 | 3442 | 1633 |
| Satd. Flow (prot) | 3479 | U | 1593 0.950 | 3548 | | 1033 |
| Flt Permitted | 2470 | _ | | 2540 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 839 | 13 | 309 | 676 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 852 | 0 | 309 | 676 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | J | | 3.1 | 7.6 | J |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 1.03 | 24 | 0.51 | 24 | 14 |
| Number of Detectors | 2 | 14 | 1 | 2 | 1 | 14 |
| Detector Template | Thru | | Left | Thru | Left | |
| | | | | | | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| DOLOGIOI Z EXIGITA (3) | 0.0 | | | 0.0 | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 25 Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | |
|--|---------------|---------|--------------|--------------|--------------|--------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 0 | | | 35.0 3 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | | | 20.4 | | | |
| Act Effct Green (s) Actuated g/C Ratio | 57.3 0.44 | | 29.4 0.23 | 91.7 0.71 | 24.4 0.19 | 24.4 0.19 |
| v/c Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 |
| Control Delay | 13.2 | | 68.0 | 10.8 | 58.6 | 10.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 13.2 | | 68.0 | 10.8 | 58.6 | 10.2 |
| LOS | 13.2 B | | 00.0 E | В | 50.0 E | 10.2 B |
| Approach Delay | 13.2 | | | 28.7 | 52.6 | D |
| Approach LOS | 13.2 B | | | 20.7 C | 52.0 D | |
| •• | | | | | | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 1 | | | | | | |
| Offset: 81 (62%), Referer | nced to phase | 2:EBT a | nd 6:WB | Γ, Start of | Green | |
| Natural Cycle: 110 | | | | | | |
| Control Type: Actuated-C | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | - 1 00: 0 |
| Intersection Signal Delay | | | | | ntersectio | |
| Intersection Capacity Util | ization 66.4% | | | IC | JU Level | of Service (|
| Analysis Period (min) 15 | | | | | | |
| Onlite and Dhagae: 11. | Hwy 401 WB | Damna | & Kinasta | n Dood | | |
| Splits and Phases: 11: | nwy 401 WB | ramps o | x rungsto | n Road | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 26 Queues

<2028 Future Total>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | 1 | |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 852 | 309 | 676 | 501 | 71 |
| v/c Ratio | 0.56 | 0.86 | 0.27 | 0.78 | 0.20 |
| Control Delay | 13.2 | 68.0 | 10.8 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 13.2 | 68.0 | 10.8 | 58.6 | 10.2 |
| Queue Length 50th (m) | 21.0 | 82.8 | 29.8 | 63.7 | 0.0 |
| Queue Length 95th (m) | 54.5 | 112.2 | 72.6 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.72 | 0.27 | 0.59 | 0.15 |
| | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings

<2028 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|----------------------------|---------|------------|-------|-------|------------|-------|-------|----------|-------------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | , | ↑ ↑ | | ľ | ↑ ↑ | | Ţ | î | | Ţ | f) | |
| Traffic Volume (vph) | 76 | 999 | 37 | 96 | 990 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 999 | 37 | 96 | 990 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3380 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.662 | | | 0.688 | | |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3380 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 9 | | | 100 | | | 135 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1086 | 40 | 104 | 1076 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1126 | 0 | 104 | 1156 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | J - | | 3.5 | J . | | 3.6 | J . | | 3.6 | , |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | 0. · LX | O. LA | | O LX | U. LA | | O LX | O. LA | | O LX | O. LA | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Dottottol Z Type | | OITLX | | | OITLX | | | OITLX | | | OITLX | |

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Lanes, Volumes, Timings

<2028 Future Total>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | • | • | 1 | † | ~ | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.59 | | 0.67 | 0.58 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 82.0 | 27.4 | | 68.3 | 30.6 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 82.0 | 27.4 | | 68.3 | 30.6 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | | Е | С | | Е | В | | D | В | |
| Approach Delay | | 31.2 | | | 33.7 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | | С | | | D | | | С | |

Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 66 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76 Intersection Signal Delay: 33.1 Intersection LOS: C Intersection Capacity Utilization 79.8% ICU Level of Service D Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2028 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | 1 | ← | • | † | - | . ↓ | |
|------------------------|-------|-------|-------|-------|------|----------|------|-------|--|
| L O | EDI | EDT | WDI | WDT | NDI. | NDT | CDI | CDT | |
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1126 | 104 | 1156 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.59 | 0.67 | 0.58 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 82.0 | 27.4 | 68.3 | 30.6 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 82.0 | 27.4 | 68.3 | 30.6 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 21.6 | 127.8 | 26.1 | 125.1 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #39.8 | 162.1 | 43.0 | 180.6 | 57.4 | 16.2 | 20.7 | 20.6 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.59 | 0.58 | 0.58 | 0.55 | 0.23 | 0.17 | 0.34 | |
| | | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Total>AM 12-20-2024

| | ٠ | → | • | • | ← | • | 4 | † | / | / | ţ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|------------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | ^ ^ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 344 | 294 | 243 | 563 | 283 | 146 | 390 | 408 | 162 | 796 | 175 |
| Future Volume (vph) | 78 | 344 | 294 | 243 | 563 | 283 | 146 | 390 | 408 | 162 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1605 | 3335 | 1565 | 1752 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 241 | | | 191 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 374 | 320 | 264 | 612 | 308 | 159 | 424 | 443 | 176 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 374 | 320 | 264 | 612 | 308 | 159 | 424 | 443 | 176 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 31

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2028 Future Total>AM 12-20-2024

| _ | • | → | • | • | + | 4 | 4 | † | ~ | 1 | | 1 |
|------------------------------|--------------|-----------|-----------|------------|------------|------------|-------|-------|-------|-------|--------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 38.2 | 38.2 | 22.8 | 50.9 | 50.9 | 51.0 | 40.6 | 66.8 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.29 | 0.29 | 0.18 | 0.39 | 0.39 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.85 | 0.45 | 0.42 | 0.75 | 0.27 | 0.51 | 0.46 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.5 | 24.4 | 63.9 | 28.7 | 15.4 | 52.0 | 34.1 | 11.3 | 31.0 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.5 | 24.4 | 63.9 | 28.7 | 15.4 | 52.0 | 34.1 | 11.3 | 31.0 | 38.7 | 7.6 |
| LOS | F | D | С | Е | С | В | D | С | В | С | D | Α |
| Approach Delay | | 37.6 | | | 33.1 | | | 27.1 | | | 32.8 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 0 (0%), Referenced | I to phase 2 | :EBT and | 6:WBT, \$ | Start of G | reen | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.85 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 106.1 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: V | Vhites Road | l & Kings | on Road | | | | | | | | | |
| ₩ø1 | - | Ø2 (R) | | | | 1 | 13 | 14 | | | | |
| 30 s | 43 s | - (N) | | | | 8 s | 49 s | | | | | |
| A 444 | | | | | | 1 | | | | | | |

Queues

<2028 Future Total>AM 12-20-2024

13: Whites Road & Kingston Road

| | • | → | • | 6 | ← | • | 4 | † | - | - | Ţ | 4 |
|------------------------|-------|----------|-------|--------|----------|------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 374 | 320 | 264 | 612 | 308 | 159 | 424 | 443 | 176 | 865 | 190 |
| v/c Ratio | 0.67 | 0.38 | 0.56 | 0.85 | 0.45 | 0.42 | 0.75 | 0.27 | 0.51 | 0.46 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.5 | 24.4 | 63.9 | 28.7 | 15.4 | 52.0 | 34.1 | 11.3 | 31.0 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.5 | 24.4 | 63.9 | 28.7 | 15.4 | 52.0 | 34.1 | 11.3 | 31.0 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 41.2 | 36.4 | 70.7 | 62.3 | 36.5 | 25.9 | 29.8 | 33.9 | 28.9 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 55.7 | 67.4 | #101.1 | 93.3 | 70.3 | #50.2 | 39.1 | 57.7 | 45.5 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 979 | 568 | 339 | 1373 | 742 | 211 | 1579 | 899 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.38 | 0.56 | 0.78 | 0.45 | 0.42 | 0.75 | 0.27 | 0.49 | 0.46 | 0.55 | 0.31 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 33 Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2028 Future Total>AM 12-20-2024

| | • | • | • | † | ţ | 4 |
|------------------------------------|-------|-------|------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | *1 | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 602 | 268 | 0 | 695 | 422 | 0 |
| Future Volume (vph) | 602 | 268 | 0 | 695 | 422 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.5 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | , |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.01 | 0.01 | 1.00 | 0.55 | 0.00 | 1.00 |
| Frt | 0.994 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 1400 | J | 3314 | J40 I | J |
| Satd. Flow (perm) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| . , | 2221 | Yes | U | 3314 | J40 I | Yes |
| Right Turn on Red | - | | | | | res |
| Satd. Flow (RTOR) | 5 | 262 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | _ | 11.2 | 19.0 | _ |
| Confl. Peds. (#/hr) | | | 7 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 654 | 291 | 0 | 755 | 459 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 683 | 262 | 0 | 755 | 459 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | _ | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.0 | |
| | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Type Detector 1 Channel | UI+EX | UI+EX | | OI+EX | UI+EX | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report Page 34 1105-1163 Kingston Road WSP

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

<2028 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | T | ¥ | 4 |
|---------------------------------|-------------|-------------|----------|-------------|--------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | 2.0 | 2.0 | | 0.0 | 0.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 Nana | | 0.2 | 0.2 | |
| Recall Mode | None | None 7.0 | | C-Max | C-Max 7.0 | |
| Walk Time (s) | 7.0 16.0 | 16.0 | | 7.0 14.0 | 14.0 | |
| Flash Dont Walk (s) | | 3 | | | 14.0 | |
| Pedestrian Calls (#/hr) | 28.4 | 28.4 | | 69.4 | 69.4 | |
| Act Effct Green (s) | 0.26 | 0.26 | | 0.63 | 0.63 | |
| Actuated g/C Ratio v/c Ratio | 0.26 | 0.26 | | 0.83 | 0.63 | |
| Control Delay | 43.7 | 6.5 | | 10.9 | 9.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 43.7 | 6.5 | | 10.9 | 9.6 | |
| LOS | 43.7 D | 6.5 A | | 10.9 B | 9.6 A | |
| Approach Delay | 33.4 | М | | 10.9 | 9.6 | |
| Approach LOS | 33.4 C | | | 10.9 B | 9.0 A | |
| | - 0 | | | ٥ | Λ | |
| Intersection Summary | | | | | | |
| 11 | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 110 | | | | | | |
| Offset: 79.2 (72%), Reference | ced to pha | se 2:NBT | and 6:SE | T, Start | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Cool | rdinated | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | |
| Intersection Signal Delay: 20 | | | | | ntersection | |
| Intersection Capacity Utilizat | ion 49.4% | | | 10 | JU Level o | of Service A |
| Analysis Period (min) 15 | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2028 Future Total>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 683 | 262 | 755 | 459 |
| v/c Ratio | 0.78 | 0.47 | 0.35 | 0.21 |
| Control Delay | 43.7 | 6.5 | 10.9 | 9.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.7 | 6.5 | 10.9 | 9.6 |
| Queue Length 50th (m) | 69.7 | 0.0 | 37.5 | 20.3 |
| Queue Length 95th (m) | 82.6 | 19.2 | 57.5 | 33.0 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1257 | 683 | 2128 | 2195 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.54 | 0.38 | 0.35 | 0.21 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36

<2028 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | ~ | \ | Ţ |
|----------------------------|-------|-------|-------|-------|----------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | 1> | | | ર્ન |
| Traffic Volume (vph) | 0 | 85 | 0 | 0 | 209 | 0 |
| Future Volume (vph) | 0 | 85 | 0 | 0 | 209 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 5 | | | 8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% |
| Adj. Flow (vph) | 0 | 92 | 0 | 0 | 227 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 92 | 0 | 0 | 0 | 0 | 227 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | , i | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 25.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2028 Future Total>AM 12-20-2024

| | • | 4 | † | ~ | / | + |
|---|--------|------|------------|------|-----------|-------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | M | | 1 > | | | 4 |
| Traffic Volume (veh/h) | 0 | 85 | 0 | 0 | 209 | 0 |
| Future Volume (Veh/h) | 0 | 85 | 0 | 0 | 209 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 92 | 0 | 0 | 227 | 0 |
| Pedestrians | 8 | · · | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | ' | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | NOHE | | | INOLIG |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | 44 |
| vC, conflicting volume | 462 | 13 | | | 8 | |
| vC, conflicting volume vC1, stage 1 conf vol | 402 | 13 | | | 0 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 cont voi vCu, unblocked vol | 462 | 13 | | | 8 | |
| | 6.4 | 6.2 | | | 4.1 | |
| tC, single (s) | 0.4 | 0.2 | | | 4.1 | |
| tC, 2 stage (s) | 2.5 | 2.2 | | | 2.2 | |
| tF (s) | 3.5 | 3.3 | | | | |
| p0 queue free % | 100 | 91 | | | 86 | |
| cM capacity (veh/h) | 475 | 1053 | | | 1605 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 92 | 0 | 227 | | | |
| Volume Left | 0 | 0 | 227 | | | |
| Volume Right | 92 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.09 | 0.00 | 0.14 | | | |
| Queue Length 95th (m) | 2.2 | 0.0 | 3.7 | | | |
| Control Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 8.7 | 0.0 | 7.6 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 7.9 | | | |
| Intersection Capacity Utiliz | ration | | 25.2% | IC | U Level o | of Service |
| Analysis Period (min) | Lation | | 15 | .0 | 0 20101 0 | 71 001 1100 |
| Alialysis Fellou (IIIIII) | | | 10 | | | |

Synchro 11 Report Page 38 1105-1163 Kingston Road

Lanes, Volumes, Timings 17: Street B

<2028 Future Total>AM 12-20-2024

| | • | • | † | ~ | - | ↓ |
|--------------------------------|------------|-------|----------|-------|---------|--------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | î, | | | 4 |
| Traffic Volume (vph) | 0 | 68 | 15 | 0 | 98 | 4 |
| Future Volume (vph) | 0 | 68 | 15 | 0 | 98 | 4 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.954 |
| Satd. Flow (prot) | 1629 | 0 | 1883 | 0 | 0 | 1797 |
| Flt Permitted | | | | | | 0.954 |
| Satd. Flow (perm) | 1629 | 0 | 1883 | 0 | 0 | 1797 |
| Link Speed (k/h) | 30 | | 30 | | | 30 |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 74 | 16 | 0 | 107 | 4 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 74 | 0 | 16 | 0 | 0 | 111 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Stop | | | Stop |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | tion 23.2% | | | IC | U Level | of Service A |
| Analysis Period (min) 15 | | | | | | |
| | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 39 HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2028 Future Total>AM 12-20-2024

| | € | • | † | 1 | - | ļ |
|------------------------------|--------|------|----------|------|------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 68 | 15 | 0 | 98 | 4 |
| Future Volume (vph) | 0 | 68 | 15 | 0 | 98 | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 74 | 16 | 0 | 107 | 4 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 74 | 16 | 111 | | | |
| Volume Left (vph) | 0 | 0 | 107 | | | |
| Volume Right (vph) | 74 | 0 | 0 | | | |
| Hadj (s) | -0.57 | 0.03 | 0.23 | | | |
| Departure Headway (s) | 3.6 | 4.2 | 4.3 | | | |
| Degree Utilization, x | 0.07 | 0.02 | 0.13 | | | |
| Capacity (veh/h) | 958 | 829 | 822 | | | |
| Control Delay (s) | 6.9 | 7.3 | 7.9 | | | |
| Approach Delay (s) | 6.9 | 7.3 | 7.9 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.5 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | zation | | 23.2% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

| | ۶ | • | 4 | † | ļ | 4 | |
|-------------------------------|------------|-------|------|-------|---------|--------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | Y | | | 4 | ₽ | | |
| Traffic Volume (vph) | 73 | 26 | 41 | 228 | 169 | 28 | |
| Future Volume (vph) | 73 | 26 | 41 | 228 | 169 | 28 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.965 | | | | 0.981 | | |
| Flt Protected | 0.964 | | | 0.992 | | | |
| Satd. Flow (prot) | 1752 | 0 | 0 | 1868 | 1848 | 0 | |
| Flt Permitted | 0.964 | | | 0.992 | | | |
| Satd. Flow (perm) | 1752 | 0 | 0 | 1868 | 1848 | 0 | |
| Link Speed (k/h) | 30 | | | 40 | 40 | | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 79 | 28 | 45 | 248 | 184 | 30 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 107 | 0 | 0 | 293 | 214 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | |
| Sign Control | Stop | | | Free | Free | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utiliza | tion 40.5% | | | IC | U Level | of Service A | Α |
| Analysis Period (min) 15 | | | | | | | |

| | • | • | 4 | † | ţ | 4 |
|-------------------------------|-------|------|-------|----------|------------|-----------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | 4 | 1 | |
| Traffic Volume (veh/h) | 73 | 26 | 41 | 228 | 169 | 28 |
| Future Volume (Veh/h) | 73 | 26 | 41 | 228 | 169 | 28 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 79 | 28 | 45 | 248 | 184 | 30 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | 114 | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 537 | 199 | 214 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 537 | 199 | 214 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 84 | 97 | 97 | | | |
| cM capacity (veh/h) | 488 | 842 | 1356 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 107 | 293 | 214 | | | |
| Volume Left | 79 | 45 | 0 | | | |
| Volume Right | 28 | 0 | 30 | | | |
| cSH | 548 | 1356 | 1700 | | | |
| Volume to Capacity | 0.20 | 0.03 | 0.13 | | | |
| Queue Length 95th (m) | 5.5 | 0.8 | 0.0 | | | |
| Control Delay (s) | 13.2 | 1.4 | 0.0 | | | |
| Lane LOS | В | Α | | | | |
| Approach Delay (s) | 13.2 | 1.4 | 0.0 | | | |
| Approach LOS | В | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 3.0 | | | |
| Intersection Capacity Utiliza | ation | | 40.5% | IC | CU Level o | f Service |
| Analysis Period (min) | | | 15 | | | . 20 |
| maryora i crioù (mini) | | | 10 | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

Lanes, Volumes, Timings 20: Street A & Walnut Lane

Lane Group

Lane Configurations

Traffic Volume (vph)

Future Volume (vph)

Ideal Flow (vphpl)

Lane Util. Factor

Frt Flt Protected Satd. Flow (prot) → EBT

₽

38

38

1900

1883

1.00

<2028 Future Total>AM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 20: Street A & Walnut Lane

<2028 Future Total>AM 12-20-2024

| • | • | ← | 1 | 1 |
|-------|------|----------|------|-------|
| EBR | WBL | WBT | NBL | NBR |
| | | ર્ન | Y | |
| 0 | 0 | 230 | 0 | 0 |
| 0 | 0 | 230 | 0 | 0 |
| 0 | 1900 | 1900 | 1900 | 1900 |
| .00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | | | | |
| ۸ | 0 | 1883 | 1883 | 0 |
| 0 | U | 1003 | 1003 | U |
| 0 | 0 | 1883 | 1883 | 0 |
| U | U | 40 | 30 | U |
| | | 433.1 | 80.3 | |
| | | 39.0 | 9.6 | |
| 92 | 0.92 | 0.92 | 0.92 | 0.92 |
| 0 | 0.92 | 250 | 0.92 | 0.92 |
| U | U | 250 | U | U |
| 0 | 0 | 250 | 0 | 0 |
| No | No | No No | No | No |
| ight | Left | Left | Left | Right |
| igiit | Leit | 0.0 | 3.7 | ragni |
| | | 0.0 | 0.0 | |
| | | 1.6 | 1.6 | |
| | | 1.0 | 1.0 | |
| 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Flt Permitted Satd. Flow (perm) 1883 Link Speed (k/h) 40 Link Distance (m) 121.1 Travel Time (s) 10.9 Peak Hour Factor 0.92 Adj. Flow (vph) 41 Shared Lane Traffic (%) Lane Group Flow (vph)
Enter Blocked Intersection 41 No Lane Alignment Median Width(m) Left F 0.0 Link Offset(m) 0.0 Crosswalk Width(m) 1.6 Two way Left Turn Lane Headway Factor 0.99 Turning Speed (k/h)
Sign Control 24 14 24 14 Stop Stop Intersection Summary Area Type: Other Control Type: Unsignalized Intersection Capacity Utilization 15.4% ICU Level of Service A Analysis Period (min) 15

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Lanes, Volumes, Timings

<2028 Future Total>AM 12-20-2024

21: Building Driveways & Street A

| | ۶ | - | • | • | • | • | 4 | † | ~ | - | ↓ | 4 |
|----------------------------|------|-------|-------|------|------|-------|------|----------|-------|------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Intersection Summary | | | | | | | | | | | | |

ICU Level of Service A

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 0.0%
Analysis Period (min) 15

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HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2028 Future Total>AM 12-20-2024

| | ၨ | - | \rightarrow | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|-----------------------------------|------|------|---------------|------|-----------|------------|------|----------|------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 44 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Volume Left (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Volume Right (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Hadj (s) | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | |
| Departure Headway (s) | 3.9 | 3.9 | 3.9 | 3.9 | | | | | | | | |
| Degree Utilization, x | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | |
| Capacity (veh/h) | 917 | 917 | 917 | 917 | | | | | | | | |
| Control Delay (s) | 6.9 | 6.9 | 6.9 | 6.9 | | | | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| Approach LOS | Α | Α | Α | Α | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 0.0 | | | | | | | | | |
| Level of Service | | | Α | | | | | | | | | |
| Intersection Capacity Utilization | on | | 0.0% | IC | U Level o | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Lanes, Volumes, Timings
3: Dixie Road & Kingston Road

<2028 Future Total_PHF>AM 12:20:2024

| Wish Nish Nish Sel. (1) 88 41 15 29 137 88 41 15 29 137 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 79.5 13.0 0.0 16.0 0.95 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.050 1771 0 1397 1 79.6 3 4.0 29 40 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 6 3 4.0 2% 3% 0% 0% 1% 6 3 4.0 2% 3% 0% 0% 1% 6 0 0 0 0 0 0 0 88 41 15 29 137 No No No No No No Right Left Right Left Right Left Right Left 3.8 Right Left Left Right Left 3.8 1.00 0.0 0.0 7.5 0.0 0.0 0.0 0.0 CHEX CHEX CHEX CHEX CI | | 0.0 | 0.0 | | 0.0 | 0 0 | | 0.0 | 0.0 | | 0.0 | 0.00 | Detector 1 Oliveire (s) |
|--|-------|-------|-------------|-------|-------------|-------|--------|------------------|-----------|-------------|----------------|----------|----------------------------|
| WER NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 190 | | 0 0 | 00 | | 0 0 | 00 | | 00 | 0 0 | | 0 0 | 0.0 | Detector 1 Extend (s) |
| WER NBL NBT NBR SBL SBT 1900 1900 1900 1900 1900 1900 1900 190 | | CI+EX | <u>-</u> | | C T T | C+ | | C + T X | CI+ | | <u>C</u> | <u>C</u> | Detector 1 Channel |
| WER NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 3.1 3.6 40 3.7 3.8 4.2 79.5 13.0 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.991 0.950 0.879 0.952 1771 0 1827 1759 0.583 0.728 1771 0 1397 1759 Yes 29 Yes 144 40 236 2 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 0 0 0 0 1.00 1.00 2% 3% 0% 0% 1% 0% Right Left Right Left Right Left FRight Left F | | 2 | 2 | | 2 . | 2 | | 2 . | 2 . | | 2 - | 2 | Detector 1 Type |
| WER NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 1.0 1.0 1.0 1.0 18.0 0.99 1.0 0.99 0.950 0.951 0.771 0 1827 1759 0.533 0.728 1771 0 1397 1759 0.533 0.728 1771 0 1397 1759 Yes Yes Yes 144 40 40 23 26 1.00 1.00 1.00 1.00 1.0 2% 3% 0% 0% 1% 0% 6 0 0 0 1 15 29 137 35 No N | | C | - - - | | 4 0 | 6 C | | 4 0 | n c | | 4 | 5 C | Detector 1 Size(m) |
| WER NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 190 | | 1 C | 1 c | | | 0 0 | | 0 0 | | | | | Detector 1 Decition(m) |
| WER NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 3.1 3.6 40 3.7 3.8 4.2 79.5 13.0 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.991 0.992 0.950 0.1752 1771 0 1827 1759 0.583 0.728 1771 0 1397 1759 Yes 29 144 40 29 160 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 0 0 88 41 15 29 137 35 0 1072 177 0 10827 1759 NO N | | א ב | л i | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | Trailing Detector (m) |
| WBR NBL NBR SBL SBT I NBR SBT I NBR SBT I NBR SBT I NB SBT I | | 7.5 | 7.5 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | Leading Detector (m) |
| WBR NBL NBR SL SBT I 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0,0 1.00 1.00 1.00 0.95 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.951 1771 0 1827 1759 0.563 0 1072 1771 0 1397 1759 Yes 29 Yes 144 40 40 29 286.2 1.00 1.00 1.00 1.00 1.00 88 41 15 29 137 35 No N | | | | | | | | | | | | | Detector Template |
| WBR NBL NBR SL SBT I 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0.95 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.972 1771 0 1827 1759 0.553 0.072 1771 0 1827 1759 Yes 29 Yes 144 440 29 Yes 142 1.00 1.00 1.00 1.00 1.00 88 41 15 29 137 35 0 1072 171 0 1397 1759 Yes 0.000 1.00 1.00 1.00 Right Left Right Left Find Right Left Find Right Left Left Find Right Left Find Righ | | _ | _ | | 0 | 0 | | 0 | 0 | | 0 | 0 | Number of Detectors |
| WBR NBL NBR SL SBT I 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 1.0 1.0 1.0 0.95 1.00 0.99 1.00 0.99 0.950 0.950 0.772 1771 0 1827 1759 0.583 0.783 100 1.00 1.00 1.00 1.00 1.00 1.00 1.00 | 14 | | 24 | 14 | | 24 | 14 | | 24 | 14 | | 24 | Turning Speed (k/h) |
| WBR VBL NBR SBL SBT I NBR SBT | 0.99 | 0.92 | 0.97 | 0.99 | 0.94 | 1.00 | 1.08 | 1.01 | 1.13 | 1.07 | 1.04 | 1.17 | Headway Factor |
| WBR NBL NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0% 0.0 16.0 0.95 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.583 0.722 1771 0 1827 1759 0.583 0 1072 1771 0 1327 1759 Yes 29 Yes 144 4.0 29 147 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 0 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 0 88 41 15 29 137 35 No No No No No No No Right Left Eff Right Left Eff Fight Left Fight Fight Left Fight Fight Left Fight Fight Left Fight Left Fight Fight Fight Left Fight Fight Left Fight Fight Left Fight Fight Left Fight | | | | | | | | Yes | | | | | Two way Left Turn Lane |
| WBR NBL NBR SL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 10 0 25.0 0.95 1.00 1.00 1.00 1.00 0.99 0.950 0.950 0.050 0.752 1771 0 1827 1759 0.653 0.728 1771 0 1397 1759 Yes Yes 144 44 0 2 2 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 0 88 41 15 29 137 35 No No No No No No No No Right Left Right Left Fight Left Fight 1 161 Fight 1 | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | | Crosswalk Width(m) |
| WBR NBL NBR SL SBT I 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0,0 1.00 1.00 1.00 18.0 0,99 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.950 0.772 1771 0 1827 1759 0.583 0.583 0.728 144 4.0 1072 1771 0 1397 1759 Yes 29 44.0 236.2 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 3 4.0 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 3 0 0 0 0 0 0 0 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 0 88 41 15 29 137 35 No N | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | | Link Offset(m) |
| WBR NBL NBF NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0% 0.0 16.0 0 1 10 100 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 1.00 0.99 1.00 0.99 0.879 0.583 0.728 0 1752 1771 0 1827 1759 Ves 29 44.0 29 137 35 100 1.00 1.00 1.00 1.00 26 3 0 0 1 100 1.00 28 44.0 29 137 35 No No No No No No No No Right Left Left Right Left Left F | | 3.8 | | | 3.8 | | | 2.8 | | | 2.8 | | Median Width(m) |
| WBR NBL NBR SL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0% 0.0 16.0 0.95 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.972 1771 0 1827 1759 0.553 0 0.728 1771 0 1397 1759 Yes 29 Yes 144 44.0 2 236.2 1.00 1.00 1.00 1.00 1.00 2% 3% 0% 0% 1% 0% 6 0 0 0 0 0 0 88 41 15 29 137 35 No No No No No No | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Lane Alignment |
| WBR VBL VBI VBR SL SBT VBR SL SBT VBR VBL VBT VBR SL SBT VBR SBL SBT VBR SBT V | No | No | No | No | No | No | No | No | No | No | No | No | Enter Blocked Intersection |
| WBR VBL VBI VBR SL SBT VBR SL SBT VBR VBL VBT VBR SL SBT VBR SBL SBT VBR S | 0 | 179 | 137 | 0 | 44 | 41 | 0 | 648 | 78 | 0 | 866 | 80 | Lane Group Flow (vph) |
| WBR NBL NBT NBR SAL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 1 10 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 1.00 0.99 1.00 0.99 0.583 0.728 1771 0 1827 1759 0.583 0.583 0.728 0 1072 1771 0 1327 1759 Yes 29 44.0 296.2 44.0 296.2 44.0 296.2 66 3 2 2 2 1.00 1.00 1.00 1.00 1.00 2.6 3 0.0 0.0 1.00 1.00 2.6 3 0.0 0.0 0.0 88 41 15 29 137 35 | | | | | | | | | | | | | Shared Lane Traffic (%) |
| WBR NBL NBF NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0.95 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.901 0.950 0.752 1771 0 1827 1759 0.683 0 0.728 1775 Yes Yes 144 44.0 Yes 144 1.00 1.00 1.00 1.00 2.50 2.00 1.00 0.90 1.00 2.50 0.879 0.250 0.879 0.250 0.879 0.250 0.879 1.00 0.90 1.00 0.879 1.00 0.90 0.879 1.00 0.90 1.00 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.250 0.879 0.2728 0.879 0.980 0.879 0.990 0.879 0.900 0.800 0.8000 0.800 0.8000 0.800 0.8000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8000 0.80000 0.8 | 14 | 35 | 137 | 29 | 15 | 41 | 88 | 560 | 78 | 96 | 770 | 8 | Adj. Flow (vph) |
| WBR NBL NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 10 1.00 1.00 1.00 1.00 0.95 1.00 0.99 1.00 0.99 0.950 0.950 0.950 0.752 0.053 0.752 1771 0 1827 1759 0.563 0.728 144 40 40 236.2 6 3 4.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | တ | 0 | 0 | Bus Blockages (#/hr) |
| WBR NBL NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0,0 10.0 10.0 1.0 1.0 1.0 1.0 1.0 0,0 0.95 1.0 1.0 1.0 1.0 0.9 1.0 0.99 1.0 0.99 0.950 0.951 1771 0 1827 1759 0.583 0.728 1759 Yes 29 Yes 144 4.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 29 142 1.0 29 2 144 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | 0% | 0% | 1% | 0% | 0% | 3% | 2% | 6% | 0% | 2% | 4% | 2% | Heavy Vehicles (%) |
| WBR NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 1 10 1.00 1.00 1.00 1.00 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.951 1771 0 1827 1759 Yes 29 144 444.0 236.2 6 3 4 2 2 14.2 | 1.00 | 1.00 | <u>1</u> .0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | <u>1</u> .0 | 1.00 | 1.0 | Peak Hour Factor |
| WBR NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 10 25.0 1.00 0.99 1.00 0.99 1.00 0.99 0.0879 0.850 0.901 0.950 0.722 1771 0 1827 1759 Yes 29 144 44.0 236.2 44.0 236.2 | ω | | 2 | 2 | | ယ | တ | | 4 | 4 | | 6 | Confl. Peds. (#/hr) |
| WBR NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 10 25.0 1.00 0.99 1.00 1.00 0.99 0.950 0.950 0.752 1771 0 1397 1759 Yes 120 144 440 66 | | 14 2 | | | 40 | | | 5 | | | 55 35 36 | | Travel Time (s) |
| WBR NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0,0 10.0 10.0 1.0 1.0 1.0 1.0 1.0 0,0 0.95 1.0 1.0 1.0 1.0 0.9 0.95 0.95 0.99 1.0 0.879 0.583 0.771 0.1397 1759 Yes 29 660 | | 236.2 | | | 44.0 | | | 191.2 | | | 896.3 | | Link Distance (m) |
| WBR NBL NBT NBR SBL SBT 1. 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 1 10 1.00 1.00 1.00 1.00 1 10 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.950 0.951 1771 0 1827 1759 Yes 29 Yes 1144 | | 60 | | | 40 | | | 3 | | | 60 | | link Speed (k/h) |
| WBR NBL NBT NBR SBL SBT 1 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1900 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 0 0 1.0 0 1.00 1.00 0.99 1.00 0.99 1.00 0.99 0.950 1.00 1.00 1.00 0.879 0.950 0.752 1771 0 1827 1759 Yes Yes Yes 1397 1759 | | 144 | | | 29 | | | 17 | | | 14 | | Satd. Flow (RTOR) |
| Wiff NBL NBT NBR SBL SBT S 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0% 0.1 6.0 0% 79.5 13.0 0.0 1.0 1.0 0.9 1.0 0.99 1.00 0.99 0.95 100 1.0 1.0 1.0 0.99 0.95 0.95 0.95 0.728 0 1072 1771 0 1397 1759 | Yes | | | Yes | | | Yes | | | Ύes | | | Right Turn on Red |
| WBR NBL NBT NBR SBL SBT SB SB SBT SB | 0 | 1759 | 1397 | 0 | 1771 | 1072 | 0 | 3301 | 1639 | 0 | 3305 | 1553 | Satd. Flow (perm) |
| WBR NBL NBT NBR SBL SBT S 88 41 15 29 137 35 1900 1900 1900 1900 1900 1 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 1 10 1.00 1.00 1.00 1.00 1 10 0.99 1.00 0.99 0.950 0.950 0.950 0.950 0 1752 1771 0 1827 1759 | | | 0.728 | | | 0.583 | | | 0.950 | | | 0.950 | Flt Permitted |
| WBR NBL NBT NBR SBL SBT S 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1 3.1 3.6 40 3.7 3.8 42 79.5 13.0 0% 0.0 16.0 0 1 0 0 1 18.0 0.99 1.00 1.00 1.00 0.95 1.00 0.99 1.00 0.99 0.950 0.901 0.950 | 0 | 1759 | 1827 | 0 | 1771 | 1752 | 0 | 3301 | 1645 | 0 | 3305 | 1564 | Satd. Flow (prot) |
| WBR NBL NBT NBR SBL SBT S 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0% 0.0 160 100 100 100 100 100 100 0.99 100 0.99 1,00 0.99 1,00 0.99 1,00 0.99 1,00 0.99 | | | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | Flt Protected |
| WBR NBL NBT NBR SBL SBT SB SB SBT SB | | 0.879 | | | 0.901 | | | 0.980 | | | 0.983 | 0.00 | Frt |
| WBR NBL NBT NBR SBL SBT S 88 41 15 29 137 35 88 41 15 29 137 35 1900 1900 1900 1900 1900 1 3.1 3.6 4.0 3.7 3.8 4.2 79.5 13.0 0.0 16.0 0 1 0 100 100 100 100 100 0 25.0 100 100 100 100 100 100 | - | 000 | 3 . | | 000 | 100 | 0.00 | 100 | 100 | 0.30 | 1 00 | 00 - | Pad Rika Factor |
| WBR NBL NBT NBR SBL SBT S NBL SBT S NB SB | 3 | 100 | 1 00 | 100 | 1 00 | 100 | 20 0 | 0 | 100 | 20 | 0 05 | 1 00:4 | lane I till Eactor |
| WBR NBL NBT NBR SBL SBT S NB SBT S N | | | 35 O | • | | 180 | | | /8 O - | • | | 66.4 | Tanar Langth (m) |
| WBR NBL NBT NBR SBL SBT S NB NBL NBT NBR SBL SBT S NB NBL NBT NBR SBL SBT S NB NB NBL SBT S NB N | 0 6 | | | o : | | | 0.0 | | <u>-</u> | o : | | 10.1 | Storage Lanes |
| WBR NBL NBT NBR SBL SBT NBR NBL NBT NBR SBL SBT NBR NBL NBT NBR SBL SBT NBR NBR NBR SBL SBT NBR NBR NBR SBL SBT NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR SBL SBT NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR NBR SBL SBT NBR SBL SBT NBR NBR NBR SBL SBT NBR NBR NBR SBL SBT NBR | 0 0 | | 160 | 00 | 4 74 | 130 | 79.5 | | 510 | 64.5 | 4 74 | 1454 | Storage Length (m) |
| WBR NBL NBT NBR SBL SBT NB | 9 | 0% | 0 | | 0% | 0.0 | | 0% | į | 9 | 6% | į | Grade (%) |
| WBR NBL NBT NBR SBL SBT NBR NBR NBL SBT NBR NBR NBL SBT NBR NBR NBR NBL SBT NBR | 37 | 42 | 3 8 | 3 7 | 40 | 3 6 | ب د | 33 | 28 | 3 2 | 3 | 28 | l ane Width (m) |
| WBR NBL NBT NBR SBL SBT The harmonic of the control of the contro | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | Ideal Flow (whith) |
| WBR NBL NBT NBR SBL SBT | 144 | 2 6 | 137 | 20 | <u>,</u> | 41 | 88 | 560 | 78 | S 8 | 770 | 28 8 | Fithire Volume (vph) |
| WBR NBL NBT NBR SBL SBT | 111 | y 🛨 | 127 | သ | π̂ Σ | ن ڈ | 22 | 7 - | 7g [| 95 | 7 - F | ر 3 | Taffic Volume (unh) |
| WIDD NIDT NIDD SDI SDT | 9 | • | 4 0 | 107 | • 2 | A DE | WUN | * C | * C | 5 | <u>-</u> | # F | Laire Gioup |
| - ~ | CBD | CBT | 8 | | NDT | | N/DD | WDT | ND. | EBB E | EBT | <u> </u> | and Coming |
| 1 / / > | 4 | + | • | • | _ | و | 1 | 1 | 4 | 1 | ţ | \ | |

Lanes, Volumes, Timings
3: Dixie Road & Kingston Road

| Analysis Period (min) 15 | Intersection Consoit / Hilipation | Intersection Signal F | Maximum v/c Ratio: 0.95 | Control Type: Actuated-Coordinated | Natural Cycle: 85 | Offset: 44.8 (37%), Referenced to phase 2:EBT and 6:WBT, Start of Green | Actuated Cycle Length: 120 | Cycle Length: 120 | Area Type: | Intersection Summary | Approach LOS | Approach Delay | LOS | Total Delay | Queue Delay | Control Delay | v/c Ratio | Actuated g/C Ratio | Act Effct Green (s) | Pedestrian Calls (#/hr) | Flash Dont Walk (s) | Walk Time (s) | Recall Mode | Vehide Extension (s | Lead-Lag Optimize? | Lead/Lag | Total Lost Time (s) | Lost Time Adjust (s) | All-Red Time (s) | Yellow Time (s) | Maximum Green (s) | Total Split (%) | Total Split (s) | Minimum Split (s) | Minimum Initial (s) | Switch Phase | Detector Phase | Permitted Phases | Lane Group | |
|--------------------------|-----------------------------------|-----------------------|-------------------------|------------------------------------|-------------------|---|----------------------------|-------------------|------------|----------------------|--------------|----------------|-----|-------------|-------------|---------------|-----------|--------------------|---------------------|-------------------------|---------------------|---------------|-------------|---------------------|--------------------|----------|---------------------|----------------------|------------------|-----------------|-------------------|-----------------|-----------------|-------------------|---------------------|--------------|----------------|------------------|------------|-------------|
|) 15 | velay. 23.0 | Delay: 25.0 | 0.95 | ted-Coordinated | | Referenced to pha | th: 120 | 3 | Other | Ŋ | | | ш | 78.8 | 0.0 | 78.8 | 0.66 | 0.08 | 9.3 | 3 | | | ~ | _ | | Lead | 5.0 | 0.0 | 2.0 | 3.0 | 10.0 | 12.5% | 15.0 | 10.0 | 5.0 | | 5 | | EBL | , |
| | | | | | | se 2:EBT | | | | | В | 18.8 | В | 13.2 | 0.0 | 13.2 | 0.42 | 0.62 | 74.6 | 6 | 14.0 | 7.0 | C-Max | 3.0 | | Lag | 6.6 | 0.0 | 2.4 | 4.2 | 52.4 | 49.2% | 59.0 | 28.0 | 20.0 | | 2 | | EBT | ļ |
| | | | | | | and 6:WB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EBR | 4 |
| 5 | 5 = | <u></u> | | | | T, Start of | | | | | | | п | 125.1 | 0.0 | 125.1 | 0.95 | 0.05 | 6.0 | | | | | 3.0 | | Lead | 5.0 | 0.0 | 2.0 | 3.0 | 6.0 | 92% | 11.0 | 10.0 | 5.0 | | _ | | WBL | • |
| ICO Tenel of Service D | ICH Level of Conic | prepotion | | | | f Green | | | | | O | 28.2 | œ | 16.5 | 0.0 | 16.5 | 0.32 | 0.61 | 73.6 | _ | 14.0 | 7.0 | C-Max | 3.0 | Yes | Lag | 6.6 | 0.0 | 2.4 | 4.2 | 48.4 | 45.8% | 55.0 | 28.0 | 20.0 | | 6 | | WBT | † |
| ORIVICA | | 0.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WBR | <i>></i> |
| | , | | | | | | | | | | | | o | 45.4 | 0.0 | 45.4 | 0.25 | 0.15 | 18.3 | 7 | 23.0 | 7.0 | None | 3.0 | | | 9.5 | 0.0 | 5.1 | 4.4 | | | 50.0 | 43.0 | 8.0 | | œ | œ | NBL | ۶ |
| | | | | | | | | | | | C | 32.4 | ဂ | 20.2 | 0.0 | 20.2 | 0.15 | 0.15 | 18.3 | 7 | 23.0 | 7.0 | None | 3.0 | | | 9.5 | 0.0 | 5.1 | 4.4 | 40.5 | 41.7% | 50.0 | 43.0 | 8.0 | | œ | | NBT | → |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | _ | | | | | | | NBR | • |
| | | | | | | | | | | | | | т | 60.1 | 0.0 | 60.1 | 0.64 | 0.15 | 18.3 | 4 | 23.0 | 7.0 | None | 3.0 | | | 9.5 | 0.0 | 5.1 | 4.4 | | | 50.0 | 41.0 | 8.0 | | 4 | 4 | SBL | • |
| | | | | | | | | | | | C | 34.2 | œ | 14.4 | 0.0 | 14.4 | 0.46 | 0.15 | 18.3 | 4 | 23.0 | 7.0 | None | 3.0 | | | 9.5 | 0.0 | 5.1 | 4.4 | 40.5 | 41.7% | 50.0 | 41.0 | 8.0 | | 4 | | SBT | ← |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | SBR | • |

1105-1163 Kingston Road WSP

Splits and Phases: 3: Dixie Road & Kingston Road

↑ Ø6 (R)

Synchro 11 Report Page 1

1105-1163 Kingston Road WSP

Synchro 11 Report Page 2

<2028 Future Total>PM 12-20-2024

| | ۶ | - | \rightarrow | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|----------------------------|---------|------------|---------------|-------|------------|--------|-----------------|----------|-------------|-------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ٦ | ↑ ↑ | | ሻ | ↑ ↑ | | ሻ | | 7 | ሻ | 1> | |
| Traffic Volume (vph) | 38 | 1449 | 270 | 128 | 646 | 43 | 307 | 0 | 337 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1449 | 270 | 128 | 646 | 43 | 307 | 0 | 337 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | | Ů | 0.950 | , | | 0.728 | Ť | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 25 | . 00 | | 9 | . 00 | | | 91 | | 28 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | 01 | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | 1.0 | 7 | 7 | 71.7 | 5 | 14 | 10.0 | 5 | 5 | 10.2 | 14 |
| Confl. Bikes (#/hr) | , | | 1 | , | | , | 17 | | J | , | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.32 | 0.32 | 2% | 0.32 | 0.92 | 0.32 | 0.32 | 0.92 | 0.92 | 0.32 |
| Bus Blockages (#/hr) | 0 /8 | 0 | 3 | 0 /8 | 0 | 0 /0 | 0 /8 | 0 /8 | 0 /0 | 0 /8 | 0 /0 | 0 /8 |
| Adj. Flow (vph) | 41 | 1575 | 293 | 139 | 702 | 47 | 334 | 0 | 366 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | 41 | 10/0 | 233 | 100 | 102 | 41 | JJ 4 | U | 300 | 20 | 17 | 20 |
| Lane Group Flow (vph) | 41 | 1868 | 0 | 139 | 749 | 0 | 334 | 0 | 366 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.1 | Rigiil | Leit | 3.1 | Rigiit | Leit | 3.3 | Rigit | Leit | 3.3 | Rigiti |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | 4.9 | | | 4.9 | |
| | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Headway Factor | | 1.00 | | | 1.00 | | | 1.01 | 0.99 | | 0.99 | |
| Turning Speed (k/h) | 24 0 | 0 | 14 | 24 | ^ | 14 | 24 1 | | | 24 | 0 | 14 |
| Number of Detectors | 0 | U | | U | 0 | | 1 | | 1 | 0 | U | |
| Detector Template | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | Right | 0.0 | 0.0 | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings

1: Walnut Lane & Kingston Road

<2028 Future Total>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | / | - | ļ | 1 |
|------------------------------|--------------|------------|----------|------------|-------------|------------|-------|----------|--------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | • | | | • | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.64 | 1.01 | | 1.08 | 0.36 | | 1.07 | | 0.81 | 0.06 | 0.11 | |
| Control Delay | 84.4 | 46.1 | | 165.2 | 5.5 | | 116.8 | | 50.1 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 84.4 | 46.1 | | 165.2 | 5.5 | | 116.8 | | 50.1 | 39.0 | 20.3 | |
| LOS | F | D | | F | Α | | F | | D | D | С | |
| Approach Delay | | 47.0 | | | 30.5 | | | 81.9 | | | 27.1 | |
| Approach LOS | | D | | | С | | | F | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 77 (59%), Referen | ced to phase | e 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 135 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.08 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliz | ation 96.1% |) | | IC | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: W | alnut Lane | & Kingstor | n Road | | | | | | | | | |
| √ø1 →ø2(| (R) | | | | | | | | Ø4 | | | |
| 15 s 76 s | | | | | | | | 39 s | | | | |
| Ø5 W Ø6 (R) | | | | | | | | Y | Ø8 | | | |
| 10 s 81 s | | | | | | | | 39 s | india. | | | |
| | | | | | | | | | | | | |

<2028 Future Total>PM 12-20-2024

1: Walnut Lane & Kingston Road

| | • | - | • | ← | 4 | - | - | ↓ | |
|------------------------|-------|--------|-------|-------|--------|--------|------|----------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1868 | 139 | 749 | 334 | 366 | 26 | 45 | |
| v/c Ratio | 0.64 | 1.01 | 1.08 | 0.36 | 1.07 | 0.81 | 0.06 | 0.11 | |
| Control Delay | 84.4 | 46.1 | 165.2 | 5.5 | 116.8 | 50.1 | 39.0 | 20.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 84.4 | 46.1 | 165.2 | 5.5 | 116.8 | 50.1 | 39.0 | 20.3 | |
| Queue Length 50th (m) | 0.0 | ~153.7 | ~40.6 | 14.5 | ~94.4 | 68.6 | 5.2 | 3.4 | |
| Queue Length 95th (m) | m15.2 | #300.5 | #83.4 | 21.5 | #152.5 | #116.0 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 1850 | 129 | 2063 | 313 | 451 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 1.01 | 1.08 | 0.36 | 1.07 | 0.81 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 2: Street B & Kingston Road <2028 Future Total>PM 12-20-2024

| | | | | • | ~ |
|----------|---|--|---|---|--|
| EBT | EBR | WBL | WBT | NBL | NBR |
| ^ | 7 | | ^ | | 7 |
| 1647 | 84 | 0 | 990 | 0 | 107 |
| 1647 | 84 | 0 | 990 | 0 | 107 |
| 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| | 45.0 | 0.0 | | 0.0 | 0.0 |
| | 1 | 0 | | 0 | 1 |
| | | 2.5 | | 2.5 | |
| 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| | | | | | |
| | 0.850 | | | | 0.865 |
| | | | | | |
| 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| | | | | | |
| 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| 60 | | | 60 | 30 | |
| 191.2 | | | 129.3 | 96.9 | |
| 11.5 | | | 7.8 | 11.6 | |
| | 3 | 3 | | | |
| | 1 | | | | |
| 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| 2% | 0% | 2% | 2% | 2% | 0% |
| 1790 | 91 | 0 | 1076 | 0 | 116 |
| | | | | | |
| 1790 | 91 | 0 | 1076 | 0 | 116 |
| No | No | No | No | No | No |
| Left | Right | Left | Left | Left | Right |
| 3.0 | | | 3.0 | 0.0 | |
| 0.0 | | | 0.0 | 0.0 | |
| 1.6 | | | 1.6 | 1.6 | |
| Yes | | | Yes | | |
| 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| | 14 | 24 | | 24 | 14 |
| Free | | | Free | Stop | |
| | | | | | |
| ther | | | | | |
| | | | | | |
| on 58.8% | | | IC | U Level | of Service I |
| | 1647 1647 1900 3.5 0.95 3500 3500 60 191.2 11.5 0.92 2% 1790 No Left 3.0 0.0 1.6 Yes 1.01 | 1647 84 1647 84 1900 1900 3.5 3.3 45.0 1 0.95 1.00 0.850 3500 1561 3500 1561 3500 1561 3500 2 0.92 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1647 84 0 1647 84 0 1647 84 0 1900 1900 1900 3.5 3.3 3.7 45.0 0.0 1 0 0.850 3500 1561 0 3500 1561 0 3500 1561 0 3500 1561 0 191.2 11.5 3 3 3 1 0.92 0.92 0.92 2% 0% 2% 1790 91 0 | 1647 84 0 990 1647 84 0 990 1900 1900 1900 1900 3.5 3.3 3.7 3.5 45.0 0.0 1 0 2.5 0.95 1.00 1.00 0.95 0.850 3500 1561 0 3500 60 60 191.2 129.3 11.5 3 3 1 0.92 0.92 0.92 2% 0% 2% 2% 1790 91 0 1076 No No No No No Left Right Left Left Left Left Set Set Set Set Set Set Set Set Set Se | 1647 84 0 990 0 1647 84 0 990 0 1900 1900 1900 1900 1900 3.5 3.3 3.7 3.5 3.7 45.0 0.0 0.0 0.0 2.5 2.5 2.5 0.95 1.00 0.95 1.00 0.850 0 0.95 1.00 3500 1561 0 3500 0 60 60 30 350 0 60 60 30 350 0 11.5 7.8 11.6 350 0 3 3 1 0.92 0.92 0.92 2% 0.92 0.92 0.92 0.92 0.92 2% 0.92 0.92 0.92 0.92 0.92 2% 0.92 0.92 0.92 0.92 0.92 2% 0.92 0.92 |

1105-1163 Kingston Road Synchro 11 Report Page 3

Synchro 11 Report 1105-1163 Kingston Road WSP Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

| ıre | Total>PM | |
|-----|------------|--|
| | 12-20-2024 | |

| | - | • | • | • | 1 | |
|------------------------------|-------------|-------------|-------|----------|----------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (veh/h) | 1647 | 84 | 0 | 990 | 0 | 107 |
| Future Volume (Veh/h) | 1647 | 84 | 0 | 990 | 0 | 107 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1790 | 91 | 0 | 1076 | 0 | 116 |
| Pedestrians | | | | | 3 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX, platoon unblocked | | | 0.59 | , | 0.64 | 0.59 |
| vC, conflicting volume | | | 1793 | | 2331 | 898 |
| vC1, stage 1 conf vol | | | | | 1793 | 000 |
| vC2, stage 2 conf vol | | | | | 538 | |
| vCu, unblocked vol | | | 941 | | 1188 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | 0.0 |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 82 |
| cM capacity (veh/h) | | | 423 | | 192 | 637 |
| . , , | 50 4 | =D 0 | | 14/D / | | |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 895 | 895 | 91 | 538 | 538 | 116 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 91 | 0 | 0 | 116 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 637 |
| Volume to Capacity | 0.53 | 0.53 | 0.05 | 0.32 | 0.32 | 0.18 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.9 |
| Lane LOS | | | | | | В |
| Approach Delay (s) | 0.0 | | | 0.0 | | 11.9 |
| Approach LOS | | | | | | В |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.4 | | | |
| Intersection Capacity Utiliz | zation | | 58.8% | IC | CU Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| . , () | | | ., | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5

| Lanes, Volumes, Ti 3: Dixie Road & Kin | _ | Road | | | | | | | <2028 | 3 Futur | e Tota 12-2 | I>PM 20-2024 |
|---|-------|-------------|-------|-------|-------------|-------|-------|-------|-------|----------|----------------|-----------------|
| | ۶ | → | • | • | — | 4 | 1 | † | ~ | / | ţ | 4 |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | ሻ | † î> | | ٦ | † î> | | ሻ | î» | | 7 | f) | |
| Traffic Volume (vph) | 204 | 1516 | 153 | 40 | 783 | 165 | 120 | 54 | 63 | 144 | 28 | 92 |
| Future Volume (vph) | 204 | 1516 | 153 | 40 | 783 | 165 | 120 | 54 | 63 | 144 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | C |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.986 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3373 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3373 | 0 | 1594 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | (|
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 13 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1648 | 166 | 43 | 851 | 179 | 130 | 59 | 68 | 157 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 1814 | 0 | 43 | 1030 | 0 | 130 | 127 | 0 | 157 | 130 | C |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | Ŭ |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OI LA | OI LA | | OI LA | 01 | | OI LA | OI LX | | OI LX | OI LA | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 6

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2028 Future Total>PM 12-20-2024

| | • | → | \rightarrow | • | ← | • | 4 | † | <i>></i> | - | ļ | 1 |
|-------------------------|-------|----------|---------------|-------|----------|-----|-------|----------|-------------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 26.0 | 79.0 | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 20.0% | 60.8% | | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) | 21.0 | 72.4 | | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 4 | | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 20.3 | 84.7 | | 5.0 | 67.5 | | 21.2 | 21.2 | | 21.2 | 21.2 | |
| Actuated g/C Ratio | 0.16 | 0.65 | | 0.04 | 0.52 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.90 | 0.82 | | 0.70 | 0.58 | | 0.64 | 0.39 | | 0.75 | 0.36 | |
| Control Delay | 74.0 | 26.8 | | 111.7 | 26.3 | | 64.0 | 34.0 | | 72.2 | 15.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 74.0 | 26.8 | | 111.7 | 26.3 | | 64.0 | 34.0 | | 72.2 | 15.8 | |
| LOS | Е | С | | F | С | | Е | С | | Е | В | |
| Approach Delay | | 32.0 | | | 29.7 | | | 49.2 | | | 46.6 | |
| Approach LOS | | C | | | С | | | D | | | D | |

Intersection Summary

Area Type:

Cycle Length: 130 Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.90

Intersection Signal Delay: 33.7
Intersection Capacity Utilization 84.5% Intersection LOS: C ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



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Queues

<2028 Future Total>PM 12-20-2024

3: Dixie Road & Kingston Road

| ane Group Flow (vph) | | • | - | • | - | 1 | † | - | ↓ | |
|--|------------------------|--------|--------|--------|--------|------|----------|------|-------|--|
| C Ratio | Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Nontrol Delay 74.0 26.8 111.7 26.3 64.0 34.0 72.2 15.8 | Lane Group Flow (vph) | 222 | 1814 | 43 | 1030 | 130 | 127 | 157 | 130 | |
| Queue Delay 0.0 <th< td=""><td>v/c Ratio</td><td>0.90</td><td>0.82</td><td>0.70</td><td>0.58</td><td>0.64</td><td>0.39</td><td>0.75</td><td>0.36</td><td></td></th<> | v/c Ratio | 0.90 | 0.82 | 0.70 | 0.58 | 0.64 | 0.39 | 0.75 | 0.36 | |
| otal Delay 74.0 26.8 111.7 26.3 64.0 34.0 72.2 15.8 ueue Length 50th (m) 52.2 225.1 11.7 125.0 31.5 19.4 38.8 6.6 ueue Length 95th (m) m#83.6 #283.8 m#24.0 m145.5 49.0 35.4 58.2 22.4 utemal Link Dist (m) 872.3 167.2 20.0 212.2 urm Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 | Control Delay | 74.0 | 26.8 | 111.7 | 26.3 | 64.0 | 34.0 | 72.2 | 15.8 | |
| tueue Length 50th (m) 52.2 225.1 11.7 125.0 31.5 19.4 38.8 6.6 tueue Length 95th (m) m#83.6 #283.8 m#24.0 m145.5 49.0 35.4 58.2 22.4 ternal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 | Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Rueue Length 95th (m) m#83.6 #283.8 m#24.0 m145.5 49.0 35.4 58.2 22.4 Internal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 | Total Delay | 74.0 | 26.8 | 111.7 | 26.3 | 64.0 | 34.0 | 72.2 | 15.8 | |
| Internal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 </td <td>Queue Length 50th (m)</td> <td>52.2</td> <td>225.1</td> <td>11.7</td> <td>125.0</td> <td>31.5</td> <td>19.4</td> <td>38.8</td> <td>6.6</td> <td></td> | Queue Length 50th (m) | 52.2 | 225.1 | 11.7 | 125.0 | 31.5 | 19.4 | 38.8 | 6.6 | |
| urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 | Queue Length 95th (m) | m#83.6 | #283.8 | m#24.0 | m145.5 | 49.0 | 35.4 | 58.2 | 22.4 | |
| ase Capacity (vph) 255 2202 61 1779 302 464 312 494 tarvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 | |
| tarvation Cap Reductn 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 | Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | | |
| pillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 | Base Capacity (vph) | 255 | 2202 | 61 | 1779 | 302 | 464 | 312 | 494 | |
| torage Cap Reductn 0 0 0 0 0 0 0 | Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| leduced v/c Ratio 0.87 0.82 0.70 0.58 0.43 0.27 0.50 0.26 | Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Reduced v/c Ratio | 0.87 | 0.82 | 0.70 | 0.58 | 0.43 | 0.27 | 0.50 | 0.26 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 8 Lanes, Volumes, Timings

<2028 Future Total>PM 12-20-2024

4: Street B & Shopping Plaza Entrance

| Lane Group EBL EBR NBL NBT SBT SBR Lane Configurations ↑ |
|---|
| Traffic Volume (vph) 109 26 19 29 21 61 Future Volume (vph) 109 26 19 29 21 61 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor 0.974 0.900 0.900 |
| Future Volume (vph) 109 26 19 29 21 61 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 100 100 1.00 |
| Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1,00 |
| Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor Frt 0.974 0.900 0.900 |
| Ped Bike Factor 0.974 0.900 |
| Frt 0.974 0.900 |
| |
| Fit Protected 0.961 0.981 |
| |
| Satd. Flow (prot) 1784 0 0 1885 1729 0 |
| Flt Permitted 0.961 0.981 |
| Satd. Flow (perm) 1784 0 0 1885 1729 0 |
| Link Speed (k/h) 30 30 |
| Link Distance (m) 193.0 49.0 49.9 |
| Travel Time (s) 23.2 5.9 6.0 |
| Confl. Peds. (#/hr) 1 |
| Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 |
| Heavy Vehicles (%) 0% 4% 0% 0% 0% 0% |
| Adj. Flow (vph) 118 28 21 32 23 66 |
| Shared Lane Traffic (%) |
| Lane Group Flow (vph) 146 0 0 53 89 0 |
| Enter Blocked Intersection No No No No No No |
| Lane Alignment Left Right Left Left Right |
| Median Width(m) 3.7 0.0 0.0 |
| Link Offset(m) 0.0 0.0 0.0 |
| Crosswalk Width(m) 1.6 1.6 1.6 |
| Two way Left Turn Lane |
| Headway Factor 0.99 0.99 0.99 0.99 0.99 |
| Turning Speed (k/h) 97 97 97 97 |
| Sign Control Stop Stop Stop |
| Intersection Summary |

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 23.7%

ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 4: Street B & Shopping Plaza Entrance

<2028 Future Total>PM 12-20-2024

| | • | \rightarrow | 4 | † | ļ | 4 | |
|-----------------------------------|------|---------------|-------|----------|------------|---------|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | W | | | 4 | - ↑ | | |
| Sign Control | Stop | | | Stop | Stop | | |
| Traffic Volume (vph) | 109 | 26 | 19 | 29 | 21 | 61 | |
| Future Volume (vph) | 109 | 26 | 19 | 29 | 21 | 61 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 118 | 28 | 21 | 32 | 23 | 66 | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 146 | 53 | 89 | | | | |
| Volume Left (vph) | 118 | 21 | 0 | | | | |
| Volume Right (vph) | 28 | 0 | 66 | | | | |
| Hadj (s) | 0.06 | 0.08 | -0.44 | | | | |
| Departure Headway (s) | 4.3 | 4.4 | 3.8 | | | | |
| Degree Utilization, x | 0.17 | 0.06 | 0.10 | | | | |
| Capacity (veh/h) | 818 | 781 | 897 | | | | |
| Control Delay (s) | 8.1 | 7.7 | 7.2 | | | | |
| Approach Delay (s) | 8.1 | 7.7 | 7.2 | | | | |
| Approach LOS | Α | Α | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 7.8 | | | | |
| Level of Service | | | Α | | | | |
| Intersection Capacity Utilization | on | | 23.7% | IC | U Level of | Service | |
| Analysis Period (min) | | | 15 | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 10

Lanes, Volumes, Timings 5: Street B & Street A

| <2028 Future | e Total>PM |
|--------------|------------|
| | 12-20-2024 |

| ane Group WBL WBR NBT NBR SBL SBT ane Configurations arific Volume (vph) 5 25 1 2 39 3 ature Volume (vph) 5 25 1 2 39 3 ature Volume (vph) 5 25 1 2 39 3 ature Volume (vph) 5 25 1 2 39 3 ature Volume (vph) 1900 1900 1900 1900 1900 1900 ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 ane Itil. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 ane Itil. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 ane Itil. Fow (prot) 1688 0 1748 0 0 1785 atd. Flow (prot) 1688 0 1748 0 0 1785 atd. Flow (perm) 1688 0 1748 0 0 1785 atd. Flow (perm) 1688 0 1748 0 0 1785 atd. Flow (perm) 1888 0 1748 0 0 1785 atd. Flow (perm) 193.3 78.3 49.0 avel Time (s) 23.2 9.4 5.9 onfl. Peds. (#hr) 5 5 aeak Hour Factor 0.92 0.92 0.92 0.92 0.92 aeak Hour Factor 0.92 0.92 0.92 0.92 0.92 aeavy Vehicles (%) 0% 0% 0% 0% 3% 0% dj. Flow (vph) 5 27 1 2 42 3 anared Lane Traffic (%) anered Lane Traffic (%) anere Group Flow (vph) 32 0 3 0 0 45 ane Group Flow (vph) 32 0 3 0 0 45 ane Group Flow (vph) 37 0.0 0.0 ane Alignment Left Right Left Right Left Left edian Width(m) 3.7 0.0 0.0 and No Mos Wo |
|--|
| raffic Volume (vph) 5 25 1 2 39 3 3 |
| raffic Volume (vph) |
| eal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0 |
| ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 and Bilke Factor 1 0.886 0.910 trended Bilke Factor 1 0.886 0.910 trended 0.992 0.955 atd. Flow (prot) 1688 0 1748 0 0 1785 or 0.955 atd. Flow (prom) 1688 0 1748 0 0 1785 or 0.955 atd. Flow (perm) 1688 0 1748 0 0 1785 or 0.955 or |
| ed Bike Factor t |
| tt Double to the test of the t |
| t Protected 0.992 0.955 atd. Flow (prot) 1688 0 1748 0 0 1785 atd. Flow (prot) 1688 0 1748 0 0 1785 atd. Flow (perm) 1688 0 1748 0 0 1785 atd. Flow (perm) 1688 0 1748 0 0 1785 atd. Flow (perm) 193.3 78.3 49.0 axel Time (s) 23.2 9.4 5.9 onfl. Peds. (#hr) 5 5 eak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 axely Time (s) 0% 0% 0% 0% 3% 0% dij. Flow (vph) 5 27 1 2 42 3 ane Group Flow (vph) 32 0 3 0 0 45 ane Group Flow (vph) 32 0 3 0 0 45 ane Alignment Left Right Left Right Left edian Width(m) 3.7 0.0 0.0 nk Offset(m) 0.0 0.0 0.0 rosswalk Width(m) 1.6 1.6 1.6 1.6 wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 0.99 |
| atd. Flow (prot) 1688 0 1748 0 0 1785 t Permitted 0.992 0.955 ank Speed (k/h) 30 30 30 30 nk Distance (m) 193.3 78.3 49.0 avel Time (s) 23.2 9.4 5.9 onfl. Peds. (#hr) 5 5 sak Hour Factor 0.92 0.92 0.92 0.92 0.92 avel Vehicles (%) 0% 0% 0% 0% 3% 0% dij. Flow (vph) 5 27 1 2 42 3 anerad Lane Traffic (%) ane Group Flow (vph) 32 0 3 0 0 45 ane Alignment Left Right Left Right Left edian Width(m) 1.6 1.6 1.6 0.0 ncosswalk Width(m) 1.6 1.6 1.6 1.6 wo way Left Turn Lane seadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 |
| t Permitted 0.992 0.955 atd. Flow (perm) 1688 0 1748 0 0 1785 nk Speed (k/h) 30 30 30 30 nk Distance (m) 193.3 78.3 49.0 nk Distance (m) 193.3 78.3 49.0 avel Time (s) 23.2 9.4 5.9 onfl. Peds. (#/hr) 5 5 sak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 avel Vehicles (%) 0% 0% 0% 0% 3% 0% dj. Flow (vph) 5 27 1 2 42 3 hared Lane Traffic (%) ane Group Flow (vph) 32 0 3 0 0 45 ner Group Flow (vph) 32 0 8 0 0 45 ner Blocked Intersection No |
| atd. Flow (perm) 1688 0 1748 0 0 1785 nk Speed (k/h) 30 30 30 30 nk Distance (m) 193.3 78.3 49.0 ravel Time (s) 23.2 9.4 5.9 onfl. Peds. (#/hr) 5 5 sak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 aevy Vehicles (%) 0% 0% 0% 0% 3% 0% dj. Flow (vph) 5 27 1 2 42 3 nared Lane Traffic (%) ane Group Flow (vph) 32 0 3 0 0 45 nared Edocked Intersection No |
| nk Speed (k/h) 30 30 30 30 30 30 nk Distance (m) 193.3 78.3 49.0 nk Distance (m) 193.3 78.3 49.0 5.9 onfl. Peds. (#hr) 5 5 seak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 aavy Vehicles (%) 0% 0% 0% 0% 0% 3% 0% 0% 0% 0% 10% 10% 10% 10% 10% 10% 10 |
| nk Distance (m) 193.3 78.3 49.0 ravel Time (s) 23.2 9.4 5.9 onoffl. Peds. (#/hr) 5 5 5 eak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 eavy Vehicles (%) 0% 0% 0% 0% 3% 0% 1j. Flow (yph) 5 27 1 2 42 3 nared Lane Traffic (%) ane Group Flow (vph) 32 0 3 0 0 45 nater Blocked Intersection No |
| nk Distance (m) 193.3 78.3 49.0 avel Time (s) 23.2 9.4 5.9 on onfl. Peds. (#hr) 5 5 5 sak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 avel Yehicles (%) 0% 0% 0% 0% 0% 3% 0% dij. Flow (vph) 5 27 1 2 42 3 nared Lane Traffic (%) sane Group Flow (vph) 32 0 3 0 0 45 nater Blocked Intersection No |
| onfl. Peds. (#hr) 5 5 eak Hour Factor 0.92 0.93 </td |
| eak Hour Factor 0.92 0.93 |
| eavy Vehicles (%) 0% 0% 0% 0% 3% 0% dj. Flow (vph) 5 27 1 2 42 3 harred Lane Traffic (%) and Group Flow (vph) 32 0 3 0 0 45 hater Blocked Intersection No |
| dj. Flow (vph) 5 27 1 2 42 3 hared Lane Traffic (%) anae Group Flow (vph) 32 0 3 0 0 45 neter Blocked Intersection No No No No No No No ane Alignment Left Right Left Right Left Left <t< td=""></t<> |
| No |
| ane Group Flow (vph) 32 0 3 0 0 45 Inter Blocked Intersection No No No No No No No Inter Blocked Intersection No No No No No No Inter Blocked Intersection No No No No No Inter Blocked Intersection No No No No No Intersection No No No No No No Intersection No No No No No No Intersection No No No No No No No Intersection No No No No No No Intersection No No No No No No No Intersection No No No No No No No No No Intersection No Intersection No |
| Inter Blocked Intersection and Alignment No |
| ane Alignment Left Right Left Right Left Left Left edian Width(m) 3.7 0.0 0.0 0.0 nk Offset(m) 0.0 0.0 0.0 rosswalk Width(m) 1.6 1.6 1.6 wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 |
| edian Width(m) 3.7 0.0 0.0 nk Offset(m) 0.0 0.0 0.0 rosswalk Width(m) 1.6 1.6 1.6 wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 0.99 |
| nk Offset(m) 0.0 0.0 0.0 rosswalk Width(m) 1.6 1.6 1.6 wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 |
| rosswalk Width(m) 1.6 1.6 1.6 wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 |
| wo way Left Turn Lane eadway Factor 0.99 0.99 0.99 0.99 0.99 |
| eadway Factor 0.99 0.99 0.99 0.99 0.99 |
| ··· · y ···· · · · · · · · · · · · · · · · · |
| rrping Speed (k/h) 97 97 97 97 |
| anning Speed (kin) 31 31 31 |
| gn Control Stop Stop Stop |
| tersection Summary |
| rea Type: Other |
| ontrol Type: Unsignalized |
| tersection Capacity Utilization 20.5% ICU Level of Service A |
| nalysis Period (min) 15 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 11

HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

<2028 Future Total>PM 12-20-2024

| | • | • | † | ~ | - | ļ | |
|------------------------------|-------|-------|------------|------|-----------|------------|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | Y | | 1 2 | | | ર્ન | |
| Sign Control | Stop | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 25 | 1 | 2 | 39 | 3 | |
| Future Volume (vph) | 5 | 25 | 1 | 2 | 39 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 5 | 27 | 1 | 2 | 42 | 3 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 32 | 3 | 45 | | | | |
| Volume Left (vph) | 5 | 0 | 42 | | | | |
| Volume Right (vph) | 27 | 2 | 0 | | | | |
| Hadj (s) | -0.47 | -0.40 | 0.23 | | | | |
| Departure Headway (s) | 3.5 | 3.6 | 4.2 | | | | |
| Degree Utilization, x | 0.03 | 0.00 | 0.05 | | | | |
| Capacity (veh/h) | 999 | 984 | 846 | | | | |
| Control Delay (s) | 6.6 | 6.6 | 7.4 | | | | |
| Approach Delay (s) | 6.6 | 6.6 | 7.4 | | | | |
| Approach LOS | Α | Α | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 7.1 | | | | |
| Level of Service | | | Α | | | | |
| Intersection Capacity Utiliz | ation | | 20.5% | IC | U Level o | of Service | |
| Analysis Period (min) | | | 15 | | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total>PM 12-20-2024

| | ۶ | → | \rightarrow | • | ← | • | 4 | † | 1 | - | ţ | 4 |
|----------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ** | 7 | 7 | ^ | 7 | * | ^ | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Future Volume (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| FIt Permitted | 0.950 | | | 0.950 | | | 0.341 | | | 0.175 | | |
| Satd. Flow (perm) | 1667 | 3461 | 1512 | 1713 | 3579 | 1517 | 636 | 3773 | 1564 | 368 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 101 | | | 160 | | | 178 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 274 | 1153 | 423 | 242 | 592 | 73 | 168 | 835 | 252 | 103 | 575 | 127 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 274 | 1153 | 423 | 242 | 592 | 73 | 168 | 835 | 252 | 103 | 575 | 127 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| | | | | | | | | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 13

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total>PM 12-20-2024

| | ۶ | → | • | • | • | * | 4 | † | / | > | ļ | 4 |
|-------------------------------|-------------|-----------|-----------|------------|------------|------------|---------------|-----------|-----------|-------------|-----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Loud | Lug | Loud | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Lug |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 140110 | 140110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 25.1 | 39.6 | 48.7 | 20.3 | 34.8 | 34.8 | 52.0 | 40.9 | 39.6 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.19 | 0.30 | 0.37 | 0.16 | 0.27 | 0.27 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.13 | 1.09 | 0.67 | 0.10 | 0.62 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.50 | 0.22 |
| Control Delay | 47.7 | 84.3 | 27.4 | 87.8 | 45.9 | 0.6 | 34.6 | 43.1 | 13.4 | 31.8 | 38.1 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.7 | 84.3 | 27.4 | 87.8 | 45.9 | 0.6 | 34.6 | 43.1 | 13.4 | 31.8 | 38.1 | 4.6 |
| LOS | 47.7 D | 04.5 F | 27.4 C | 67.0 F | 45.9 D | Α | 34.0 C | 43.1 D | 13.4 B | 01.0 C | J0.1 | 4.0 A |
| Approach Delay | U | 65.9 | U | _ ' | 53.4 | | U | 36.0 | D | U | 32.0 | |
| Approach LOS | | 00.9 E | | | 55.4 D | | | 30.0 D | | | 32.0 C | |
| ** | | | | | U | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 53 (41%), Reference | ed to phase | 2:EBT a | ind 6:WB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 135 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.09 | | | | | | | | | | | | |
| Intersection Signal Delay: 5 | | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliza | ation 104.6 | % | | Į. | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & Kina | ston Road | i | | | | | | | | |
| ÿ1 | w Pow | 220 | | | | 10 | 3 \$ 04 | 1 | | | | |
| 26 s | 46 s | | | | | 8.8 | 50 s | | | | | |
| ♪ _{Ø5} | | Ø6 (F | 8) | | | Vo | 7 1 Ø8 | 3 | | | | |
| 34 s | 3 | 88 | | | | 88 | 50 s | | | | , | |
| WSP | | | | | | | | | | | I | Page 14 |

Queues 6: Liverpool Road & Kingston Road <2028 Future Total>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | / | - | ļ | 4 |
|------------------------|---------|----------|-------|--------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 274 | 1153 | 423 | 242 | 592 | 73 | 168 | 835 | 252 | 103 | 575 | 127 |
| v/c Ratio | 0.84 | 1.09 | 0.67 | 0.90 | 0.62 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.50 | 0.22 |
| Control Delay | 47.7 | 84.3 | 27.4 | 87.8 | 45.9 | 0.6 | 34.6 | 43.1 | 13.4 | 31.8 | 38.1 | 4.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 47.7 | 84.3 | 27.4 | 87.8 | 45.9 | 0.6 | 34.6 | 43.1 | 13.4 | 31.8 | 38.1 | 4.6 |
| Queue Length 50th (m) | 61.9 | ~179.4 | 83.7 | 61.2 | 71.3 | 0.0 | 27.0 | 99.0 | 14.0 | 15.8 | 63.0 | 0.0 |
| Queue Length 95th (m) | m62.2 n | n#185.8 | m86.5 | #106.2 | 93.7 | 0.0 | 42.7 | 121.7 | 37.0 | 27.4 | 80.7 | 11.0 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1054 | 633 | 279 | 958 | 523 | 298 | 1187 | 600 | 210 | 1149 | 569 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.73 | 1.09 | 0.67 | 0.87 | 0.62 | 0.14 | 0.56 | 0.70 | 0.42 | 0.49 | 0.50 | 0.22 |

Lanes, Volumes, Timings

8: Liverpool Road & Private Access/Pickering Parkway

<2028 Future Total>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 1 | † | / | / | ļ | 4 |
|----------------------------|---------|------------|-------|--------|----------|--------|--------|----------|--------|----------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 1,4 | † | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 832 | 401 | 196 | 1063 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 832 | 401 | 196 | 1063 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | | | 0.96 | 1.00 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 3539 | 1569 | 1708 | 3535 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.101 | | | 0.193 | | |
| Satd. Flow (perm) | 0 | 2959 | 0 | 0 | 1858 | 1399 | 175 | 3539 | 1502 | 345 | 3535 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | | 21 | 21 | | | 21 | | 21 | 21 | | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1155 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1155 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | 9 |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI · LX | 31. LX | | 31. LX | J1. LX | JI. LX | 31. LX | 31. LX | 51. LX | 31. LX | 51. LX | O1. LX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| DOLOGIOI Z OIZE(III) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

Synchro 11 Report Page 16 1105-1163 Kingston Road WSP

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2028 Future Total>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

Lane Group EBL WBT NBT SBT CI+Ex CI+Ex CI+Ex Detector 2 Type CI+Ex Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 0.0 Turn Type pm+pt NA pm+pt NA Perm pm+pt NA Perm pm+pt NA Perm Protected Phases Permitted Phases 8 2 2 6 Detector Phase Switch Phase Minimum Initial (s) 8.0 20.0 20.0 8.0 8.0 5.0 5.0 8.0 Minimum Split (s) 15.0 15.0 34.0 34.0 34.0 8.0 30.0 30.0 8.0 30.0 30.0 Total Split (s) 21.0 21.0 34.0 34.0 34.0 36.0 36.0 36.0 36.0 90 9.0 Total Split (%) 21.0% 21.0% 34.0% 34.0% 34.0% 9.0% 36.0% 36.0% 9.0% 36.0% 36.0% Maximum Green (s' 14.4 14.4 27.4 27.4 27.4 6.0 29.7 29.7 6.0 29.7 29.7 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.0 4.2 4.2 3.0 4.2 4.2 All-Red Time (s) 3.3 3.3 3.3 3.3 3.3 0.0 2.1 2.1 0.0 2.1 2.1 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.6 3.0 3.0 6.6 6.3 6.3 6.3 6.3 Lead/Lag Lead Lag Lag Lead Lag Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Recall Mode C-Max C-Max None None None None None None C-Max C-Max None Walk Time (s) 19.0 17.0 17.0 17.0 17.0 19.0 Flash Dont Walk (s) 8.0 8.0 6.0 6.0 6.0 6.0 Pedestrian Calls (#/hr) 20 20 28 28 15 15 Act Effct Green (s) 11.0 11.0 20.9 20.9 39.6 39.6 20.9 48 9 39.6 48 9 39.6 Actuated g/C Ratio 0.11 0.11 0.21 0.21 0.21 0.49 0.40 0.40 0.49 0.40 0.40 0.51 0.48 0.67 0.16 0.43 0.73 0.65 0.51 0.85 0.83 0.07 Control Delay 51.0 18.9 40.8 31.2 38.7 26.5 51.2 35.4 7.5 8.0 0.2 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 51.0 18.9 40.8 31.2 7.5 38.7 26.5 8.0 51.2 35.4 0.2

Intersection Summary

Approach Delay

Approach LOS

v/c Ratio

LOS

Other Area Type: Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

28.7

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.5

Intersection Capacity Utilization 74.6%

Intersection LOS: C ICU Level of Service D

31.0

С

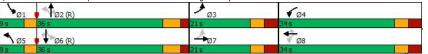
22.1

D

36.6

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2028 Future Total>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | → | • | ← | * | 1 | † | / | - | ţ | 4 | |
|------------------------|------|----------|------|-------|------|--------|----------|----------|-------|--------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 904 | 436 | 213 | 1155 | 50 | |
| v/c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.73 | 0.65 | 0.51 | 0.85 | 0.83 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.7 | 26.5 | 8.0 | 51.2 | 35.4 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.7 | 26.5 | 8.0 | 51.2 | 35.4 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 13.8 | 77.3 | 23.1 | 20.8 | 100.3 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#41.1 | #115.8 | 53.8 | #67.2 | #172.6 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 173 | 1400 | 857 | 250 | 1399 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.73 | 0.65 | 0.51 | 0.85 | 0.83 | 0.07 | |

Queue shown is maximum after two cycles.

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

^{# 95}th percentile volume exceeds capacity, queue may be longer

m Volume for 95th percentile queue is metered by upstream signal

<2028 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | • | ← | • | 1 | † | / | / | ţ | 4 |
|--|------|-------------|--------------|-------|--------------|--------------|-------------|-------------|----------|------|--------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ર્ન | 7 | ሻ | ^ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 263 | 278 | 227 | 293 | 136 | 1058 | 0 | 0 | 989 | 88 |
| Future Volume (vph) | 0 | 0 | 263 | 278 | 227 | 293 | 136 | 1058 | 0 | 0 | 989 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.01 | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | 0.000 | 0.950 | 0.994 | 0.000 | 0.950 | | | | | 0.000 |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1814 | 1581 | 1825 | 3535 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | · | 1002 | 0.950 | 0.994 | 1001 | 0.165 | 0000 | | · | 1012 | 1000 |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1814 | 1581 | 317 | 3535 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | 1101 | 1011 | Yes | 017 | 0000 | Yes | | 1012 | Yes |
| Satd. Flow (RTOR) | | | INU | | | 85 | | | 163 | | | 96 |
| Link Speed (k/h) | | 50 | | | 50 | 00 | | 50 | | | 50 | 30 |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 01.2 | | | 10.5 | | 17 | 20.0 | 15 | 15 | 11.7 | 17 |
| Confl. Bikes (#/hr) | | | | | | | 17 | | 6 | 10 | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.92 | 0.92 | 0.92 | 1% | 0.92 | 1% | 6% | 2% | 2% | 0.92 |
| Adj. Flow (vph) | 0 % | 0 | 286 | 302 | 247 | 318 | 148 | 1150 | 0 /0 | 2 /0 | 1075 | 96 |
| Shared Lane Traffic (%) | U | U | 200 | 11% | 241 | 310 | 140 | 1130 | U | U | 1073 | 90 |
| Lane Group Flow (vph) | 0 | 0 | 286 | 269 | 280 | 318 | 148 | 1150 | 0 | 0 | 1075 | 96 |
| Enter Blocked Intersection | No | No | No | No. | No | No | No | No | No | No | No | No |
| | Left | | | Left | Left | | | | | Left | Left | |
| Lane Alignment Median Width(m) | Leit | Left 3.7 | Right | Leit | 3.7 | Right | Left | Left 3.7 | Right | Leit | 3.7 | Right |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| () | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Two way Left Turn Lane Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| • | 97 | 0.99 | 97 | 24 | 0.99 | 1.01 | 97 | 1.01 | 14 | 24 | 1.03 | 97 |
| Turning Speed (k/h) | 91 | | 1 | 1 | 2 | 14 | 1 | 2 | 14 | 24 | 2 | 1 |
| Number of Detectors | | | | Left | | | | Thru | | | | |
| Detector Template | | | Right 2.0 | 2.0 | Thru 10.0 | Right 2.0 | Left 2.0 | 10.0 | | | Thru 10.0 | Right |
| Leading Detector (m) | | | 0.0 | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | | 0.0 | | 0.0 | 0.0 | | | | | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |

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<2028 Future Total>PM

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| _ | - | • 🔻 | • | • | _ | 1 | T | _ | - | ¥ | * |
|--------------------------------------|-------------|-------------|------------|------------|-----------|-------|-------|-----|-----|-------|-------|
| Lane Group E | BL EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | . 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | 22.1 | 22.0 | 22.0 | 22.0 | 67.5 | 65.7 | | | 39.1 | 39.1 |
| Actuated g/C Ratio | | 0.22 | 0.22 | 0.22 | 0.22 | 0.68 | 0.66 | | | 0.39 | 0.39 |
| v/c Ratio | | 0.78 | 0.70 | 0.70 | 0.77 | 0.27 | 0.50 | | | 0.55 | 0.15 |
| Control Delay | | 51.1 | 45.4 | 44.8 | 38.4 | 8.2 | 10.6 | | | 30.0 | 14.0 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 51.1 | 45.4 | 44.8 | 38.4 | 8.2 | 10.6 | | | 30.0 | 14.0 |
| LOS | | D | D | D | D | Α | В | | | С | В |
| Approach Delay | 51.1 | | | 42.6 | | | 10.3 | | | 28.7 | |
| Approach LOS | 0 |) | | D | | | В | | | С | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to pha- | se 2:NBTL a | and 6:SBT, | Start of C | Green | | | | | | | |
| Natural Cycle: 70 | | | | | | | | | | | |
| Control Type: Actuated-Coordinate | ed | | | | | | | | | | |
| Maximum v/c Ratio: 0.78 | | | | | | | | | | | |
| Intersection Signal Delay: 27.2 | | | li li | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utilization 63 | 3.1% | | Į(| CU Level | of Servic | е В | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Splits and Phases: 9: Liverpool | Road & Wa | Inut Lane/H | lwv 401 \ | NB Off-Ra | amp | | | | | | |
| 4 | | | , | | - | 49 | Ø8 | | | | - 9 |
| Ø2 (R) | | | | | | 7 | Ø8 | | | | |
| 4 | - | - 4 | | | | 30 8 | 2 | | | | |
| 1 Ø5 | | ▼ Ø6 (I | ٦) | | | | | | | | |
| 33 s | | 31 s | | | | | | | | | |



Queues

<2028 Future Total>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | 1 | • | * | 4 | † | ↓ | 4 | |
|------------------------|------|------|-------|-------|------|----------|-------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 286 | 269 | 280 | 318 | 148 | 1150 | 1075 | 96 | |
| v/c Ratio | 0.78 | 0.70 | 0.70 | 0.77 | 0.27 | 0.50 | 0.55 | 0.15 | |
| Control Delay | 51.1 | 45.4 | 44.8 | 38.4 | 8.2 | 10.6 | 30.0 | 14.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.1 | 45.4 | 44.8 | 38.4 | 8.2 | 10.6 | 30.0 | 14.0 | |
| Queue Length 50th (m) | 52.3 | 51.1 | 53.1 | 43.2 | 8.9 | 53.1 | 51.9 | 1.4 | |
| Queue Length 95th (m) | 74.8 | 71.1 | 73.2 | 66.2 | 20.2 | 86.8 | #85.9 | m9.0 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 544 | 533 | 643 | 2321 | 1943 | 647 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.60 | 0.52 | 0.51 | 0.60 | 0.23 | 0.50 | 0.55 | 0.15 | |

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Total>PM 12-20-2024

| | ۶ | - | ← | • | - | 4 | |
|----------------------------|-------|----------|-------------|----------|-------|----------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | * | ^ | † 1> | | * | 7 | |
| Traffic Volume (vph) | 205 | 1650 | 778 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1650 | 778 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | 0.0 | 6% | 0% | 0 | 0% | | |
| Storage Length (m) | 75.0 | 0,0 | 0,0 | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | • | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | | 1.00 | | | 0.99 | |
| Frt | | | 0.967 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1618 | 3433 | 3349 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1617 | 3433 | 3349 | 0 | 1805 | 1751 | |
| Right Turn on Red | | 0.00 | 00.0 | Yes | .000 | Yes | |
| Satd. Flow (RTOR) | | | 38 | | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 223 | 1793 | 846 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 223 | 1793 | 1088 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | J | 3.6 | J | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | JX | 5 LX | J X | | J X | JX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | 9.4 | | 0.0 | 0.0 | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| DO100101 & 0120(111) | | 0.0 | 0.0 | | | | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2028 Future Total>PM 12-20-2024

| | • | - | • | • | - | 4 | |
|---------------------------|-------|-------|-------|-----|-------|-------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Detector 2 Type | | CI+Ex | Cl+Ex | | | | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 |
| Permitted Phases | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | | None | None | None |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | |
| v/c Ratio | 0.92 | 0.79 | 0.63 | | 0.83 | 0.32 | |
| Control Delay | 49.8 | 40.7 | 10.0 | | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 49.8 | 40.7 | 10.0 | | 69.5 | 8.0 | |
| LOS | D | D | Α | | Е | Α | |
| Approach Delay | | 41.7 | 10.0 | | 48.9 | | |
| Approach LOS | | D | Α | | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | |

Actuated Cycle Length: 130
Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 32.9
Intersection Capacity Utilization 72.6%
ICU Level
Analysis Period (min) 15 Intersection LOS: C
ICU Level of Service C

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2028 Future Total>PM 12-20-2024

| | • | - | • | - | 4 | | | |
|---|-------|--------|-------|-------|------|--|--|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | | | |
| Lane Group Flow (vph) | 223 | 1793 | 1088 | 295 | 149 | | | |
| v/c Ratio | 0.92 | 0.79 | 0.63 | 0.83 | 0.32 | | | |
| Control Delay | 49.8 | 40.7 | 10.0 | 69.5 | 8.0 | | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Total Delay | 49.8 | 40.7 | 10.0 | 69.5 | 8.0 | | | |
| Queue Length 50th (m) | 50.8 | 256.5 | 28.2 | 72.7 | 0.0 | | | |
| Queue Length 95th (m) | m50.6 | m249.0 | 34.5 | 101.2 | 16.7 | | | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | | | |
| Base Capacity (vph) | 248 | 2270 | 1725 | 426 | 527 | | | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | |
| Reduced v/c Ratio | 0.90 | 0.79 | 0.63 | 0.69 | 0.28 | | | |
| Intersection Summary | | | | | | | | |
| Volume for 95th percentile queue is metered by upstream signal. | | | | | | | | |

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<2028 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | ← | 4 | - |
|--|-------------|---------------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | ኘ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 1708 | 23 | 184 | 730 | 662 | 144 |
| Future Volume (vph) | 1708 | 23 | 184 | 730 | 662 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | 2.1 | 0% | 0% | 0.7 |
| Storage Length (m) | 0,0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | - 3 | 22.3 | | 2.5 | ' |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Flt Protected | 0.330 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Fit Permitted | 3311 | U | 0.950 | 3010 | 0.950 | 1017 |
| | 2577 | 0 | | 2610 | | 1504 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | 4 | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | 00 | 50 | 121 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1857 | 25 | 200 | 793 | 720 | 157 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1882 | 0 | 200 | 793 | 720 | 157 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Type Detector 1 Channel | CITEX | | CITEX | OITEX | CITEX | OITEX |
| Detector 1 Channel Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| \ / | | | | | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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<2028 Future Total>PM 12-20-2024

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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | > | - | 4 | ~ | | |
|---|--------------|---------------|-------------|----------|------------|-------------|--|
| Lane Group | EBT | EBR WBI | . WBT | NBL | NBR | | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | 0.0 | | | | |
| Turn Type | NA | Pro | | Prot | Perm | | |
| Protected Phases | 2 | 110 | | 8 | 1 01111 | | |
| Permitted Phases | | | | Ū | 8 | | |
| Detector Phase | 2 | | 1 6 | 8 | 8 | | |
| Switch Phase | | | | Ū | | | |
| Minimum Initial (s) | 20.0 | 5.0 | 20.0 | 8.0 | 8.0 | | |
| Minimum Split (s) | 50.0 | 10.0 | | 38.0 | 38.0 | | |
| Total Split (s) | 71.0 | 21.0 | | 38.0 | 38.0 | | |
| Total Split (%) | 54.6% | 16.2% | | 29.2% | 29.2% | | |
| Maximum Green (s) | 63.8 | 16.0 | | 31.3 | 31.3 | | |
| Yellow Time (s) | 4.2 | 3.0 | | 3.7 | 3.7 | | |
| All-Red Time (s) | 3.0 | 2.0 | | 3.0 | 3.0 | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 7.2 | 5.0 | | 6.7 | 6.7 | | |
| Lead/Lag | | 5.0 Lead | | 0.7 | 0.7 | | |
| Lead/Lag Lead-Lag Optimize? | Lag | Lead | | | | | |
| Vehicle Extension (s) | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | | |
| Recall Mode | C-Max | None | | None | None | | |
| | | None | | | 7.0 | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | | | |
| Flash Dont Walk (s) | 35.0 | | 35.0 | 24.0 | 24.0 | | |
| Pedestrian Calls (#/hr) | 0 | 40.0 | 0 | 14 | 14 | | |
| Act Effct Green (s) | 65.4 | 16.0 | | 29.7 | 29.7 | | |
| Actuated g/C Ratio | 0.50 | 0.12 | | 0.23 | 0.23 | | |
| v/c Ratio | 1.05 | 1.03 | | 0.89 | 0.34 | | |
| Control Delay | 70.0 | 128.4 | | 62.5 | 13.7 | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 70.0 | 128.4 | | 62.5 | 13.7 | | |
| LOS | E | F | | E | В | | |
| Approach Delay | 70.0 | | 27.3 | 53.8 | | | |
| Approach LOS | Е | | С | D | | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | |
| Offset: 69 (53%), Reference | ced to phase | 2:EBT and 6:W | BT, Start o | Green | | | |
| Natural Cycle: 130 | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | |
| Intersection Signal Delay: 54.9 Intersection LOS: D | | | | | | | |
| Intersection Capacity Utiliz | ation 93.4% | | ŀ | CU Level | of Service | F | |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 11: h | Hwy 401 WB | Ramps & Kings | ton Road | | | | |
| _ | 888 886 | , | | | | 1 | |
| ▼ Ø1 | ₱Ø2 (R) | | | | | | |
| + | | | | | | * | |
| Ø6 (R) | | | | | | √ Ø8 | |

Queues 11: Hwy 401 WB Ramps & Kingston Road <2028 Future Total>PM 12-20-2024 Lanes, Volumes, Timings 12: Plaza Entrance/Delta Blvd & Kingston Road <2028 Future Total>PM 12-20-2024

| | - | • | — | 1 | / |
|------------------------|--------|--------|----------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1882 | 200 | 793 | 720 | 157 |
| v/c Ratio | 1.05 | 1.03 | 0.33 | 0.89 | 0.34 |
| Control Delay | 70.0 | 128.4 | 1.8 | 62.5 | 13.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 70.0 | 128.4 | 1.8 | 62.5 | 13.7 |
| Queue Length 50th (m) | ~289.6 | ~47.9 | 6.4 | 91.1 | 7.2 |
| Queue Length 95th (m) | #332.6 | #101.1 | 6.1 | #114.7 | 25.4 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1799 | 194 | 2404 | 853 | 474 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.05 | 1.03 | 0.33 | 0.84 | 0.33 |

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|----------------------------|-------|------------|-------|-------|------------|-------|-------|-------|-------|----------|--------------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | Ţ | ↑ ↑ | | ř | ↑ ↑ | | ř | ĵ» | | ň | ĥ | |
| Traffic Volume (vph) | 130 | 1579 | 38 | 89 | 1189 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1579 | 38 | 89 | 1189 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.986 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3399 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1647 | 3343 | 0 | 1704 | 3399 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 13 | | | 128 | | | 147 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1716 | 41 | 97 | 1292 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1757 | 0 | 97 | 1424 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2028 Future Total>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | → | \rightarrow | • | ← | • | | † | 1 | - | ļ | 4 |
|-------------------------|-------|----------|---------------|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | | 10.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.92 | | 0.93 | 0.77 | | 0.93 | 0.36 | | 0.39 | 0.41 | |
| Control Delay | 82.2 | 23.0 | | 123.7 | 20.8 | | 93.7 | 14.6 | | 50.3 | 12.9 | |
| Queue Delay | 0.0 | 1.6 | | 0.0 | 0.0 | | 0.0 | 76.9 | | 172.1 | 0.0 | |
| Total Delay | 82.2 | 24.6 | | 123.7 | 20.8 | | 93.7 | 91.5 | | 222.4 | 12.9 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 28.9 | | | 27.4 | | | 92.8 | | | 85.1 | |
| Approach LOS | | С | | | С | | | F | | | F | |

| Intersection Summary | | | | | | | | | |
|---|--|-----------------|------|--|--|--|--|--|--|
| Area Type: | Other | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | |
| Actuated Cycle Leng | Actuated Cycle Length: 130 | | | | | | | | |
| Offset: 6 (5%), Referenced to phase 2:EBT and 6:WBT, Start of Green | | | | | | | | | |
| Natural Cycle: 110 | | | | | | | | | |
| Control Type: Actuat | ed-Coordinated | | | | | | | | |
| Maximum v/c Ratio: | 0.93 | | | | | | | | |
| Intersection Signal D | elay: 37.9 | Intersection LO | S: D | | | | | | |
| Intersection Capacity | Intersection Capacity Utilization 97.4% ICU Level of Service F | | | | | | | | |
| Analysis Period (min) 15 | | | | | | | | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2028 Future Total>PM

12: Plaza Entrance/Delta Blvd & Kingston Road

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|--|-------|--------|--------|-------|-------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1757 | 97 | 1424 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.92 | 0.93 | 0.77 | 0.93 | 0.36 | 0.39 | 0.41 | |
| Control Delay | 82.2 | 23.0 | 123.7 | 20.8 | 93.7 | 14.6 | 50.3 | 12.9 | |
| Queue Delay | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 76.9 | 172.1 | 0.0 | |
| Total Delay | 82.2 | 24.6 | 123.7 | 20.8 | 93.7 | 91.5 | 222.4 | 12.9 | |
| Queue Length 50th (m) | 36.7 | 137.9 | 26.3 | 75.6 | 54.0 | 7.9 | 19.7 | 4.6 | |
| Queue Length 95th (m) | m39.0 | m138.3 | m#47.5 | 103.1 | #99.2 | 27.1 | 36.4 | 24.3 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1843 | 243 | 480 | 240 | 422 | |
| Starvation Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 62 | 0 | 0 | 0 | 374 | 228 | 0 | |
| Storage Cap Reductn Reduced v/c Ratio | 0 03 | 0.05 | 0 03 | 0 77 | 0 | 1 57 | 7.42 | 0.40 | |
| Reduced V/C Ratio | 0.93 | 0.95 | 0.93 | 0.77 | 0.88 | 1.57 | 1.42 | 0.40 | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Modume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Total>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|------------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ ^ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1638 | 3400 | 1549 | 1719 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 162 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 1023 | 389 | 273 | 829 | 535 | 248 | 743 | 728 | 208 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 273 | 829 | 535 | 248 | 743 | 728 | 208 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | 2.0 | 9.4 | | | 9.4 | 2.0 | 2.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Total>PM 12-20-2024

| | • | - | • | • | • | • | 4 | † | - | - | ţ | 4 |
|-------------------------------|-------------|------------|---------|-------------|------------|------------------|---------------|----------|--------|--------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | Cl+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | 2000 | | | 2000 | 9 | 9 | 2000 | | | | 9 | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 110110 | 110110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 37.5 | 37.5 | 23.5 | 48.0 | 48.0 | 51.0 | 40.6 | 67.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.18 | 0.37 | 0.37 | 0.39 | 0.31 | 0.52 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 1.04 | 0.69 | 0.88 | 0.63 | 0.84 | 0.88 | 0.45 | 0.90 | 0.82 | 0.42 | 0.32 |
| Control Delay | 127.6 | 85.3 | 31.1 | 86.3 | 25.7 | 26.4 | 63.3 | 36.9 | 38.4 | 57.3 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 95.5 | 31.1 | 86.3 | 25.7 | 26.4 | 63.3 | 36.9 | 38.4 | 57.3 | 36.4 | 5.8 |
| LOS | 127.0 | 55.5 F | C | F | C | 20. 4 | 00.0 | D | D.4 | 57.5 | D | Δ. |
| Approach Delay | | 83.1 | U | | 36.0 | U | | 41.3 | D | | 34.7 | r |
| Approach LOS | | 65.1 | | | D | | | T1.0 | | | C | |
| •• | | • | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | 2:EBT a | nd 6:WB | T, Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | rdinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | 9.7 | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliza | tion 110.2° | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: W | hites Road | I & Kingst | on Road | | | | | | | | | |
| Nø1 | - | Ø2 (R) | | | | 1 | 03 1 0 | 04 | | | | |

Queues

<2028 Future Total>PM 12-20-2024

13: Whites Road & Kingston Road

| | • | - | • | • | ← | • | 4 | † | 1 | \ | ↓ | 1 |
|------------------------|-------|--------|-------|--------|----------|---------|-------|----------|--------|----------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 1023 | 389 | 273 | 829 | 535 | 248 | 743 | 728 | 208 | 671 | 202 |
| v/c Ratio | 1.00 | 1.04 | 0.69 | 0.88 | 0.63 | 0.84 | 0.88 | 0.45 | 0.90 | 0.82 | 0.42 | 0.32 |
| Control Delay | 127.6 | 85.3 | 31.1 | 86.3 | 25.7 | 26.4 | 63.3 | 36.9 | 38.4 | 57.3 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 10.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 95.5 | 31.1 | 86.3 | 25.7 | 26.4 | 63.3 | 36.9 | 38.4 | 57.3 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | ~154.6 | 53.6 | 66.2 | 53.0 | 41.9 | 42.7 | 55.8 | 129.1 | 34.9 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #195.8 | 91.1 | m#96.1 | m81.0 n | n#134.2 | #83.4 | 68.3 | #207.2 | #67.7 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 981 | 562 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1.00 1.07 0.69 0.82 0.63 0.84 0.88 0.45 0.88 0.82 0.42

Reduced v/c Ratio

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2028 Future Total>PM 12-20-2024

| | • | • | ~ | † | ţ | 4 |
|----------------------------|-------|-------|----------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ኝነሃ | 7 | | ^ | 44 | |
| Traffic Volume (vph) | 1194 | 589 | 0 | 845 | 560 | 0 |
| Future Volume (vph) | 1194 | 589 | 0 | 845 | 560 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | | | 0.0 |
| Storage Lanes | 2 | 1 | 0 | | | 0 |
| Taper Length (m) | 2.5 | | 2.5 | | | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.00 | 0.00 | |
| Frt | 0.993 | 0.850 | | | | |
| Fit Protected | 0.955 | 0.000 | | | | |
| Satd. Flow (prot) | 3453 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.955 | 1721 | J | 0000 | 0010 | J |
| Satd. Flow (perm) | 3453 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | 3433 | Yes | U | 3333 | 3010 | Yes |
| Satd. Flow (RTOR) | 7 | 123 | | | | 168 |
| | 50 | 123 | | 60 | 60 | |
| Link Speed (k/h) | 295.9 | | | 185.9 | 316.9 | |
| Link Distance (m) | 295.9 | | | 11.2 | 19.0 | |
| Travel Time (s) | 21.3 | 3 | 4 | 11.2 | 19.0 | 4 |
| Confl. Peds. (#/hr) | 0.00 | 0.92 | 0.92 | 0.00 | 0.00 | 0.92 |
| Peak Hour Factor | 0.92 | | | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1298 | 640 | 0 | 918 | 609 | 0 |
| Shared Lane Traffic (%) | 4000 | 10% | _ | 040 | 000 | • |
| Lane Group Flow (vph) | 1362 | 576 | 0 | 918 | 609 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | Cl+Ex | Cl+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 2.0 | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | JI.LX | JI-LX | |
| Detector & Originities | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 34

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

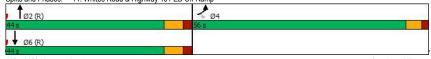
m Volume for 95th percentile queue is metered by upstream signal.

<2028 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

*** - - + 1 2**

| | | * | 7 | - 1 | + | * | |
|---|-------------|-------------|------------|-------------|--------------|--------------|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | | |
| Turn Type | Prot | Perm | | NA | NA | | |
| Protected Phases | 4 | | | 2 | 6 | | |
| Permitted Phases | | 4 | | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | 2.0 | 2.0 | | 0.0 | 0.0 | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 C-Max | | |
| Recall Mode | None 7.0 | None | | C-Max | C-Max 7.0 | | |
| Walk Time (s) Flash Dont Walk (s) | 16.0 | 7.0 16.0 | | 7.0 14.0 | 14.0 | | |
| | | 0.0 | | 14.0 | 14.0 | | |
| Pedestrian Calls (#/hr) Act Effct Green (s) | 47.0 | 47.0 | | 40.8 | 40.8 | | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | | |
| v/c Ratio | 0.47 | 0.47 | | 0.41 | 0.41 | | |
| Control Delay | 28.3 | 26.2 | | 26.9 | 22.8 | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 28.3 | 26.2 | | 26.9 | 22.8 | | |
| LOS | 20.3 C | 20.2 C | | 20.9 C | 22.0 C | | |
| Approach Delay | 27.6 | - 0 | | 26.9 | 22.8 | | |
| Approach LOS | C C | | | 20.5 C | C | | |
| ** | | | | | | | |
| Intersection Summary | 011 | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 100 | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | |
| Offset: 8 (8%), Referenced | to phase 2 | :NB1 and | 6:SBT, S | start of G | reen | | |
| Natural Cycle: 60 | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | |
| Maximum v/c Ratio: 0.84 | 00.0 | | | | | 100.0 | |
| Intersection Signal Delay: 2 | | | | | ntersection | | |
| Intersection Capacity Utiliza | ation /3.8% | | | I | LU Level (| of Service D | |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 14: W | /hiton Dood | I & Lliabur | 101 E | Off Dor | mn | | |
| Opino and Phases. 14: W | /hites Road | α ΠIGHW | ay 40 i Et | o oli Kar | iib | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2028 Future Total>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1362 | 576 | 918 | 609 |
| v/c Ratio | 0.84 | 0.80 | 0.64 | 0.41 |
| Control Delay | 28.3 | 26.2 | 26.9 | 22.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 28.3 | 26.2 | 26.9 | 22.8 |
| Queue Length 50th (m) | 111.2 | 78.5 | 75.0 | 44.3 |
| Queue Length 95th (m) | 132.8 | 125.0 | 99.8 | 61.4 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1747 | 769 | 1444 | 1476 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.78 | 0.75 | 0.64 | 0.41 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 Lanes, Volumes, Timings

<2028 Future Total>PM 12-20-2024

15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | <i>></i> | / | ļ |
|----------------------------|-------|-------|----------|-------------|----------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | f | | | 4 |
| Traffic Volume (vph) | 0 | 237 | 0 | 0 | 221 | 0 |
| Future Volume (vph) | 0 | 237 | 0 | 0 | 221 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 258 | 0 | 0 | 240 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 258 | 0 | 0 | 0 | 0 | 240 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | Ť | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 34.7%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2028 Future Total>PM 12-20-2024

| | • | • | † | / | / | ↓ |
|------------------------------|----------|------|-------|------|----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | î, | | | ર્ન |
| Traffic Volume (veh/h) | 0 | 237 | 0 | 0 | 221 | 0 |
| Future Volume (Veh/h) | 0 | 237 | 0 | 0 | 221 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 258 | 0 | 0 | 240 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 492 | 23 | | | 12 | |
| vC1, stage 1 conf vol | | | | | ·- | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 492 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 75 | | | 85 | |
| cM capacity (veh/h) | 449 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 258 | 0 | 240 | | | |
| Volume Left | 0 | 0 | 240 | | | |
| Volume Right | 258 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.25 | 0.00 | 0.15 | | | |
| Queue Length 95th (m) | 7.6 | 0.00 | 4.0 | | | |
| Control Delay (s) | 9.7 | 0.0 | 7.7 | | | |
| Lane LOS | 9.7 A | 0.0 | Α. | | | |
| Approach Delay (s) | 9.7 | 0.0 | 7.7 | | | |
| Approach LOS | 9.7 A | 0.0 | 1.1 | | | |
| •• | A | | | | | |
| Intersection Summary | | | 0.5 | | | |
| Average Delay | | | 8.7 | | | |
| Intersection Capacity Utiliz | zation | | 34.7% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |

Synchro 11 Report Page 38 1105-1163 Kingston Road

Lanes, Volumes, Timings 17: Street B

<2028 Future Total>PM 12-20-2024

| | • | • | † | 1 | - | ţ | |
|--------------------------------|------------|-------|----------|-------|---------|------------|---|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | ¥ | | î, | | | ની | |
| Traffic Volume (vph) | 0 | 100 | 53 | 0 | 111 | 9 | |
| Future Volume (vph) | 0 | 100 | 53 | 0 | 111 | 9 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.865 | | | | | | |
| Flt Protected | | | | | | 0.956 | |
| Satd. Flow (prot) | 1629 | 0 | 1883 | 0 | 0 | 1801 | |
| Flt Permitted | | | | | | 0.956 | |
| Satd. Flow (perm) | 1629 | 0 | 1883 | 0 | 0 | 1801 | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 | |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 0 | 109 | 58 | 0 | 121 | 10 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 109 | 0 | 58 | 0 | 0 | 131 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | | |
| Sign Control | Stop | | Stop | | | Stop | |
| Intersection Summary | | | | | | | |
| | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | tion 26.1% | | | IC | U Level | of Service | Α |
| Analysis Period (min) 15 | | | | | | | |
| | | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 39 HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2028 Future Total>PM 12-20-2024

| | € | • | † | ~ | - | ↓ |
|------------------------------|--------|------|----------|------|------------|----------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 100 | 53 | 0 | 111 | 9 |
| Future Volume (vph) | 0 | 100 | 53 | 0 | 111 | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 109 | 58 | 0 | 121 | 10 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 109 | 58 | 131 | | | |
| Volume Left (vph) | 0 | 0 | 121 | | | |
| Volume Right (vph) | 109 | 0 | 0 | | | |
| Hadj (s) | -0.57 | 0.03 | 0.22 | | | |
| Departure Headway (s) | 3.8 | 4.3 | 4.4 | | | |
| Degree Utilization, x | 0.11 | 0.07 | 0.16 | | | |
| Capacity (veh/h) | 910 | 804 | 796 | | | |
| Control Delay (s) | 7.2 | 7.6 | 8.2 | | | |
| Approach Delay (s) | 7.2 | 7.6 | 8.2 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | zation | | 26.1% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

| | ۶ | • | 4 | † | ↓ | 4 | |
|-------------------------------|------------|-------|------|----------|----------|--------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | Y | | | 4 | ₽ | | |
| Traffic Volume (vph) | 85 | 26 | 91 | 450 | 256 | 9 | |
| Future Volume (vph) | 85 | 26 | 91 | 450 | 256 | 9 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.968 | | | | 0.995 | | |
| Flt Protected | 0.963 | | | 0.992 | | | |
| Satd. Flow (prot) | 1756 | 0 | 0 | 1868 | 1874 | 0 | |
| Flt Permitted | 0.963 | | | 0.992 | | | |
| Satd. Flow (perm) | 1756 | 0 | 0 | 1868 | 1874 | 0 | |
| Link Speed (k/h) | 30 | | | 40 | 40 | | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 92 | 28 | 99 | 489 | 278 | 10 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 120 | 0 | 0 | 588 | 288 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 | |
| Sign Control | Stop | | | Free | Free | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utiliza | tion 59.0% | | | IC | CU Level | of Service I | В |
| Analysis Period (min) 15 | | | | | | | |

| | • | • | 1 | - ↑ | ţ | 4 |
|-------------------------------|----------|-----------|-------|------|------------|-----------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | 4 | î, | |
| Traffic Volume (veh/h) | 85 | 26 | 91 | 450 | 256 | 9 |
| Future Volume (Veh/h) | 85 | 26 | 91 | 450 | 256 | 9 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 92 | 28 | 99 | 489 | 278 | 10 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | 114 | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 970 | 283 | 288 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 970 | 283 | 288 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 64 | 96 | 92 | | | |
| cM capacity (veh/h) | 259 | 756 | 1274 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 120 | 588 | 288 | | | |
| Volume Left | 92 | 99 | 288 | | | |
| | 92 28 | | 10 | | | |
| Volume Right cSH | 306 | 0 1274 | 1700 | | | |
| | | | | | | |
| Volume to Capacity | 0.39 | 0.08 | 0.17 | | | |
| Queue Length 95th (m) | 13.7 | | | | | |
| Control Delay (s) | 24.2 | 2.1 | 0.0 | | | |
| Lane LOS | C | A | 0.0 | | | |
| Approach Delay (s) | 24.2 | 2.1 | 0.0 | | | |
| Approach LOS | С | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 4.1 | | | |
| Intersection Capacity Utiliza | ation | | 59.0% | IC | CU Level o | f Service |
| Analysis Period (min) | | | 15 | | | |
| . , | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

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1105-1163 Kingston Road Synchro 11 Report WSP Page 42

Lanes, Volumes, Timings 20: Street A & Walnut Lane <2028 Future Total>PM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 20: Street A & Walnut Lane

<2028 Future Total>PM 12-20-2024

| Configurations Control Stop Stop Stop Stop Stop Stop Stop Stop | | - | * | • | - | 4 | | |
|--|-------------------------------|-------|------|------|------|-------------|---------|---|
| Control Stop Stop Stop Stop C Volume (vph) 118 0 0 307 0 0 0 | Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| c Volume (vph) 118 0 0 307 0 0 e Volume (vph) 118 0 0 307 0 0 Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 y flow rate (vph) 128 0 0 334 0 0 tion, Lane # EB 1 WB 1 NB 1 ne Total (vph) 128 334 0 ne Left (vph) 0 0 0 0 ne Right (vph) 0 0 0 0 ne Right (vph) 0 0 0 0 rture Headway (s) 4.2 4.1 4.9 se Utilization, x 0.15 0.38 0.00 city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 7.9 sach Delay (s) 8 0 9.5 0.0 sach LOS A A A A ection Summary of Service A ICU Level of Service A | Lane Configurations | - 1> | | | ર્ન | Y | | |
| e Volume (vph) 118 0 0 307 0 0 Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 y flow rate (vph) 128 0 0 334 0 0 y flow, tane # EB 1 WB 1 NB 1 ne Total (vph) 128 334 0 ne Left (vph) 0 0 0 0 ne Right (vph) 0 0 0 0 (s) 0.03 0.03 0.03 cls) (s) 0.03 0.03 0.00 rture Headway (s) 4.2 4.1 4.9 se Utilization, x 0.15 0.38 0.00 city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 soach Delay (s) 8.0 9.5 7.9 soach Delay (s) 8.0 9.5 0.0 soach LOS A A A A ection Summary of Service A ICU Level of Service A | Sign Control | Stop | | | Stop | Stop | | |
| Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 y flow rate (vph) 128 0 0 0 334 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Traffic Volume (vph) | 118 | 0 | 0 | 307 | 0 | 0 | |
| y flow rate (vph) 128 0 0 334 0 0 tion, Lane # EB 1 WB 1 NB 1 ne Total (vph) 128 334 0 ne Left (vph) 0 0 0 so o o o o o o o o o o o o o o o o o o | Future Volume (vph) | 118 | 0 | 0 | 307 | 0 | 0 | |
| tion, Lane # EB 1 WB 1 NB 1 ne Total (vph) 128 334 0 ne Left (vph) 0 0 0 0 ne Right (vph) 0 0 0 0 (s) 0.03 0.03 0.00 rture Headway (s) 4.2 4.1 4.9 se Utilization, x 0.15 0.38 0.00 city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 0.0 sach LOS A A A A ection Summary of Service A lCU Level of Service A | Peak Hour Factor | | 0.92 | 0.92 | | 0.92 | 0.92 | |
| ne Total (vph) 128 334 0 ne Left (vph) 0 0 0 0 ne left (vph) 0 0 0 0 ne Right (vph) 0 0 0 ne Right (vph) 0 0 0 0 n | Hourly flow rate (vph) | 128 | 0 | 0 | 334 | 0 | 0 | |
| ne Left (vph) 0 0 0 0 0 ne Right (vph) 0 0 0 0 0 rture Headway (s) 4.2 4.1 4.9 se Utilization, x 0.15 0.38 0.00 city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 7.9 sach LOS A A A A ection Summary of Service ection Capacity Utilization 19.5% ICU Level of Service A | Direction, Lane # | EB 1 | WB 1 | NB 1 | | | | |
| ne Right (vph) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Volume Total (vph) | 128 | 334 | 0 | | | | |
| (s) 0.03 0.03 0.00 rture Headway (s) 4.2 4.1 4.9 eb Utilization, x 0.15 0.38 0.00 city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 0.0 sach LOS A A A A ection Summary of Service ection Capacity Utilization 19.5% ICU Level of Service A | Volume Left (vph) | 0 | 0 | 0 | | | | |
| Atture Headway (s) 4.2 4.1 4.9 Be Utilization, x 0.15 0.38 0.00 City (veh/h) 833 880 675 Col Delay (s) 8.0 9.5 7.9 Boach Delay (s) 8.0 9.5 0.0 Boach LOS A A A A Bection Summary Of Service A B.1 Col Delay (s) 8.0 B.2 B.3 B.4 B.5 B.7 B.1 Col Delay (s) 8.0 B.7 B.7 B.7 B.7 B.7 B.7 B.7 B | Volume Right (vph) | 0 | 0 | 0 | | | | |
| se Utilization, x | Hadj (s) | 0.03 | 0.03 | 0.00 | | | | |
| city (veh/h) 833 880 675 ol Delay (s) 8.0 9.5 7.9 sach Delay (s) 8.0 9.5 0.0 sach LOS A A A ection Summary of Service ection Capacity Utilization 19.5% ICU Level of Service A | Departure Headway (s) | 4.2 | 4.1 | 4.9 | | | | |
| ol Delay (s) 8.0 9.5 7.9 pach Delay (s) 8.0 9.5 0.0 pach LOS A A A A ection Summary of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Degree Utilization, x | 0.15 | 0.38 | 0.00 | | | | |
| back Delay (s) 8.0 9.5 0.0 pack LOS A A A ection Summary 9.1 Of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Capacity (veh/h) | 833 | 880 | 675 | | | | |
| pach LOS A A A ection Summary 9.1 of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Control Delay (s) | 8.0 | 9.5 | 7.9 | | | | |
| ection Summary 9.1 of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Approach Delay (s) | 8.0 | 9.5 | 0.0 | | | | |
| 9.1 of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Approach LOS | Α | Α | Α | | | | |
| of Service A ection Capacity Utilization 19.5% ICU Level of Service A | Intersection Summary | | | | | | | |
| ection Capacity Utilization 19.5% ICU Level of Service A | Delay | | | 9.1 | | | | |
| | Level of Service | | | Α | | | | |
| ais Daried (min) | Intersection Capacity Utiliza | ation | | | IC | CU Level of | Service | Α |
| sis Period (IIIII) | Analysis Period (min) | | | 15 | | | | |

| | - | • | • | • | 1 | | |
|-----------------------------------|-----------|-------|------|-------|---------|--------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | f | | | ર્ની | ¥ | | |
| Traffic Volume (vph) | 118 | 0 | 0 | 307 | 0 | 0 | |
| Future Volume (vph) | 118 | 0 | 0 | 307 | 0 | 0 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | | | | | | |
| Flt Protected | | | | | | | |
| Satd. Flow (prot) | 1883 | 0 | 0 | 1883 | 1883 | 0 | |
| Flt Permitted | | | | | | | |
| Satd. Flow (perm) | 1883 | 0 | 0 | 1883 | 1883 | 0 | |
| Link Speed (k/h) | 40 | | | 40 | 30 | | |
| Link Distance (m) | 121.1 | | | 433.1 | 80.3 | | |
| Travel Time (s) | 10.9 | | | 39.0 | 9.6 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 128 | 0 | 0 | 334 | 0 | 0 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 128 | 0 | 0 | 334 | 0 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | | Stop | Stop | | |
| Intersection Summary | | | | | | | |
| Area Type: C | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilization | ion 19.5% | | | IC | U Level | of Service A | ٩ |
| Analysis Period (min) 15 | | | | | | | |

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Lanes, Volumes, Timings

<2028 Future Total>PM 12-20-2024

21: Building Driveways & Street A

| | • | - | • | • | • | • | 1 | † | ~ | - | ţ | 4 |
|----------------------------|------|-------|-------|------|------|-------|------|----------|-------|------|------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | | | | | | | |
| Flt Protected | | | | | | | | | | | | |
| Satd. Flow (prot) | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 |
| Flt Permitted | | | | | | | | | | | | |
| Satd. Flow (perm) | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 | 0 | 1883 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 97 | | 97 | 97 | | 97 | 97 | | 97 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 0.0%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2028 Future Total>PM 12-20-2024

| | ٠ | → | \rightarrow | • | ← | • | 4 | † | <i>></i> | \ | ļ | 4 |
|-------------------------------|-------|----------|---------------|------|----------|------------|------|----------|-------------|----------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Volume Left (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Volume Right (vph) | 0 | 0 | 0 | 0 | | | | | | | | |
| Hadj (s) | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | |
| Departure Headway (s) | 3.9 | 3.9 | 3.9 | 3.9 | | | | | | | | |
| Degree Utilization, x | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | |
| Capacity (veh/h) | 917 | 917 | 917 | 917 | | | | | | | | |
| Control Delay (s) | 6.9 | 6.9 | 6.9 | 6.9 | | | | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | | | | | | | | |
| Approach LOS | Α | Α | Α | Α | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 0.0 | | | | | | | | | |
| Level of Service | | | Α | | | | | | | | | |
| Intersection Capacity Utiliza | ation | | 0.0% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| | | | | | | | | | | | | |

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Total_PHF>PM 12-20-2024

| | ᄼ | → | • | • | — | • | • | † | / | / | ţ | 1 |
|----------------------------|-------|-------------|-------|-------|-------------|-------|-------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1> | | ሻ | † 1> | | ሻ | | 7 | ሻ | f. | |
| Traffic Volume (vph) | 38 | 1449 | 270 | 128 | 646 | 43 | 307 | 0 | 337 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1449 | 270 | 128 | 646 | 43 | 307 | 0 | 337 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.976 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3444 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1710 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.730 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3444 | 0 | 1682 | 3505 | 0 | 1317 | 0 | 1603 | 1713 | 1710 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 25 | | | 9 | | | | 98 | | 26 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 38 | 1449 | 270 | 128 | 646 | 43 | 307 | 0 | 337 | 24 | 16 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 1719 | 0 | 128 | 689 | 0 | 307 | 0 | 337 | 24 | 42 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | _ | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2028 Future Total_PHF>PM 12-20-2024

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|------------------------------|-------------|------------|---------------|------------|-------------|------------|-------|------|-------|-------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 69.4 | | 10.0 | 76.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.04 | 0.53 | | 0.08 | 0.59 | | 0.24 | | 0.24 | 0.24 | 0.24 | |
| v/c Ratio | 0.59 | 0.93 | | 0.99 | 0.33 | | 0.98 | | 0.74 | 0.06 | 0.10 | |
| Control Delay | 79.7 | 32.6 | | 150.1 | 5.2 | | 94.8 | | 42.9 | 38.9 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 79.7 | 32.6 | | 150.1 | 5.2 | | 94.8 | | 42.9 | 38.9 | 20.5 | |
| LOS | Е | С | | F | Α | | F | | D | D | С | |
| Approach Delay | | 33.6 | | | 27.9 | | | 67.7 | | | 27.2 | |
| Approach LOS | | С | | | С | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | 2:EBT ar | nd 6:WBT | , Start of | Green | | | | | | | |
| Natural Cycle: 105 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliz | ation 96.1% | | | I | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: W | alnut Lane | & Kingston | Road | | | | | | | | | |
| √ø1 →ø2(i | R) | | | | | | | 1 | Ø4 | | | |
| 15 s 76 s | | | | | | | | 39 s | | | | |
| ∮ ← | | | | | | | | 46.5 | | | | |
| Ø5 Ø6 (R) | | | | | | | | 30.0 | Ø8 | | | |
| 10 5 01 5 | | | | | | | | 398 | | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total_PHF>PM 12-20-2024

| | ၨ | → | • | • | ← | • | 4 | † | <i>></i> | > | ļ | 1 |
|------------------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|-------------|--------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | 44 | 7 |
| Traffic Volume (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Future Volume (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.375 | | | 0.213 | | |
| Satd. Flow (perm) | 1666 | 3461 | 1512 | 1710 | 3579 | 1517 | 698 | 3773 | 1564 | 447 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 121 | | | 160 | | | 178 | | | 143 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 252 | 1061 | 389 | 223 | 545 | 67 | 155 | 768 | 232 | 95 | 529 | 117 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.00 | 4.04 | 0.00 | 4.00 | 0.07 | 0.00 | 0.07 | 0.00 | Yes | 4.04 |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | ^ | 14 | 24 | ^ | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 0.0 | 10.0 | 2.0 |
| Trailing Detector (m) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type Detector 1 Channel | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Position(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | U.b CI+Ex | |
| Detector 2 Type | | CITEX | | | OI+EX | | | OI+EX | | | CITEX | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 3

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2028 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 1 | Ť | ~ | - | ¥ | 4 |
|------------------------------|-----------------|----------------|------------|-------------|------------|-------------|----------------|-----------|-----------|-----------|-----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lac |
| Lead-Lag Optimize? | Leau | Lay | Leau | Leau | Lay | Lay | Leau | Lay | Lay | Leau | Lay | Lay |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | NONE | 7.0 | NOHE | NONE | 7.0 | 7.0 | INOTIC | 7.0 | 7.0 | INOTIC | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 21.0 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 23.8 | 40.3 | 49.4 | 19.6 | 36.1 | 36.1 | 52.0 | 40.9 | 40.3 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.18 | 0.31 | 0.38 | 0.15 | 0.28 | 0.28 | 0.40 | 0.31 | 0.31 | 0.40 | 0.31 | 0.31 |
| | 0.16 | 0.99 | 0.60 | 0.15 | 0.26 | 0.20 | 0.40 | 0.65 | | 0.40 | 0.46 | 0.31 |
| v/c Ratio Control Delay | 50.0 | 54.4 | 25.3 | 82.5 | 43.5 | 0.12 | 31.2 | 41.4 | 0.38 | 28.3 | 37.3 | 3.6 |
| • | | | | | | | | | | | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay LOS | 50.0 D | 54.4 D | 25.3 C | 82.5 F | 43.5 D | 0.5 A | 31.2 C | 41.4 D | 11.4 B | 28.3 C | 37.3 D | 3.6 A |
| | U | 47.1 | C | г | 50.5 | А | C | 34.0 | В | C | 30.8 | А |
| Approach Delay | | | | | | | | | | | | |
| Approach LOS | | D | | | D | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 53 (41%), Referen | ced to phase | e 2:EBT a | ind 6:WB | T, Start of | f Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | | | | | | | | | | | | |
| Intersection Signal Delay: | 41.6 | | | l | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | zation 104.6 | % | | I | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Li | versed Dec | d 0 Vina | oton Door | | | | | | | | | |
| • | verpool Roa | | Stori Road | 1 | | 14 | -A- | | | | | |
| √ Ø1 26 s | - 102 (46 s | R) | | | | \$ ∅ | 3 ▼ Ø4 | | | | | |
| * | 10.3 | 4 * | | | | 1 | ≪ ↑ | | | | _ | |
| Ø5 | | Ø6 (F | () | | | 8 8 | 7 Ø8 | | | | | |
| WSP | | | | | | 99 | 500 | | | | ′ | Page 4 |
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<2028 Future Total_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | 1 |
|----------------------------|------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ Ъ | LUI | 7 | † | ሻሻ | 7 |
| Traffic Volume (vph) | 1708 | 23 | 184 | 730 | 662 | 144 |
| Future Volume (vph) | 1708 | 23 | 184 | 730 | 662 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | 2.1 | 0% | 0% | 5.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | - 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.95 | 0.90 | 1.00 | 0.93 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| • • • | 0.998 | | 0.050 | | 0.050 | 0.000 |
| Fit Protected | 2577 | 0 | 0.950 | 2040 | 0.950 | 1017 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | 0577 | • | 0.950 | 0040 | 0.950 | 4501 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 121 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1708 | 23 | 184 | 730 | 662 | 144 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1731 | 0 | 184 | 730 | 662 | 144 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | Ť |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 14 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.6 | | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector 1 Size(m) | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Type | UI+EX | | UI+EX | OI+EX | UI+EX | OI+EX |
| Detector 1 Channel | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5

<2028 Future Total_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | → | \rightarrow | • | ← | 4 | ~ | |
|----------------------------|-----------------|---------------|---------|-------------|------------|------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | 1 0/111 | |
| Permitted Phases | | | | U | U | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | _ | | | Ŭ | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | 1.2 | 0.7 | 0.1 | |
| Lead-Lag Optimize? | Lag | | LCau | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | 140110 | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.6 | | 16.0 | 87.6 | 28.5 | 28.5 | |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| v/c Ratio | 0.95 | | 0.12 | 0.30 | 0.85 | 0.22 | |
| Control Delay | 47.0 | | 111.8 | 1.6 | 59.9 | 12.0 | |
| Queue Delay | 0.4 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 47.4 | | 111.8 | 1.6 | 59.9 | 12.0 | |
| LOS | 47.4 D | | F | Α | 55.5 E | 12.0 B | |
| Approach Delay | 47.4 | | - ' | 23.8 | 51.3 | U | |
| Approach LOS | 47.4 D | | | 23.0 C | J1.5 | | |
| Approacti LOS | U | | | C | U | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 1 | 130 | | | | | | |
| Offset: 69 (53%), Referen | nced to phase 2 | 2:EBT an | nd 6:WB | T, Start of | Green | | |
| Natural Cycle: 120 | · | | | | | | |
| Control Type: Actuated-C | Coordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | |
| Intersection Signal Delay | r: 42.1 | | | İr | ntersectio | n LOS: D | |
| Intersection Capacity Util | | | | I | CU Level | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| , , , , , , | | | | | | | |
| Splits and Phases: 11: | : Hwy 401 WB I | Ramps & | Kingsto | n Road | | | |
| | • | | J | | | | |
| √ Ø1 | Ø2 (R) | | | | | | |
| 21 s 71 | 1 s | | | | | | |
| ← | | | | | | | |
| Ø6 (R) | | | | | | | |
| WSP | | | | | | | |
| Wor | | | | | | | |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Total_PHF>PM 12-20-2024

| | ۶ | → | \rightarrow | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|--------------------------------------|-------|----------|---------------|-------|----------|----------|-------|----------|-------------|-------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ^ | 7 | Ť | ^ | 7 | , T | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Future Volume (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | 0.00 | .022 | 0.950 | 00.0 | 1001 | 0.363 | 0200 | 1000 | 0.323 | 0.00 | 1021 |
| Satd. Flow (perm) | 1634 | 3400 | 1549 | 1717 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | 1001 | 0100 | Yes | ., ., | 0010 | Yes | 000 | 0200 | Yes | 002 | 0100 | Yes |
| Satd. Flow (RTOR) | | | 178 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | 110 | | 60 | 1-11 | | 60 | 00 | | 60 | 100 |
| Link Opeca (km) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | 17.5 | 31 | 31 | 10.4 | 75 | 37 | 3.0 | 65 | 65 | 20.1 | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1.00 | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 /0 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Shared Lane Traffic (%) | 100 | 341 | 330 | 201 | 103 | 432 | 220 | 004 | 070 | 191 | 017 | 100 |
| Lane Group Flow (vph) | 155 | 941 | 358 | 251 | 763 | 492 | 228 | 684 | 670 | 191 | 617 | 186 |
| Enter Blocked Intersection | No | No. | No | No | No | No No | No. | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 3.5 | Rigit | Leit | 3.5 | Rigiit | Leit | 3.5 | Rigiil | Leit | 3.5 | Rigiil |
| | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Two way Left Turn Lane | 4.00 | 4.04 | 0.00 | 4.04 | 0.00 | 0.04 | 4.04 | 0.00 | 4.00 | 4.04 | 0.00 | 0.00 |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | _ | 14 | 24 | _ | 14 | 24 | _ | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2028 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | • | • | 1 | † | / | - | ↓ | 1 |
|--|-------------|---------|----------|------------|------------|------------|---------------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 38.3 | 38.3 | 22.7 | 48.0 | 48.0 | 51.0 | 40.6 | 66.7 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.29 | 0.29 | 0.17 | 0.37 | 0.37 | 0.39 | 0.31 | 0.51 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.92 | 0.94 | 0.62 | 0.83 | 0.58 | 0.76 | 0.75 | 0.42 | 0.83 | 0.70 | 0.39 | 0.30 |
| Control Delay | 109.5 | 62.4 | 25.0 | 83.8 | 24.8 | 20.7 | 47.4 | 36.3 | 32.0 | 44.1 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 65.6 | 25.0 | 83.8 | 24.8 | 20.7 | 47.4 | 36.3 | 32.0 | 44.1 | 35.8 | 5.8 |
| LOS | F | E | С | F | С | С | D | D | С | D | D | Α |
| Approach Delay | | 60.3 | | | 33.3 | | | 36.1 | | | 31.8 | |
| Approach LOS | | Е | | | С | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | 2:EBT a | nd 6:WB | , Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | 10.0 | | | | | | | | | | | |
| Intersection Signal Delay: | | 21 | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz Analysis Period (min) 15 | ation 110.2 | % | | I(| CU Level | of Service | e H | | | | | |
| , , , | | | | | | | | | | | | |
| Splits and Phases: 13: V | Vhites Road | & Kings | ton Road | | | | | | | | | |
| €Fø1 | ↓ → | Ø2 (R) | | | | 1 | 33 ₽ Ø | 4 | | | | |
| 30 s | 43 s | | | | | 8 s | 49 s | | | | | |

APPENDIX

H-2 2033 FUTURE TOTAL CONDITIONS

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2033 Future Total>AM 12-20-2024

| | ၨ | - | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|-------|------------|-------|-------|-------------|-------|-------|-------|-------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | † 1> | | ሻ | | 7 | ሻ | f a | |
| Traffic Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.991 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3428 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3428 | 0 | 1644 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 8 | | | | 210 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | | 8 | 8 | | 4 | 9 | | 2 | 2 | | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 948 | 61 | 111 | 482 | 33 | 243 | 0 | 374 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 22 | 1009 | 0 | 111 | 515 | 0 | 243 | 0 | 374 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

Lanes, Volumes, Timings 1: Walnut Lane & Kingston Road <2033 Future Total>AM

| | • | - | • | \checkmark | • | • | 1 | 1 | 1 | - | ţ | 4 |
|----------------------------|---------------|----------|------------|--------------|-------------|------------|-------|------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | 1 | 15.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 7.0 | 59.6 | | 13.1 | 70.0 | | 27.8 | | 27.8 | 27.8 | 27.8 | |
| Actuated g/C Ratio | 0.06 | 0.50 | | 0.11 | 0.58 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.23 | 0.59 | | 0.62 | 0.26 | | 0.79 | | 0.72 | 0.04 | 0.10 | |
| Control Delay | 74.5 | 20.6 | | 55.5 | 17.8 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 74.5 | 20.6 | | 55.5 | 17.8 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| LOS | Е | С | | Е | В | | Е | | С | С | В | |
| Approach Delay | | 21.7 | | | 24.5 | | | 39.2 | | | 18.4 | |
| Approach LOS | | С | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | | | | | | |
| Offset: 1 (1%), Reference | ed to phase 2 | :EBT and | 6:WBT, Sta | art of G | reen | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-C | | | | | | | | | | | | |
| Maximum v/c Ratio: 0.79 | | | | | | | | | | | | |
| Intersection Signal Delay | | | | | tersection | | | | | | | |
| Intersection Capacity Util | ization 73.1% |) | | 10 | CU Level of | of Service | : D | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |



1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Queues

1: Walnut Lane & Kingston Road

<2033 Future Total>AM 12-20-2024

| | • | - | • | ← | 4 | 1 | - | ļ |
|------------------------|-------|-------|------|----------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT |
| Lane Group Flow (vph) | 22 | 1009 | 111 | 515 | 243 | 374 | 15 | 39 |
| v/c Ratio | 0.23 | 0.59 | 0.62 | 0.26 | 0.79 | 0.72 | 0.04 | 0.10 |
| Control Delay | 74.5 | 20.6 | 55.5 | 17.8 | 60.8 | 25.1 | 31.8 | 13.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 74.5 | 20.6 | 55.5 | 17.8 | 60.8 | 25.1 | 31.8 | 13.2 |
| Queue Length 50th (m) | 5.4 | 96.1 | 26.2 | 44.1 | 54.3 | 35.8 | 2.8 | 1.3 |
| Queue Length 95th (m) | m12.5 | 139.1 | 42.8 | 67.8 | 75.1 | 62.8 | 7.5 | 9.0 |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | |
| Base Capacity (vph) | 97 | 1704 | 205 | 1974 | 454 | 672 | 587 | 568 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.23 | 0.59 | 0.54 | 0.26 | 0.54 | 0.56 | 0.03 | 0.07 |

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 2: Street B & Kingston Road

| | → | • | • | ← | 1 | ~ |
|----------------------------|----------|-------|------|----------|-------|--------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | 0.0 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | 0.00 | | 1.00 | 0.00 | 1.00 | 1.00 |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | 0.000 | | | | 0.000 |
| Satd. Flow (prot) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Flt Permitted | 0.00 | | | 0.00 | | 1000 |
| Satd. Flow (perm) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Link Speed (k/h) | 60 | | | 60 | 30 | .000 |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | . 1.0 | 4 | | 1.0 | . 1.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 4% | 3% | 2% | 5% | 2% | 0% |
| Adj. Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Shared Lane Traffic (%) | 000 | 101 | | 011 | - 3 | 1-12 |
| Lane Group Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | ragin | Lon | 3.0 | 0.0 | rugiit |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | 1.01 | 14 | 24 | 1.01 | 24 | 14 |
| Sign Control | Free | | 21 | Free | Stop | |
| | . 100 | | | 1100 | Сюр | |
| Intersection Summary | | | | | | |
| Aron Tuno: | Othor | | | | | |

| Intersection Summa | ry | | |
|----------------------|---------------------|------------------------|--|
| Area Type: | Other | | |
| Control Type: Unsign | nalized | | |
| Intersection Capacit | y Utilization 37.4% | ICU Level of Service A | |
| Analysis Period (min | n) 15 | | |

| | ۶ | → | * | • | + | 4 | 1 | † | ~ | / | ↓ | ✓ |
|----------------------------|---------|-------------|-------|-------|-------------|-------|---------|-------|-------|---------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ 1> | | ሻ | ∱ î₃ | | ሻ | î, | | ሻ | f. | |
| Traffic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Future Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.976 | | | 0.979 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.554 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3280 | 0 | 1640 | 3298 | 0 | 1019 | 1769 | 0 | 1393 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 23 | | | 18 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 87 | 802 | 151 | 85 | 629 | 102 | 73 | 16 | 32 | 168 | 38 | 157 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 87 | 953 | 0 | 85 | 731 | 0 | 73 | 48 | 0 | 168 | 195 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OI - EX | OI LX | | OI LX | OI · LX | | OI LX | OI LX | | OI · LX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | I CIIII | 8 | | I CIIII | 4 | |
| I IUIGUIGU FIIASES | 5 | 2 | | Į. | υ | | | 0 | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 6

| | - | • | • | • | 1 | / |
|------------------------------|--------|------|-------|----------|------------|-------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 44 | 7 | | ^ | | 7 |
| Traffic Volume (veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (Veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 889 | 107 | 0.02 | 817 | 0.02 | 142 |
| Pedestrians | 000 | | | 0 | 4 | .,_ |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX, platoon unblocked | 131 | | 0.88 | 123 | 0.91 | 0.88 |
| vC, conflicting volume | | | 893 | | 1302 | 448 |
| vC1, stage 1 conf vol | | | 093 | | 893 | 440 |
| vC1, stage 1 conf vol | | | | | 408 | |
| vCu, unblocked vol | | | 601 | | 801 | 95 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| | | | 4.1 | | 5.8 | 0.5 |
| tC, 2 stage (s) | | | 2.2 | | 3.5 | 3.3 |
| tF (s) | | | 100 | | 100 | 83 |
| p0 queue free % | | | 850 | | 423 | 830 |
| cM capacity (veh/h) | | | 850 | | 423 | 830 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 444 | 444 | 107 | 408 | 408 | 142 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 107 | 0 | 0 | 142 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 830 |
| Volume to Capacity | 0.26 | 0.26 | 0.06 | 0.24 | 0.24 | 0.17 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 |
| Lane LOS | | | | | | В |
| Approach Delay (s) | 0.0 | | | 0.0 | | 10.2 |
| Approach LOS | | | | | | В |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.7 | | | |
| Intersection Capacity Utiliz | ration | | 37.4% | ır | CU Level | of Service |
| Analysis Period (min) | .audii | | 15 | IC | JO LOVOI (| JI JUI VICE |
| Analysis Pellou (IIIIII) | | | 10 | | | |

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<2033 Future Total>AM

| | ۶ | - | • | • | ← | • | 1 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 72.5 | | 6.0 | 69.0 | | 20.4 | 20.4 | | 20.4 | 20.4 | |
| Actuated g/C Ratio | 0.08 | 0.60 | | 0.05 | 0.58 | | 0.17 | 0.17 | | 0.17 | 0.17 | |
| v/c Ratio | 0.71 | 0.48 | | 1.04 | 0.38 | | 0.42 | 0.15 | | 0.71 | 0.45 | |
| Control Delay | 83.0 | 14.8 | | 169.9 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 14.8 | | 169.9 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| LOS | F | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 20.5 | | | 25.1 | | | 37.8 | | | 36.2 | |
| Approach LOS | | С | | | С | | | D | | | D | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 25.4 Intersection Capacity Utilization 73.7% Analysis Period (min) 15

Intersection LOS: C ICU Level of Service D



1105-1163 Kingston Road Synchro 11 Report Page 7 Queues

<2033 Future Total>AM 12-20-2024

3: Dixie Road & Kingston Road

| ane Group Flow (vph) 87 953 85 731 73 48 168 195 c Ratio 0.71 0.48 1.04 0.38 0.42 0.15 0.71 0.45 ontrol Delay 83.0 14.8 169.9 8.3 50.1 19.1 62.4 13.5 useue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 otal Delay 83.0 14.8 169.9 8.3 50.1 19.1 62.4 13.5 useue Length 50th (m) 20.2 59.7 -21.0 36.7 15.6 3.2 37.9 7.7 useue Length 95th (m) #43.5 92.8 #53.9 50.4 27.6 12.4 55.9 25.6 termal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reducth 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | • | - | • | • | 1 | Ť | - | ţ |
|--|------------------------|-------|-------|-------|-------|------|------|------|-------|
| c Ratio 0.71 0.48 1.04 0.38 0.42 0.15 0.71 0.45 ontrol Delay 83.0 14.8 169.9 8.3 50.1 19.1 62.4 13.5 ueue Delay 0.0 | Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| ontrol Delay 83.0 14.8 169.9 8.3 50.1 19.1 62.4 13.5 ueue Delay 0.0 <td>Lane Group Flow (vph)</td> <td>87</td> <td>953</td> <td>85</td> <td>731</td> <td>73</td> <td>48</td> <td>168</td> <td>195</td> | Lane Group Flow (vph) | 87 | 953 | 85 | 731 | 73 | 48 | 168 | 195 |
| ueue Delay 0.0 | v/c Ratio | 0.71 | 0.48 | 1.04 | 0.38 | 0.42 | 0.15 | 0.71 | 0.45 |
| otal Delay 83.0 14.8 169.9 8.3 50.1 19.1 62.4 13.5 ueue Length 50th (m) 20.2 59.7 ~21.0 36.7 15.6 3.2 37.9 7.7 ueue Length 95th (m) #43.5 92.8 #53.9 50.4 27.6 12.4 55.9 25.6 ternal Link Dist (m) 872.3 167.2 20.0 212.2 212.2 urm Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reductn 0 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 | Control Delay | 83.0 | 14.8 | 169.9 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| ueue Length 50th (m) 20.2 59.7 ~21.0 36.7 15.6 3.2 37.9 7.7 ueue Length 95th (m) #43.5 92.8 #53.9 50.4 27.6 12.4 55.9 25.6 ternal Link Dist (m) 145.4 51.0 13.0 16.0 12.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 16.0 asse Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reductn 0 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 | Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ueue Length 95th (m) #43.5 92.8 #53.9 50.4 27.6 12.4 55.9 25.6 iternal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reductn 0 0 0 0 0 0 0 0 0 pillback Cap Reductn 0 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 0 | Total Delay | 83.0 | 14.8 | 169.9 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| temal Link Dist (m) 872.3 167.2 20.0 212.2 urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Queue Length 50th (m) | 20.2 | 59.7 | ~21.0 | 36.7 | 15.6 | 3.2 | 37.9 | 7.7 |
| urn Bay Length (m) 145.4 51.0 13.0 16.0 ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reducth 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 torage Cap Reducth 0 0 0 0 0 0 0 0 0 0 0 0 torage Cap Reducth 0 0 0 0 0 0 0 0 0 0 0 | Queue Length 95th (m) | #43.5 | 92.8 | #53.9 | 50.4 | 27.6 | 12.4 | 55.9 | 25.6 |
| ase Capacity (vph) 130 1991 82 1904 343 618 470 697 tarvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| tarvation Cap Reductn 0 | Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| pillback Cap Reductn 0 0 0 0 0 0 0 0 torage Cap Reductn 0 0 0 0 0 0 0 0 0 | Base Capacity (vph) | 130 | 1991 | 82 | 1904 | 343 | 618 | 470 | 697 |
| torage Cap Reductn 0 0 0 0 0 0 0 | Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| educed v/c Ratio 0.67 0.48 1.04 0.38 0.21 0.08 0.36 0.28 | Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Reduced v/c Ratio | 0.67 | 0.48 | 1.04 | 0.38 | 0.21 | 0.08 | 0.36 | 0.28 |

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 4: Street B & Shopping Plaza Entrance

| | • | • | 1 | Ī | ¥ | ∢ | |
|--------------------------------|-----------|-------|------|-------|-------------|--------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | Y | | | 4 | 1> | | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 | |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.883 | | | | 0.942 | | |
| Flt Protected | 0.993 | | | 0.991 | | | |
| Satd. Flow (prot) | 1628 | 0 | 0 | 1904 | 1770 | 0 | |
| Flt Permitted | 0.993 | | | 0.991 | | | |
| Satd. Flow (perm) | 1628 | 0 | 0 | 1904 | 1770 | 0 | |
| Link Speed (k/h) | 30 | | | 30 | 30 | | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | |
| Adj. Flow (vph) | 14 | 92 | 24 | 111 | 72 | 55 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 106 | 0 | 0 | 135 | 127 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | |
| Sign Control | Stop | | | Stop | Stop | | |
| Intersection Summary | | | | | | | |
| | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | ion 25.9% | | | IC | CU Level of | of Service A | A |
| Analysis Period (min) 15 | | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 HCM Unsignalized Intersection Capacity Analysis
4: Street B & Shopping Plaza Entrance

| | • | • | 1 | † | . ↓ | 4 |
|-------------------------------|-------|------|-------|----------|---------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Y | | | ની | 1₃ | |
| Sign Control | Stop | | | Stop | Stop | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 14 | 92 | 24 | 111 | 72 | 55 |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 106 | 135 | 127 | | | |
| Volume Left (vph) | 14 | 24 | 0 | | | |
| Volume Right (vph) | 92 | 0 | 55 | | | |
| Hadj (s) | -0.44 | 0.04 | -0.22 | | | |
| Departure Headway (s) | 4.0 | 4.3 | 4.1 | | | |
| Degree Utilization, x | 0.12 | 0.16 | 0.14 | | | |
| Capacity (veh/h) | 840 | 809 | 860 | | | |
| Control Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliza | ation | | 25.9% | IC | CU Level of S | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 5: Street B & Street A

| | • | • | † | 1 | - | ¥ | |
|--------------------------------|------------|-------|----------|-------|---------|------------|-----|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | ¥ | | ĵ. | | | ર્ન | |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 | |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped Bike Factor | | | | | | | |
| Frt | 0.865 | | | | | | |
| Flt Protected | | | | | | 0.953 | |
| Satd. Flow (prot) | 1662 | 0 | 1883 | 0 | 0 | 1778 | |
| Flt Permitted | | | | | | 0.953 | |
| Satd. Flow (perm) | 1662 | 0 | 1883 | 0 | 0 | 1778 | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | |
| Link Distance (m) | 193.3 | | 78.3 | | | 49.0 | |
| Travel Time (s) | 23.2 | | 9.4 | | | 5.9 | |
| Confl. Peds. (#/hr) | 1 | 4 | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 100% | 0% | 2% | 0% | 3% | 0% | |
| Adj. Flow (vph) | 0 | 132 | 0 | 0 | 149 | 1 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 132 | 0 | 0 | 0 | 0 | 150 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| Sign Control | Stop | | Stop | | | Stop | |
| Intersection Summary | | | | | | | |
| | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | tion 22.9% | | | IC | U Level | of Service | e A |
| Analysis Period (min) 15 | | | | | | | |
| | | | | | | | |

| | • | • | Ť | | - | ţ |
|-------------------------------|-------|------|-------|------|------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | ĵ. | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 132 | 0 | 0 | 149 | 1 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 132 | 0 | 150 | | | |
| Volume Left (vph) | 0 | 0 | 149 | | | |
| Volume Right (vph) | 132 | 0 | 0 | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | |
| Departure Headway (s) | 3.7 | 4.3 | 4.4 | | | |
| Degree Utilization, x | 0.13 | 0.00 | 0.18 | | | |
| Capacity (veh/h) | 945 | 807 | 793 | | | |
| Control Delay (s) | 7.2 | 7.3 | 8.4 | | | |
| Approach Delay (s) | 7.2 | 0.0 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliza | ation | | 22.9% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |
| | | | | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Total>AM 12-20-2024

| o. Elverpoor rioud o | ۶ | → | • | • | ← | • | 4 | † | ~ | / | + | 1 |
|----------------------------|-------|------------|--------|-------|----------|-------|-------|------------|--------|----------|------------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ^ | 7 | * | ^ | 7 | * | ^ | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.228 | | | 0.483 | | |
| Satd. Flow (perm) | 1645 | 3299 | 1487 | 1676 | 3510 | 1517 | 422 | 3700 | 1536 | 1008 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 142 | | | 174 | | | 159 | | | 246 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 422 | 159 | 91 | 797 | 250 |
| Shared Lane Traffic (%) | 2.0 | 000 | 02. | | 002 | ٠. | | | 100 | ٠. | | 200 |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 422 | 159 | 91 | 797 | 250 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.3 | rugiit | Loit | 3.3 | ragin | Loit | 4.7 | rugiit | Loit | 4.7 | rugiii |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | 1.0 | | | 1.0 | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | 1.00 | 1.00 | 24 | 0.55 | 14 | 24 | 0.55 | 14 | 24 | 0.51 | 1.04 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | OITEX | OITEX | OITEX | OILX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (/ | | | | | 0.0 | | 0.0 | | 0.0 | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 0.0 9.4 | 0.0 | 0.0 | 0.0 9.4 | 0.0 |
| Detector 2 Position(m) | | | | | | | | | | | | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

| | • | → | • | • | ← | • | 1 | † | ~ | - | ţ | 4 |
|------------------------------|-------------|-----------|-----------|-----------|------------|------------|-----------|-----------|--------|-----------|-----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | 2000 | 9 | Lug | 2000 | | | 2000 | 9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 7.0 | 140110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 140110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 53.0 | 41.9 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.17 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.44 | 0.35 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.99 | 0.56 | 0.98 | 1.02 | 0.45 | 0.11 | 0.60 | 0.33 | 0.28 | 0.19 | 0.63 | 0.37 |
| Control Delay | 110.4 | 34.5 | 57.5 | 121.9 | 40.9 | 0.11 | 32.0 | 29.6 | 6.3 | 19.0 | 35.3 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 57.5 | 121.9 | 40.9 | 0.4 | 32.0 | 29.6 | 6.3 | 19.0 | 35.3 | 5.3 |
| LOS | F | 04.0 C | 57.5 | F | 70.5 D | Α. | 02.0 C | 23.0 C | Α. | 13.0 B | D | Α. |
| Approach Delay | | 59.2 | | | 63.0 | А | U | 25.0 | А | U | 27.4 | |
| Approach LOS | | 55.2 E | | | 03.0 E | | | 23.0 C | | | 21.4 C | |
| | | | | | | | | U | | | U | |
| Intersection Summary | 0.11 | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | _ | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | nced to pha | se 2:EBT | and 6:W | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 99.1% | | | I(| CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & Kings | ston Road | | | | | | | | | |
| ÿ1 - | (R) | | | | - | ø3 🏰 | Ø4 | | | | | |
| 19 s 42 s | 100 | | | | 8 s | 51s | | | | | - 11 | |

Queues 6: Liverpool Road & Kingston Road <2033 Future Total>AM 12-20-2024

| | • | - | • | 1 | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|--------|-------|--------|-------|----------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 422 | 159 | 91 | 797 | 250 |
| v/c Ratio | 0.99 | 0.56 | 0.98 | 1.02 | 0.45 | 0.11 | 0.60 | 0.33 | 0.28 | 0.19 | 0.63 | 0.37 |
| Control Delay | 110.4 | 34.5 | 57.5 | 121.9 | 40.9 | 0.4 | 32.0 | 29.6 | 6.3 | 19.0 | 35.3 | 5.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 57.5 | 121.9 | 40.9 | 0.4 | 32.0 | 29.6 | 6.3 | 19.0 | 35.3 | 5.3 |
| Queue Length 50th (m) | 69.0 | 28.4 | 30.5 | ~49.1 | 40.5 | 0.0 | 19.5 | 38.1 | 0.0 | 11.7 | 81.8 | 0.6 |
| Queue Length 95th (m) | #122.6 | 64.2 | #164.4 | #96.6 | 55.4 | 0.0 | 32.4 | 51.3 | 15.4 | 21.1 | 102.6 | 17.6 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 959 | 533 | 197 | 845 | 497 | 242 | 1291 | 559 | 487 | 1263 | 667 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.99 | 0.56 | 0.98 | 1.02 | 0.45 | 0.11 | 0.60 | 0.33 | 0.28 | 0.19 | 0.63 | 0.37 |

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Lanes, Volumes, Timings

<2033 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | - | • | • | ← | • | 1 | † | / | > | ļ | 4 |
|----------------------------|-------|------------|-------|-------|----------|--------|-------|----------|---------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ₽ | | 77 | † | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 541 | 272 | 146 | 1184 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 541 | 272 | 146 | 1184 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 1.00 | | 0.97 | 0.99 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.177 | | | 0.393 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 306 | 5036 | 1483 | 689 | 5029 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 1287 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 1287 | 26 |
| Enter Blocked Intersection | No | No. | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 6.0 | | 2011 | 6.0 | . ugut | 2010 | 3.8 | . ug.it | Lon | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | OITEX | | OITEX | OITEX | OITEX | OITEX | OITEX | OIILX | OITEX | OIILX | OITEX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(III) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2033 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | \rightarrow | • | • | • | 4 | † | <i>></i> | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|-------------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.22 | 0.22 | 0.32 | 0.30 | 0.46 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.4 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.4 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 9.9 | | | 14.4 | |
| Approach LOS | | С | | | D | | | Α | | | В | |

Intersection Summary

Intersection Summary

Area Type: Other
Cycle Length: 100

Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90

Control Type: Actuated-Coordinated

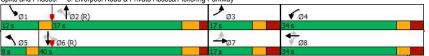
Maximum v/c Ratio: 0.56

Intersection Signal Delay: 15.5 Intersection
Intersection Capacity Utilization 55.7% ICU Level of
Analysis Period (min) 15

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2033 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ၨ | - | • | • | • | 4 | † | / | - | ↓ | 4 | |
|------------------------|------|------|------|-------|------|------|----------|----------|-------|----------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 588 | 296 | 159 | 1287 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.22 | 0.22 | 0.32 | 0.30 | 0.46 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.4 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.4 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.5 | 23.4 | 9.6 | 11.3 | 57.0 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 36.1 | 19.7 | 21.5 | 74.7 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 268 | 2621 | 913 | 547 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.22 | 0.22 | 0.32 | 0.29 | 0.46 | 0.03 | |

m Volume for 95th percentile queue is metered by upstream signal.

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | • | ← | • | 1 | † | <i>></i> | / | ↓ | -√ |
|----------------------------|------|----------|-------|-------|----------|-------|-------|------------|-------------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ની | 7 | ሻ | ^ ^ | | | ^ ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 523 | 0 | 0 | 950 | 220 |
| Future Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 523 | 0 | 0 | 950 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.977 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 4932 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | | | | 0.950 | 0.977 | | 0.141 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 217 | 4932 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 337 | | | | | | 239 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 7 | | 14 | 14 | | 7 |
| Confl. Bikes (#/hr) | | | | | | | | | 4 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 461 | 204 | 75 | 337 | 221 | 568 | 0 | 0 | 1033 | 239 |
| Shared Lane Traffic (%) | | | | 32% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 461 | 139 | 140 | 337 | 221 | 568 | 0 | 0 | 1033 | 239 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | Ť | | 3.7 | Ť | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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<2033 Future Total>AM

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | - | • | • | • | * | 1 | † | ~ | - | ¥ | 1 |
|-------------------------------|-------------|----------|-----------|------------|------------|-----------|-------|----------|-------------|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | J | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | | 45.6 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 23.9 | 23.9 |
| Actuated g/C Ratio | | | 0.46 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.24 | 0.24 |
| v/c Ratio | | | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | | | 0.89 | 0.44 |
| Control Delay | | | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | | | 37.1 | 5.5 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | | | 37.1 | 5.5 |
| LOS | | | D | D | D | В | Α | Α | | | D | Α |
| Approach Delay | | 51.2 | | | 28.9 | | | 5.2 | | | 31.1 | |
| Approach LOS | | D | | | С | | | Α | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 38 (38%), Reference | d to phase | 2:NBTL | and 6:SB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 100 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | rdinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.91 | | | | | | | | | | | | |
| Intersection Signal Delay: 27 | 7.1 | | | li li | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliza | tion 65.6% | | | 10 | CU Level | of Servic | e C | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Live | erpool Road | d & Waln | ut Lane/H | lwy 401 \ | VB Off-Ra | amp | | | | | | |
| 4 | | | | | | | | | ₹ ø8 | | | 8 |
| Ø2 (R) | | | | | | | | | ♥ Ø8 | 8 | | |
| /5 S | | | | 31 | 7 | | | | 25 S | | | |
| \$ Ø5 | | | | | ₩ Ø6 (R | 0 | | | | | | |
| 46 s | | | 7 | 29 | 15 | | | | N. | | | |

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<2033 Future Total>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | • | • | 1 | † | ↓ | 4 | |
|------------------------|--------|------|-------|-------|------|----------|----------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 461 | 139 | 140 | 337 | 221 | 568 | 1033 | 239 | |
| v/c Ratio | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | 0.89 | 0.44 | |
| Control Delay | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | 37.1 | 5.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | 37.1 | 5.5 | |
| Queue Length 50th (m) | 78.2 | 27.1 | 27.2 | 0.0 | 10.1 | 9.7 | 73.6 | 12.7 | |
| Queue Length 95th (m) | #152.5 | 44.3 | 44.3 | 23.2 | 30.3 | 16.5 | #99.3 | 9.8 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 505 | 323 | 335 | 567 | 731 | 3651 | 1165 | 549 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.91 | 0.43 | 0.42 | 0.59 | 0.30 | 0.16 | 0.89 | 0.44 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

1105-1163 Kingston Road WSP Synchro 11 Report Page 21

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Total>AM 12-20-2024

| | ۶ | - | • | • | - | 4 | |
|----------------------------|-------|----------|-------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | * | ^ | † 1> | | * | 7 | |
| Traffic Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | | | 0.981 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 16 | | | 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 814 | 764 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 104 | 814 | 872 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | | | | | | |

Synchro 11 Report Page 22 1105-1163 Kingston Road

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Total>AM 12-20-2024

| | • | - | ← | • | \ | 4 | | |
|------------------------------|------------|----------|----------|------------|-----------|----------|------|--|
| _ane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| _ead/Lag | Lead | Lag | Lag | | | | Lead | |
| _ead-Lag Optimize? | | | , i | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Nalk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| //c Ratio | 0.64 | 0.35 | 0.43 | | 0.72 | 0.52 | | |
| Control Delay | 104.2 | 0.8 | 16.2 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 104.2 | 0.8 | 16.2 | | 65.5 | 9.1 | | |
| _OS | F | Α | В | | Е | Α | | |
| Approach Delay | | 12.5 | 16.2 | | 34.1 | | | |
| Approach LOS | | В | В | | С | | | |
| ntersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | |
| Offset: 105 (81%), Referen | ced to pha | se 2:EBT | and 6:WB | T, Start o | f Green | | | |
| Natural Cycle: 85 | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| Intersection Signal Delay: 1 | 18.3 | | | In | tersectio | n LOS: B | | |
| ilitersection signal belay. | | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Queues

<2033 Future Total>AM 12-20-2024

10: Kingston Road & Fairport Road

| | • | - | • | - | 4 |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 814 | 872 | 198 | 249 |
| v/c Ratio | 0.64 | 0.35 | 0.43 | 0.72 | 0.52 |
| Control Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 |
| Queue Length 50th (m) | 26.4 | 2.6 | 59.3 | 49.0 | 0.0 |
| Queue Length 95th (m) | 42.6 | 2.5 | 94.4 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2021 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.35 | 0.43 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

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<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 4 | / |
|------------------------------------|------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ ⊅ | LUIT | ኘ | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 783 | 12 | 284 | 667 | 461 | 65 |
| Future Volume (vph) | 783 | 12 | 284 | 667 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 5.7 | ۷.۱ | 0% | 0% | 5.7 |
| Storage Length (m) | U /0 | 0.0 | 47.5 | 0 /6 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| • | | U | 22.3 | | 2.5 | |
| Taper Length (m) Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.998 | 0.53 | 1.00 | 0.55 | 0.57 | 0.850 |
| Fit Protected | 0.998 | | 0.950 | | 0.950 | 0.000 |
| | 2470 | 0 | | 2F40 | | 1633 |
| Satd. Flow (prot) | 3479 | 0 | 1593 | 3548 | 3442 | 1033 |
| Flt Permitted | 2470 | _ | 0.950 | 2540 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | 0.5 | == | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 851 | 13 | 309 | 725 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 864 | 0 | 309 | 725 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OITEX | | OITEX | OITEX | OITEX | OITLX |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 25

<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | • | 4 | / |
|---------------------------|---------------|---------|-----------|-------------|------------|------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | 0.1 | 0.1 |
| Lead-Lag Optimize? | Lug | | _000 | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | 140110 | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 |
| v/c Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 |
| Control Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 |
| LOS | 12.9 B | | 50.9 E | 15.7 B | 30.0 E | 10.2 B |
| | | | E | 28.6 | 52.6 | В |
| Approach Delay | 12.9 | | | | | |
| Approach LOS | В | | | С | D | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 1 | | | | | | |
| Offset: 66 (51%), Refere | nced to phase | 2:EBT a | nd 6:WB | T, Start of | Green | |
| Natural Cycle: 110 | | | | | | |
| Control Type: Actuated-0 | Coordinated | | | | | |
| Maximum v/c Ratio: 0.86 | i | | | | | |
| Intersection Signal Delay | r: 28.7 | | | li li | ntersectio | n LOS: C |
| Intersection Capacity Uti | | | | 10 | CU Level | of Service |
| Analysis Period (min) 15 | | | | | | 220 |
| | | | | | | |

Splits and Phases: 11: Hwy 401 WB Ramps & Kingston Road



Synchro 11 Report Page 26 1105-1163 Kingston Road

Queues

<2033 Future Total>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | — | 1 | |
|------------------------|-------|-------|----------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 864 | 309 | 725 | 501 | 71 |
| v/c Ratio | 0.56 | 0.86 | 0.29 | 0.78 | 0.20 |
| Control Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Length 50th (m) | 20.8 | 75.6 | 69.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 58.3 | 106.7 | 90.3 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.72 | 0.29 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings

<2033 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | \rightarrow | • | ← | 4 | 1 | † | <i>></i> | - | ţ | 4 |
|----------------------------|-------|------------|---------------|-------|------------|-------|-------|----------|-------------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | † } | | ሻ | ĵ. | | ሻ | 1 | |
| Traffic Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3381 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.662 | | | 0.688 | | |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3381 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 8 | | | 100 | | | 135 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1098 | 40 | 104 | 1125 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1138 | 0 | 104 | 1205 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | , i | | 3.6 | Ŭ |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | · · | | | | | | | | · · | · · | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 2.0 | 9.4 | | | 9.4 | | 2.0 | 9.4 | | 2.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Dottottor Z Type | | OI LLX | | | JI-LX | | | OI L | | | JI-LX | |

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Lanes, Volumes, Timings

<2033 Future Total>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | - | \rightarrow | • | ← | • | 1 | † | / | - | ļ | 1 |
|-------------------------|-------|-------|---------------|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.60 | | 0.67 | 0.60 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | | F | С | | Е | В | | D | В | |
| Approach Delay | | 31.4 | | | 32.7 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | | С | | | D | | | С | |

| Intersection Summary | | |
|---|------------------------|--|
| Area Type: Other | | |
| Cycle Length: 130 | | |
| Actuated Cycle Length: 130 | | |
| Offset: 49 (38%), Referenced to phase 2:EBT and 6 | i:WBT, Start of Green | |
| Natural Cycle: 90 | | |
| Control Type: Actuated-Coordinated | | |
| Maximum v/c Ratio: 0.76 | | |
| Intersection Signal Delay: 32.7 | Intersection LOS: C | |
| Intersection Capacity Utilization 81.0% | ICU Level of Service D | |
| Analysis Period (min) 15 | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2033 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| • | - | • | • | 4 | 1 | - | Į. | |
|-------|--|--|---|--|---|--|---|---|
| | | * | WDT | | | 0.01 | | |
| EBL | EBI | WBL | WBI | NBL | NBT | SBL | SBT | |
| 83 | 1138 | 104 | 1205 | 152 | 107 | 46 | 149 | |
| 0.65 | 0.60 | 0.67 | 0.60 | 0.76 | 0.29 | 0.24 | 0.43 | |
| 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| 21.9 | 127.4 | 27.4 | 162.3 | 37.6 | 1.5 | 10.4 | 3.1 | |
| #40.7 | 162.8 | 44.7 | 187.7 | 57.4 | 16.2 | 20.7 | 20.6 | |
| | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| 51.8 | | 100.0 | | | | | | |
| 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0.59 | 0.60 | 0.58 | 0.60 | 0.55 | 0.23 | 0.17 | 0.34 | |
| | 0.65 86.0 0.0 86.0 21.9 #40.7 51.8 141 0 | 83 1138 0.65 0.60 86.0 27.4 0.0 0.0 86.0 27.4 21.9 127.4 #40.7 162.8 198.7 51.8 141 1894 0 0 0 0 0 0 | 83 1138 104 0.65 0.60 0.67 86.0 27.4 80.4 0.0 0.0 0.0 86.0 27.4 80.4 21.9 127.4 27.4 #40.7 162.8 44.7 198.7 51.8 100.0 141 1894 179 0 0 0 0 0 0 0 0 0 | 83 1138 104 1205 0.65 0.60 0.67 0.60 86.0 27.4 80.4 28.5 0.0 0.0 0.0 0.0 86.0 27.4 80.4 28.5 21.9 127.4 27.4 162.3 #40.7 162.8 44.7 187.7 198.7 244.7 51.8 100.0 141 1894 179 2009 0 0 0 0 0 0 0 0 0 0 | 83 1138 104 1205 152 0.65 0.60 0.67 0.60 0.76 86.0 27.4 80.4 28.5 74.1 0.0 0.0 0.0 0.0 0.0 86.0 27.4 80.4 28.5 74.1 21.9 127.4 27.4 162.3 37.6 #40.7 162.8 44.7 187.7 57.4 198.7 244.7 51.8 100.0 141 1894 179 2009 278 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 83 1138 104 1205 152 107 0.65 0.60 0.67 0.60 0.76 0.29 86.0 27.4 80.4 28.5 74.1 11.5 0.0 0.0 0.0 0.0 0.0 0.0 86.0 27.4 80.4 28.5 74.1 11.5 21.9 127.4 27.4 162.3 37.6 1.5 #40.7 162.8 44.7 187.7 57.4 162.9 51.8 100.0 141 1894 179 2009 278 469 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 83 1138 104 1205 152 107 46 0.65 0.60 0.67 0.60 0.76 0.29 0.24 86.0 27.4 80.4 28.5 74.1 11.5 48.1 0.0 <td< td=""><td>83 1138 104 1205 152 107 46 149 0.65 0.60 0.67 0.60 0.76 0.29 0.24 0.43 86.0 27.4 80.4 28.5 74.1 11.5 48.1 12.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 86.0 27.4 80.4 28.5 74.1 11.5 48.1 12.9 21.9 127.4 27.4 162.3 37.6 1.5 10.4 3.1 #40.7 162.8 44.7 187.7 57.4 16.2 20.7 20.6 51.8 100.0 141 1894 179 2009 278 469 264 432 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td></td<> | 83 1138 104 1205 152 107 46 149 0.65 0.60 0.67 0.60 0.76 0.29 0.24 0.43 86.0 27.4 80.4 28.5 74.1 11.5 48.1 12.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 86.0 27.4 80.4 28.5 74.1 11.5 48.1 12.9 21.9 127.4 27.4 162.3 37.6 1.5 10.4 3.1 #40.7 162.8 44.7 187.7 57.4 16.2 20.7 20.6 51.8 100.0 141 1894 179 2009 278 469 264 432 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Synchro 11 Report Page 30 1105-1163 Kingston Road

Lanes, Volumes, Timings 13: Whites Road & Kingston Road

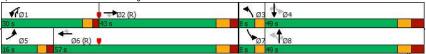
<2033 Future Total>AM 12-20-2024

| | ۶ | - | • | • | ← | • | 4 | † | ~ | - | ļ | 1 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Future Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1604 | 3335 | 1565 | 1751 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 250 | | | 240 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 31 Lanes, Volumes, Timings
13: Whites Road & Kingston Road

| | ۶ | → | • | • | ← | • | 4 | † | / | - | ↓ | 1 |
|------------------------------|-------------|-----------|----------|-----------|------------|------------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 36.5 | 36.5 | 24.5 | 50.9 | 50.9 | 51.0 | 40.6 | 68.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.19 | 0.39 | 0.39 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| LOS | F | D | С | Е | С | В | D | С | В | С | D | Α |
| Approach Delay | | 37.8 | | | 34.5 | | | 26.0 | | | 33.0 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 107 (82%), Referer | nced to pha | se 2:EBT | and 6:WE | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 109.5 | % | | 10 | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: V | Whites Road | l & Kinge | on Road | | | | | | | | | |
| 8 | WILLES LOSS | a Kingsi | UII NUdu | | | 17.40 | 1.4 | | | | | - 9 |
| Car | 4-4 | 72 (D) | | | | 1 | 13 | t at | | | | |





Queues

<2033 Future Total>AM 12-20-2024

13: Whites Road & Kingston Road

| | • | - | • | 1 | ← | • | 1 | † | 1 | - | ↓ | 4 |
|------------------------|-------|-------|-------|--------|-------|------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 33.2 | 36.4 | 80.3 | 77.0 | 46.7 | 25.9 | 29.8 | 36.3 | 32.6 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 46.2 | 67.4 | #129.4 | 90.5 | 63.5 | #50.2 | 39.1 | 63.0 | 50.3 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 936 | 550 | 339 | 1373 | 747 | 211 | 1579 | 922 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.33 | 0.58 | 0.92 | 0.44 | 0.42 | 0.75 | 0.27 | 0.54 | 0.51 | 0.55 | 0.31 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

1105-1163 Kingston Road Synchro 11 Report WSP Page 33

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2033 Future Total>AM 12-20-2024

| | • | • | 4 | † | ţ | 4 |
|----------------------------|-------|---------|------|----------|--------------------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ካነላ | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Future Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | J |
| Lane Util, Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.51 | 0.01 | 1.00 | 0.55 | 0.00 | 1.00 |
| Frt | 0.994 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 1400 | U | 3314 | J 4 0 I | J |
| Satd. Flow (perm) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| · / | 3331 | Yes | U | 3314 | J40 I | Yes |
| Right Turn on Red | 4 | Yes 262 | | | | res |
| Satd. Flow (RTOR) | - | 262 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | - | 11.2 | 19.0 | _ |
| Confl. Peds. (#/hr) | 0.05 | 0.05 | 7 | 0.05 | 0.05 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 710 | 291 | 0 | 759 | 486 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 739 | 262 | 0 | 759 | 486 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | OITEX | | OITEX | CITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | | 0.0 | | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 34

<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | Ť | ↓ | 4 |
|------------------------------|--------------|----------|----------|--------------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | 0.5 | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 0 | |
| Pedestrian Calls (#/hr) | 30.3 | 30.3 | | 0 | 67.5 | |
| Act Effct Green (s) | | | | 67.5 0.61 | | |
| Actuated g/C Ratio v/c Ratio | 0.28 0.79 | 0.28 | | 0.61 | 0.61 | |
| Control Delay | 42.9 | 6.1 | | 11.9 | 10.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 42.9 | 6.1 | | 11.9 | 10.6 | |
| LOS | 42.9 D | 0.1 A | | 11.9 B | 10.6 B | |
| Approach Delay | 33.2 | H | | 11.9 | 10.6 | |
| Approach LOS | 33.2 C | | | 11.9 B | В | |
| | U | | | Б | ט | |
| Intersection Summary | 0.11 | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 1 | | 0.115 | | | | |
| Offset: 79.2 (72%), Refere | enced to pha | se 2:NBT | and 6:SI | ۱, Start ه | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | |
| Maximum v/c Ratio: 0.79 | 0.1.1 | | | | | |
| Intersection Signal Delay: | | | | | ntersection | |
| Intersection Capacity Utilia | zation 50.9% |) | | 10 | JU Level o | of Service A |
| Analysis Period (min) 15 | | | | | | |
| Oulite and Dhanner 44.1 | W:4 D | | 404 = | D 0# D | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2033 Future Total>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | ۶ | \rightarrow | † | ļ |
|------------------------|-------|---------------|----------|-------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 739 | 262 | 759 | 486 |
| v/c Ratio | 0.79 | 0.46 | 0.37 | 0.23 |
| Control Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Length 50th (m) | 75.3 | 0.0 | 39.7 | 22.8 |
| Queue Length 95th (m) | 88.3 | 18.7 | 60.4 | 36.5 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1257 | 683 | 2069 | 2135 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.59 | 0.38 | 0.37 | 0.23 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 <2033 Future Total>AM

12-20-2024

| Cane Configurations | | • | • | † | - | - | ↓ | |
|--|----------------------------|------------|-------|----------|-------|---------|--------------|---|
| Traffic Volume (vph) 0 1111 0 0 252 0 Tuture Volume (vph) 0 1111 0 0 252 0 Tuture Volume (vph) 1900 1900 1900 1900 1900 1900 _ane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 _ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor Tit 0.865 Tit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Tit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Donnf. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Leavy Vehicles (%) 2% 2% 2% 2% 1% 2% 0.40 Adj. Flow (vph) 0 121 0 0 274 0 Shared Lane Traffic (%) Lane Group Flow (vph) 121 0 0 0 7274 Tinter Blocked Intersection No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 | Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Future Volume (vph) 0 1111 0 0 0 252 0 0 deal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190 | Lane Configurations | W | | f) | | | 4 | |
| Deal Flow (vphpi) 1900 1 | Traffic Volume (vph) | 0 | 111 | 0 | 0 | 252 | Ö | |
| Anne Width (m) | Future Volume (vph) | 0 | 111 | 0 | 0 | 252 | 0 | |
| Anne Util. Factor | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Ped Bike Factor Fit 0.865 Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 193.0 106.6 44.0 Fit Permitted 0.950 Fit Permitt | Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 | |
| Ent Chrocted | Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| The Protected 0.950 Start Flow (prot) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Start Flow (perm) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Start Flow (perm) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Start Flow (perm) 1701 0 1946 0 0 1867 Elt Flow (perm) 1701 0 1946 0 0 1867 Elt Flow (perm) 193.0 106.6 44.0 40 Elt Flow (perm) 193.0 106.6 44.0 Elt Flow (perm) 5 8 Elt Flow (perm) 5 8 Elt Flow (perm) 5 8 Elt Flow (perm) 0.92 0.93 Elt Flow (perm) 0 0 0 0 0 0 0 0 0 | Ped Bike Factor | | | | | | | |
| Satd. Flow (prot) 1701 0 1946 0 0 1867 | Frt | 0.865 | | | | | | |
| Tell Permitted | Flt Protected | | | | | | 0.950 | |
| Satd. Flow (perm) 1701 0 1946 0 0 1867 | Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 | |
| Ink Speed (k/h) 30 | Flt Permitted | | | | | | 0.950 | |
| Ink Distance (m) | Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 | |
| Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#hr) 5 8 Peak Hour Factor 0.92 0.93 0.91 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 <t< td=""><td>Link Speed (k/h)</td><td>30</td><td></td><td>40</td><td></td><td></td><td>40</td><td></td></t<> | Link Speed (k/h) | 30 | | 40 | | | 40 | |
| Confi. Peds. (#/hr) | Link Distance (m) | 193.0 | | 106.6 | | | 44.0 | |
| Deak Hour Factor 0.92 0.93 0. | Travel Time (s) | 23.2 | | 9.6 | | | 4.0 | |
| Heavy Vehicles (%) | Confl. Peds. (#/hr) | | 5 | | | 8 | | |
| Adj. Flow (vph) 0 121 0 0 274 0 Shared Lane Traffic (%) Lane Group Flow (vph) 121 0 0 0 274 Lane Group Flow (vph) 121 0 0 0 0 274 Enter Blocked Intersection No No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Area Type: Other Control Type: Unsignalized Intersection Capacity Utilization 28.9% ICU Level of Service A | Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Chared Lane Traffic (%) | Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% | |
| Lane Group Flow (vph) | Adj. Flow (vph) | 0 | 121 | 0 | 0 | 274 | 0 | |
| Inter Blocked Intersection | Shared Lane Traffic (%) | | | | | | | |
| Left Right Left Right Left Right Left Left | Lane Group Flow (vph) | 121 | 0 | 0 | 0 | 0 | 274 | |
| Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Frow way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 5 5 5 Free Free Tree ntersection Summary Name Type: Other Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Enter Blocked Intersection | No | No | No | No | No | No | |
| Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 I'wo way Left Turn Lane 1.6 1.6 1.6 Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 24 14 14 24 14 14 24 16 </td <td>Lane Alignment</td> <td>Left</td> <td>Right</td> <td>Left</td> <td>Right</td> <td>Left</td> <td>Left</td> <td></td> | Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Crosswalk Width(m) 1.6 1.6 1.6 Fivo way Left Turn Lane leadway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Area Type: Other Control Type: Unsignalized Intersection Capacity Utilization 28.9% ICU Level of Service A | Median Width(m) | 4.1 | | 3.6 | | | 3.6 | |
| Two way Left Turn Lane | Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 | Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Furning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free ntersection Summary Area Type: Other Control Type: Unsignalized ICU Level of Service A Intersection Capacity Utilization 28.9% ICU Level of Service A | Two way Left Turn Lane | | | | | | | |
| Sign Control Stop Free Free ntersection Summary Area Type: Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 | |
| Area Type: Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| Area Type: Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Sign Control | Stop | | Free | | | Free | |
| Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Intersection Summary | | | | | | | |
| ntersection Capacity Utilization 28.9% ICU Level of Service A | Area Type: | Other | | | | | | |
| ntersection Capacity Utilization 28.9% ICU Level of Service A | Control Type: Unsignalized | | | | | | | |
| | | tion 28.9% | | | IC | U Level | of Service A | Α |
| Analysis Period (min) 15 | Analysis Period (min) 15 | | | | | | | |

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HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2033 Future Total>AM 12-20-2024

| | • | • | † | ~ | - | ↓ |
|------------------------------|--------|------|----------|------|-----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | ĥ | | | ર્ની |
| Traffic Volume (veh/h) | 0 | 111 | 0 | 0 | 252 | Ö |
| Future Volume (Veh/h) | 0 | 111 | 0 | 0 | 252 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 121 | 0 | 0 | 274 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 556 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 556 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 89 | | | 83 | |
| cM capacity (veh/h) | 405 | 1053 | | | 1605 | |
| | | | 00.4 | | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 121 | 0 | 274 | | | |
| Volume Left | 0 | 0 | 274 | | | |
| Volume Right | 121 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.11 | 0.00 | 0.17 | | | |
| Queue Length 95th (m) | 3.0 | 0.0 | 4.7 | | | |
| Control Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.1 | | | |
| Intersection Capacity Utiliz | zation | | 28.9% | IC | U Level o | of Service |
| Analysis Period (min) | | | 15 | | | |
| raidijoio i oilod (mm) | | | 10 | | | |

Synchro 11 Report Page 38 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings 17: Street B

<2033 Future Total>AM 12-20-2024

| | • | • | Ť | | - | ¥ |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | f) | | | ર્ન |
| Traffic Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.917 | | 0.968 | | | |
| Flt Protected | 0.981 | | | | | 0.971 |
| Satd. Flow (prot) | 1694 | 0 | 1823 | 0 | 0 | 1829 |
| Flt Permitted | 0.981 | | | | | 0.971 |
| Satd. Flow (perm) | 1694 | 0 | 1823 | 0 | 0 | 1829 |
| Link Speed (k/h) | 30 | | 30 | | | 30 |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 47 | 76 | 83 | 26 | 82 | 57 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 123 | 0 | 109 | 0 | 0 | 139 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Stop | | | Stop |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 26.9%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 17: Street B

| | • | • | † | ~ | , | ļ | |
|---------------------------------|-------|-------|----------|------|---------------|--------|--|
| Movement | WBL | WBR | NBT | NBR | SBL S | BT | |
| Lane Configurations | Y | | ĵ, | | | ની | |
| Sign Control | Stop | | Stop | | S | top | |
| Traffic Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 | |
| Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | .92 | |
| Hourly flow rate (vph) | 47 | 76 | 83 | 26 | 82 | 57 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 123 | 109 | 139 | | | | |
| Volume Left (vph) | 47 | 0 | 82 | | | | |
| Volume Right (vph) | 76 | 26 | 0 | | | | |
| Hadj (s) | -0.26 | -0.11 | 0.15 | | | | |
| Departure Headway (s) | 4.2 | 4.2 | 4.4 | | | | |
| Degree Utilization, x | 0.14 | 0.13 | 0.17 | | | | |
| Capacity (veh/h) | 812 | 818 | 775 | | | | |
| Control Delay (s) | 7.9 | 7.8 | 8.4 | | | | |
| Approach Delay (s) | 7.9 | 7.8 | 8.4 | | | | |
| Approach LOS | Α | Α | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 8.1 | | | | |
| Level of Service | | | Α | | | | |
| Intersection Capacity Utilizati | ion | | 26.9% | IC | U Level of Se | ervice | |
| Analysis Period (min) | | | 15 | | | | |

| | ٠ | • | 4 | † | ↓ | 4 | |
|-------------------------------|-------------|-------|------|-------|-------------|--------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | Y | | | 4 | 1> | | |
| Traffic Volume (vph) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Future Volume (vph) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.909 | | | | 0.966 | | |
| Flt Protected | 0.984 | | | 0.996 | | | |
| Satd. Flow (prot) | 1685 | 0 | 0 | 1876 | 1819 | 0 | |
| Flt Permitted | 0.984 | | | 0.996 | | | |
| Satd. Flow (perm) | 1685 | 0 | 0 | 1876 | 1819 | 0 | |
| Link Speed (k/h) | 30 | | | 40 | 40 | | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 35 | 73 | 46 | 551 | 229 | 77 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 108 | 0 | 0 | 597 | 306 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | |
| Sign Control | Stop | | | Free | Free | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utiliza | ation 60.3% | | | IC | CU Level of | of Service B | В |
| Analysis Period (min) 15 | | | | | | | |

| | _ | * | 1 | T | ¥ | * | |
|-------------------------------|-------|------|-------|------|------------|-----------|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | Y | | | 4 | f) | | |
| Traffic Volume (veh/h) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Future Volume (Veh/h) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Sign Control | Stop | | | Free | Free | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 35 | 73 | 46 | 551 | 229 | 77 | |
| Pedestrians | | | | | | | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| Median type | | | | None | None | | |
| Median storage veh) | | | | | | | |
| Upstream signal (m) | | | | | 114 | | |
| pX, platoon unblocked | | | | | | | |
| vC, conflicting volume | 910 | 268 | 306 | | | | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 910 | 268 | 306 | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | | |
| tC, 2 stage (s) | | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | | |
| p0 queue free % | 88 | 91 | 96 | | | | |
| cM capacity (veh/h) | 293 | 771 | 1255 | | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total | 108 | 597 | 306 | | | | |
| Volume Left | 35 | 46 | 0 | | | | |
| Volume Right | 73 | 0 | 77 | | | | |
| cSH | 505 | 1255 | 1700 | | | | |
| Volume to Capacity | 0.21 | 0.04 | 0.18 | | | | |
| Queue Length 95th (m) | 6.1 | 0.9 | 0.0 | | | | |
| Control Delay (s) | 14.1 | 1.0 | 0.0 | | | | |
| Lane LOS | В | Α | | | | | |
| Approach Delay (s) | 14.1 | 1.0 | 0.0 | | | | |
| Approach LOS | В | | | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 2.1 | | | | |
| Intersection Capacity Utiliza | ition | | 60.3% | IC | CU Level o | f Service | |
| Analysis Period (min) | | | 15 | | | | |
| | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

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Synchro 11 Report Page 42 1105-1163 Kingston Road

Lanes, Volumes, Timings 20: Street A & Walnut Lane

Lane Group Lane Configurations Traffic Volume (vph)

Future Volume (vph)

Ideal Flow (vphpl)

Lane Util. Factor

Satd. Flow (prot)

Satd. Flow (perm)

Link Speed (k/h)

Link Distance (m)

Peak Hour Factor

Shared Lane Traffic (%)

Lane Group Flow (vph)

Enter Blocked Intersection

Travel Time (s)

Adj. Flow (vph)

Lane Alignment

Link Offset(m)

Sign Control

Median Width(m)

Crosswalk Width(m)

Two way Left Turn Lane Headway Factor

Flt Protected

Flt Permitted

Frt

<2033 Future Total>AM 12-20-2024

EBT NBR 231 279 197 79 42 123 231 279 197 1900 1900 1900 1900 1900 1900 1.00 1.00 1.00 1.00 1.00 1.00 0.944 0.983 0.972 1795 1851 1728 0.983 0.972 1795 1851 1728 40 30 40 121.1 433.1 80.3 10.9 39.0 9.6 0.92 0.92 0.92 0.92 0.92 0.92 86 46 134 251 303 214 132 385 0 0 517 0 No No No Left Right Left Left Left Right 3.7 0.0 0.0 0.0 1.6 1.6 0.99 0.99 0.99 0.99 0.99 0.99

Turning Speed (k/h) Intersection Summary

Other Area Type: Control Type: Unsignalized Intersection Capacity Utilization 63.2%

ICU Level of Service B

24

Stop

14

24

14

Stop

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 20: Street A & Walnut Lane

| | - | • | 1 | ← | 4 | | |
|---------------------------------|-------|------|-------|----------|-------------|---------|--|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | f) | | | ર્ન | ¥ | | |
| Sign Control | Stop | | | Stop | Stop | | |
| Traffic Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 | |
| Future Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 86 | 46 | 134 | 251 | 303 | 214 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | | |
| Volume Total (vph) | 132 | 385 | 517 | | | | |
| Volume Left (vph) | 0 | 134 | 303 | | | | |
| Volume Right (vph) | 46 | 0 | 214 | | | | |
| Hadj (s) | -0.18 | 0.10 | -0.10 | | | | |
| Departure Headway (s) | 5.9 | 5.7 | 5.3 | | | | |
| Degree Utilization, x | 0.22 | 0.61 | 0.76 | | | | |
| Capacity (veh/h) | 549 | 598 | 659 | | | | |
| Control Delay (s) | 10.5 | 17.4 | 23.2 | | | | |
| Approach Delay (s) | 10.5 | 17.4 | 23.2 | | | | |
| Approach LOS | В | С | С | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 19.4 | | | | |
| Level of Service | | | С | | | | |
| Intersection Capacity Utilizati | ion | | 63.2% | IC | CU Level of | Service | |
| Analysis Period (min) | | | 15 | | | | |

<2033 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 21: Building Driveways & Street A

| | ۶ | - | \rightarrow | • | ← | • | 4 | † | / | / | ļ | 1 |
|----------------------------|------|-------|---------------|------|----------|-------|------|----------|-------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Future Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.984 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 336 | 0 | 0 | 179 | 0 | 0 | 143 | 0 | 0 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Intersection Summary | | | | | | | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

| | • | → | \rightarrow | • | ← | * | 4 | † | 1 | - | ţ | 4 |
|-------------------------------|-------|----------|---------------|------|----------|------------|------|----------|------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Future Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 336 | 179 | 143 | 113 | | | | | | | | |
| Volume Left (vph) | 33 | 50 | 0 | 113 | | | | | | | | |
| Volume Right (vph) | 41 | 39 | 143 | 0 | | | | | | | | |
| Hadj (s) | -0.02 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| Departure Headway (s) | 4.8 | 5.0 | 4.8 | 5.6 | | | | | | | | |
| Degree Utilization, x | 0.45 | 0.25 | 0.19 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 709 | 668 | 660 | 572 | | | | | | | | |
| Control Delay (s) | 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| Approach Delay (s) | 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| Approach LOS | В | Α | Α | Α | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 10.4 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utiliza | ition | | 43.2% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| | | | | | | | | | | | | |

Lanes, Volumes, Timings 20: Street A & Walnut Lane

| The Protected 1983 0.972 1984 1975 1985 1972 1985 1972 1985 1972 1985 1972 1985 1972 1985 1972 1985 1972 1985 1972 1972 1985 1972 1972 1985 1972 | | - | • | • | • | 4 | 1 |
|--|-------------------------|-------|------|-------|-------|-------|------|
| rane Configurations raffic Volume (vph) 79 42 123 231 279 197 197 197 197 197 197 197 197 197 1 | Lane Group | FRT | FRR | WRI | WRT | NRI | NRR |
| rraffic Volume (vph) 79 42 123 231 279 197 ruture Volume (vph) 79 42 123 231 279 197 ruture Volume (vph) 79 42 123 231 279 197 ruture Volume (vph) 79 42 123 231 279 197 ruture Volume (vph) 1900 1900 1900 1900 1900 1900 ruture Volume (vph) 1900 1900 1900 1900 1900 ruture Volume (vph) 100 1.00 1.00 1.00 1.00 1.00 ruture Volume (vph) 1900 1900 1900 1900 1900 1900 ruture Volume (vph) 1.00 1.00 1.00 1.00 1.00 1.00 ruture Volume (vph) 1.00 1.00 1.00 1.00 1.00 1.00 ruture Volume (vph) 1795 0 0 1851 1728 0 ruture Vest Vest Vest Vest Vest Vest Vest Ves | | | | | | | |
| tuture Volume (vph) | | | 42 | 123 | | | 197 |
| Deal Flow (vphpt) 1900 1 | | | | | | | |
| Ame Util. Factor 1.00 | | | | | | | |
| Section Company Comp | | | | | | | |
| The Protected 0.983 0.972 2 2 2 2 3 3 3 3 3 | Frt | | 1.00 | 1.00 | 1.00 | | 1.00 |
| Said Flow (prot) 1795 0 0 1851 1728 0 | | 0.333 | | | 0.083 | | |
| The Permitted 0.839 0.972 1 | | 1705 | ٥ | ٥ | | | ٥ |
| Said Flow (perm) 1795 0 0 1580 1728 0 1798 17 | \(\(\) \(\) | 1790 | U | U | | | U |
| Right Turn on Red Yes Yes satd. Flow (RTOR) 46 61 ink Desearch (wh) 40 40 30 ink Distance (m) 121.1 433.1 80.3 reak Hour Factor 0.92 0.93 0.93 0.93 0.93 0.93 0.93 0.99 0. | | 1705 | 0 | ^ | | | 0 |
| Natid. Flow (RTOR) 46 40 40 30 ink Distance (m) 121.1 433.1 80.3 ravel Time (s) 10.9 39.0 9.6 reak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | | 1795 | | 0 | 1580 | 1/28 | |
| ink Speed (k/h) | | 10 | Yes | | | 04 | Yes |
| 121.1 | | | | | | | |
| Tavel Time (s) 10.9 39.0 9.6 | | | | | | | |
| Detector Page Pag | | | | | | | |
| Adj. Flow (vph) 86 | Travel Time (s) | | | | | | |
| Shared Lane Traffic (%) ane Group Flow (yph) 132 0 0 385 517 0 | Peak Hour Factor | | | | | | |
| Anne Group Flow (vph) 132 | Adj. Flow (vph) | 86 | 46 | 134 | 251 | 303 | 214 |
| Anne Group Flow (vph) 132 | Shared Lane Traffic (%) | | | | | | |
| Inter Blocked Intersection No No No No No No No | Lane Group Flow (vph) | 132 | 0 | 0 | 385 | 517 | 0 |
| Left Right Left Left Left Right Left Left Right Right Left Left Right Right Right Left Left Right | | _ | | | | |
| Median Width(m) 0.0 0.0 3.7 ink Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Incorporation (www.dister.metrics) 1.6 1.6 1.6 Incorporation (ww.dister.metrics) 1.6 1.6 1.6 Incorporation (ww.dister.metrics) 1.6 1.6 1.6 Incorporation (ww.dister.metrics) 0.99 | | | | | | | |
| Ink Offset(m) | | | | 20/1 | | | |
| Crosswalk Width(m) | | | | | | | |
| Woway Left Turn Lane Readway Factor 0.99 0. | | | | | | | |
| deadway Factor 0.99 0.90 0.00 | | 1.0 | | | 1.0 | 1.0 | |
| Turning Speed (k/h) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Aumber of Detectors 2 | | 0.99 | | | 0.99 | | |
| Detector Template | | ^ | 14 | | _ | | 14 |
| Detector Detector (m) 10.0 2.0 10.0 2.0 | | | | | | | |
| railing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. | | | | | | | |
| Detector 1 Position(m) | Leading Detector (m) | | | | | | |
| Detector 1 Size(m) | Trailing Detector (m) | | | | | | |
| Detector 1 Type | Detector 1 Position(m) | | | | | | |
| Detector 1 Channel | Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | |
| Detector 1 Channel | Detector 1 Type | CI+Ex | | Cl+Ex | CI+Ex | CI+Ex | |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Detector 2 Position(m) 9.4 9.4 Detector 2 Size(m) 0.6 0.6 Detector 2 Size(m) 0.6 0.6 Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 Urn Type NA Perm NA Prot Protected Phases 2 6 8 Detector 2 Position 0.0 Detector 3 Permitted Phases 6 Detector 4 Phase 2 6 6 8 Detector 4 Phase 6 Detector 4 Phase 2 6 6 8 Detector 5 Phase 6 Detector 6 Phase 2 6 6 8 Detector 6 Phase 6 Detector 6 Phase 6 Detector 7 Phase 6 Detector 7 Phase 7 Phase 7 Phase Detector 7 Phase 7 Phase 7 Phase 7 Phase 7 Phase 7 Phase Detector 8 Phase 7 Phas | Detector 1 Channel | | | | | | |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Detector 2 Position(m) 9.4 9.4 Detector 2 Size(m) 0.6 0.6 Detector 2 Type Cl+Ex Cl+Ex Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 Urn Type NA Perm NA Prot Protected Phases 2 6 8 Detector 2 Protected Phase 2 6 6 8 Detector 3 6 8 Detector 4 6 8 Detector 5 6 8 Detector 6 8 Detector 6 8 Detector 7 8 8 Detector 7 8 8 Detector 8 9 9 9 Detector 9 9 9 Detec | Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Detector 2 Position(m) 9.4 9.4 Detector 2 Size(m) 0.6 0.6 Detector 2 Type Cl+Ex Cl+Ex Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 Durn Type NA Perm NA Prot Protected Phases 2 6 8 Detector 2 Extend Phases 6 Detector 2 Extend Phases 2 6 6 8 Detector 3 Extend Phases 6 Detector 4 Extend Phase 2 6 6 8 Detector 4 Extend Phase 2 6 6 8 Detector 4 Extend Phase 6 Detector 4 Extend Phase 2 6 6 8 Detector 4 Extend Phase 6 Detector 5 Extend Phase 2 6 6 8 Detector 6 Extend Phase 6 Detector 6 Extend Phase 6 6 8 Detector 6 Extend Phase 6 Detector 7 Extend Phase 6 Detector 7 Extend Phase | | | | | | | |
| Detector 2 Position(m) 9.4 9.4 | | | | | | | |
| Detector 2 Size(m) | | | | 0.0 | | 0.0 | |
| Detector 2 Type | | | | | | | |
| Detector 2 Channel Detector 2 Extend (s) | \ / | | | | | | |
| Detector 2 Extend (s) 0.0 0.0 rum Type NA Perm NA Prot rotected Phases 2 6 8 remitted Phases 6 6 8 betector Phase 2 6 6 8 witch Phase 2 6 6 8 | | CI+EX | | | CI+EX | | |
| Turn Type NA Perm NA Prot Protected Phases 2 6 8 Permitted Phases 6 Petector Phase 2 6 6 8 Which Phase | | | | | | | |
| Protected Phases 2 6 8 Permitted Phases 6 Detector Phase 2 6 6 8 Switch Phase | | | | _ | | _ | |
| Permitted Phases 6 Detector Phase 2 6 6 8 Switch Phase | | | | Perm | | | |
| Detector Phase 2 6 6 8 Switch Phase | | 2 | | | 6 | 8 | |
| Switch Phase | Permitted Phases | | | | | | |
| | Detector Phase | 2 | | 6 | 6 | 8 | |
| Minimum Initial (s) 20.0 20.0 20.0 8.0 | Switch Phase | | | | | | |
| | Minimum Initial (s) | 20.0 | | 20.0 | 20.0 | 8.0 | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| WSP | Page 1 |

| | - | • | • | ← | 4 | / | | |
|----------------------------|---------------|-----------|-------|----------|-------------|--------------|---|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | | |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | | | |
| Total Split (s) | 35.0 | | 35.0 | 35.0 | 25.0 | | | |
| Total Split (%) | 58.3% | | 58.3% | 58.3% | 41.7% | | | |
| Maximum Green (s) | 29.2 | | 29.2 | 29.2 | 18.3 | | | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | | | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | | | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | | | |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Recall Mode | Max | | Max | Max | None | | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | | |
| Act Effct Green (s) | 29.2 | | | 29.2 | 17.8 | | | |
| Actuated g/C Ratio | 0.49 | | | 0.49 | 0.30 | | | |
| v/c Ratio | 0.15 | | | 0.50 | 0.92 | | | |
| Control Delay | 6.3 | | | 13.2 | 44.1 | | | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | 6.3 | | | 13.2 | 44.1 | | | |
| LOS | Α | | | В | D | | | |
| Approach Delay | 6.3 | | | 13.2 | 44.1 | | | |
| Approach LOS | Α | | | В | D | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 60 | | | | | | | | |
| Actuated Cycle Length: 5 | 9.5 | | | | | | | |
| Natural Cycle: 60 | | | | | | | | |
| Control Type: Semi Act-L | Incoord | | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | | |
| Intersection Signal Delay | | | | Ir | ntersection | LOS: C | | |
| Intersection Capacity Util | | | | | | of Service D | | |
| Analysis Period (min) 15 | | | | | | | | |
| , , , | | | | | | | | |
| Splits and Phases: 20: | Street A & Wa | alnut Lan | е | | | | | |
| →ø2 | | | | | | - 1 | | |
| 35 s | | | | | | | | |
| | | | | | | | | |
| ₩ Ø6 | | | | | | ₹ Ø | 8 | |

<2033 Future Total_PHF>AM 12-20-2024

M Lanes, Volumes, Timings
24 3: Dixie Road & Kingston Road

<2033 Future Total_PHF>AM _____12-20-2024

| | ၨ | - | • | • | ← | • | 4 | † | / | > | ţ | 1 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|----------|-------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ↑ ↑ | | * | ↑ ↑ | | Ţ | ĥ | | * | ĥ | |
| Traffic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Future Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.976 | | | 0.979 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.592 | | | 0.728 | | |
| Satd. Flow (perm) | 1553 | 3280 | 0 | 1639 | 3298 | 0 | 1089 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 23 | | | 18 | | | 29 | | | 144 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 80 | 877 | 0 | 78 | 673 | 0 | 67 | 44 | 0 | 155 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

| | • | - | • | • | ← | • | 1 | † | ~ | - | ↓ | 1 |
|------------------------------|--------------|------------|---------|-----------|-------------|------------|----------|----------|-----|-------|----------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 73.4 | | 6.0 | 72.5 | | 19.5 | 19.5 | | 19.5 | 19.5 | |
| Actuated g/C Ratio | 0.08 | 0.61 | | 0.05 | 0.60 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.66 | 0.44 | | 0.95 | 0.34 | | 0.38 | 0.14 | | 0.69 | 0.44 | |
| Control Delay | 78.8 | 13.8 | | 149.3 | 7.1 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 13.8 | | 149.3 | 7.1 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| LOS | E | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 19.2 | | | 21.9 | | | 37.3 | | | 36.0 | |
| Approach LOS | | В | | | С | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 107.8 (90%), Refer | enced to ph | ase 2:EBT | and 6:W | /BT, Star | t of Greer | 1 | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliz | zation 73.7% |) | | 10 | CU Level | of Service | e D | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 3: D | ixie Road & | Kingston F | Road | | | | | | | | | |
| √ø1 →ø2 (R) | | | | | | 1 | Ø4 | | | | | |
| 11 s 59 s | | | | | | 50 | | | | | | |
| ≯ ← | | | | | | - | * | | | | | |
| Ø5 Ø6 | (R) | | | | | | Ø8 | | | | | |
| | | | | | | | | | | | | |

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1105-1163 Kingston Road Synchro 11 Report WSP Page 2

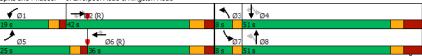
Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Total_PHF>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.261 | | | 0.522 | | |
| Satd. Flow (perm) | 1644 | 3299 | 1487 | 1675 | 3510 | 1517 | 483 | 3700 | 1536 | 1088 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 155 | | | 174 | | | 146 | | | 230 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 388 | 146 | 84 | 733 | 230 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

| Lane Group Detector 2 Type Detector 2 Channel Detector 2 Extend (s) Turn Type Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) Total Split (%) | • | \rightarrow | • | • | ← | • | 1 | † | - | - | ţ | 1 |
|--|-----------|---------------|-----------|-----------|------------|------------|-------|----------|--------|-------|-------|-------|
| Detector 2 Channel Detector 2 Extend (s) Turn Type Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Extend (s) Turn Type Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Turn Type Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | | | | | | | | | | | | |
| Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Minimum Initial (s) Minimum Split (s) Total Split (s) | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Minimum Split (s) Total Split (s) | | | | | | | | | | | | |
| Total Split (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | Ĭ | Ŭ | | Ŭ | | | | Ŭ | | Ŭ | Ĭ |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 19.7 | 34.9 | 34.9 | 14.0 | 29.2 | 29.2 | 53.6 | 43.5 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.16 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.45 | 0.36 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.93 | 0.51 | 0.89 | 0.94 | 0.41 | 0.10 | 0.50 | 0.29 | 0.27 | 0.16 | 0.58 | 0.35 |
| Control Delay | 98.2 | 34.0 | 39.5 | 103.0 | 40.0 | 0.4 | 26.6 | 28.5 | 6.4 | 18.7 | 34.1 | 5.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 98.2 | 34.0 | 39.5 | 103.0 | 40.0 | 0.4 | 26.6 | 28.5 | 6.4 | 18.7 | 34.1 | 5.0 |
| LOS | F | С | D | F | D | Α | С | С | Α | В | С | Α |
| Approach Delay | | 49.4 | | | 56.5 | | | 23.3 | | | 26.5 | |
| Approach LOS | | D | | | Е | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: C | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 120 | | | | | | | | | | | | |
| Offset: 29.4 (25%), Reference | ed to pha | se 2:EBT | and 6:W | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Coor | dinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | 0 | | | | | - 1 00: 5 | | | | | | |
| Intersection Signal Delay: 38 | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utilizati Analysis Period (min) 15 | ion 99.1% |) | | I(| CU Level | of Service | e F | | | | | |
| , , , | | | | | | | | | | | | |
| Splits and Phases: 6: Liver | rnool Roa | d & Kings | ston Road | | | | | | | | | |



<2033 Future Total>PM 12-20-2024

| | ۶ | → | • | € | ← | • | 1 | † | ~ | / | + | 4 |
|----------------------------|---------|------------|-------|-------|-------------|-------|--------|-------|-----------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | † î> | | * | | 7 | * | ĵ. | |
| Traffic Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | 0.0 | 25.8 | 37.0 | 0.0 | 0.0 | 63.2 | 0.0 | 0.0 | 18.5 | 0 | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0.0 | 1 | | 1 | 1 | | 0.0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | Ĭ |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.98 | 1.00 | 0.98 | 0.99 | 0.98 | 1.00 |
| Frt | 1.00 | 0.981 | | 1.00 | 0.991 | | 0.50 | | 0.850 | 0.55 | 0.907 | |
| Flt Protected | 0.950 | 0.301 | | 0.950 | 0.551 | | 0.950 | | 0.000 | 0.950 | 0.501 | |
| Satd. Flow (prot) | 1685 | 3464 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | 3404 | U | 0.950 | 3303 | U | 0.728 | U | 1033 | 0.950 | 1709 | U |
| Satd. Flow (perm) | 1677 | 3464 | 0 | 1683 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | 10// | 3404 | Yes | 1003 | 3305 | Yes | 1313 | U | Yes | 1/13 | 1709 | Yes |
| J | | 40 | res | | 9 | res | | | res 85 | | 28 | res |
| Satd. Flow (RTOR) | | 18 60 | | | 60 | | | 40 | 85 | | 40 | |
| Link Speed (k/h) | | | | | | | | | | | | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | _ | 7.8 | _ | _ | 41.7 | _ | | 10.3 | _ | _ | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 41 | 1730 | 245 | 40 | 702 | 47 | 242 | 0 | 351 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 41 | 1975 | 0 | 40 | 749 | 0 | 242 | 0 | 351 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | OI · LX | JI-LX | | JI.LX | JI-LX | | JI. LX | | JI.LX | JI. LX | JI-LX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| | | | | | | | | | | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

| | ۶ | - | \rightarrow | • | ← | • | 4 | † | / | > | ļ | 1 |
|-------------------------------|-------------|------------|---------------|----------|-------------|------------|-------|----------|-----------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Lead-Lag Optimize? | Load | Lag | | LCau | Lag | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | None | 7.0 | | None | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 76.8 | | 8.2 | 79.9 | | 27.5 | | 27.5 | 27.5 | 27.5 | |
| Actuated g/C Ratio | 0.04 | 0.59 | | 0.06 | 0.61 | | 0.21 | | 0.21 | 0.21 | 0.21 | |
| • | | | | | | | | | | | | |
| v/c Ratio | 0.64 | 0.96 | | 0.38 | 0.35 | | 0.87 | | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | | 63.6 | 10.6 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | | 63.6 | 10.6 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| LOS | F | D | | Е | В | | Е | 00.5 | Е | D | C | |
| Approach Delay | | 38.0 | | | 13.3 | | | 66.5 | | | 27.5 | |
| Approach LOS | | D | | | В | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 77 (59%), Reference | ed to phase | e 2:EBT ar | nd 6:WBT, | Start of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.96 | | | | | | | | | | | | |
| Intersection Signal Delay: 3 | | | | Ir | ntersection | LOS: D | | | | | | |
| Intersection Capacity Utiliza | tion 97.9% |) | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: Wa | Inut Lane | & Kingston | n Road | | | | | | | | | |
| √Ø1 →Ø2 (R | 20 | | | | | | | 100 | 04 | | - | |
| 15 s 76 s | 200 | | | | | | | 39 s | | | 1 | |
| Ø5 ← Ø6 (R) | | | | | | | | 1 | 78 | | | |
| 10 s 81 s | | | | | | | | 39.5 | 344 | | 1 | |
| | | | | | | | | | | | | |

<2033 Future Total>PM 12-20-2024

1: Walnut Lane & Kingston Road

| | • | - | 1 | • | 1 | ~ | - | ↓ | |
|------------------------|---------|---------|-------|-------|-------|--------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1975 | 40 | 749 | 242 | 351 | 26 | 45 | |
| v/c Ratio | 0.64 | 0.96 | 0.38 | 0.35 | 0.87 | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | 63.6 | 10.6 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | 63.6 | 10.6 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Length 50th (m) | 10.9 | ~279.5 | 10.7 | 33.3 | 59.0 | 66.3 | 5.3 | 3.4 | |
| Queue Length 95th (m) | m14.2 r | m#316.7 | m20.4 | 46.5 | #97.1 | #109.3 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 2054 | 129 | 2157 | 313 | 446 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.96 | 0.31 | 0.35 | 0.77 | 0.79 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 2: Street B & Kingston Road <2033 Future Total>PM 12-20-2024

| | → | • | 1 | ← | • | <i>></i> |
|----------------------------|----------|-------|----------|----------|----------|-------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 1 | | ^ | | 7 |
| Traffic Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | | 45.0 | 0.0 | | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0.0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | 3.00 | | 00 | 0.00 | 00 | |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | 5.500 | | | | 0.000 |
| Satd. Flow (prot) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Flt Permitted | 0000 | 1001 | J | 0000 | <u> </u> | 1000 |
| Satd. Flow (perm) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Link Speed (k/h) | 60 | .501 | | 60 | 30 | .500 |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | 11.0 | 3 | 3 | 1.5 | 11.0 | |
| Confl. Bikes (#/hr) | | 1 | J | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 0.32 | 2% | 2% | 2% | 0.52 |
| Adj. Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Shared Lane Traffic (%) | 1771 | 00 | J | 1112 | J | 212 |
| Lane Group Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | ragni | Leit | 3.0 | 0.0 | ragni |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | 1.01 | 1.04 | 24 | 1.01 | 24 | 14 |
| Sign Control | Free | 14 | 24 | Free | | 14 |
| Sign Control | Free | | | Free | Stop | |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 66.4%
Analysis Period (min) 15

ICU Level of Service C

1105-1163 Kingston Road Synchro 11 Report Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

 Volume for 95th percentile queue is metered by upstream signal.

| | • | → | • | • | ← | • | 4 | † | <i>></i> | > | ţ | 1 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|----------|-------------|-------------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻ | † } | | * | f) | | * | ĵ. | |
| Traffic Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Future Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.968 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3296 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3296 | 0 | 1595 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 43 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1588 | 433 | 43 | 884 | 184 | 178 | 59 | 68 | 161 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 2021 | 0 | 43 | 1068 | 0 | 178 | 127 | 0 | 161 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | | | | | | | | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 6

| | - | • | • | • | 1 | ~ |
|-----------------------------|----------|------|--------|----------|-------------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | * | 7 | ****** | ^ | 1102 | 7 |
| Traffic Volume (veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (Veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Sign Control | Free | ,,, | | Free | Stop | 200 |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1741 | 85 | 0.02 | 1112 | 0.02 | 272 |
| Pedestrians | 1771 | 00 | | 1112 | 3 | LIL |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | U | |
| Median type | TWLTL | | | TWLTL | | |
| | | | | 1WLTL | | |
| Median storage veh) | 2 | | | 129 | | |
| Upstream signal (m) | 191 | | 0.40 | 129 | 0.40 | 0.40 |
| pX, platoon unblocked | | | 0.43 | | 0.48 | 0.43 |
| vC, conflicting volume | | | 1744 | | 2300 | 874 |
| vC1, stage 1 conf vol | | | | | 1744 | |
| vC2, stage 2 conf vol | | | | | 556 | |
| vCu, unblocked vol | | | 103 | | 609 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 42 |
| cM capacity (veh/h) | | | 642 | | 365 | 471 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 870 | 870 | 85 | 556 | 556 | 272 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 85 | 0 | 0 | 272 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 471 |
| Volume to Capacity | 0.51 | 0.51 | 0.05 | 0.33 | 0.33 | 0.58 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 |
| Lane LOS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C |
| Approach Delay (s) | 0.0 | | | 0.0 | | 22.5 |
| Approach LOS | 0.0 | | | 0.0 | | C |
| | | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.9 | | | |
| Intersection Capacity Utili | zation | | 66.4% | IC | CU Level of | of Service |
| Analysis Period (min) | | | 15 | | | |

1105-1163 Kingston RoadSynchro 11 ReportWSPPage 5

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2033 Future Total>PM 12-20-2024

| | ٠ | → | • | • | ← | • | 1 | † | ~ | / | ļ | 4 |
|-------------------------|-------|----------|-----|-------|----------|-----|-------|-------|-----|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 26.0 | 79.0 | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 20.0% | 60.8% | | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) | 21.0 | 72.4 | | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 4 | | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 20.3 | 82.4 | | 5.0 | 65.2 | | 23.5 | 23.5 | | 23.5 | 23.5 | |
| Actuated g/C Ratio | 0.16 | 0.63 | | 0.04 | 0.50 | | 0.18 | 0.18 | | 0.18 | 0.18 | |
| v/c Ratio | 0.90 | 0.96 | | 0.70 | 0.62 | | 0.79 | 0.36 | | 0.69 | 0.33 | |
| Control Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| LOS | Е | D | | F | С | | Е | С | | Е | В | |
| Approach Delay | | 39.0 | | | 29.2 | | | 56.6 | | | 42.3 | |
| Approach LOS | | D | | | _ | | | E | | | D | |

Intersection Summary

Area Type:

Cycle Length: 130 Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96

Intersection Signal Delay: 37.8
Intersection Capacity Utilization 92.7% Intersection LOS: D ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 7 Queues

<2033 Future Total>PM 12-20-2024

3: Dixie Road & Kingston Road

| | • | - | • | - | 1 | Ť | - | ↓ |
|------------------------|--------|--------|--------|-------|------|------|------|----------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 222 | 2021 | 43 | 1068 | 178 | 127 | 161 | 130 |
| v/c Ratio | 0.90 | 0.96 | 0.70 | 0.62 | 0.79 | 0.36 | 0.69 | 0.33 |
| Control Delay | 71.8 | 35.4 | 117.4 | 25.6 | 74.1 | 32.0 | 64.5 | 14.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 71.8 | 35.4 | 117.4 | 25.6 | 74.1 | 32.0 | 64.5 | 14.8 |
| Queue Length 50th (m) | 53.2 | 275.4 | 11.7 | 84.0 | 43.9 | 18.9 | 38.9 | 6.5 |
| Queue Length 95th (m) | m#68.0 | #350.7 | m#26.9 | 102.8 | 65.4 | 34.9 | 58.8 | 22.1 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 255 | 2105 | 61 | 1720 | 302 | 464 | 312 | 494 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.87 | 0.96 | 0.70 | 0.62 | 0.59 | 0.27 | 0.52 | 0.26 |
| | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

<2033 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
4: Street B & Shopping Plaza Entrance

| | ၨ | • | 1 | † | ↓ | 4 |
|----------------------------|-------|-------|------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | ર્ન | î» | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.885 | | | | 0.898 | |
| Flt Protected | 0.993 | | | 0.988 | | |
| Satd. Flow (prot) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Flt Permitted | 0.993 | | | 0.988 | | |
| Satd. Flow (perm) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Link Speed (k/h) | 30 | | | 30 | 30 | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 61 | 352 | 51 | 161 | 28 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 413 | 0 | 0 | 212 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | • | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Stop | Stop | |
| Intersection Summary | | | | | | |

| Intersection Summary | | | | | | | | | | | |
|----------------------------|----------------------|------------------------|--|--|--|--|--|--|--|--|--|
| Area Type: | Other | | | | | | | | | | |
| Control Type: Unsignalized | | | | | | | | | | | |
| Intersection Capaci | ty Utilization 46.9% | ICU Level of Service A | | | | | | | | | |
| Ameliania Desiral (asi | \ 45 | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis
4: Street B & Shopping Plaza Entrance

| | • | • | • | † | ↓ | 4 |
|-------------------------------|-------|------|-------|----------|------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | 4 | - 1→ | |
| Sign Control | Stop | | | Stop | Stop | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 61 | 352 | 51 | 161 | 28 | 85 |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 413 | 212 | 113 | | | |
| Volume Left (vph) | 61 | 51 | 0 | | | |
| Volume Right (vph) | 352 | 0 | 85 | | | |
| Hadj (s) | -0.42 | 0.05 | -0.45 | | | |
| Departure Headway (s) | 4.3 | 5.1 | 4.7 | | | |
| Degree Utilization, x | 0.49 | 0.30 | 0.15 | | | |
| Capacity (veh/h) | 796 | 664 | 693 | | | |
| Control Delay (s) | 11.4 | 10.2 | 8.5 | | | |
| Approach Delay (s) | 11.4 | 10.2 | 8.5 | | | |
| Approach LOS | В | В | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 10.6 | | | |
| Level of Service | | | В | | | |
| Intersection Capacity Utiliza | ation | | 46.9% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 5: Street B & Street A

| <2033 Future | Total>PIV |
|--------------|------------|
| | 12-20-2024 |
| | |

| | * | 4 | † | ~ | / | Ţ | | |
|--------------------------------|-----------|-------|------|-------|----------|------------|-----|--|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations | W | | î, | | | ર્ન | _ | |
| Traffic Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 | | |
| Future Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Ped Bike Factor | | | | | | | | |
| Frt | 0.865 | | | | | | | |
| Flt Protected | | | | | | 0.953 | | |
| Satd. Flow (prot) | 1662 | 0 | 1921 | 0 | 0 | 1778 | | |
| Flt Permitted | | | | | | 0.953 | | |
| Satd. Flow (perm) | 1662 | 0 | 1921 | 0 | 0 | 1778 | | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | | |
| Link Distance (m) | 193.3 | | 78.3 | | | 49.0 | | |
| Travel Time (s) | 23.2 | | 9.4 | | | 5.9 | | |
| Confl. Peds. (#/hr) | 5 | 5 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 3% | 0% | | |
| Adj. Flow (vph) | 0 | 186 | 0 | 0 | 372 | 3 | | |
| Shared Lane Traffic (%) | | | | | | | | |
| Lane Group Flow (vph) | 186 | 0 | 0 | 0 | 0 | 375 | | |
| Enter Blocked Intersection | No | No | No | No | No | No | | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | | |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 | | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | | |
| Two way Left Turn Lane | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | | |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | | | |
| Sign Control | Stop | | Stop | | | Stop | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Control Type: Unsignalized | | | | | | | | |
| Intersection Capacity Utilizat | ion 37.2% | | | IC | U Level | of Service | e A | |
| Analysis Period (min) 15 | | | | | | | | |
| aryolo i crioa (iliiri) io | | | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 11

HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

| | € | • | † | / | - | ļ |
|------------------------------|--------|------|----------|------|------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | î, | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 |
| Future Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 186 | 0 | 0 | 372 | 3 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 186 | 0 | 375 | | | |
| Volume Left (vph) | 0 | 0 | 372 | | | |
| Volume Right (vph) | 186 | 0 | 0 | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | |
| Departure Headway (s) | 4.2 | 4.8 | 4.6 | | | |
| Degree Utilization, x | 0.22 | 0.00 | 0.48 | | | |
| Capacity (veh/h) | 788 | 713 | 761 | | | |
| Control Delay (s) | 8.4 | 7.8 | 11.7 | | | |
| Approach Delay (s) | 8.4 | 0.0 | 11.7 | | | |
| Approach LOS | Α | Α | В | | | |
| Intersection Summary | | | | | | |
| Delay | | | 10.6 | | | |
| Level of Service | | | В | | | |
| Intersection Capacity Utiliz | zation | | 37.2% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Total>PM 12-20-2024

| | ᄼ | → | • | • | ← | • | 4 | † | <i>></i> | / | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Future Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.311 | | | 0.164 | | |
| Satd. Flow (perm) | 1663 | 3461 | 1512 | 1711 | 3579 | 1517 | 580 | 3773 | 1564 | 345 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 93 | | | 160 | | | 174 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 855 | 252 | 103 | 617 | 173 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 855 | 252 | 103 | 617 | 173 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | _ 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

WSP

<2033 Future Total>PM 12-20-2024

Page 14

| | • | - | • | • | • | • | 1 | † | ~ | - | ↓ | 4 |
|------------------------------|-------------|----------|-----------|-------------|------------|------------|------------|----------|--------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | • | | | • | • | | • | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 26.8 | 38.9 | 48.0 | 21.0 | 33.1 | 33.1 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.21 | 0.30 | 0.37 | 0.16 | 0.25 | 0.25 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.60 | 0.72 | 0.43 | 0.51 | 0.54 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 36.9 | 43.6 | 14.0 | 32.9 | 38.8 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 36.9 | 43.6 | 14.0 | 32.9 | 38.8 | 5.9 |
| LOS | D | F | Е | F | D | Α | D | D | В | С | D | Α |
| Approach Delay | | 73.7 | | | 69.4 | | | 36.9 | | | 31.8 | |
| Approach LOS | | Е | | | Е | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | 2:EBT a | ind 6:WB | T, Start of | Green | | | | | | | |
| Natural Cycle: 145 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.07 | | | | | | | | | | | | |
| Intersection Signal Delay: 5 | 56.1 | | | li li | ntersectio | n LOS: E | | | | | | |
| Intersection Capacity Utiliz | ation 105.8 | % | | 10 | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & King | ston Road | i | | | | | | | | |
| K | 1040 10 | 220 | | | | 10 | 4/2 | | | | | - 9 |
| √ Ø1 26 s | 46 s | R) | | | | * A Ø | 3 ▼ Ø4 | > | | | | - 2 |
| 20 S | 119.00 | 4 | | | | | _ A | | | | | |
| Ø5 | | Ø6 (F | (3 | | | Ø | 7 Tøs | 11 | | | | |
| 34 s | 3 | 8 s | -77 | | | 86 | 50 s | | | | | |

Queues 6: Liverpool Road & Kingston Road <2033 Future Total>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|-------|-----------|---------|--------|-------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 855 | 252 | 103 | 617 | 173 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.60 | 0.72 | 0.43 | 0.51 | 0.54 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 36.9 | 43.6 | 14.0 | 32.9 | 38.8 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 36.9 | 43.6 | 14.0 | 32.9 | 38.8 | 5.9 |
| Queue Length 50th (m) | 79.7 | ~164.6 | 138.8 | ~84.3 | 53.1 | 0.0 | 27.0 | 102.1 | 14.8 | 15.8 | 68.5 | 0.0 |
| Queue Length 95th (m) | m87.5 | m#182.6 n | n#159.9 | #139.7 | 70.0 | 0.0 | 42.7 | 125.2 | 38.0 | 27.4 | 87.0 | 15.8 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1035 | 620 | 279 | 911 | 505 | 278 | 1187 | 589 | 202 | 1149 | 590 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.82 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.60 | 0.72 | 0.43 | 0.51 | 0.54 | 0.29 |

Lanes, Volumes, Timings

8: Liverpool Road & Private Access/Pickering Parkway

<2033 Future Total>PM

| | • | - | • | • | ← | • | 4 | † | ~ | - | ţ | 4 |
|----------------------------|---------|------------|-------|--------|----------|--------|---------|------------|---------|-------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻሻ | ^ | 7 | * | ^ ^ | 7 | * | ተተተ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 852 | 401 | 196 | 1318 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 852 | 401 | 196 | 1318 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 0.96 | | 0.98 | | | 1.00 | | 0.96 | 0.99 | | 0.93 |
| Frt | | 0.902 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 5085 | 1569 | 1708 | 5079 | 1597 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.101 | | | 0.238 | | |
| Satd. Flow (perm) | 0.000 | 2959 | 0 | 0 | 1858 | 1399 | 174 | 5085 | 1502 | 425 | 5079 | 1482 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 141 | . 00 | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | 0.0 | 21 | 21 | 20.1 | | 21 | | 21 | 21 | 10.0 | 21 |
| Confl. Bikes (#/hr) | | | 2 | | | | | | 5 | | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 2% | 0% | 5% | 0% | 2% | 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1433 | 50 |
| Shared Lane Traffic (%) | 00 | | | | 00 | 100 | 0 | 020 | .00 | 2.0 | 1 100 | 00 |
| Lane Group Flow (vph) | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1433 | 50 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 6.0 | rugin | 2011 | 6.0 | rugin | 2010 | 3.8 | . ug.it | Lon | 3.8 | rugin |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.01 | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | OI · LX | JI-LX | | JI. LX | JI-LX | JI. LX | OI · LX | OI LX | OI. LX | OI LX | OI LX | OI. LX |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Position(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Size(m) | | U.U | | | 0.0 | | | 0.6 | | | 0.6 | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2033 Future Total>PM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

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|-------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.73 | 0.46 | 0.51 | 0.75 | 0.71 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.8 | 20.4 | 8.8 | 37.1 | 29.6 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.8 | 20.4 | 8.8 | 37.1 | 29.6 | 0.2 |
| LOS | D | В | | D | С | Α | D | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 18.5 | | | 29.7 | |
| Approach LOS | | С | | | С | | | В | | | С | |

Intersection Summary Area Type: O Cycle Length: 100 Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

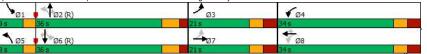
Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 25.9
Intersection Capacity Utilization 70.6%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2033 Future Total>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

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|------|---|---|---|---|--|--|---|---|--|--|---|
| EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| 95 | 216 | 448 | 63 | 189 | 126 | 926 | 436 | 213 | 1433 | 50 | |
| 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.73 | 0.46 | 0.51 | 0.75 | 0.71 | 0.07 | |
| 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.8 | 20.4 | 8.8 | 37.1 | 29.6 | 0.2 | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.8 | 20.4 | 8.8 | 37.1 | 29.6 | 0.2 | |
| 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 8.5 | 50.9 | 32.0 | 20.8 | 81.2 | 0.0 | |
| 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#43.0 | 73.2 | 54.4 | #61.0 | #127.9 | 0.0 | |
| | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| 245 | 546 | 877 | 509 | 520 | 173 | 2012 | 857 | 284 | 2010 | 673 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.73 | 0.46 | 0.51 | 0.75 | 0.71 | 0.07 | |
| | 95 0.51 51.0 0.0 51.0 17.7 32.2 245 0 | 95 216 0.51 0.48 51.0 18.9 17.7 7.1 32.2 17.3 58.8 245 546 0 0 0 0 0 0 | 95 216 448 0.51 0.48 0.67 51.0 18.9 40.8 0.0 0.0 0.0 51.0 18.9 40.8 17.7 7.1 42.3 32.2 17.3 52.8 58.8 57.0 245 546 877 0 0 0 0 0 0 | 95 216 448 63 0.51 0.48 0.67 0.16 51.0 18.9 40.8 31.2 17.7 7.1 42.3 10.3 32.2 17.3 52.8 19.3 58.8 304.5 57.0 245 546 877 509 0 0 0 0 0 0 0 0 | 95 216 448 63 189 0.51 0.48 0.67 0.16 0.43 51.0 18.9 40.8 31.2 7.5 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 17.7 7.1 42.3 10.3 0.0 32.2 17.3 52.8 19.3 15.9 58.8 304.5 304.5 62.1 245 546 877 509 520 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 0.51 0.48 0.67 0.16 0.43 0.73 51.0 18.9 40.8 31.2 7.5 38.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 38.8 17.7 7.1 42.3 10.3 0.0 8.5 32.2 17.3 52.8 19.3 15.9 m#43.0 58.8 304.5 57.0 62.1 54.4 245 546 877 509 520 173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 926 0.51 0.48 0.67 0.16 0.43 0.73 0.46 51.0 18.9 40.8 31.2 7.5 38.8 20.4 17.7 7.1 42.3 10.3 0.0 8.5 50.9 32.2 17.3 52.8 19.3 15.9 m#43.0 73.2 57.0 62.1 54.4 245 546 877 509 520 173 2012 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 926 436 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 17.7 7.1 42.3 10.3 0.0 8.5 50.9 32.0 32.2 17.3 52.8 19.3 15.9 m#43.0 73.2 54.4 57.0 62.1 54.4 75.7 245 546 877 509 520 173 2012 857 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 926 436 213 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 0.75 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 0.0 <td< td=""><td>95 216 448 63 189 126 926 436 213 1433 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 0.75 0.71 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.0</td><td>95 216 448 63 189 126 926 436 213 1433 50 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 0.75 0.71 0.07 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.2 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.2 17.7 7.1 42.3 10.3 0.0 8.5 50.9 32.0 20.8 81.2 0.0 32.2 17.3 52.8 19.3 15.9 m#43.0 73.2 54.4 #61.0 #127.9 0.0 57.0 62.1 54.4 75.7 132.5 35.5 245 546 877 509 520 173 2012 857 284 2010 673 0 0 0 0</td></td<> | 95 216 448 63 189 126 926 436 213 1433 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 0.75 0.71 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.0 | 95 216 448 63 189 126 926 436 213 1433 50 0.51 0.48 0.67 0.16 0.43 0.73 0.46 0.51 0.75 0.71 0.07 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.2 51.0 18.9 40.8 31.2 7.5 38.8 20.4 8.8 37.1 29.6 0.2 17.7 7.1 42.3 10.3 0.0 8.5 50.9 32.0 20.8 81.2 0.0 32.2 17.3 52.8 19.3 15.9 m#43.0 73.2 54.4 #61.0 #127.9 0.0 57.0 62.1 54.4 75.7 132.5 35.5 245 546 877 509 520 173 2012 857 284 2010 673 0 0 0 0 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

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<2033 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | € | + | • | • | † | / | / | ↓ | -√ |
|----------------------------|------|----------|-------|-------|-------|-------|-------|------------|----------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | 4 | 7 | * | ^ ^ | | | ^ ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Future Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.997 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.997 | | 0.137 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 263 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 85 | | | | | | 180 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 493 | 302 | 543 | 318 | 222 | 1178 | 0 | 0 | 1268 | 180 |
| Shared Lane Traffic (%) | | | | 10% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 493 | 272 | 573 | 318 | 222 | 1178 | 0 | 0 | 1268 | 180 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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<2033 Future Total>PM

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| • | → | • | • | • | • | 1 | T | | - | ¥ | 4 |
|--|----------|--------|------------|------------|------------|-------|-------|-----|-----|-------|-------|
| Lane Group EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Pern |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | (|
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | ; | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.09 |
| Maximum Green (s) | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | • | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | 28.5 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.7 | 24.7 |
| Actuated g/C Ratio | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.40 | | | 1.03 | 0.35 |
| Control Delay | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.2 | | | 67.4 | 13.9 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.2 | | | 67.4 | 13.9 |
| LOS | | F | С | F | С | В | В | | | Е | Е |
| Approach Delay | 89.2 | | | 58.3 | | | 12.2 | | | 60.8 | |
| Approach LOS | F | | | Е | | | В | | | Е | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to phase 2:NE | BTL and | 6:SBT, | Start of G | reen | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | |
| Control Type: Actuated-Coordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | | | | | |
| Intersection Signal Delay: 48.2 | | | Ir | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utilization 91.0% | | | IC | CU Level | of Service | eΕ | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Onlite and Discours On Livery 15 15 | 14/-1- 1 | 1 # 1 | 404 1 | ND 04 2 | | | | | | | |
| Splits and Phases: 9: Liverpool Road & | k Wainut | Lane/H | wy 401 V | AR OH-K | amp | 1.4 | | | | | |
| Ø2 (R) | | | | | | 7 | Ø8 | | | | |

Ø6 (R)

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<2033 Future Total>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | 1 | • | • | 1 | 1 | ↓ | 4 | |
|------------------------|--------|------|--------|-------|------|-------|--------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 493 | 272 | 573 | 318 | 222 | 1178 | 1268 | 180 | |
| v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.40 | 1.03 | 0.35 | |
| Control Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.2 | 67.4 | 13.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.2 | 67.4 | 13.9 | |
| Queue Length 50th (m) | ~103.9 | 45.8 | ~128.1 | 38.1 | 18.5 | 43.0 | ~69.9 | 1.9 | |
| Queue Length 95th (m) | #163.9 | 72.1 | #194.2 | 66.2 | 35.1 | 52.4 | #120.1 | m22.2 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 546 | 533 | 601 | 2930 | 1228 | 508 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.40 | 1.03 | 0.35 | |

- Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.

 Queue shown is maximum after two cycles.

 M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Total>PM 12-20-2024

| | • | - | • | • | - | 4 | |
|----------------------------|-------|----------|------------|-------|-------|-------|---|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ç |
| Lane Configurations | ሻ | ^ | † } | | ሻ | 7 | |
| Traffic Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | - | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.99 | |
| Frt | | | 0.969 | | | 0.850 | |
| Flt Protected | 0.950 | | 0.000 | | 0.950 | 5.000 | |
| Satd. Flow (prot) | 1618 | 3433 | 3356 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | 0700 | 0000 | - 0 | 0.950 | 1111 | |
| Satd. Flow (perm) | 1617 | 3433 | 3356 | 0 | 1805 | 1751 | |
| Right Turn on Red | 1017 | 0400 | 3330 | Yes | 1003 | Yes | |
| Satd. Flow (RTOR) | | | 34 | 165 | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | 149 | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| | 1 | 25.4 | 55.0 | 1 | 25.2 | 2 | |
| Confl. Peds. (#/hr) | | 0.00 | 0.00 | | 0.00 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | |
| Bus Blockages (#/hr) | 0 | 1000 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 223 | 1999 | 926 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | · · | | · · | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | 9.4 | | 0.0 | 0.0 | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| DETECTOR & SIZE(III) | | 0.0 | 0.0 | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 22 Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2033 Future Total>PM 12-20-2024

| | • | - | • | • | - | 4 | | |
|---------------------------|-------|-------|-------|-----|-------|-------|------|--|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Type | | CI+Ex | Cl+Ex | | | | | |
| Detector 2 Channel | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 | |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% | |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 | |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | | 0.83 | 0.32 | | |
| Control Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | | |
| LOS | D | D | В | | Е | Α | | |
| Approach Delay | | 42.2 | 11.8 | | 48.9 | | | |
| Approach LOS | | D | В | | D | | | |
| Intersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | |

Actuated Cycle Length: 130
Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 115
Catural Cycle: 115
Catural Cycle: 115

National Cycle: 115

Intersection Signal Delay: 33.7
Intersection Capacity Utilization 77.8%
ICU Level
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2033 Future Total>PM 12-20-2024

| | • | - | — | - | 4 | |
|--------------------------|------------|-----------|-----------|-----------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 295 | 149 | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | 0.83 | 0.32 | |
| Control Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | |
| Queue Length 50th (m) | 52.2 | 285.8 | 36.3 | 72.7 | 0.0 | |
| Queue Length 95th (m) | m55.0 | m281.6 | 43.5 | 101.2 | 16.7 | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 248 | 2270 | 1727 | 426 | 527 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.90 | 0.88 | 0.68 | 0.69 | 0.28 | |
| Intersection Summary | | | | | | |
| m Volume for 95th percen | tile queue | is metere | d by upst | ream sign | al. | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 24 <2033 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | ← | 4 | 1 |
|----------------------------|-------------|---------------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | , | ኘ | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 4.0 6% | 3.1 | 2.1 | 0% | 0% | 3.1 |
| | 070 | 0.0 | 47.5 | U% | 0.0 | 52.0 |
| Storage Length (m) | | 0.0 | 47.5 | | 0.0 | 52.0 |
| Storage Lanes | | U | | | 2.5 | - 1 |
| Taper Length (m) | 0.05 | 0.05 | 22.3 | 0.05 | | 4.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 224 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | 10.1 | | | 20.4 | 13.0 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| | | | | | | |
| Adj. Flow (vph) | 1843 | 25 | 200 | 874 | 720 | 376 |
| Shared Lane Traffic (%) | 4000 | | 000 | 07. | 700 | 070 |
| Lane Group Flow (vph) | 1868 | 0 | 200 | 874 | 720 | 376 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 2.20 | 14 | 24 | | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Trailing Detector (m) | | | | | | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Type | OITLX | | | OITLX | | |

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<2033 Future Total>PM 12-20-2024

Page 26

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | <i>></i> | |
|----------------------------|----------------|----------|----------|-------------|------------|-------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | _ | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | 1.2 | 0.7 | 0.1 | |
| Lead/Lag Optimize? | Lay | | Lead | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | NONE | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.3 | | 16.0 | 86.3 | 29.8 | 29.8 | |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | | 1.03 | 0.00 | 0.23 | 0.23 | |
| Control Delay | 68.3 | | 127.0 | 1.8 | 62.0 | 25.4 | |
| | | | | | | | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 68.3 | | 127.0 | 1.8 | 62.0 | 25.4 | |
| LOS | E | | F | Α | E | С | |
| Approach Delay | 68.3 | | | 25.1 | 49.4 | | |
| Approach LOS | Е | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | |
| Offset: 69 (53%), Referen | nced to phase | 2:EBT an | id 6:WB1 | Γ, Start of | Green | | |
| Natural Cycle: 130 | | | | | | | |
| Control Type: Actuated-C | | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | | |
| Intersection Signal Delay | r: 51.7 | | | Ir | ntersectio | n LOS: D | |
| Intersection Capacity Util | lization 93.1% | | | I | CU Level | of Service | F |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 11: | : Hwy 401 WB | Damne & | Kinasto | n Doad | | | |
| | 8838 8390 | ranips o | Kingsio | III Noau | | | |
| ▼ Ø1 | Ø2 (R) | | | | | | |
| + | 1) H.C. | | | | | | |
| Ø6 (R) | | | | | | | |

Queues 11: Hwy 401 WB Ramps & Kingston Road <2033 Future Total>PM 12-20-2024

| | - | • | • | 1 | / |
|------------------------|--------|--------|-------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1868 | 200 | 874 | 720 | 376 |
| v/c Ratio | 1.04 | 1.03 | 0.36 | 0.89 | 0.70 |
| Control Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Length 50th (m) | ~285.7 | ~48.6 | 6.4 | 91.1 | 35.3 |
| Queue Length 95th (m) | #329.1 | #100.6 | 6.0 | #114.7 | 71.2 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1795 | 194 | 2401 | 853 | 553 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.36 | 0.84 | 0.68 |

1105-1163 Kingston Road Synchro 11 Report Page 27

Lanes, Volumes, Timings

<2033 Future Total>PM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|----------|-------|------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | ĵ. | | ሻ | fa fa | |
| Traffic Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.987 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3403 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1648 | 3343 | 0 | 1704 | 3403 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 12 | | | 129 | | | 141 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1703 | 41 | 97 | 1373 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1744 | 0 | 97 | 1505 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | , i | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | zn | n | | | ^ | | A | n | | <u>-</u> / | n | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | Cl+Ex | | | CI+Ex | |
| | | OI. LX | | | JI-LX | | | OI LX | | | OI. LX | |

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<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

<2033 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
12: Plaza Entrance/Delta Blvd & Kingston Road

| ۶ | → | • | • | + | • | 4 | † | ~ | \ | ţ | 4 |
|-----|----------|-----|-----|-----|-----|-----|-----|-----|----------|-----|-----|
| EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| | | | | | | | | | | | |
| | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| | | | | | | _ | | | _ | | |

| | | - | • | • | | | • | • | • | | • | |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | | 10.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 0.93 | 0.82 | | 0.93 | 0.36 | | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | | 122.1 | 23.9 | | 93.7 | 14.4 | | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | | 0.0 | 0.0 | | 0.0 | 75.1 | | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | | 122.1 | 24.0 | | 93.7 | 89.5 | | 198.9 | 13.9 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 26.7 | | | 29.9 | | | 91.9 | | | 77.7 | |
| Approach LOS | | С | | | С | | | F | | | Е | |

| Intersection Summa | ary | |
|----------------------|-----------------------|---------------------------|
| Area Type: | Other | |
| Cycle Length: 130 | | |
| Actuated Cycle Len | gth: 130 | |
| Offset: 6 (5%), Refe | erenced to phase 2:EE | and 6:WBT, Start of Green |
| Natural Cycle: 110 | | |
| Control Type: Actua | ated-Coordinated | |
| Maximum v/c Ratio | : 0.93 | |
| Intersection Signal | Delay: 37.2 | Intersection LOS: D |
| Intersection Capaci | ty Utilization 97.1% | ICU Level of Service F |
| Analysis Period (mi | n) 15 | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2033 Future Total>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | • | † | - | . ↓ | |
|------------------------|-------|--------|--------|-------|-------|----------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1744 | 97 | 1505 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.82 | 0.93 | 0.36 | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | 122.1 | 23.9 | 93.7 | 14.4 | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 75.1 | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | 122.1 | 24.0 | 93.7 | 89.5 | 198.9 | 13.9 | |
| Queue Length 50th (m) | 36.7 | 144.1 | 26.0 | 85.8 | 54.0 | 7.7 | 19.7 | 5.9 | |
| Queue Length 95th (m) | m38.0 | m147.6 | m#48.1 | 218.0 | #99.2 | 26.9 | 36.4 | 25.8 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1845 | 243 | 481 | 240 | 417 | |
| Starvation Cap Reductn | 0 | 38 | 0 | 10 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 57 | 0 | 0 | 0 | 366 | 223 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.82 | 0.88 | 1.44 | 5.24 | 0.41 | |

Synchro 11 Report Page 30 1105-1163 Kingston Road

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2033 Future Total>PM 12-20-2024

| | ۶ | → | • | • | ← | 4 | • | † | <i>></i> | / | + | |
|----------------------------|-------|----------|---------|-------|----------|----------|---------|----------|-------------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1637 | 3400 | 1549 | 1717 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | 3 - | | 3.5 | J | | 3.5 | J | | 3.5 | 3 |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | J LA | J LA | J. / LA | J LA | J. / LA | J. LA | J. / LA | J. / L.K | J LA | J. / LA | J LA | J L.K |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| DOLOGIOI Z OIZE(III) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 31

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

| | ٠ | - | • | • | ← | 4 | 4 | † | 1 | - | | 1 |
|-----------------------------|--------------|------------|----------|-----------|------------|------------|-------|----------|-------|-------|---------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| Control Delay | 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | Е | D | D | Е | D | Α |
| Approach Delay | | 76.4 | | | 46.9 | | | 46.1 | | | 35.3 | |
| Approach LOS | | Е | | | D | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 32 (25%), Referen | | e 2:EBT a | nd 6:WB | , Start o | Green | | | | | | | |
| Natural Cycle: 130 | | | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.08 | | | | | | | | | | | | |
| Intersection Signal Delay: | | 01 | | | ntersectio | | | | | | | |
| Intersection Capacity Utili | zation 114.6 | % | | l | CU Level | of Service | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: | Whites Road | d & Kinasi | ton Road | | | | | | | | | |
| opino ana i nacco. To: | 1 | | | | | | 1.1 | | | | | - 9 |



Queues

<2033 Future Total>PM

13: Whites Road & Kingston Road

| | • | - | • | • | ← | • | 1 | 1 | / | - | ţ | 4 |
|------------------------|-------|--------|--------|---------|----------|---------|-------|-------|--------|-------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| v/c Ratio | 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| Control Delay | 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | 125.5 | 55.7 | ~100.9 | 48.8 | 37.1 | 42.7 | 55.8 | 156.8 | 35.9 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #169.5 | 93.4 ı | m#144.4 | m83.0 n | n#138.2 | #83.4 | 68.3 | #189.3 | #70.3 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 941 | 540 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.03 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2033 Future Total>PM 12-20-2024

| | • | • | ~ | † | ļ | 4 |
|----------------------------|-------|-------|----------|----------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | *1 | 7 | | ^ | 44 | |
| Traffic Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Future Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | | | 0.0 |
| Storage Lanes | 2 | 1 | 0 | | | 0 |
| Taper Length (m) | 2.5 | | 2.5 | | | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | | | | |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.954 | | | | | |
| Satd. Flow (prot) | 3450 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.954 | | | 5555 | 55.5 | |
| Satd. Flow (perm) | 3450 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | 3 100 | Yes | Ü | 3300 | 3310 | Yes |
| Satd. Flow (RTOR) | 7 | 100 | | | | 103 |
| Link Speed (k/h) | 50 | 100 | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | 21.0 | 3 | 4 | 11.2 | 13.0 | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1352 | 640 | 2% | 937 | 663 | 2% |
| Shared Lane Traffic (%) | 1352 | 10% | U | 93/ | 003 | U |
| | 1416 | 576 | 0 | 937 | 663 | 0 |
| Lane Group Flow (vph) | | | | | | No |
| Enter Blocked Intersection | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | 4.00 | 4.00 | 0.00 | 4.00 | 0.07 | 0.00 |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 34

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

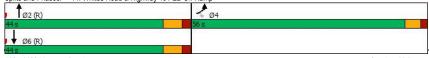
Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

<2033 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | Ť | ¥ | 4 |
|------------------------------|-------------|----------|----------|-------------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 47.7 | 47.7 | | 40.1 | 40.1 | |
| Actuated g/C Ratio | 0.48 | 0.48 | | 0.40 | 0.40 | |
| v/c Ratio | 0.86 | 0.80 | | 0.66 | 0.46 | |
| Control Delay | 29.0 | 27.1 | | 27.8 | 23.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 29.0 | 27.1 | | 27.8 | 23.9 | |
| LOS | С | С | | С | С | |
| Approach Delay | 28.5 | | | 27.8 | 23.9 | |
| Approach LOS | С | | | С | С | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 10 | 0 | | | | | |
| Offset: 8 (8%), Referenced | | NBT and | 6:SBT, S | Start of Gr | een | |
| Natural Cycle: 60 | · · | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | |
| Intersection Signal Delay: | 27.5 | | | Ir | ntersection | LOS: C |
| Intersection Capacity Utiliz | | | | 10 | CU Level o | of Service D |
| Analysis Period (min) 15 | | | | | | |
| | | | | | | |
| Splits and Phases: 14: V | Vhites Road | & Highwa | ay 401 E | B Off Rar | np | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2033 Future Total>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1416 | 576 | 937 | 663 |
| v/c Ratio | 0.86 | 0.80 | 0.66 | 0.46 |
| Control Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Length 50th (m) | 115.7 | 81.0 | 78.9 | 50.2 |
| Queue Length 95th (m) | 141.9 | 130.5 | 102.6 | 67.3 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1745 | 758 | 1417 | 1449 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.81 | 0.76 | 0.66 | 0.46 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2033 Future Total>PM 12-20-2024

| | • | • | † | <i>></i> | / | |
|----------------------------|-------|-------|----------------|-------------|----------|---------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | f _a | | | ન |
| Traffic Volume (vph) | 0 | 281 | 0 | 0 | 466 | 0 |
| Future Volume (vph) | 0 | 281 | 0 | 0 | 466 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 305 | 0 | 0 | 507 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 305 | 0 | 0 | 0 | 0 | 507 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | Ť | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.0%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2033 Future Total>PM 12-20-2024

| | • | • | † | 1 | - | ţ |
|-------------------------------|-------|------|------------|------|---------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1 > | | | 4 |
| Traffic Volume (veh/h) | 0 | 281 | 0 | 0 | 466 | Ö |
| Future Volume (Veh/h) | 0 | 281 | 0 | 0 | 466 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 305 | 0 | 0 | 507 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | 110110 | | | 140110 |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | -1-7 |
| vC, conflicting volume | 1026 | 23 | | | 12 | |
| vC1, stage 1 conf vol | 1020 | 20 | | | 12 | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1026 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0.7 | 0.2 | | | 7.1 | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 70 | | | 68 | |
| cM capacity (veh/h) | 175 | 1029 | | | 1587 | |
| , | | | | | 1507 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 305 | 0 | 507 | | | |
| Volume Left | 0 | 0 | 507 | | | |
| Volume Right | 305 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.30 | 0.00 | 0.32 | | | |
| Queue Length 95th (m) | 9.5 | 0.0 | 10.6 | | | |
| Control Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.9 | | | |
| Intersection Capacity Utiliza | ation | | 51.0% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| mary sis i cilou (ililii) | | | 13 | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 37

Synchro 11 Report Page 38 1105-1163 Kingston Road

Lanes, Volumes, Timings 17: Street B

| <2033 Future | Total>PM |
|--------------|------------|
| | 12-20-2024 |

| | • | • | † | 1 | - | ↓ |
|----------------------------|-------|-------|-------|-------|------|----------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | î, | | | ન |
| Traffic Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Future Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.881 | | 0.978 | | | |
| Flt Protected | 0.994 | | | | | 0.973 |
| Satd. Flow (prot) | 1649 | 0 | 1842 | 0 | 0 | 1833 |
| Flt Permitted | 0.994 | | | | | 0.973 |
| Satd. Flow (perm) | 1649 | 0 | 1842 | 0 | 0 | 1833 |
| Link Speed (k/h) | 30 | | 30 | | | 30 |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 21 | 154 | 122 | 24 | 68 | 54 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 175 | 0 | 146 | 0 | 0 | 122 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Stop | | | Stop |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Control Type: Unsignalized | | | | | | |

Control Type: Unsignalized Intersection Capacity Utilization 33.2% Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 17: Street B

| | € | • | † | 1 | , | ţ |
|------------------------------|--------|-------|----------|------|--------------|--------|
| Movement | WBL | WBR | NBT | NBR | SBL S | SBT |
| Lane Configurations | Y | | 1> | | | ની |
| Sign Control | Stop | | Stop | | 5 | Stop |
| Traffic Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Future Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 21 | 154 | 122 | 24 | 68 | 54 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 175 | 146 | 122 | | | |
| Volume Left (vph) | 21 | 0 | 68 | | | |
| Volume Right (vph) | 154 | 24 | 0 | | | |
| Hadj (s) | -0.47 | -0.06 | 0.15 | | | |
| Departure Headway (s) | 4.0 | 4.4 | 4.6 | | | |
| Degree Utilization, x | 0.20 | 0.18 | 0.16 | | | |
| Capacity (veh/h) | 830 | 787 | 742 | | | |
| Control Delay (s) | 8.0 | 8.3 | 8.4 | | | |
| Approach Delay (s) | 8.0 | 8.3 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 8.2 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | zation | | 33.2% | IC | U Level of S | ervice |
| Analysis Period (min) | | | 15 | | | |

| | ۶ | • | 4 | † | ↓ | 4 |
|-------------------------------|------------|-------|------|----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Y | | | ની | 1 2 | |
| Traffic Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Future Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.912 | | | | 0.986 | |
| Flt Protected | 0.983 | | | 0.992 | | |
| Satd. Flow (prot) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Flt Permitted | 0.983 | | | 0.992 | | |
| Satd. Flow (perm) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Link Speed (k/h) | 30 | | | 40 | 40 | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 32 | 60 | 140 | 767 | 299 | 35 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 92 | 0 | 0 | 907 | 334 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Free | Free | |
| Intersection Summary | | | | | | |
| | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utiliza | tion 75.7% | | | IC | CU Level of | of Service D |
| Analysis Period (min) 15 | | | | | | |

| | • | • | • | † | ļ | 4 | |
|-------------------------------|-------|------|-------|----------|-------------|-----------|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | ¥ | | | 4 | 1> | | |
| Traffic Volume (veh/h) | 29 | 55 | 129 | 706 | 275 | 32 | |
| Future Volume (Veh/h) | 29 | 55 | 129 | 706 | 275 | 32 | |
| Sign Control | Stop | | 0 | Free | Free | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 32 | 60 | 140 | 767 | 299 | 35 | |
| Pedestrians | 02 | 00 | 110 | 701 | 200 | 00 | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| Median type | | | | None | None | | |
| Median storage veh) | | | | 140110 | 140110 | | |
| Upstream signal (m) | | | | | 114 | | |
| pX, platoon unblocked | | | | | 117 | | |
| vC, conflicting volume | 1364 | 316 | 334 | | | | |
| vC1, stage 1 conf vol | 1004 | 310 | JJ-1 | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 1364 | 316 | 334 | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | | |
| tC, 2 stage (s) | 0.4 | 0.2 | 7.1 | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | | |
| p0 queue free % | 78 | 92 | 89 | | | | |
| cM capacity (veh/h) | 144 | 724 | 1225 | | | | |
| | | | | | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total | 92 | 907 | 334 | | | | |
| Volume Left | 32 | 140 | 0 | | | | |
| Volume Right | 60 | 0 | 35 | | | | |
| cSH | 302 | 1225 | 1700 | | | | |
| Volume to Capacity | 0.30 | 0.11 | 0.20 | | | | |
| Queue Length 95th (m) | 9.5 | 2.9 | 0.0 | | | | |
| Control Delay (s) | 22.1 | 2.7 | 0.0 | | | | |
| Lane LOS | С | Α | | | | | |
| Approach Delay (s) | 22.1 | 2.7 | 0.0 | | | | |
| Approach LOS | С | | | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 3.4 | | | | |
| Intersection Capacity Utiliza | ation | | 75.7% | IC | CU Level of | f Service | |
| Analysis Period (min) | | | 15 | | | | |
| , | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

Lanes, Volumes, Timings 20: Street A & Walnut Lane

<2033 Future Total>PM 12-20-2024

HCM Unsignalized Intersection Capacity Analysis 20: Street A & Walnut Lane

<2033 Future Total>PM 12-20-2024

| | - | • | • | _ | 1 | | |
|--------------------------------|-----------|-------|------|-------|----------|--------------|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | f) | | | ર્ન | Y | | |
| Traffic Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 | |
| Future Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.984 | | | | 0.947 | | |
| Flt Protected | | | | 0.974 | 0.970 | | |
| Satd. Flow (prot) | 1853 | 0 | 0 | 1834 | 1730 | 0 | |
| Flt Permitted | | | | 0.974 | 0.970 | | |
| Satd. Flow (perm) | 1853 | 0 | 0 | 1834 | 1730 | 0 | |
| Link Speed (k/h) | 40 | | | 40 | 30 | | |
| Link Distance (m) | 121.1 | | | 433.1 | 80.3 | | |
| Travel Time (s) | 10.9 | | | 39.0 | 9.6 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 160 | 21 | 414 | 375 | 278 | 177 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 181 | 0 | 0 | 789 | 455 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | - | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | | Stop | Stop | | |
| Intersection Summary | | | | | | | |
| Area Type: (| Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | ion 82.3% | | | IC | CU Level | of Service E | |

| | - | • | • | • | 1 | | |
|-----------------------------------|-------|-------|-------|------|-------------|---------|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | ĥ | | | ર્ન | Y | | |
| Sign Control | Stop | | | Stop | Stop | | |
| Traffic Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 | |
| Future Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 160 | 21 | 414 | 375 | 278 | 177 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | | |
| Volume Total (vph) | 181 | 789 | 455 | | | | |
| Volume Left (vph) | 0 | 414 | 278 | | | | |
| Volume Right (vph) | 21 | 0 | 177 | | | | |
| Hadj (s) | -0.04 | 0.14 | -0.08 | | | | |
| Departure Headway (s) | 6.4 | 5.9 | 6.1 | | | | |
| Degree Utilization, x | 0.32 | 1.30 | 0.77 | | | | |
| Capacity (veh/h) | 535 | 602 | 581 | | | | |
| Control Delay (s) | 12.5 | 165.8 | 26.5 | | | | |
| Approach Delay (s) | 12.5 | 165.8 | 26.5 | | | | |
| Approach LOS | В | F | D | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 101.9 | | | | |
| Level of Service | | | F | | | | |
| Intersection Capacity Utilization | n | | 82.3% | IC | CU Level of | Service | E |
| Analysis Period (min) | | | 15 | | | | |

Lanes, Volumes, Timings

<2033 Future Total>PM 12-20-2024

21: Building Driveways & Street A

| | • | - | • | • | • | • | 1 | † | ~ | - | ţ | 4 |
|----------------------------|------|-------|-------|------|-------|-------|------|----------|-------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.966 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 415 | 0 | 0 | 436 | 0 | 0 | 126 | 0 | 0 | 99 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 97 | | 97 | 97 | | 97 | 97 | | 97 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

| | • | → | • | • | • | • | • | † | <i>></i> | - | ļ | 4 |
|--------------------------------|-------|----------|-------|------|---------|------------|------|----------|-------------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 415 | 436 | 126 | 99 | | | | | | | | |
| Volume Left (vph) | 82 | 121 | 0 | 99 | | | | | | | | |
| Volume Right (vph) | 103 | 95 | 126 | 0 | | | | | | | | |
| Hadj (s) | -0.08 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| Departure Headway (s) | 5.2 | 5.2 | 5.7 | 6.6 | | | | | | | | |
| Degree Utilization, x | 0.60 | 0.63 | 0.20 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 664 | 670 | 525 | 452 | | | | | | | | |
| Control Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach LOS | С | С | В | В | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 14.9 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utilizat | ion | | 52.2% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Minimum Initial (s)

20.0

| | - | • | • | ← | 4 | 1 |
|-----------------------------------|----------|-------|---------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | <u> </u> | LDIN | 1100 | 4 | Y | TIDIN |
| Traffic Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Future Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.984 | 1.00 | 1.00 | 1.00 | 0.947 | 1.00 |
| Flt Protected | 0.304 | | | 0.974 | 0.970 | |
| Satd. Flow (prot) | 1853 | 0 | 0 | 1834 | 1730 | 0 |
| Flt Permitted | 1000 | U | U | 0.741 | 0.970 | U |
| Satd. Flow (perm) | 1853 | 0 | 0 | 1396 | 1730 | 0 |
| Right Turn on Red | 1000 | Yes | U | 1390 | 1730 | Yes |
| Satd. Flow (RTOR) | 12 | 165 | | | 31 | 165 |
| Link Speed (k/h) | 40 | | | 40 | 30 | |
| | 121.1 | | | 433.1 | 80.3 | |
| Link Distance (m) Travel Time (s) | 10.9 | | | 39.0 | 9.6 | |
| | 0.92 | 0.00 | 0.92 | 0.92 | 0.92 | 0.92 |
| Peak Hour Factor | 160 | 0.92 | 414 | | | |
| Adj. Flow (vph) | UOI | 21 | 414 | 375 | 278 | 177 |
| Shared Lane Traffic (%) | 404 | _ | _ | 700 | 455 | _ |
| Lane Group Flow (vph) | 181 | 0 | 0 | 789 | 455 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | | 97 | 97 | | 97 | 97 |
| Number of Detectors | 2 | | 1 | 2 | 1 | |
| Detector Template | Thru | | Left | Thru | Left | |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(m) | 9.4 | | 2.0 | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | OITEX | | | OITEX | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | I CIIII | 6 | 8 | |
| Permitted Phases | | | 6 | 0 | 0 | |
| Detector Phase | 2 | | 6 | 6 | 8 | |
| | 2 | | 0 | 0 | 0 | |
| Switch Phase | | | | | | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| WSP | Page 1 |

8.0

20.0 20.0

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|-------------------------------|--------------|-----------|-------|----------|-------------|--------------|-------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | | |
| Total Split (s) | 67.0 | | 67.0 | 67.0 | 33.0 | | |
| Total Split (%) | 67.0% | | 67.0% | 67.0% | 33.0% | | |
| Maximum Green (s) | 61.2 | | 61.2 | 61.2 | 26.3 | | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | |
| Recall Mode | Max | | Max | Max | None | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 61.2 | | | 61.2 | 26.0 | | |
| Actuated g/C Ratio | 0.61 | | | 0.61 | 0.26 | | |
| v/c Ratio | 0.16 | | | 0.92 | 0.96 | | |
| Control Delay | 8.1 | | | 35.7 | 67.8 | | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | | |
| Total Delay | 8.1 | | | 35.7 | 67.8 | | |
| LOS | Α | | | D | E | | |
| Approach Delay | 8.1 | | | 35.7 | 67.8 | | |
| Approach LOS | Α | | | D | Е | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 100 | | | | | | | |
| Actuated Cycle Length: 99. | 7 | | | | | | |
| Natural Cycle: 90 | | | | | | | |
| Control Type: Semi Act-Und | coord | | | | | | |
| Maximum v/c Ratio: 0.96 | | | | | | | |
| Intersection Signal Delay: 4 | 2.4 | | | Ir | ntersection | LOS: D | |
| Intersection Capacity Utiliza | ation 95.3% | | | 10 | CU Level | of Service F | |
| Analysis Period (min) 15 | | | | | | | |
| | | | | | | | |
| Splits and Phases: 20: St | treet A & Wa | alnut Lar | ne | | | | |
| 1984 | | | | | | | 8 |
| →ø2 | | | | | | | 2 |
| b/S | | | | | | | 8 |
| √ Ø6 | | | | | | | 1 Ø8 |
| 67 s | | | | | | | 33 s |
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Lanes, Volumes, Timings 20: Street A & Walnut Lane Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Total_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | * | 44 | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Future Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.346 | | | 0.202 | | |
| Satd. Flow (perm) | 1661 | 3461 | 1512 | 1709 | 3579 | 1517 | 645 | 3773 | 1564 | 424 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 93 | | | 160 | | | 174 | | | 159 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 787 | 232 | 95 | 568 | 159 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2033 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 1 | † | 1 | - | Ţ | 4 |
|---|-------------|------------|-----------|------------|----------|------------|---------|----------|--------|-------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8. |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50. |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50. |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.59 |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40. |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3. |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9. |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | La |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3. |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Ma |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7. |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33. |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 1: |
| Act Effct Green (s) | 25.6 | 38.9 | 48.0 | 21.0 | 34.3 | 34.3 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40. |
| Actuated g/C Ratio | 0.20 | 0.30 | 0.37 | 0.16 | 0.26 | 0.26 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.3 |
| v/c Ratio | 0.86 | 0.97 | 0.88 | 0.98 | 0.44 | 0.13 | 0.51 | 0.66 | 0.39 | 0.41 | 0.49 | 0.2 |
| Control Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.5 | 32.4 | 41.8 | 12.1 | 28.7 | 38.0 | 6.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.5 | 32.4 | 41.8 | 12.1 | 28.7 | 38.0 | 6. |
| LOS | D | E | D | F | D | Α | С | D | В | С | D | , |
| Approach Delay | | 60.3 | | | 61.0 | | | 34.7 | | | 30.7 | |
| Approach LOS | | Е | | | Е | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | e 2:EBT a | ind 6:WB | Γ, Start o | f Green | | | | | | | |
| Natural Cycle: 135 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.98 | | | | | | | | | | | | |
| Intersection Signal Delay: 4 | | | | | | n LOS: D | | | | | | |
| Intersection Capacity Utiliza Analysis Period (min) 15 | ation 105.8 | % | | Į. | CU Level | of Service | e G | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | ıd & Kina: | ston Road | i | | | | | | | | |
| ÿ1 | - Pop(| | | | | 10 | 3 \$ 04 | 1 | | | | |
| 26 s | 46 s | 4 | | | | 8 s | 50 s | | | | ı | |
| Ø5 | | Ø6 (F | (3) | | | Ø | 7 Tøs | 3 | | | | |
| WSP | - E | 0.5 | | | | Cale | 20.5 | | | | , | Page : |

Lanes, Volumes, Timings

<2033 Future Total_PHF>PM

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

12-20-2024

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|----------------------------|------|----------|-------|-------|---------------|-------|-------|----------|----------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ર્ન | 7 | ሻ | ተተተ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Future Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util, Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | | 1.00 | 0.01 | 1.00 | 1.00 | 0.01 | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Fit Protected | | | 0.000 | 0.950 | 0.997 | 0.000 | 0.950 | | | | | 0.000 |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | , , | 1002 | 0.950 | 0.997 | 1001 | 0.136 | 0010 | | | 1012 | 1000 |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 261 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | 0 | U | No | 17.04 | 1020 | Yes | 201 | 3073 | Yes | | 7312 | Yes |
| Satd. Flow (RTOR) | | | INU | | | 85 | | | 163 | | | 166 |
| Link Speed (k/h) | | 50 | | | 50 | 00 | | 50 | | | 50 | 100 |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 31.2 | | | 10.5 | | 17 | 20.0 | 15 | 15 | 11.7 | 17 |
| | | | | | | | 17 | | 6 | 15 | | 7 |
| Confl. Bikes (#/hr) | 4.00 | 4.00 | 4.00 | 1.00 | 4.00 | 4.00 | 4.00 | 4.00 | | 4.00 | 4.00 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Shared Lane Traffic (%) | _ | _ | 454 | 10% | 500 | 000 | 004 | 4004 | _ | _ | 4407 | 400 |
| Lane Group Flow (vph) | 0 | 0 | 454 | 250 | 528 | 293 | 204 | 1084 | 0 | 0 | 1167 | 166 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.04 | 0.00 | 101 | 0.00 | 0.00 | 4.00 | 0.00 |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| | | | | | -: <u>-</u> / | | | | | | | |

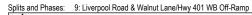
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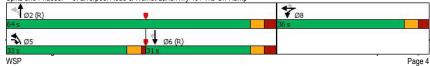
<2033 Future Total_PHF>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | • | ← | * | 4 | † | - | - | ļ | 1 |
|-------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 28.3 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.9 | 24.9 |
| Actuated g/C Ratio | | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | | 0.97 | 0.48 | 0.97 | 0.55 | 0.34 | 0.37 | | | 0.94 | 0.33 |
| Control Delay | | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 11.8 | | | 48.8 | 14.0 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 11.8 | | | 48.8 | 14.0 |
| LOS | | | Е | С | E | С | В | В | | | D | В |
| Approach Delay | | 70.4 | | | 47.5 | | | 11.8 | | | 44.5 | |
| Approach LOS | | Е | | | D | | | В | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| 71 | Other | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |

Actuated Cycle Length: 100
Offset: 8 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 90 Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 38.0
Intersection Capacity Utilization 91.0%
Analysis Period (min) 15 Intersection LOS: D
ICU Level of Service E





<2033 Future Total_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | 1 |
|----------------------------|------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ Ъ | LUI | 7 | † | ሻሻ | 7 |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 3.1 | ۷.۱ | 0% | 0% | 5.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 47.5 | | 2 | 1 |
| Taper Length (m) | | U | 22.3 | | 2.5 | - 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.93 | 0.90 | 1.00 | 0.95 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| • • • | 0.998 | | 0.950 | | 0.950 | 0.000 |
| Flt Protected | 2577 | | | 2040 | | 4047 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | 0577 | • | 0.950 | 0040 | 0.950 | 4501 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | 0.0 | | 226 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1719 | 0 | 184 | 804 | 662 | 346 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | , i |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 14 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| | 0.6 | | 2.0 | 0.0 | 2.0 | 2.0 |
| Detector 1 Size(m) | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Type | UI+EX | | UI+EX | OI+EX | UI+EX | OI+EX |
| Detector 1 Channel | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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<2033 Future Total_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | • | 4 | ~ | |
|--|-----------------|---------------|-----------|------------|------------|------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | - |
| Detector 2 Channel | | LDIN | TIDE | 1101 | HUL | HUIT | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | • | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.4 | | 16.0 | 87.4 | 28.7 | 28.7 | |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| v/c Ratio | 0.94 | | 0.95 | 0.33 | 0.85 | 0.66 | |
| Control Delay | 46.6 | | 110.9 | 1.5 | 59.4 | 21.6 | |
| Queue Delay | 0.4 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 46.9 | | 110.9 | 1.5 | 59.4 | 21.6 | |
| LOS | D | | F | Α | Е | С | |
| Approach Delay | 46.9 | | | 21.9 | 46.4 | | |
| Approach LOS | D | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Area Type: Cycle Length: 130 | Other | | | | | | |
| Cycle Length: 130 Actuated Cycle Length: 13 | 30 | | | | | | |
| Offset: 69 (53%), Referen | | 2·FRT a | nd 6·WP | T Start of | Green | | |
| Natural Cycle: 120 | iood to pridse | Z.LDT a | IIG U.VVD | i, Glait U | Olecii | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | oordinated | | | | | | |
| Intersection Signal Delay: | 40.1 | | | li li | ntersectio | n I OQ · D | |
| Intersection Capacity Utili | | | | | | of Service | _ |
| Analysis Period (min) 15 | 2411011 93.1 /6 | | | ,, | OU LEVE | OI SEIVICE | Г |
| Analysis Fellou (IIIII) 15 | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps & | & Kingsto | n Road | | | |
| ÿ1 | | | | | | | |
| 21.0 | 102 (R) | | | | | | |
| 215 | R: | | | | | | |
| Ø6 (R) | | | | | | | |
| 92 s | | | | | | | |
| WSP | | | | | | | |
| | | | | | | | |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2033 Future Total_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | 44 | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.323 | | |
| Satd. Flow (perm) | 1633 | 3400 | 1549 | 1715 | 3579 | 1502 | 666 | 5255 | 1470 | 582 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 147 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2033 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | / | - | ţ | 4 |
|---|---------------|------------|---------|-------------|-------------------------|------------|---------------|-----------|-------|-------|-----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.92 | 0.91 | 0.66 | 0.99 | 0.57 | 0.77 | 0.75 | 0.42 | 0.89 | 0.72 | 0.39 | 0.30 |
| Control Delay | 109.5 | 60.1 | 29.8 | 103.1 | 25.5 | 21.6 | 47.4 | 36.3 | 36.8 | 45.5 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 63.5 | 29.8 | 103.1 | 25.5 | 21.6 C | 47.4 | 36.3 | 36.8 | 45.5 | 35.8 | 5.8 |
| LOS | F | 59.9 | С | F | 40.6 | C | D | D 38.1 | D | D | D 32.2 | Α |
| Approach Delay | | 59.9 E | | | 40.6 D | | | 38.1 D | | | 32.2 C | |
| Approach LOS | | | | | U | | | U | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | | | | | | |
| Offset: 32 (25%), Referer | nced to phase | 2:EBT a | nd 6:WB | T, Start of | f Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | 40.4 | | | | _4 | - I OO. D | | | | | | |
| Intersection Signal Delay: | | 0/ | | | ntersection CU Level | | | | | | | |
| Intersection Capacity Utili Analysis Period (min) 15 | zation 114.6 | 7 0 | | 19 | CU Level | of Service | ен | | | | | |
| Splits and Phases: 13: | Whites Road | l & Kings | on Road | | | | | | | | | |
| ₩ø1 | | Ø2 (R) | | | | 1 | o3 ↓ e | 14 | | | | |

APPENDIX

H-3 2038 FUTURE TOTAL CONDITIONS

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2038 Future Total>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 1 | † | ~ | / | ļ | ✓ |
|----------------------------|-------|------------|--------|-----------|------------|--------|-------|----------|--------|----------|---------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ٦ | † } | | 7 | ↑ ↑ | | 7 | | 7 | 7 | î» | |
| Traffic Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.991 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3428 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3428 | 0 | 1644 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 8 | | | | 210 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | 1.0 | 8 | 8 | 41.7 | 4 | 9 | 10.0 | 2 | 2 | 10.2 | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 948 | 61 | 111 | 482 | 33 | 243 | 0 | 374 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | 0.0 | | | .02 | | | | 0 | | | 02 |
| Lane Group Flow (vph) | 22 | 1009 | 0 | 111 | 515 | 0 | 243 | 0 | 374 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.1 | rugiit | Loit | 3.1 | rugiit | Loit | 3.3 | rugiit | Loit | 3.3 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | 1.0 | | | 4.0 | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 1.00 | 14 | 24 | 1.00 | 14 | 24 | 1.01 | 14 | 24 | 0.00 | 14 |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | U | U | | U | U | | | | Right | U | U | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | OITLX | CITEX | | CITLX | CITLX | | OITLX | | CITLX | CITLX | CITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| | | NA | | | NA | | | | | | NA | |
| Turn Type | Prot | NA 2 | | Prot 1 | NA 6 | | Perm | | Perm | Perm | NA 4 | |
| Protected Phases | 5 | 2 | | 1 | б | | 0 | | 0 | 4 | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings

1: Walnut Lane & Kingston Road

<2038 Future Total>AM 12-20-2024

| | • | - | • | \checkmark | - | • | 1 | 1 | - | / | ţ | 4 |
|------------------------------|--------------|----------|------------|--------------|-------------|------------|-------|------|-------|----------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | 1 | 5.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | , i | | | Ť | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 7.0 | 59.6 | | 13.1 | 70.0 | | 27.8 | | 27.8 | 27.8 | 27.8 | |
| Actuated g/C Ratio | 0.06 | 0.50 | | 0.11 | 0.58 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.23 | 0.59 | | 0.62 | 0.26 | | 0.79 | | 0.72 | 0.04 | 0.10 | |
| Control Delay | 74.5 | 20.6 | | 55.6 | 17.8 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 74.5 | 20.6 | | 55.6 | 17.8 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| LOS | E | С | | Ε | В | | Е | | С | С | В | |
| Approach Delay | | 21.7 | | | 24.5 | | | 39.2 | | | 18.4 | |
| Approach LOS | | С | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 1 (1%), Referenced | I to phase 2 | :EBT and | 6:WBT, Sta | rt of G | reen | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.79 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utiliz | ation 73.1% | 5 | | 10 | CU Level of | of Service | D | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| 0 11 1 1 1 1 1 1 | | | | | | | | | | | | |



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Queues

1: Walnut Lane & Kingston Road

<2038 Future Total>AM 12-20-2024

EBL Lane Group Lane Group Flow (vph) 1009 111 515 243 374 22 15 39 v/c Ratio 0.23 0.59 0.62 0.26 0.79 0.72 0.04 0.10 Control Delay 74.5 20.6 55.6 17.8 60.8 25.1 31.8 13.2 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 74.5 20.6 55.6 17.8 60.8 25.1 31.8 13.2 Queue Length 50th (m) 5.4 96.1 26.3 44.0 54.3 35.8 2.8 1.3 Queue Length 95th (m) Internal Link Dist (m) m12.5 139.1 m42.5 67.9 75.1 62.8 7.5 9.0 105.3 670.6 155.7 Turn Bay Length (m) 26.0 37.0 63.2 18.5 Base Capacity (vph) 205 454 587 568 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 Storage Cap Reductn 0 0 0 0 0 0 0 Reduced v/c Ratio 0.23 0.59 0.54 0.26 0.54 0.56 0.03 0.07

Intersection Summa

Lanes, Volumes, Timings
2: Street B & Kingston Road

| | - | • | • | ← | 4 | / |
|----------------------------|----------|-------|------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | | 45.0 | 0.0 | | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Link Speed (k/h) | 60 | | | 60 | 30 | |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | 71.0 | 4 | | 7.0 | . 1.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 4% | 3% | 2% | 5% | 2% | 0% |
| Adj. Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Shared Lane Traffic (%) | 000 | 101 | U | 317 | - 0 | 172 |
| Lane Group Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Enter Blocked Intersection | No | No | No | No | No | No. |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | Ngn | Leit | 3.0 | 0.0 | Night |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 14 |
| Turning Speed (k/h) | _ | 14 | 24 | _ | | 14 |
| Sign Control | Free | | | Free | Stop | |
| Intersection Summary | | | | | | |

| Intersection Summ | ary | | |
|--------------------|-----------------------|------------------------|--|
| Area Type: | Other | | |
| Control Type: Unsi | gnalized | | |
| Intersection Capac | ity Utilization 37.4% | ICU Level of Service A | |
| Analysis Period (m | in) 15 | | |

m Volume for 95th percentile queue is metered by upstream signal.

Turn Type
Protected Phases

| 3: Dixie Road & Kin | gston I | Road | | | | | | | | | 12-2 | 20-202 |
|----------------------------|--------------|------------|--------|-------------|--------------|--------|--------------|--------------|--------|--------------|--------------|--------|
| | ۶ | → | • | • | ← | • | 4 | † | 1 | > | ļ | 4 |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | ↑ ₽ | | ሻ | f) | | ሻ | f) | |
| Traffic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Future Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3. |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | - 1 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.976 | | | 0.979 | | | 0.900 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | (|
| Flt Permitted | 0.950 | | | 0.950 | | | 0.554 | | | 0.726 | | |
| Satd. Flow (perm) | 1554 | 3280 | 0 | 1640 | 3298 | 0 | 1019 | 1769 | 0 | 1393 | 1759 | (|
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Ye |
| Satd. Flow (RTOR) | | 23 | | | 18 | | | 32 | | | 157 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | (|
| Adj. Flow (vph) | 87 | 802 | 151 | 85 | 629 | 102 | 73 | 16 | 32 | 168 | 38 | 15 |
| Shared Lane Traffic (%) | ** | | | | | | | | | | | |
| Lane Group Flow (vph) | 87 | 953 | 0 | 85 | 731 | 0 | 73 | 48 | 0 | 168 | 195 | - (|
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Righ |
| Median Width(m) | Loit | 2.8 | rugiit | Loit | 2.8 | rugiit | Loit | 3.8 | rugiit | Loit | 3.8 | rugi |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.9 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 1.00 | 24 | 0.34 | 14 | 24 | 0.32 | 1. |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | 14 | 0 | 0 | 14 | 1 | 1 | 11 |
| Detector Template | U | U | | U | U | | U | U | | ' | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| | | 1.8 | | | | | | | | | | |
| Detector 1 Size(m) | 6.1 CI+Ex | CI+Ex | | 6.1 | 1.8 CI+Ex | | 6.1 CI+Ex | 1.8 CI+Ex | | 9.0 CL Ev | 9.0 Cl+Ex | |
| Detector 1 Type | UI+EX | UI+EX | | Cl+Ex | ∪I+⊏X | | UI+EX | UI+EX | | Cl+Ex | UI+EX | |
| Detector 1 Channel | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 NA | | 0.0 Prot | 0.0 NA | | 0.0 | 0.0 NA | | 0.0 | 0.0 NA | |
| Turn Tyne | Prot | NA | | Prof | NA | | Perm | NA | | Perm | NA | |

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NA

6

NA

8

Prot

NA

2

5

| | - | • | • | ← | 1 | / |
|------------------------------|-------|------|-------|-------|------------|-------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 44 | 7 | | 44 | | 7 |
| Traffic Volume (veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (Veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Pedestrians | | | | | 4 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX. platoon unblocked | | | 0.88 | | 0.91 | 0.88 |
| vC, conflicting volume | | | 893 | | 1302 | 448 |
| vC1, stage 1 conf vol | | | | | 893 | |
| vC2, stage 2 conf vol | | | | | 408 | |
| vCu, unblocked vol | | | 601 | | 801 | 95 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 83 |
| cM capacity (veh/h) | | | 850 | | 423 | 830 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 444 | 444 | 107 | 408 | 408 | 142 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 107 | 0 | 0 | 142 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 830 |
| Volume to Capacity | 0.26 | 0.26 | 0.06 | 0.24 | 0.24 | 0.17 |
| Queue Length 95th (m) | 0.20 | 0.20 | 0.00 | 0.0 | 0.24 | 4.7 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 |
| Lane LOS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 B |
| Approach Delay (s) | 0.0 | | | 0.0 | | 10.2 |
| Approach LOS | 0.0 | | | 0.0 | | 10.2 B |
| Apploacificos | | | | | | Б |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.7 | | | |
| Intersection Capacity Utiliz | ation | | 37.4% | IC. | CU Level o | at Convice |
| Analysis Period (min) | ation | | 15 | 10 | JO LOVOI C | JI JEI VICE |

1105-1163 Kingston Road Synchro 11 Report WSP Page 5

<2038 Future Total>AM

3: Dixie Road & Kingston Road

| | • | - | \rightarrow | • | - | • | 1 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-----|-------|----------|----------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 72.5 | | 6.0 | 69.0 | | 20.4 | 20.4 | | 20.4 | 20.4 | |
| Actuated g/C Ratio | 0.08 | 0.60 | | 0.05 | 0.58 | | 0.17 | 0.17 | | 0.17 | 0.17 | |
| v/c Ratio | 0.71 | 0.48 | | 1.04 | 0.38 | | 0.42 | 0.15 | | 0.71 | 0.45 | |
| Control Delay | 83.0 | 14.8 | | 169.8 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 14.8 | | 169.8 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| LOS | F | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 20.5 | | | 25.1 | | | 37.8 | | | 36.2 | |
| Approach LOS | | С | | | С | | | D | | | D | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 25.4 Intersection Capacity Utilization 73.7% Intersection LOS: C

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 7 Queues

<2038 Future Total>AM 12-20-2024

3: Dixie Road & Kingston Road

| | • | - | • | • | 1 | Ť | - | ţ |
|------------------------|-------|-------|-------|-------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 87 | 953 | 85 | 731 | 73 | 48 | 168 | 195 |
| v/c Ratio | 0.71 | 0.48 | 1.04 | 0.38 | 0.42 | 0.15 | 0.71 | 0.45 |
| Control Delay | 83.0 | 14.8 | 169.8 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 14.8 | 169.8 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| Queue Length 50th (m) | 20.2 | 59.7 | ~21.1 | 36.7 | 15.6 | 3.2 | 37.9 | 7.7 |
| Queue Length 95th (m) | #43.5 | 92.8 | #54.0 | 50.6 | 27.6 | 12.4 | 55.9 | 25.6 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 130 | 1991 | 82 | 1904 | 343 | 618 | 470 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.48 | 1.04 | 0.38 | 0.21 | 0.08 | 0.36 | 0.28 |
| | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2038 Future Total>AM 12-20-2024

4: Street B & Shopping Plaza Entrance

| | • | • | 1 | Ī | ¥ | 4 |
|--------------------------------|------------|-------|------|-------|-------------|------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | 4 | 1> | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.883 | | | | 0.942 | |
| Flt Protected | 0.993 | | | 0.991 | | |
| Satd. Flow (prot) | 1628 | 0 | 0 | 1904 | 1770 | 0 |
| Flt Permitted | 0.993 | | | 0.991 | | |
| Satd. Flow (perm) | 1628 | 0 | 0 | 1904 | 1770 | 0 |
| Link Speed (k/h) | 30 | | | 30 | 30 | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% |
| Adj. Flow (vph) | 14 | 92 | 24 | 111 | 72 | 55 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 106 | 0 | 0 | 135 | 127 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Sign Control | Stop | | | Stop | Stop | |
| Intersection Summary | | | | | | |
| | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | tion 25.9% | | | IC | CU Level of | of Service |
| Analysis Period (min) 15 | | | | | | |
| | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 9

HCM Unsignalized Intersection Capacity Analysis
4: Street B & Shopping Plaza Entrance

| | • | ` | • | † | 1 | 1 |
|------------------------------|-------|------|-------|----------|-----------|-----------|
| | | | ٠, | ' | • | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Y | | | ર્ન | ₽ | |
| Sign Control | Stop | | | Stop | Stop | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 14 | 92 | 24 | 111 | 72 | 55 |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 106 | 135 | 127 | | | |
| Volume Left (vph) | 14 | 24 | 0 | | | |
| Volume Right (vph) | 92 | 0 | 55 | | | |
| Hadj (s) | -0.44 | 0.04 | -0.22 | | | |
| Departure Headway (s) | 4.0 | 4.3 | 4.1 | | | |
| Degree Utilization, x | 0.12 | 0.16 | 0.14 | | | |
| Capacity (veh/h) | 840 | 809 | 860 | | | |
| Control Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | ation | | 25.9% | IC | U Level o | f Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 5: Street B & Street A

| <2038 Future | Total>AM |
|--------------|------------|
| | 12-20-2024 |

| | • | 4 | † | 1 | \ | Į. | |
|-------------------------------|-------|-------|----------|-------|----------|------------|-----|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | W | | î, | | | ની | |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 | |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped Bike Factor | | | | | | | |
| Frt | 0.865 | | | | | | |
| Flt Protected | | | | | | 0.953 | |
| Satd. Flow (prot) | 1662 | 0 | 1883 | 0 | 0 | 1778 | |
| Flt Permitted | | | | | | 0.953 | |
| Satd. Flow (perm) | 1662 | 0 | 1883 | 0 | 0 | 1778 | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | |
| Link Distance (m) | 193.3 | | 78.3 | | | 49.0 | |
| Travel Time (s) | 23.2 | | 9.4 | | | 5.9 | |
| Confl. Peds. (#/hr) | 1 | 4 | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 100% | 0% | 2% | 0% | 3% | 0% | |
| Adj. Flow (vph) | 0 | 132 | 0 | 0 | 149 | 1 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 132 | 0 | 0 | 0 | 0 | 150 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 3.7 | | 0.0 | - | | 0.0 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| Sign Control | Stop | | Stop | | | Stop | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utiliza | | | | IC | U Level | of Service | e A |
| Analysis Period (min) 15 | | | | 10 | | | |
| inalysis i silsa (iliili) is | | | | | | | |

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HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

| | € | • | † | / | > | ↓ |
|------------------------------|--------|------|----------|------|-------------|----------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ના |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 132 | 0 | 0 | 149 | 1 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 132 | 0 | 150 | | | |
| Volume Left (vph) | 0 | 0 | 149 | | | |
| Volume Right (vph) | 132 | 0 | 0 | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | |
| Departure Headway (s) | 3.7 | 4.3 | 4.4 | | | |
| Degree Utilization, x | 0.13 | 0.00 | 0.18 | | | |
| Capacity (veh/h) | 945 | 807 | 793 | | | |
| Control Delay (s) | 7.2 | 7.3 | 8.4 | | | |
| Approach Delay (s) | 7.2 | 0.0 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | zation | | 22.9% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.220 | | | 0.474 | | |
| Satd. Flow (perm) | 1645 | 3299 | 1487 | 1676 | 3510 | 1517 | 408 | 3700 | 1536 | 989 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 140 | | | 174 | | | 159 | | | 242 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 433 | 159 | 91 | 812 | 250 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 433 | 159 | 91 | 812 | 250 |
| Enter Blocked Intersection | No | No | No |
| Lane Alignment | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | _ |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

Ø6 (R)

| | • | - | • | • | - | • | 4 | † | - | - | ↓ | 4 |
|------------------------------|-------------|-----------|----------|-----------|------------|-------------|--------|----------|--------|--------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | 2000 | 9 | | 2000 | 9 | | 2000 | | | 2000 | 9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 53.0 | 41.9 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.17 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.44 | 0.35 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.62 | 0.34 | 0.28 | 0.19 | 0.64 | 0.38 |
| Control Delay | 110.4 | 34.5 | 58.6 | 121.9 | 40.9 | 0.4 | 33.0 | 29.7 | 6.3 | 19.1 | 35.6 | 5.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 58.6 | 121.9 | 40.9 | 0.4 | 33.0 | 29.7 | 6.3 | 19.1 | 35.6 | 5.6 |
| LOS | F | C | E | F | D | A | C | C | Α. | В | D | A |
| Approach Delay | • | 59.6 | _ | • | 63.0 | ,, | Ū | 25.3 | ,, | | 27.8 | |
| Approach LOS | | E | | | E | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 0 | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | | se 2:EBT | and 6:WI | 3T. Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | , | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | or an latea | | | | | | | | | | | |
| Intersection Signal Delay: | 44.1 | | | - I | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | |) | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | | | | 00 2010. | 01 001 1101 | | | | | | |
| Splits and Phases: 6: Li | verpool Roa | d & Kinns | ton Road | | | | | | | | | |
| i - | - 1- | a a runge | | | 4 | -46 | | | | | | |
| | 1002 (R) | | | | | Ø3 🔻 | Ø4 | | | | _ | |
| 19 s 42 s | | | | | 8 s | 51 s | | | | | | |

Queues 6: Liverpool Road & Kingston Road <2038 Future Total>AM 12-20-2024

| | • | → | • | • | ← | • | 4 | † | - | - | ↓ | 4 |
|------------------------|--------|----------|--------|-------|----------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 433 | 159 | 91 | 812 | 250 |
| v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.62 | 0.34 | 0.28 | 0.19 | 0.64 | 0.38 |
| Control Delay | 110.4 | 34.5 | 58.6 | 121.9 | 40.9 | 0.4 | 33.0 | 29.7 | 6.3 | 19.1 | 35.6 | 5.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 58.6 | 121.9 | 40.9 | 0.4 | 33.0 | 29.7 | 6.3 | 19.1 | 35.6 | 5.6 |
| Queue Length 50th (m) | 69.0 | 28.4 | 30.8 | ~49.1 | 40.5 | 0.0 | 19.5 | 39.2 | 0.0 | 11.7 | 83.9 | 1.2 |
| Queue Length 95th (m) | #122.6 | 64.2 | #136.7 | #96.6 | 55.4 | 0.0 | 32.4 | 52.6 | 15.4 | 21.1 | 104.8 | 18.3 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 959 | 531 | 197 | 845 | 497 | 237 | 1291 | 559 | 480 | 1263 | 664 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.62 | 0.34 | 0.28 | 0.19 | 0.64 | 0.38 |

Synchro 11 Report Page 15 1105-1163 Kingston Road

Lanes, Volumes, Timings

<2038 Future Total>AM

8: Liverpool Road & Private Access/Pickering Parkway

| | • | → | \rightarrow | • | ← | • | 4 | † | / | - | ļ | 4 |
|----------------------------|-------|-------------|---------------|-------|----------|-------|-------|------------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † 1> | | ሻሻ | ^ | 7 | ሻ | ^ ^ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 554 | 272 | 146 | 1201 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 554 | 272 | 146 | 1201 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | 0.00 | 0.00 | 0.01 | 1.00 | 0.98 | 1.00 | 0.01 | 0.97 | 0.99 | 0.01 | 0.96 |
| Frt | 0.00 | 0.897 | | | | 0.850 | 1.00 | | 0.850 | 0.00 | | 0.850 |
| Flt Protected | 0.950 | 0.001 | | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | 0000 | v | 0.000 | 1000 | 1207 | 0.172 | 5550 | 1020 | 0.386 | 5525 | 1021 |
| Satd. Flow (perm) | 0.000 | 3058 | 0 | 0.000 | 1858 | 1181 | 297 | 5036 | 1483 | 677 | 5029 | 1458 |
| Right Turn on Red | U | 3030 | Yes | U | 1000 | Yes | 231 | 3030 | Yes | 011 | 3023 | Yes |
| Satd. Flow (RTOR) | | 39 | 163 | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | 141 | | 50 | 290 | | 50 | 144 |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| | 7 | 9.9 | | | 23.1 | 7 | 10 | 11.7 | 11 | 11 | 10.0 | 10 |
| Confl. Peds. (#/hr) | 1 | | | | | , | 10 | | 1 | - 11 | | 10 |
| Confl. Bikes (#/hr) | 0.00 | 0.00 | 0.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.92 |
| Peak Hour Factor | 0.92 | 0.92 | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 1305 | 26 |
| Shared Lane Traffic (%) | | | • | 011 | 0.4 | 24 | =0 | 000 | 200 | 450 | 1005 | 20 |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 1305 | 26 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

Lanes, Volumes, Timings

Lane Group Detector 2 Type Detector 2 Channel Detector 2 Extend (s) Turn Type Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s) Total Split (s) Total Split (%) Maximum Green (s) Yellow Time (s) All-Red Time (s) Lost Time Adjust (s)

Total Lost Time (s) Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) Recall Mode Walk Time (s) Flash Dont Walk (s) Pedestrian Calls (#/hr) Act Effct Green (s) Actuated g/C Ratio

v/c Ratio

Control Delay

Queue Delay

Approach LOS

Total Delay

LOS Approach Delay <2038 Future Total>AM

8: Liverpool Road & Private

| ad 8 | & Privat | e Acce | ss/Pick | cering | Parkv | vay | | | | | 12-2 | 20-2024 |
|------|----------|----------|---------|--------|----------|-------|-------|----------|-------|-------|-------|---------|
| | ۶ | → | • | • | ← | • | 1 | † | ~ | / | Ţ | 4 |
| | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| | | CI+Ex | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |
| | | | | | | | | | | | | |
| | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| | | | | | | | | | | | | |
| | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| | None | None | | None | 19.0 | 19.0 | None | 17.0 | 17.0 | None | 17.0 | 17.0 |
| | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| | | | | | 0.0 | 0.0 | | 21 | 21 | | 21 | 21 |
| | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| | 0.08 | 0.20 | | 0.56 | 0.09 | 0.12 | 0.01 | 0.32 | 0.32 | 0.30 | 0.46 | 0.03 |
| | 0.00 | 0.20 | | 0.00 | 0.00 | 0.27 | V.22 | 0.20 | 0.02 | 0.00 | 0.10 | 0.00 |

| tersection Summary | |
|--------------------|-----|
| rea Type: | Oth |
| volo Longth: 100 | |

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

44.1 22.1

0.0

44.1

0.0

22.1

25.7

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 15.6 Intersection Capacity Utilization 55.8% Intersection LOS: B ICU Level of Service B

38.5

0.0

38.5

36.6

46.9

0.0

46.9

2.1

0.0

2.1

7.8 13.1

0.0

7.8 13.1

0.0

10.0

4.0

0.0

4.0

9.0

0.0

9.0

15.5

0.0

15.5

14.5

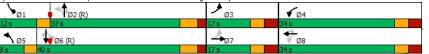
0.0

0.0

0.0

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2038 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | • | - | • | • | • | 1 | † | / | - | ţ | 1 | |
|------------------------|------|------|------|-------|------|------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 602 | 296 | 159 | 1305 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.22 | 0.23 | 0.32 | 0.30 | 0.46 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.5 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.8 | 13.1 | 4.0 | 9.0 | 15.5 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.4 | 24.0 | 9.7 | 11.3 | 58.0 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 37.0 | 19.9 | 21.5 | 76.1 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 263 | 2621 | 913 | 540 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.22 | 0.23 | 0.32 | 0.29 | 0.46 | 0.03 | |
| | | | | | | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 18

m Volume for 95th percentile queue is metered by upstream signal.

<2038 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | • | ← | • | 4 | † | / | / | ţ | -√ |
|---|------|----------|-------|-------|----------|-------|-------|-------|----------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | * | ર્ન | 7 | ሻ | ተተተ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 536 | 0 | 0 | 964 | 220 |
| Future Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 536 | 0 | 0 | 964 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | 0 | 0.0 | 0.0 | 0 | 125.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 |
| Storage Lanes | 0.0 | | 1 | 1 | | 1 | 1 | | 0.0 | 0.0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.01 | 1.00 | 1.00 | 0.01 | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | 0.000 | 0.950 | 0.977 | 0.000 | 0.950 | | | | | 0.000 |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 4932 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | Ů | | 1100 | 0.950 | 0.977 | 1001 | 0.141 | 1002 | | | 1011 | 1001 |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 217 | 4932 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | U | | No | 1700 | 1707 | Yes | 211 | 7302 | Yes | U | 4011 | Yes |
| Satd. Flow (RTOR) | | | INU | | | 337 | | | 163 | | | 239 |
| Link Speed (k/h) | | 50 | | | 50 | 331 | | 50 | | | 50 | 233 |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 31.2 | | | 10.3 | | 7 | 20.0 | 14 | 14 | 11.7 | 7 |
| | | | | | | | | | 4 | 14 | | , |
| Confl. Bikes (#/hr) Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.00 | 0.92 | 0.92 | 0.00 | 0.92 | 0.92 | 0.00 | 0.92 | 0.00 |
| | | | | 0.92 | | | 0.92 | | | 0.92 | | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 50% | 2% | 0% | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 461 | 204 | 75 | 337 | 221 | 583 | 0 | 0 | 1048 | 239 |
| Shared Lane Traffic (%) | 0 | 0 | 404 | 32% | 440 | 227 | 221 | 583 | 0 | 0 | 4040 | 239 |
| Lane Group Flow (vph) | - | 0 | 461 | 139 | 140 | 337 | | | - | - | 1048 | |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.04 | 0.00 | 4.04 | 0.00 | 0.00 | 4.00 | 0.00 |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | | | 1 | 1 | _ 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | Cl+Ex | | | CI+Ex | | | CI+Ex | |

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WSP

<2038 Future Total>AM

Page 20

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ∮ → | • 😽 | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|-----------------------------------|-----------------|-------------|-------------|------------|------------|-------|----------|-------------|----------|-------|-------|
| Lane Group | EBL EB | Γ EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | 3 | 3 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0.0 | 0.0 | 0.0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | 45.6 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 23.9 | 23.9 |
| Actuated g/C Ratio | | 0.46 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.24 | 0.24 |
| v/c Ratio | | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | | | 0.90 | 0.44 |
| Control Delay | | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | | | 38.2 | 5.4 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | | | 38.2 | 5.4 |
| LOS | | D | D | D | В | A | A | | | D | Α |
| Approach Delay | 51.2 | 2 | | 28.9 | | | 5.2 | | | 32.1 | |
| Approach LOS | [| | | С | | | Α | | | С | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Othe | \r | | | | | | | | | | |
| Cycle Length: 100 | il | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 38 (38%), Referenced to | nhase 2·NRT | I and 6:SF | RT Start o | f Green | | | | | | | |
| Natural Cycle: 100 | pridoo Z.IAD I | L una v.oL | or, otare c | 010011 | | | | | | | |
| Control Type: Actuated-Coordina | ated | | | | | | | | | | |
| Maximum v/c Ratio: 0.91 | 2100 | | | | | | | | | | |
| Intersection Signal Delay: 27.4 | | | l l | ntersectio | n I OS: C | | | | | | |
| Intersection Capacity Utilization | 65 9% | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | 00.070 | | | OO LOVO! | 01 001 110 | | | | | | |
| Splits and Phases: 9: Liverpoo | ol Road & Wa | lnut Lane/F | -lwv 401 \ | NR Off-R: | amn | | | | | | |
| + | J. 1 1000 0 110 | midt Edilon | , | 12 0 | ap | | | 42 | | | |
| Ø2 (R) | | | | | | | | → Ø8 | | | |
| 75 s | | | | | | | | 25 s | | | |
| ♣ Ø5 | | | 1 | ₩ Ø6 (F | 3 | | | | | | |
| 46 c | | | 2 | + ₩0(H | .) | | | | | | |

<2038 Future Total>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | 1 | ← | • | 4 | - ↑ | . ↓ | 4 | |
|------------------------|--------|------|-------|-------|------|-------|--------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 461 | 139 | 140 | 337 | 221 | 583 | 1048 | 239 | |
| v/c Ratio | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | 0.90 | 0.44 | |
| Control Delay | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | 38.2 | 5.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.2 | 50.7 | 49.5 | 11.3 | 7.5 | 4.3 | 38.2 | 5.4 | |
| Queue Length 50th (m) | 78.2 | 27.1 | 27.2 | 0.0 | 10.1 | 10.0 | 74.9 | 12.3 | |
| Queue Length 95th (m) | #152.5 | 44.3 | 44.3 | 23.2 | 30.3 | 16.9 | #101.6 | 9.5 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 505 | 323 | 335 | 567 | 731 | 3651 | 1165 | 549 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.91 | 0.43 | 0.42 | 0.59 | 0.30 | 0.16 | 0.90 | 0.44 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Total>AM 12-20-2024

| | • | - | - | • | - | 4 | |
|----------------------------|-------|----------|------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | ች | ^ | † Ъ | | * | 7 | |
| Traffic Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | | | 0.981 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 16 | . 03 | | 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 814 | 764 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | 101 | 011 | 701 | 100 | 100 | 210 | |
| Lane Group Flow (vph) | 104 | 814 | 872 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | LUIL | 3.0 | 3.0 | rugnt | 3.6 | rugnt | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | 1.0 | | 1.0 | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | 1.04 | 1.01 | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | 14 | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 2.0 | 0.0 | 0.0 | | 2.0 | 2.0 | |
| Detector 1 Size(m) | | | | | | | |
| Detector 1 Type | CI+Ex | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | | | | | | |

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Total>AM 12-20-2024

| | ۶ | → | ← | • | - | 4 | | |
|------------------------------|-------------|----------|----------|------------|-----------|----------|------|--|
| _ane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | |
| Permitted Phases | | | | | | 4 | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | |
| Vlinimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 | |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 | |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% | |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | |
| _ead/Lag | Lead | Lag | Lag | | | | Lead | |
| _ead-Lag Optimize? | | | | | | | | |
| /ehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | |
| Pedestrian Calls (#/hr) | | 0 | 1 | | 2 | 2 | 20 | |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | | |
| //c Ratio | 0.64 | 0.35 | 0.43 | | 0.72 | 0.52 | | |
| Control Delay | 104.2 | 0.8 | 16.2 | | 65.5 | 9.1 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 104.2 | 0.8 | 16.2 | | 65.5 | 9.1 | | |
| .OS | F | Α | В | | Е | Α | | |
| Approach Delay | | 12.5 | 16.2 | | 34.1 | | | |
| Approach LOS | | В | В | | С | | | |
| ntersection Summary | | | | | | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 130 | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | |
| Offset: 105 (81%), Referen | ced to phas | se 2:EBT | and 6:WB | T, Start o | f Green | | | |
| Natural Cycle: 85 | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | | |
| ntersection Signal Delay: 1 | 8.3 | | | In | tersectio | n LOS: B | | |
| ntersection Capacity Utiliza | | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



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 Synchro 11 Report

 WSP
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Queues

<2038 Future Total>AM 12-20-2024

10: Kingston Road & Fairport Road

| | • | → | ← | - | 1 |
|------------------------|-------|----------|-------|-------|------|
| Lane Group | EBL | EBT | WBT | SBL | SBR |
| Lane Group Flow (vph) | 104 | 814 | 872 | 198 | 249 |
| v/c Ratio | 0.64 | 0.35 | 0.43 | 0.72 | 0.52 |
| Control Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 |
| Queue Length 50th (m) | 26.4 | 2.6 | 59.3 | 49.0 | 0.0 |
| Queue Length 95th (m) | 42.6 | 2.5 | 94.4 | 68.5 | 20.6 |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | |
| Base Capacity (vph) | 209 | 2331 | 2021 | 476 | 649 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.35 | 0.43 | 0.42 | 0.38 |
| Intersection Summary | | | | | |

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Lane Group

Lane Configurations Traffic Volume (vph)

Future Volume (vph)

Ideal Flow (vphpl)

Storage Length (m)

Lane Width (m) Grade (%)

Storage Lanes Taper Length (m)

Lane Util. Factor

Satd. Flow (prot)

Satd. Flow (perm)

Right Turn on Red

Satd. Flow (RTOR)

Link Speed (k/h) Link Distance (m)

Travel Time (s)

Adj. Flow (vph)

Lane Alignment

Link Offset(m)

Median Width(m)

Headway Factor

Turning Speed (k/h)

Number of Detectors **Detector Template**

Leading Detector (m)

Trailing Detector (m)

Detector 1 Position(m)

Detector 1 Size(m)

Detector 1 Channel Detector 1 Extend (s)

Detector 1 Queue (s)

Detector 1 Delay (s)

Detector 2 Channel Detector 2 Extend (s)

Detector 2 Position(m) Detector 2 Size(m) Detector 2 Type

Detector 1 Type

Crosswalk Width(m)

Two way Left Turn Lane

Shared Lane Traffic (%) Lane Group Flow (vph)

Enter Blocked Intersection

Peak Hour Factor Heavy Vehicles (%)

Flt Permitted

Frt Flt Protected **NBR**

65

65

1900

3.7

1.00

0.850

1633

1633

Yes

71

0.92

0%

71

71

No

0.99

14

2.0

0.0

0.0

2.0

0.0

0.0

†}

783

1900

4.0

0.95

0.998

3479

3479

268.7

16.1

0.92

5%

851

864

No

Left Right

3.1

0.0

1.6

Yes

0.98

Thru

10.0

0.0

0.0

0.6

0.0

0.0

9.4

CI+Ex

0.0

CI+Ex

284

2.7

22.3

1.00

0.950

0.950

1593

2%

309

No

Left

24

Left Thru

2.0

0.0

0.0

2.0

0.0

CI+Ex

667

1900

3.8

0.95

3548 3442

3548 3442

25.4

0.92

4%

725

725

No

Left

0.0

1.6

Yes

0.97

10.0

0.0

0.0

0.6

0.0

0.0

9.4

0.0

CI+Ex

CI+Ex

424.0 216.6

461

1900

3.8

0%

0.0 52.0

2.5

0.97

0.950

0.950

15.6

0.92

4%

501

501

No

Left Right

7.6

0.0

1.6

0.97

24

Left Right

2.0

0.0

0.0

2.0

0.0

0.0

CI+Ex

12 284

1900 1900

3.7

0.0 47.5

0.95

0 1593

0

Yes

0.92 0.92

0%

13 309

0

No

1.03

14

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<2038 Future Total>AM 12-20-2024

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11: Hwy 401 WB Ramps & Kingston Road

| | - | • | 1 | - | 4 | / | |
|-----------------------------|---|-------------|------------------------|-------------|-------|-------|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | | |
| Permitted Phases | | | | | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 | |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 | |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 | |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 | |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 | |
| v/c Ratio | 0.56 | | 0.86 | 0.29 | 0.78 | 0.20 | |
| Control Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 | |
| LOS | В | | Е | В | Е | В | |
| Approach Delay | 12.9 | | | 28.6 | 52.6 | | |
| Approach LOS | В | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | |
| Offset: 66 (51%), Reference | ced to phase | 2:EBT a | nd 6:WB | Γ, Start of | Green | | |
| Natural Cycle: 110 | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | | |
| Intersection Signal Delay: | | ntersection | n LOS: C of Service | | | | |
| | Intersection Capacity Utilization 66.7% | | | | | | |
| Analysis Period (min) 15 | | | | | | | |
| . , , | | | | | | | |

Splits and Phases: 11: Hwy 401 WB Ramps & Kingston Road



1105-1163 Kingston Road Synchro 11 Report WSP

Queues 11: Hwy 401 WB Ramps & Kingston Road <2038 Future Total>AM 12-20-2024

| | - | • | - | | / |
|------------------------|-------|-------|-------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 864 | 309 | 725 | 501 | 71 |
| v/c Ratio | 0.56 | 0.86 | 0.29 | 0.78 | 0.20 |
| Control Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Length 50th (m) | 20.8 | 75.6 | 69.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 58.3 | 106.7 | 90.3 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.72 | 0.29 | 0.59 | 0.15 |
| | | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 27

Lanes, Volumes, Timings

<2038 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | → | • | • | + | • | 1 | † | ~ | / | ↓ | 4 |
|----------------------------|-------|------------|--------|-------|------------|--------|-------|-------|-------|----------|----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 7 | † } | | 7 | 1> | | ሻ | 1> | |
| Traffic Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3381 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.662 | | | 0.688 | | |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3381 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 8 | | | 100 | | | 135 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1098 | 40 | 104 | 1125 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1138 | 0 | 104 | 1205 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.5 | rugiit | Loit | 3.5 | rugiit | Loit | 3.6 | ragne | Loit | 3.6 | rugiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | 1.07 | 14 | 24 | 1.00 | 14 | 24 | 0.01 | 14 | 24 | 1.10 | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 17 | 1 | 2 | | 1 | 2 | 17 |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITEX | CITEX | | CITEX | CITEX | | CITEX | CITEX | | CITEX | CITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Position(m) | | | | | | | | | | | | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Lanes, Volumes, Timings

<2038 Future Total>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | ← | • | 1 | † | - | - | ţ | 4 |
|-------------------------|-------|-------|-----|-------|----------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.60 | | 0.67 | 0.60 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | | F | С | | E | В | | D | В | |
| Approach Delay | | 31.4 | | | 32.7 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | | С | | | D | | | С | |

| WBT, Start of Green | |
|------------------------|---------------------|
| | |
| | |
| | |
| Intersection LOS: C | |
| ICU Level of Service D | |
| | |
| | Intersection LOS: C |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2038 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | • | 1 | † | - | ţ | |
|------------------------|-------|-------|-------|-------|------|----------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1138 | 104 | 1205 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.60 | 0.67 | 0.60 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 21.9 | 127.4 | 27.4 | 162.3 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #40.7 | 162.8 | 44.7 | 187.7 | 57.4 | 16.2 | 20.7 | 20.6 | |
| nternal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.60 | 0.58 | 0.60 | 0.55 | 0.23 | 0.17 | 0.34 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Synchro 11 Report Page 30 1105-1163 Kingston Road

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Total>AM 12-20-2024

| | ၨ | → | • | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Future Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.95 | 0.99 | | 0.97 | 0.99 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1633 | 3335 | 1607 | 1767 | 3510 | 1606 | 1700 | 5057 | 1558 | 1750 | 5057 | 1625 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.232 | | | 0.495 | | |
| Satd. Flow (perm) | 1604 | 3335 | 1565 | 1751 | 3510 | 1522 | 413 | 5057 | 1509 | 902 | 5057 | 1574 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 250 | | | 240 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 38 | | 13 | 13 | | 38 | 20 | | 20 | 20 | | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 6% | 5% | 4% | 1% | 4% | 5% | 5% | 6% | 4% | 2% | 6% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| Adj. Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.95 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 31

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

| | ۶ | → | • | • | ← | • | 1 | † | ~ | / | ↓ | 4 |
|------------------------------|-------------|------------|----------|----------|------------|-----------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | 3 | | 3 | 3 | | 3 | | | | 3 |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 36.5 | 36.5 | 24.5 | 50.9 | 50.9 | 51.0 | 40.6 | 68.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.19 | 0.39 | 0.39 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| LOS | F | D | С | Е | С | В | D | С | В | С | D | Α |
| Approach Delay | | 37.8 | | | 34.5 | | | 26.0 | | | 33.0 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 107 (82%), Refere | | se 2:EBT | and 6:WE | T. Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | , | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | Jordinatod | | | | | | | | | | | |
| Intersection Signal Delay: | 32.4 | | | li li | ntersectio | n I OS: C | | | | | | |
| Intersection Capacity Utiliz | | % | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | | ,,, | | | 20 2010. | 0. 00 | | | | | | |
| Splits and Phases: 13: | Whites Road | I & Kingsi | ton Road | | | | | | | | | |
| ₩ø1 | | | | | | 14. | 13 | 4 | | | | |
| ▼rØ1 30 s | 43 s | Ø2 (R) | | | | 8 s | 49 s | 7 | | | | |
| | | | | | | | | | | | | |

Queues

<2038 Future Total>AM 12-20-2024

13: Whites Road & Kingston Road

| | • | - | • | • | • | • | 4 | † | _ | - | ↓ | 4 |
|------------------------|-------|-------|-------|--------|-------|------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 33.2 | 36.4 | 80.3 | 77.0 | 46.7 | 25.9 | 29.8 | 36.3 | 32.6 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 46.2 | 67.4 | #129.4 | 90.5 | 63.5 | #50.2 | 39.1 | 63.0 | 50.3 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 936 | 550 | 339 | 1373 | 747 | 211 | 1579 | 922 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.33 | 0.58 | 0.92 | 0.44 | 0.42 | 0.75 | 0.27 | 0.54 | 0.51 | 0.55 | 0.31 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 33 Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2038 Future Total>AM 12-20-2024

| | • | • | 4 | † | ↓ | 4 |
|----------------------------|---------|------------|------|----------|-------------------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻሻ | 7 | | 44 | * | |
| Traffic Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Future Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | , |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.51 | 0.01 | 1.00 | 0.55 | 0.00 | 1.00 |
| Frt | 0.994 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | 1400 | U | 3314 | J 4 01 | J |
| Satd. Flow (perm) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| . , | 3331 | Yes | U | 3314 | J40 I | Yes |
| Right Turn on Red | 4 | Yes 262 | | | | res |
| Satd. Flow (RTOR) | | 262 | | 00 | 00 | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | - | 11.2 | 19.0 | _ |
| Confl. Peds. (#/hr) | 0.00 | 0.00 | 7 | 0.00 | 0.00 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 710 | 291 | 0 | 759 | 486 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 739 | 262 | 0 | 759 | 486 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OI · LX | JI-LX | | JI-LX | JILLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 0.0 | | 9.4 | 9.4 | |
| | | | | | | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

Synchro 11 Report Page 34 1105-1163 Kingston Road WSP

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

<2038 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | T | ¥ | 4 | |
|--------------------------------|--------------|------------|----------|-----------|-------------|--------------|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | | |
| Turn Type | Prot | Perm | | NA | NA | | |
| Protected Phases | 4 | | | 2 | 6 | | |
| Permitted Phases | | 4 | | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | | |
| Recall Mode | None | None | | C-Max | C-Max | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | | |
| Act Effct Green (s) | 30.3 | 30.3 | | 67.5 | 67.5 | | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.61 | 0.61 | | |
| v/c Ratio | 0.79 | 0.46 | | 0.37 | 0.23 | | |
| Control Delay | 42.9 | 6.1 | | 11.9 | 10.6 | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 42.9 | 6.1 | | 11.9 | 10.6 | | |
| LOS | D | Α | | В | В | | |
| Approach Delay | 33.2 | | | 11.9 | 10.6 | | |
| Approach LOS | С | | | В | В | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 110 | 0 11 10 1 | | | | | | |
| Actuated Cycle Length: 110 |) | | | | | | |
| Offset: 79.2 (72%), Referer | | se 2·NRT | and 6:SF | RT Start | of Green | | |
| Natural Cycle: 60 | loca to pria | 00 2.110 1 | una o.o. | or, otare | 01 010011 | | |
| Control Type: Actuated-Co | ordinated | | | | | | |
| Maximum v/c Ratio: 0.79 | J. G GIOG | | | | | | |
| Intersection Signal Delay: 2 | 11 | | | lr. | ntersection | LOS: C | |
| Intersection Capacity Utiliza | | | | | | of Service A | |
| Analysis Period (min) 15 | | | | | O LOVOI C | COI TIOU A | |
| , a.a., 5.5 . 5.10d (11111) 10 | | | | | | | |

Splits and Phases: 14: Whites Road & Highway 401 EB Off Ramp



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2038 Future Total>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 739 | 262 | 759 | 486 |
| v/c Ratio | 0.79 | 0.46 | 0.37 | 0.23 |
| Control Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Length 50th (m) | 75.3 | 0.0 | 39.7 | 22.8 |
| Queue Length 95th (m) | 88.3 | 18.7 | 60.4 | 36.5 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1257 | 683 | 2069 | 2135 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.59 | 0.38 | 0.37 | 0.23 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 <2038 Future Total>AM

12-20-2024

| | • | • | † | 1 | > | ļ |
|--|-----------|----------|----------|-------|-------------|------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | î, | | | ની |
| Traffic Volume (vph) | 0 | 111 | 0 | 0 | 252 | 0 |
| Future Volume (vph) | 0 | 111 | 0 | 0 | 252 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 5 | | | 8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% |
| Adj. Flow (vph) | 0 | 121 | 0 | 0 | 274 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 121 | 0 | 0 | 0 | 0 | 274 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | <u> </u> | 3.6 | | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Free | | | Free |
| • | | | | | | |
| Intersection Summary | 211 | | | | | |
| | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat Analysis Period (min) 15 | ion 28.9% | | | IC | U Level | of Service |

1105-1163 Kingston Road WSP Synchro 11 Report Page 37

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2038 Future Total>AM 12-20-2024

| | • | • | † | ~ | - | ↓ |
|------------------------------|--------|------|----------|------|-----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | ĥ | | | ર્ની |
| Traffic Volume (veh/h) | 0 | 111 | 0 | 0 | 252 | Ö |
| Future Volume (Veh/h) | 0 | 111 | 0 | 0 | 252 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 121 | 0 | 0 | 274 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 556 | 13 | | | 8 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 556 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 89 | | | 83 | |
| cM capacity (veh/h) | 405 | 1053 | | | 1605 | |
| | | | 00.4 | | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 121 | 0 | 274 | | | |
| Volume Left | 0 | 0 | 274 | | | |
| Volume Right | 121 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.11 | 0.00 | 0.17 | | | |
| Queue Length 95th (m) | 3.0 | 0.0 | 4.7 | | | |
| Control Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.1 | | | |
| Intersection Capacity Utiliz | zation | | 28.9% | IC | U Level o | of Service |
| Analysis Period (min) | | | 15 | | | |
| raidijoio i oilod (mm) | | | 10 | | | |

Synchro 11 Report Page 38 1105-1163 Kingston Road

Lanes, Volumes, Timings 17: Street B

| <2038 Future | i otai>Aivi |
|--------------|-------------|
| | 12-20-2024 |
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|----------------------------|-------|-------|-------|-------------|----------|--------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | f. | | | ર્ન |
| Traffic Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.917 | | 0.968 | | | |
| Flt Protected | 0.981 | | | | | 0.971 |
| Satd. Flow (prot) | 1694 | 0 | 1823 | 0 | 0 | 1829 |
| Flt Permitted | 0.981 | | | | | 0.971 |
| Satd. Flow (perm) | 1694 | 0 | 1823 | 0 | 0 | 1829 |
| Link Speed (k/h) | 30 | | 30 | | | 30 |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 47 | 76 | 83 | 26 | 82 | 57 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 123 | 0 | 109 | 0 | 0 | 139 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | | 14 | 24 | |
| Sign Control | Stop | | Stop | | | Stop |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 26.9%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2038 Future Total>AM 12-20-2024

| | € | • | 1 | | - | ţ |
|-------------------------------|-------|-------|-------|------|---------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1• | | | ની |
| Sign Control | Stop | | Stop | | ; | Stop |
| Traffic Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 47 | 76 | 83 | 26 | 82 | 57 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 123 | 109 | 139 | | | |
| Volume Left (vph) | 47 | 0 | 82 | | | |
| Volume Right (vph) | 76 | 26 | 0 | | | |
| Hadj (s) | -0.26 | -0.11 | 0.15 | | | |
| Departure Headway (s) | 4.2 | 4.2 | 4.4 | | | |
| Degree Utilization, x | 0.14 | 0.13 | 0.17 | | | |
| Capacity (veh/h) | 812 | 818 | 775 | | | |
| Control Delay (s) | 7.9 | 7.8 | 8.4 | | | |
| Approach Delay (s) | 7.9 | 7.8 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 8.1 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliza | ation | | 26.9% | IC | CU Level of S | Service |
| Analysis Period (min) | | | 15 | | | |
| | | | | | | |

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|-----------|--|--|--|---|---|
| EBL | EBR | NBL | NBT | SBT | SBR |
| ¥ | | | ર્ન | 1 > | |
| 32 | 67 | 42 | 507 | 211 | 71 |
| 32 | 67 | 42 | 507 | 211 | 71 |
| 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 0.909 | | | | 0.966 | |
| 0.984 | | | 0.996 | | |
| 1685 | 0 | 0 | 1876 | 1819 | 0 |
| 0.984 | | | 0.996 | | |
| 1685 | 0 | 0 | 1876 | 1819 | 0 |
| 30 | | | 40 | 40 | |
| 112.2 | | | 121.1 | 114.0 | |
| 13.5 | | | 10.9 | 10.3 | |
| 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| 35 | 73 | 46 | 551 | 229 | 77 |
| | | | | | |
| 108 | 0 | 0 | 597 | 306 | 0 |
| No | No | No | No | No | No |
| Left | Right | Left | Left | Left | Right |
| 3.7 | | | 3.3 | 3.3 | |
| 0.0 | | | 0.0 | 0.0 | |
| 1.6 | | | 1.6 | 1.6 | |
| | | | | | |
| 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| 24 | 14 | 24 | | | 14 |
| Stop | | | Free | Free | |
| | | | | | |
| Other | | | | | |
| | | | | | |
| ion 60.3% | | | IC | U Level o | of Service E |
| | 32 32 32 1900 1.00 0.909 0.984 1685 0.984 1685 3 30 112.2 13.5 0.92 35 108 No Left 3.7 0.0 1.6 | 32 67 32 67 32 67 1900 1900 1.00 1.00 0.909 0.984 1685 0 0.984 1685 0 30 112.2 13.5 0.92 0.92 35 73 108 0 No No Left Right 3.7 0.0 1.6 0.99 0.99 24 14 Stop | 32 67 42 32 67 42 32 67 42 32 67 42 390 1900 1900 1900 1.00 1.00 1.00 0.909 0.984 1685 0 0 0.984 1685 0 0 112.2 13.5 0.92 0.92 0.92 35 73 46 108 0 0 No No No No Left Right Left 3.7 0.0 1.6 0.99 0.99 0.99 24 14 24 Stop | 32 67 42 507 32 67 42 507 32 67 42 507 32 67 42 507 1900 1900 1900 1900 1900 1.00 1.00 1.00 1.00 0.909 0.984 0.996 1685 0 0 1876 0.984 0.996 1685 0 0 1876 30 40 112.2 121.1 13.5 10.9 0.92 0.92 0.92 0.92 35 73 46 551 108 0 0 597 No No No No No Left Right Left Left 3.7 3.3 0.0 0.0 0.0 1.6 1.6 0.99 0.99 0.99 0.99 24 14 24 Stop Free | 32 67 42 507 211 32 67 42 507 211 32 67 42 507 211 32 67 42 507 211 1900 1900 1900 1900 1900 1900 0.996 0.984 0.996 1685 0 0 1876 1819 0.984 0.996 1685 0 0 1876 1819 30 40 40 4112.2 121.1 114.0 13.5 10.9 10.3 0.92 0.92 0.92 0.92 0.92 35 73 46 551 229 108 0 0 597 306 No No No No No No Left Right Left Left Left 3.7 3.3 3.3 0.0 0 0.0 0.0 1.6 1.6 1.6 0.99 0.99 0.99 0.99 0.99 24 14 24 Stop Free Free |

| | • | \rightarrow | 4 | † | ↓ | 4 | |
|-------------------------------|-------|---------------|-------|----------|------------|------------|--|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | |
| ane Configurations | ¥ | | | ની | 1, | | |
| Traffic Volume (veh/h) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Future Volume (Veh/h) | 32 | 67 | 42 | 507 | 211 | 71 | |
| Sign Control | Stop | | | Free | Free | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 35 | 73 | 46 | 551 | 229 | 77 | |
| Pedestrians | | | | | | | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| Median type | | | | None | None | | |
| Median storage veh) | | | | | | | |
| Upstream signal (m) | | | | | 114 | | |
| pX, platoon unblocked | | | | | | | |
| vC, conflicting volume | 910 | 268 | 306 | | | | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 910 | 268 | 306 | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | | |
| tC, 2 stage (s) | | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | | |
| p0 queue free % | 88 | 91 | 96 | | | | |
| cM capacity (veh/h) | 293 | 771 | 1255 | | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total | 108 | 597 | 306 | | | | |
| Volume Left | 35 | 46 | 0 | | | | |
| Volume Right | 73 | 0 | 77 | | | | |
| cSH | 505 | 1255 | 1700 | | | | |
| Volume to Capacity | 0.21 | 0.04 | 0.18 | | | | |
| Queue Length 95th (m) | 6.1 | 0.9 | 0.0 | | | | |
| Control Delay (s) | 14.1 | 1.0 | 0.0 | | | | |
| Lane LOS | В | Α | | | | | |
| Approach Delay (s) | 14.1 | 1.0 | 0.0 | | | | |
| Approach LOS | В | | | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 2.1 | | | | |
| Intersection Capacity Utiliza | ation | | 60.3% | IC | CU Level o | of Service | |
| Analysis Period (min) | | | 15 | | | | |
| | | | .5 | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

Lanes, Volumes, Timings

<2038 Future Total>AM 12-20-2024

21: Building Driveways & Street A

| | • | - | • | • | • | • | 1 | † | ~ | 1 | ţ | 4 |
|----------------------------|------|-------|-------|------|-------|-------|------|----------|-------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Future Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.984 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 336 | 0 | 0 | 179 | 0 | 0 | 143 | 0 | 0 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2038 Future Total>AM 12-20-2024

| • | - | \rightarrow | • | • | • | 1 | † | ~ | - | ↓ | 4 |
|-------|--|---|--|--|--|--|---|---|---|---|---|
| EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| | 4 | | | 4 | | | 4 | | | 4 | |
| | Stop | | | Stop | | | Stop | | | Stop | |
| 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | C |
| 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | C |
| 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | C |
| EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| 336 | 179 | 143 | 113 | | | | | | | | |
| 33 | 50 | 0 | 113 | | | | | | | | |
| 41 | 39 | 143 | 0 | | | | | | | | |
| -0.02 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| 4.8 | 5.0 | 4.8 | 5.6 | | | | | | | | |
| 0.45 | 0.25 | 0.19 | 0.18 | | | | | | | | |
| 709 | 668 | 660 | 572 | | | | | | | | |
| 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| В | Α | Α | Α | | | | | | | | |
| | | | | | | | | | | | |
| | | 10.4 | | | | | | | | | |
| | | В | | | | | | | | | |
| ion | | 43.2% | IC | U Level | of Service | | | Α | | | |
| | | 15 | | | | | | | | | |
| | 30 30 0.92 33 36 33 41 -0.02 4.8 0.45 709 11.7 11.7 B | EBL EBT Stop 30 241 30 241 0.92 0.92 33 262 EB1 WB 1 336 179 333 50 41 39 -0.02 -0.04 4.8 5.0 0.45 0.25 709 668 11.7 9.6 11.7 9.6 | EBL EBT EBR Stop 30 241 38 30 241 38 0.92 0.92 0.92 33 262 41 EB1 WB1 NB1 336 179 143 33 50 0 41 39 143 39 143 -0.02 -0.04 -0.57 4.8 5.0 4.8 0.45 0.25 0.19 709 668 660 11.7 9.6 8.9 11.7 9.6 8.9 B A A 10.4 B on 43.2% | EBL EBT EBR WBL Stop 30 241 38 46 30 241 38 46 0.92 0.92 0.92 0.92 33 262 41 50 EB1 WB1 NB1 SB1 336 179 143 113 33 50 0 113 41 39 143 0 -0.02 -0.04 -0.57 0.23 4.8 5.0 4.8 5.6 0.45 0.25 0.19 0.18 709 668 660 572 11.7 9.6 8.9 9.8 11.7 9.6 8.9 9.8 B A A A 10.4 B on 43.2% IC | EBL EBT EBR WBL WBT Stop 30 241 38 46 83 30 241 38 46 83 0.92 0.92 0.92 0.92 33 262 41 50 90 EB1 WB1 NB1 SB1 336 179 143 113 33 50 0 1113 41 39 143 0 -0.02 -0.04 -0.57 0.23 4.8 5.0 4.8 5.6 0.45 0.25 0.19 0.18 709 668 660 572 11.7 9.6 8.9 9.8 11.7 9.6 8.9 9.8 B A A A B 10.4 B ICU Level of the stop o | EBL EBT EBR WBL WBT WBR Stop Stop 30 241 38 46 83 36 30 241 38 46 83 36 0.92 0.92 0.92 0.92 0.92 0.92 33 262 41 50 90 39 EB1 WB1 NB1 SB1 336 179 143 113 33 50 0 113 41 39 143 0 -0.02 -0.04 -0.57 0.23 4.8 5.0 4.8 5.6 0.45 0.25 0.19 0.18 709 668 660 572 11.7 9.6 8.9 9.8 11.7 9.6 8.9 9.8 B A A A A 10.4 B on 43.2% ICU Level of Service | EBL EBT EBR WBL WBT WBR NBL Stop Stop 30 241 38 46 83 36 0 30 241 38 46 83 36 0 0.92 0.92 0.92 0.92 0.92 0.92 0.92 33 262 41 50 90 39 0 EB1 WB1 NB1 SB1 336 179 143 113 33 50 0 113 41 39 143 0 -0.02 -0.04 -0.57 0.23 4.8 5.0 4.8 5.6 0.45 0.25 0.19 0.18 709 668 660 572 11.7 9.6 8.9 9.8 11.7 9.6 8.9 9.8 B A A A A B 10.4 B ICU Level of Service | EBL EBT EBR WBL WBT WBR NBL NBT Stop Stop Stop Stop 30 241 38 46 83 36 0 0 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 33 262 41 50 90 39 0 0 EB1 WB1 NB1 SB1 336 179 143 113 33 50 0 1113 41 39 143 0 -0.02 -0.04 -0.57 0.23 4.8 5.0 4.8 5.6 0.45 0.25 0.19 0.18 709 668 660 572 11.7 9.6 8.9 9.8 11.7 9.6 8.9 9.8 B A A A A B ICU Level of Service | EBL EBT EBR WBL WBT WBR NBL NBT NBR Stop Stop Stop Stop 30 241 38 46 83 36 0 0 132 30 241 38 46 83 36 0 0 132 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 33 262 41 50 90 39 0 0 143 EB1 WB1 NB1 SB1 336 179 143 113 336 179 143 113 337 50 0 113 41 39 143 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL Stop Stop Stop Stop 30 241 38 46 83 36 0 0 132 104 30 241 38 46 83 36 0 0 132 104 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT Stop Stop Stop Stop Stop Stop 30 241 38 46 83 36 0 0 132 104 0 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 |

| | - | • | • | ← | 4 | - |
|--|------------|-------|-------|-----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 1> | | | 4 | Y | |
| Traffic Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 |
| Future Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.953 | 1.00 | 1.00 | 1.00 | 0.944 | 1.00 |
| Flt Protected | 0.000 | | | 0.983 | 0.972 | |
| Satd. Flow (prot) | 1795 | 0 | 0 | 1851 | 1728 | 0 |
| Flt Permitted | 1700 | U | • | 0.839 | 0.972 | U |
| Satd. Flow (perm) | 1795 | 0 | 0 | 1580 | 1728 | 0 |
| Right Turn on Red | 1755 | Yes | U | 1000 | 1720 | Yes |
| Satd. Flow (RTOR) | 46 | 103 | | | 61 | 103 |
| Link Speed (k/h) | 40 | | | 40 | 30 | |
| Link Distance (m) | 121.1 | | | 433.1 | 80.3 | |
| Travel Time (s) | 10.9 | | | 39.0 | 9.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0.92 86 | 46 | 134 | 251 | 303 | 214 |
| Shared Lane Traffic (%) | 00 | 40 | 134 | 201 | 303 | 214 |
| | 132 | 0 | 0 | 385 | 517 | 0 |
| Lane Group Flow (vph) Enter Blocked Intersection | 132 No | No | No | J85 No | No | No |
| | Left | | Left | | Left | |
| Lane Alignment | | Right | Left | Left | | Right |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | _ | 24 | 14 |
| Number of Detectors | _ 2 | | 1 | _ 2 | 1 | |
| Detector Template | Thru | | Left | Thru | Left | |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Detector Phase | 2 | | 6 | 6 | 8 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 20.0 | 20.0 | 8.0 | |
| | 20.0 | | 20.0 | 20.0 | 0.0 | |

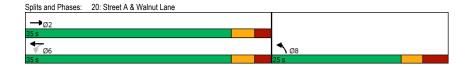
 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

Lanes, Volumes, Timings 20: Street A & Walnut Lane

Analysis Period (min) 15

| | - | • | • | ← | 1 | | |
|-------------------------------|-------------|-----|-------|----------|-------------|--------------|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | | |
| Total Split (s) | 35.0 | | 35.0 | 35.0 | 25.0 | | |
| Total Split (%) | 58.3% | | 58.3% | 58.3% | 41.7% | | |
| Maximum Green (s) | 29.2 | | 29.2 | 29.2 | 18.3 | | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | |
| Recall Mode | Max | | Max | Max | None | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 29.2 | | | 29.2 | 17.8 | | |
| Actuated g/C Ratio | 0.49 | | | 0.49 | 0.30 | | |
| v/c Ratio | 0.15 | | | 0.50 | 0.92 | | |
| Control Delay | 6.3 | | | 13.2 | 44.1 | | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | | |
| Total Delay | 6.3 | | | 13.2 | 44.1 | | |
| LOS | Α | | | В | D | | |
| Approach Delay | 6.3 | | | 13.2 | 44.1 | | |
| Approach LOS | Α | | | В | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 60 | | | | | | | |
| Actuated Cycle Length: 59. | .5 | | | | | | |
| Natural Cycle: 60 | | | | | | | |
| Control Type: Semi Act-Un | coord | | | | | | |
| Maximum v/c Ratio: 0.92 | | | | | | | |
| Intersection Signal Delay: 2 | | | | Ir | ntersection | LOS: C | |
| Intersection Capacity Utiliza | ation 78.4% | | | IC | CU Level o | of Service D | |



1105-1163 Kingston Road Synchro 11 Report WSP Page 2

<2038 Future Total_PHF>AM 12-20-2024 Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2038 Future Total_PHF>AM 12-20-2024

| | • | - | \rightarrow | • | ← | • | 4 | † | 1 | - | ţ | 4 |
|--------------------------------------|-------|-------------|---------------|-------|-------------|--------|-------|----------|-------|-------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ∱ î> | | ř | ∱ î> | | ř | ĵ. | | Ť | î, | |
| Traffic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Future Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.976 | | | 0.979 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | 0200 | · | 0.950 | 0200 | | 0.592 | | • | 0.728 | 11.00 | • |
| Satd. Flow (perm) | 1553 | 3280 | 0 | 1639 | 3298 | 0 | 1089 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | 1000 | 0200 | Yes | 1000 | 0200 | Yes | 1000 | | Yes | 1001 | 1100 | Yes |
| Satd. Flow (RTOR) | | 23 | 100 | | 18 | 100 | | 29 | 100 | | 144 | 100 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Opeca (MI) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 55.0 | 4 | 4 | 11.0 | 6 | 3 | 7.0 | 2 | 2 | 17.2 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1.00 | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 /8 | 0 /8 | 6 | 0 | 0 /8 | 0 /0 | 0 | 0 /8 | 0 /0 |
| Adj. Flow (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Shared Lane Traffic (%) | 00 | 730 | 100 | 70 | 313 | J4 | O1 | 13 | 23 | 100 | 33 | 144 |
| Lane Group Flow (vph) | 80 | 877 | 0 | 78 | 673 | 0 | 67 | 44 | 0 | 155 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No. | No. | No | No | No. | No | No. | No. | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Leit | 2.8 | Rigiil | Leit | 2.8 | Rigiit | Leit | 3.8 | Rigit | Leit | 3.8 | Rigiil |
| | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| | | 4.9 | | | Yes | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | 4 47 | 4.04 | 4.07 | 4.40 | | 4.00 | 4.00 | 0.04 | 0.00 | 0.07 | 0.00 | 0.99 |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | _ | 14 | 24 | ^ | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

| | • | - | • | • | ← | • | 4 | † | 1 | - | ļ | 1 |
|------------------------------|---------------|------------|----------|----------|-------------|-------------|-------------|----------|-----|-------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | - 3 | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 73.4 | | 6.0 | 72.5 | | 19.5 | 19.5 | | 19.5 | 19.5 | |
| Actuated g/C Ratio | 0.08 | 0.61 | | 0.05 | 0.60 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.66 | 0.44 | | 0.95 | 0.34 | | 0.38 | 0.14 | | 0.69 | 0.44 | |
| Control Delay | 78.8 | 13.8 | | 149.3 | 7.1 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 13.8 | | 149.3 | 7.1 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| LOS | E | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 19.2 | | | 21.9 | | | 37.3 | | | 36.0 | |
| Approach LOS | | В | | | С | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | 0 11 10 1 | | | | | | | | | | | |
| Actuated Cycle Length: 12 | n | | | | | | | | | | | |
| Offset: 107.8 (90%), Refer | | ase 2:FRT | and 6:W | RT Star | t of Green | | | | | | | |
| Natural Cycle: 85 | orioca to pri | uoo z.cb | una o.vv | D1, Otal | t or order | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | ordinatod | | | | | | | | | | | |
| Intersection Signal Delay: | 23.7 | | | Ir | ntersection | 1 0S: C | | | | | | |
| Intersection Capacity Utiliz | | , | | | CU Level | | D D | | | | | |
| Analysis Period (min) 15 | | , | | ., | JO LOVOI (| JI 001 VI00 | , , | | | | | |
| | | | | | | | | | | | | |
| Splits and Phases: 3: Di | xie Road & | Kingston I | Road | | | SES. | | | | | | - 10 |
| √Ø1 →Ø2 (R) | | | | | | 4 | Ø4 | | | | | |
| 11s 59s | | | | | | 50 s | | | | | | |
| ∮ _{Ø5} ← | (R) | | | | | 4 | † ø8 | | | | | |
| 15 55 s | 4.0 | | | | | 50 : | - 20 | | | | | |
| | | | | | | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total_PHF>AM 12-20-2024

| | ۶ | → | • | • | + | 4 | • | † | ~ | / | | |
|-------------------------------------|-------|----------|--------|-------|----------|-------|-------|----------|---------|----------|----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.253 | | | 0.517 | | |
| Satd. Flow (perm) | 1644 | 3299 | 1487 | 1675 | 3510 | 1517 | 468 | 3700 | 1536 | 1078 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 153 | | | 174 | | | 146 | | | 230 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | 20.0 | 21 | 34 | 10.0 | 44 | 44 | 20 | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Shared Lane Traffic (%) | 200 | 102 | 102 | 100 | 001 | 00 | 101 | 000 | 140 | 01 | | 200 |
| Lane Group Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 398 | 146 | 84 | 747 | 230 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Lon | 3.3 | rtigit | Loit | 3.3 | ragni | Lon | 4.7 | rtigitt | Loit | 4.7 | rtigrit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | 1.0 | | | 1.0 | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | 1.00 | 1.00 | 24 | 0.33 | 1.03 | 24 | 0.55 | 14 | 24 | 0.31 | 1.04 |
| Number of Detectors | 1 | 2 | 14 | 1 | 2 | 14 | 1 | 2 | 14 | 1 | 2 | 14 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Size(m) Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | CI+Ex |
| Detector 1 Type Detector 1 Channel | UI+EX | UI+EX | UI+EX | Cl+Ex | OI+EX | UI+EX | OI+EX | UI+EX | UI+EX | OI+EX | CI+Ex | UI+EX |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | | | | | | | | | | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston RoadSynchro 11 ReportWSPPage 3

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total_PHF>AM 12-20-2024

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|-----------------------------|--------------|------------|-------------|-----------|-----------------|-----------------|-------|----------|--------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | , i | | , in the second | , in the second | | , i | | | , i | Ĭ |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 19.7 | 34.9 | 34.9 | 14.0 | 29.2 | 29.2 | 53.6 | 43.5 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.16 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.45 | 0.36 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.93 | 0.51 | 0.89 | 0.94 | 0.41 | 0.10 | 0.51 | 0.30 | 0.27 | 0.16 | 0.59 | 0.35 |
| Control Delay | 98.2 | 34.0 | 40.1 | 103.0 | 40.0 | 0.4 | 27.1 | 28.6 | 6.4 | 18.7 | 34.4 | 5.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 98.2 | 34.0 | 40.1 | 103.0 | 40.0 | 0.4 | 27.1 | 28.6 | 6.4 | 18.7 | 34.4 | 5.0 |
| LOS | F | С | D | F | D | Α | С | С | Α | В | С | Α |
| Approach Delay | | 49.6 | | | 56.5 | | | 23.5 | | | 26.8 | |
| Approach LOS | | D | | | Е | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | 20 | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | enced to pha | se 2:EBT | and 6:WI | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | | | | | | | | | | | | |
| Intersection Signal Delay: | 39.0 | | | lı lı | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utili | zation 99.1% | 5 | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: L | iverpool Roa | ıd & Kinas | ston Road | | | | | | | | | |
| | XD 145.54 | u a niily | stori ivodu | | 14 | I,k | | | | | | - 8 |
| 01 | Piggs (D.) | | | | - | Ø3 🏰 | 014 | | | | | |

<2038 Future Total>PM

| Lanes, Volumes, Timings |
|--------------------------------|
| 1: Walnut Lane & Kingston Road |
| |

<2038 Future Total>PM

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|----------------------------|-------------|------------|---------------|-------|------------|-------|-------|----------|-------|-------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | † } | | ሻ | ↑ ↑ | | ሻ | | 7 | * | 1 2 | |
| Traffic Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.981 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3464 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.728 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3464 | 0 | 1683 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | . 00 | | 9 | . 00 | | | 85 | | 28 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | | 7 | 7 | | 5 | 14 | | 5 | 5 | | 14 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 41 | 1730 | 245 | 40 | 702 | 47 | 242 | 0 | 351 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | | | | | | | | - | | | | |
| Lane Group Flow (vph) | 41 | 1975 | 0 | 40 | 749 | 0 | 242 | 0 | 351 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | g | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | | | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | ().() | U.U | | | | | | | | | | |
| Turri Tybe | 0.0 Prot | 0.0 NA | | Prot | NA | | Perm | | Perm | Perm | NA | |

| | • | - | • | • | • | * | 4 | † | ~ | > | ļ | 1 |
|--------------------------|-------|-------|-----|-------|-------|-----|-------|----------|-------|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | | 11.5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 76.8 | | 8.2 | 79.9 | | 27.5 | | 27.5 | 27.5 | 27.5 | |
| Actuated g/C Ratio | 0.04 | 0.59 | | 0.06 | 0.61 | | 0.21 | | 0.21 | 0.21 | 0.21 | |
| v/c Ratio | 0.64 | 0.96 | | 0.38 | 0.35 | | 0.87 | | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | | 63.8 | 10.6 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | | 63.8 | 10.6 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| LOS | F | D | | Ε | В | | Е | | Е | D | С | |
| Approach Delay | | 38.0 | | | 13.3 | | | 66.5 | | | 27.5 | |
| Approach LOS | | D | | | В | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 1 | 130 | | | | | | | | | | | |

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 77 (59%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum vic Ratio: 0.96
Intersection Signal Delay: 37.0 Intersection Capacity Utilization 97.9% ICU Level of Service F
Analysis Period (min) 15

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 2

<2038 Future Total>PM 12-20-2024

1: Walnut Lane & Kingston Road

| | • | - | • | • | 1 | - | - | ↓ | |
|------------------------|---------|---------|-------|-------|-------|--------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1975 | 40 | 749 | 242 | 351 | 26 | 45 | |
| v/c Ratio | 0.64 | 0.96 | 0.38 | 0.35 | 0.87 | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | 63.8 | 10.6 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | 63.8 | 10.6 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Length 50th (m) | 10.9 | ~279.5 | 10.7 | 33.3 | 59.0 | 66.3 | 5.3 | 3.4 | |
| Queue Length 95th (m) | m14.2 r | n#316.7 | m20.4 | 46.5 | #97.1 | #109.3 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 2054 | 129 | 2157 | 313 | 446 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.96 | 0.31 | 0.35 | 0.77 | 0.79 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 2: Street B & Kingston Road <2038 Future Total>PM 12-20-2024

| | - | • | • | ← | 4 | 1 |
|----------------------------|----------|---------|----------|----------|----------|---------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 1 |
| Traffic Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | | 45.0 | 0.0 | | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | 0.00 | | | 0.00 | | |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | 3.000 | | | | 0.000 |
| Satd. Flow (prot) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Flt Permitted | 0000 | 1001 | <u> </u> | 0000 | <u> </u> | 1000 |
| Satd. Flow (perm) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Link Speed (k/h) | 60 | | | 60 | 30 | 1000 |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | 11.0 | 3 | 3 | 1.0 | 11.0 | |
| Confl. Bikes (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 0% | 2% | 2% | 2% | 0% |
| Adj. Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Shared Lane Traffic (%) | 1771 | 00 | | 1112 | | 212 |
| Lane Group Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | rtigrit | Leit | 3.0 | 0.0 | rtigrit |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | 1.01 | 1.04 | 24 | 1.01 | 24 | 14 |
| | | 14 | 24 | | | 14 |
| | Eroo | | | Eroo | Cton | |
| Sign Control | Free | | | Free | Stop | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 66.4%
Analysis Period (min) 15

ICU Level of Service C

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1105-1163 Kingston Road Synchro 11 Report WSP Page 4

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

| <2038 Futur | e Total>PM |
|-------------|------------|
| | 12-20-2024 |

| | - | • | • | • | 1 | |
|------------------------------|-------------|-------------|-------|----------|---------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (Veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Pedestrians | | | | | 3 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX, platoon unblocked | | | 0.43 | | 0.48 | 0.43 |
| vC, conflicting volume | | | 1744 | | 2300 | 874 |
| vC1, stage 1 conf vol | | | | | 1744 | • • • |
| vC2, stage 2 conf vol | | | | | 556 | |
| vCu, unblocked vol | | | 103 | | 609 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 42 |
| cM capacity (veh/h) | | | 642 | | 365 | 471 |
| . , , | 50 4 | 50.0 | | 11/5 / | | |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 870 | 870 | 85 | 556 | 556 | 272 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 85 | 0 | 0 | 272 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 471 |
| Volume to Capacity | 0.51 | 0.51 | 0.05 | 0.33 | 0.33 | 0.58 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 |
| Lane LOS | | | | | | С |
| Approach Delay (s) | 0.0 | | | 0.0 | | 22.5 |
| Approach LOS | | | | | | С |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.9 | | | |
| Intersection Capacity Utiliz | zation | | 66.4% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| anaryono i onou (mmi) | | | 10 | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5 Lanes, Volumes, Timings 3: Dixie Road & Kingston Road

<2038 Future Total>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | - | ţ | 1 |
|----------------------------|-------|------------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | ∱ î> | | ሻ | f) | | ሻ | f) | |
| Traffic Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Future Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.968 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3296 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3296 | 0 | 1595 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 43 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1588 | 433 | 43 | 884 | 184 | 178 | 59 | 68 | 161 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 2021 | 0 | 43 | 1068 | 0 | 178 | 127 | 0 | 161 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |

Synchro 11 Report Page 6 1105-1163 Kingston Road

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2038 Future Total>PM 12-20-2024

| | • | - | \rightarrow | • | ← | • | 4 | Ť | ~ | - | ļ | 4 |
|-------------------------|-------|-------|---------------|-------|----------|-----|-------|-------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 26.0 | 79.0 | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 20.0% | 60.8% | | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) | 21.0 | 72.4 | | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 4 | | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 20.3 | 82.4 | | 5.0 | 65.2 | | 23.5 | 23.5 | | 23.5 | 23.5 | |
| Actuated g/C Ratio | 0.16 | 0.63 | | 0.04 | 0.50 | | 0.18 | 0.18 | | 0.18 | 0.18 | |
| v/c Ratio | 0.90 | 0.96 | | 0.70 | 0.62 | | 0.79 | 0.36 | | 0.69 | 0.33 | |
| Control Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| LOS | Е | D | | F | С | | Е | С | | Е | В | |
| Approach Delay | | 39.0 | | | 29.2 | | | 56.6 | | | 42.3 | |
| Approach LOS | | D | | | С | | | Е | | | D | |

Intersection Summary

Area Type:

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96

Intersection Signal Delay: 37.8
Intersection Capacity Utilization 92.7% Intersection LOS: D ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



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Queues

<2038 Future Total>PM 12-20-2024

3: Dixie Road & Kingston Road

| | * | ı | 7 | - | - € | - | | |
|--|------|------|------|-------|--------|--------|--------|------------------------|
| Lane Group EBL EBT WBL WBT NBL NBT SBL SBT | SBL | NBT | NBL | WBT | WBL | EBT | EBL | Lane Group |
| Lane Group Flow (vph) 222 2021 43 1068 178 127 161 130 | 161 | 127 | 178 | 1068 | 43 | 2021 | 222 | Lane Group Flow (vph) |
| v/c Ratio 0.90 0.96 0.70 0.62 0.79 0.36 0.69 0.33 | 0.69 | 0.36 | 0.79 | 0.62 | 0.70 | 0.96 | 0.90 | v/c Ratio |
| Control Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 | 64.5 | 32.0 | 74.1 | 25.6 | 117.4 | 35.4 | 71.8 | Control Delay |
| Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Queue Delay |
| Total Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 | 64.5 | 32.0 | 74.1 | 25.6 | 117.4 | 35.4 | 71.8 | Total Delay |
| Queue Length 50th (m) 53.2 275.4 11.7 84.0 43.9 18.9 38.9 6.5 | 38.9 | 18.9 | 43.9 | 84.0 | 11.7 | 275.4 | 53.2 | Queue Length 50th (m) |
| Queue Length 95th (m) m#68.0 #350.7 m#26.9 102.8 65.4 34.9 58.8 22.1 | 58.8 | 34.9 | 65.4 | 102.8 | m#26.9 | #350.7 | m#68.0 | Queue Length 95th (m) |
| Internal Link Dist (m) 872.3 167.2 20.0 212.2 | | 20.0 | | 167.2 | | 872.3 | | Internal Link Dist (m) |
| Turn Bay Length (m) 145.4 51.0 13.0 16.0 | 16.0 | | 13.0 | | 51.0 | | 145.4 | Turn Bay Length (m) |
| Base Capacity (vph) 255 2105 61 1720 302 464 312 494 | 312 | 464 | 302 | 1720 | 61 | 2105 | 255 | Base Capacity (vph) |
| Starvation Cap Reductn 0 0 0 0 0 0 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Starvation Cap Reductn |
| Spillback Cap Reductn 0 0 0 0 0 0 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Spillback Cap Reductn |
| Storage Cap Reductn 0 0 0 0 0 0 0 | 0 | • | 0 | - | 0 | _ | 0 | |
| Reduced v/c Ratio 0.87 0.96 0.70 0.62 0.59 0.27 0.52 0.26 | 0.52 | 0.27 | 0.59 | 0.62 | 0.70 | 0.96 | 0.87 | Reduced v/c Ratio |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

<2038 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
4: Street B & Shopping Plaza Entrance

| | ၨ | • | • | † | ↓ | 4 |
|----------------------------|-------|-------|------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | ર્ન | ĥ | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.885 | | | | 0.898 | |
| Flt Protected | 0.993 | | | 0.988 | | |
| Satd. Flow (prot) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Flt Permitted | 0.993 | | | 0.988 | | |
| Satd. Flow (perm) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Link Speed (k/h) | 30 | | | 30 | 30 | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 61 | 352 | 51 | 161 | 28 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 413 | 0 | 0 | 212 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Stop | Stop | |
| Intersection Summary | | | | | | |

| Intersection Summary | | | | | | | | | | |
|---|------------------------|--|--|--|--|--|--|--|--|--|
| Area Type: Other | | | | | | | | | | |
| Control Type: Unsignalized | | | | | | | | | | |
| Intersection Capacity Utilization 46.9% | ICU Level of Service A | | | | | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 4: Street B & Shopping Plaza Entrance

<2038 Future Total>PM 12-20-2024

| | • | • | 1 | † | ↓ . | 4 |
|------------------------------|-------|------|-------|----------|--------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | ર્ન | ĵ» | |
| Sign Control | Stop | | | Stop | Stop | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 61 | 352 | 51 | 161 | 28 | 85 |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 413 | 212 | 113 | | | |
| Volume Left (vph) | 61 | 51 | 0 | | | |
| Volume Right (vph) | 352 | 0 | 85 | | | |
| Hadj (s) | -0.42 | 0.05 | -0.45 | | | |
| Departure Headway (s) | 4.3 | 5.1 | 4.7 | | | |
| Degree Utilization, x | 0.49 | 0.30 | 0.15 | | | |
| Capacity (veh/h) | 796 | 664 | 693 | | | |
| Control Delay (s) | 11.4 | 10.2 | 8.5 | | | |
| Approach Delay (s) | 11.4 | 10.2 | 8.5 | | | |
| Approach LOS | В | В | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 10.6 | | | |
| Level of Service | | | В | | | |
| Intersection Capacity Utiliz | ation | | 46.9% | IC | U Level of S | Service |
| Analysis Period (min) | | | 15 | | | |
| | | | | | | |

Lanes, Volumes, Timings 5: Street B & Street A

| <2038 Future | Total>PM |
|--------------|------------|
| | 12-20-2024 |

| Lane Group WBL | | | | | * | |
|---|-------|------|-------|---------|------------|------|
| | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | | 1> | | | ની | |
| Traffic Volume (vph) 0 | 171 | 0 | 0 | 342 | 3 | |
| Future Volume (vph) 0 | 171 | 0 | 0 | 342 | 3 | |
| Ideal Flow (vphpl) 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped Bike Factor | | | | | | |
| Frt 0.865 | | | | | | |
| Flt Protected | | | | | 0.953 | |
| Satd. Flow (prot) 1662 | 0 | 1921 | 0 | 0 | 1778 | |
| Flt Permitted | | | | | 0.953 | |
| Satd. Flow (perm) 1662 | 0 | 1921 | 0 | 0 | 1778 | |
| Link Speed (k/h) 30 | | 30 | | | 30 | |
| Link Distance (m) 193.3 | | 78.3 | | | 49.0 | |
| Travel Time (s) 23.2 | | 9.4 | | | 5.9 | |
| Confl. Peds. (#/hr) 5 | 5 | | | | | |
| Peak Hour Factor 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) 0% | 0% | 0% | 0% | 3% | 0% | |
| Adj. Flow (vph) 0 | 186 | 0 | 0 | 372 | 3 | |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) 186 | 0 | 0 | 0 | 0 | 375 | |
| Enter Blocked Intersection No | No | No | No | No | No | |
| Lane Alignment Left | Right | Left | Right | Left | Left | |
| Median Width(m) 3.7 | | 0.0 | | | 0.0 | |
| Link Offset(m) 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) 97 | 97 | | 97 | 97 | | |
| Sign Control Stop | | Stop | | | Stop | |
| Intersection Summary | | | | | | |
| Area Type: Other | | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilization 37.2% | | | IC | U Level | of Service | ce A |
| Analysis Period (min) 15 | | | | | | |

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HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

<2038 Future Total>PM 12-20-2024

| | € | • | † | ~ | - | Ļ |
|------------------------------|--------|------|----------|------|--------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | î, | | | र्स |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 |
| Future Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 186 | 0 | 0 | 372 | 3 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 186 | 0 | 375 | | | |
| Volume Left (vph) | 0 | 0 | 372 | | | |
| Volume Right (vph) | 186 | 0 | 0 | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | |
| Departure Headway (s) | 4.2 | 4.8 | 4.6 | | | |
| Degree Utilization, x | 0.22 | 0.00 | 0.48 | | | |
| Capacity (veh/h) | 788 | 713 | 761 | | | |
| Control Delay (s) | 8.4 | 7.8 | 11.7 | | | |
| Approach Delay (s) | 8.4 | 0.0 | 11.7 | | | |
| Approach LOS | Α | Α | В | | | |
| Intersection Summary | | | | | | |
| Delay | | | 10.6 | | | |
| Level of Service | | | В | | | |
| Intersection Capacity Utiliz | zation | | 37.2% | IC | U Level of S | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Future Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.302 | | | 0.153 | | |
| Satd. Flow (perm) | 1663 | 3461 | 1512 | 1711 | 3579 | 1517 | 564 | 3773 | 1564 | 322 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 93 | | | 160 | | | 169 | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 876 | 252 | 103 | 630 | 173 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 876 | 252 | 103 | 630 | 173 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | Yes | 4.00 | 4.04 | 0.00 | 4.00 | 0.07 | 0.00 | 0.07 | 0.00 | Yes | 4.04 |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 | 24 | • | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

 1105-1163 Kingston Road
 Synchro 11 Report

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Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total>PM 12-20-2024

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|------------------------------|--------------|-----------|-----------|------------|------------|------------|-----------|-----------|--------|-----------|-----------|---------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Loud | Lug | Loud | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Lug |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | None | 7.0 | TWOTIC | Nonc | 7.0 | 7.0 | TAOTIC | 7.0 | 7.0 | 140110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 26.8 | 38.9 | 48.0 | 21.0 | 33.1 | 33.1 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.21 | 0.30 | 0.37 | 0.16 | 0.25 | 0.25 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.23 | 0.62 | 0.74 | 0.43 | 0.40 | 0.55 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.14 | 37.8 | 44.3 | 14.7 | 34.1 | 39.1 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 37.8 | 44.3 | 14.7 | 34.1 | 39.1 | 5.9 |
| LOS | 04.0 D | 00.5 F | 00.7 E | 124.5 F | 44.1 D | Ο.0 | 37.0 D | 44.3 D | В | 04.1 C | 33.1 D | J.5 |
| Approach Delay | U | 73.7 | | _ ' | 69.4 | | U | 37.7 | D. | U | 32.2 | |
| Approach LOS | | 73.7 E | | | 03.4 E | | | D | | | 52.2 C | |
| ****** | | | | | | | | D | | | U | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference | ced to phase | e 2:EBT a | nd 6:WB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 145 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.07 | | | | | | | | | | | | |
| Intersection Signal Delay: | 56.2 | | | li li | ntersectio | n LOS: E | | | | | | |
| Intersection Capacity Utiliz | zation 105.8 | % | | I | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| 0.111 | | 1010 | | | | | | | | | | |
| K' | verpool Roa | ad & King | ston Road | 1 | | 1.2 | LA | | | | | - 19 |
| √ Ø1 | - Pop(| (R) | | | | 10 | 3 ₹ Ø4 | 1 | | | | |
| 26 s | 46 s | 40. | | | | 18.5 | 50 S | | | | | |
| Ø5 | | Ø6 (F | (3) | | | Ø | 7 Ø8 | 3 | | | | - 25 |
| WSP | 5 | 0.5 | | | | 00 | 30.5 | | | | , | Page 14 |
| ***** | | | | | | | | | | | | aye 14 |

Queues 6: Liverpool Road & Kingston Road <2038 Future Total>PM 12-20-2024

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|------------------------|-------|-----------|---------|--------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 876 | 252 | 103 | 630 | 173 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.62 | 0.74 | 0.43 | 0.53 | 0.55 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 37.8 | 44.3 | 14.7 | 34.1 | 39.1 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 37.8 | 44.3 | 14.7 | 34.1 | 39.1 | 5.9 |
| Queue Length 50th (m) | 79.7 | ~164.6 | 138.8 | ~84.3 | 53.1 | 0.0 | 27.0 | 105.3 | 15.8 | 15.8 | 70.3 | 0.0 |
| Queue Length 95th (m) | m87.5 | m#182.6 n | n#159.9 | #139.7 | 70.0 | 0.0 | 42.7 | 128.8 | 39.1 | 27.4 | 88.8 | 15.8 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1035 | 620 | 279 | 911 | 505 | 272 | 1187 | 586 | 194 | 1149 | 590 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.82 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.62 | 0.74 | 0.43 | 0.53 | 0.55 | 0.29 |

Lanes, Volumes, Timings

<2038 Future Total>PM

8: Liverpool Road & Private Access/Pickering Parkway

| | ᄼ | - | • | • | ← | • | 4 | † | / | - | ļ | 1 |
|--|-------|------------|-------|-------|----------|-------|-------|-------------|-----------|-------|-------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ħβ | | 77 | ↑ | 7 | * | ^ ^ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 873 | 401 | 196 | 1339 | 46 |
| Future Volume (vph) | 87 | 69 | 130 | 412 | 58 | 174 | 116 | 873 | 401 | 196 | 1339 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | 0.96 | 0.00 | 0.98 | 1.00 | 1.00 | | 0.01 | 0.96 | 0.99 | 0.01 | 0.93 |
| Frt | | 0.902 | | 0.00 | | 0.850 | | | 0.850 | 0.00 | | 0.850 |
| Flt Protected | 0.950 | 0.002 | | 0.950 | | 0.000 | 0.950 | | 0.000 | 0.950 | | 0.000 |
| Satd. Flow (prot) | 1705 | 2959 | 0 | 3204 | 1858 | 1399 | 1645 | 5085 | 1569 | 1708 | 5079 | 1597 |
| Flt Permitted | 0.000 | 2000 | J | 0.000 | 1000 | 1000 | 0.101 | 0000 | 1000 | 0.230 | 0070 | 1001 |
| Satd. Flow (perm) | 0.000 | 2959 | 0 | 0.000 | 1858 | 1399 | 175 | 5085 | 1502 | 411 | 5079 | 1482 |
| Right Turn on Red | | 2000 | Yes | | 1000 | Yes | 110 | 0000 | Yes | | 0010 | Yes |
| Satd. Flow (RTOR) | | 141 | 103 | | | 189 | | | 436 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | 100 | | 50 | 700 | | 50 | 177 |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | | 9.9 | 21 | 21 | 20.1 | | 21 | 11.7 | 21 | 21 | 10.0 | 21 |
| Confl. Bikes (#/hr) | | | 2 | 21 | | | 21 | | 5 | 21 | | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | 0.92 | 0.92 | 0.92 | 2% | 0.92 | 5% | 0.92 | 2% | 1% | 1% | 1% | 0.92 |
| Heavy Vehicles (%) Bus Blockages (#/hr) | 0% | 0% | 0% | 2% | 0% | 12 | 0% | 2% | 2 | 1% | 176 | 0% |
| | 95 | 75 | 141 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1455 | 50 |
| Adj. Flow (vph) Shared Lane Traffic (%) | 90 | 75 | 141 | 440 | 03 | 109 | 120 | 949 | 430 | 213 | 1400 | 50 |
| | 95 | 216 | 0 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1455 | 50 |
| Lane Group Flow (vph) | | No | No | No | No | No | No | 949 No | 436 No | No | No | 50 |
| Enter Blocked Intersection | No | Left | | | Left | | | | | | | No |
| Lane Alignment | Left | Leπ 6.0 | Right | Left | 6.0 | Right | Left | Left 3.8 | Right | Left | Left 3.8 | Right |
| Median Width(m) | | | | | | | | | | | | |
| Link Offset(m) | | 0.0 1.6 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | 4.00 | 4.00 | 0.00 | 4.00 | 4.00 | 4.40 | 4 40 | 4.00 | 4.00 | 4.00 | 4.04 | 4.04 |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.13 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | _ 2 | 1 | 1 | _ 2 | 1 | 1 | _ 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2038 Future Total>PM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

| | • | - | \rightarrow | • | • | • | 4 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.73 | 0.47 | 0.51 | 0.77 | 0.72 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.4 | 20.3 | 8.7 | 38.9 | 29.9 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.4 | 20.3 | 8.7 | 38.9 | 29.9 | 0.2 |
| LOS | D | В | | D | С | Α | D | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 18.5 | | | 30.2 | |
| Approach LOS | | С | | | С | | | В | | | С | |

Intersection Summary Area Type: O Cycle Length: 100 Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

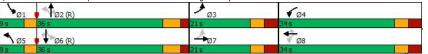
Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 26.0
Intersection Capacity Utilization 71.0%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2038 Future Total>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| ၨ | - | • | • | * | 1 | † | ~ | - | ļ | 4 | |
|------|---|---|--|---|---|--|---|--|---|--|---|
| EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| 95 | 216 | 448 | 63 | 189 | 126 | 949 | 436 | 213 | 1455 | 50 | |
| 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.73 | 0.47 | 0.51 | 0.77 | 0.72 | 0.07 | |
| 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.4 | 20.3 | 8.7 | 38.9 | 29.9 | 0.2 | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.4 | 20.3 | 8.7 | 38.9 | 29.9 | 0.2 | |
| 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 8.3 | 52.3 | 32.2 | 20.8 | 83.0 | 0.0 | |
| 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#42.9 | 75.2 | 55.0 | #62.0 | #131.2 | 0.0 | |
| | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| 245 | 546 | 877 | 509 | 520 | 173 | 2012 | 857 | 278 | 2010 | 673 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.73 | 0.47 | 0.51 | 0.77 | 0.72 | 0.07 | |
| | 95 0.51 51.0 0.0 51.0 17.7 32.2 245 0 | 95 216 0.51 0.48 51.0 18.9 0.0 0.0 51.0 18.9 17.7 7.1 32.2 17.3 58.8 245 546 0 0 0 0 0 0 | 95 216 448 0.51 0.48 0.67 51.0 18.9 40.8 0.0 0.0 0.0 51.0 18.9 40.8 17.7 7.1 42.3 32.2 17.3 52.8 58.8 57.0 245 546 877 0 0 0 0 0 0 0 0 0 | 95 216 448 63 0.51 0.48 0.67 0.16 51.0 18.9 40.8 31.2 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 17.7 7.1 42.3 10.3 32.2 17.3 52.8 19.3 58.8 304.5 57.0 245 546 877 509 0 0 0 0 0 0 0 0 | 95 216 448 63 189 0.51 0.48 0.67 0.16 0.43 51.0 18.9 40.8 31.2 7.5 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 17.7 7.1 42.3 10.3 0.0 32.2 17.3 52.8 19.3 15.9 58.8 304.5 57.0 62.1 245 546 877 509 520 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 0.51 0.48 0.67 0.16 0.43 0.73 51.0 18.9 40.8 31.2 7.5 38.4 0.0 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 38.4 17.7 7.1 42.3 10.3 0.0 8.3 32.2 17.3 52.8 19.3 15.9 m#42.9 58.8 304.5 57.0 62.1 54.4 245 546 877 509 520 173 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 949 0.51 0.48 0.67 0.16 0.43 0.73 0.47 51.0 18.9 40.8 31.2 7.5 38.4 20.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.5 1.0 18.9 40.8 31.2 7.5 38.4 20.3 17.7 7.1 42.3 10.3 0.0 8.3 52.3 32.2 17.3 52.8 19.3 15.9 m#42.9 75.2 58.8 304.5 138.3 57.0 62.1 54.4 245 546 877 509 520 173 2012 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 949 436 0.51 0.48 0.67 0.16 0.43 0.73 0.47 0.51 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 17.7 7.1 42.3 10.3 0.0 8.3 52.3 32.2 32.2 17.3 52.8 19.3 15.9 m#42.9 75.2 55.0 58.8 304.5 13.8 13.8 57.0 62.1 54.4 75.7 245 546 877 509 520 173 2012 857 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 95 216 448 63 189 126 949 436 213 0.51 0.48 0.67 0.16 0.43 0.73 0.47 0.51 0.77 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 38.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0 | 95 216 448 63 189 126 949 436 213 1455 0.51 0.48 0.67 0.16 0.43 0.73 0.47 0.51 0.77 0.72 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 38.9 29.9 0.0 | 95 216 448 63 189 126 949 436 213 1455 50 0.51 0.48 0.67 0.16 0.43 0.73 0.47 0.51 0.77 0.72 0.07 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 38.9 29.9 0.2 51.0 18.9 40.8 31.2 7.5 38.4 20.3 8.7 38.9 29.9 0.2 17.7 7.1 42.3 10.3 0.0 8.3 52.3 32.2 20.8 83.0 0.0 32.2 17.3 52.8 19.3 15.9 m#42.9 75.2 55.0 #62.0 #131.2 0.0 58.8 304.5 138.3 23.3 23.7 233.7 235.5 245 546 877 509 520 173 2012 857 278 2010 673 0 0 0 |

Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

<2038 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

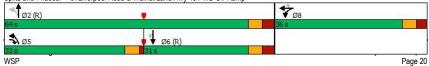
| | ۶ | - | • | • | ← | • | 4 | † | / | - | ↓ | 4 |
|----------------------------|------|-------|-------|-------|----------|-------|-------|------------|-------|------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ሻ | ર્ન | 7 | ሻ | ^ ^ | | | ተተተ | 7 |
| Traffic Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1110 | 0 | 0 | 1189 | 166 |
| Future Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1110 | 0 | 0 | 1189 | 166 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | 0 | 0.0 | 0.0 | 0 | 125.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0 | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0.0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.01 | 1.00 | 1.00 | 0.01 | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Fit Protected | | | 0.000 | 0.950 | 0.997 | 0.000 | 0.950 | | | | | 0.000 |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | 1002 | 0.950 | 0.997 | 1001 | 0.137 | 3073 | · · | | 7312 | 1000 |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 263 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | U | U | No | 17.54 | 1020 | Yes | 203 | 3013 | Yes | U | 4312 | Yes |
| Satd. Flow (RTOR) | | | INU | | | 85 | | | 168 | | | 180 |
| Link Speed (k/h) | | 50 | | | 50 | 00 | | 50 | | | 50 | 100 |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| | | 31.2 | | | 10.3 | | 17 | 20.0 | 15 | 15 | 11.7 | 17 |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 6 | 15 | | |
| Confl. Bikes (#/hr) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 493 | 302 | 543 | 318 | 222 | 1207 | 0 | 0 | 1292 | 180 |
| Shared Lane Traffic (%) | | | 400 | 10% | | 0.40 | 200 | 400= | • | | 4000 | 400 |
| Lane Group Flow (vph) | 0 | 0 | 493 | 272 | 573 | 318 | 222 | 1207 | 0 | 0 | 1292 | 180 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | | | 3.7 | | | 3.7 | | | 3.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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<2038 Future Total>PM

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | - | * | • | • | • | 1 | Ť | ~ | - | ¥ | 4 |
|-----------------------------------|-----------|---------|-----------|------------|------------|-----------|-------|-------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.7 | 24.7 |
| Actuated g/C Ratio | | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.41 | | | 1.05 | 0.35 |
| Control Delay | | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.3 | | | 73.2 | 14.0 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.3 | | | 73.2 | 14.0 |
| LOS | | | F | С | F | С | В | В | | | E | В |
| Approach Delay | | 89.2 | | | 58.3 | | | 12.3 | | | 66.0 | |
| Approach LOS | | F | | | E | | | В | | | Е | |
| Intersection Summary | | | | | | | | | | | | |
| | ther | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to | phase 2:1 | NBTL an | d 6:SBT, | Start of G | Green | | | | | | | |
| Natural Cycle: 100 | | | | | | | | | | | | |
| Control Type: Actuated-Coord | dinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.05 | | | | | | | | | | | | |
| Intersection Signal Delay: 49. | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utilization | on 91.4% | | | 10 | CU Level | of Servic | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liver | pool Road | & Waln | ut Lane/H | lwy 401 V | VB Off-Ra | amp | | | | | | |
| 4 | | | | | | | 43 | - | | | | 1 |
| mm de t | | | | | | | | | | | | |



<2038 Future Total>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | 1 | ← | • | 4 | 1 | ↓ | 4 | |
|------------------------|--------|------|--------|-------|------|-------|--------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 493 | 272 | 573 | 318 | 222 | 1207 | 1292 | 180 | |
| v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.41 | 1.05 | 0.35 | |
| Control Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.3 | 73.2 | 14.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.3 | 73.2 | 14.0 | |
| Queue Length 50th (m) | ~103.9 | 45.8 | ~128.1 | 38.1 | 18.5 | 44.4 | ~79.6 | 1.8 | |
| Queue Length 95th (m) | #163.9 | 72.1 | #194.2 | 66.2 | 35.1 | 54.1 | #123.5 | m21.9 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 546 | 533 | 601 | 2930 | 1228 | 508 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.41 | 1.05 | 0.35 | |

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Total>PM 12-20-2024

| | • | - | • | • | - | 4 | |
|----------------------------|-------|----------|-------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | 1 | ^ | † 1> | | ች | 7 | |
| Traffic Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | | 1.00 | | | 0.99 | |
| Frt | | | 0.969 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1618 | 3433 | 3356 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1617 | 3433 | 3356 | 0 | 1805 | 1751 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 34 | | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 223 | 1999 | 926 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | J/ | -: _x | | J/ | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | 9.4 | | 0.0 | 0.0 | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| DOLOGIOI E OILO(III) | | 0.0 | 0.0 | | | | |

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Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2038 Future Total>PM 12-20-2024

| | | | | _ | | , | |
|--------------------------|---------------|---------|----------|----------|-------|-------|------|
| | ٠ | - | - | • | - | * | |
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 |
| Permitted Phases | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | | None | None | None |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | | 0.83 | 0.32 | |
| Control Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | |
| LOS | D | D | В | | Е | Α | |
| Approach Delay | | 42.2 | 11.8 | | 48.9 | | |
| Approach LOS | | D | В | | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 1 | | | | | | | |
| Offset: 27 (21%) Referen | need to phase | 2.FRT a | nd 6·WRT | Start of | Green | | |

Actuated Cycle Length: 130
Offset: 27 (214), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.7
Intersection
Intersection Capacity Utilization 77.8%
ICU Level Intersection LOS: C
ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2038 Future Total>PM 12-20-2024

| | • | - | — | - | 4 | | |
|--------------------------|------------|-----------|------------|----------|------|--|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 295 | 149 | | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | 0.83 | 0.32 | | |
| Control Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| Total Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | | |
| Queue Length 50th (m) | 52.2 | 285.8 | 36.3 | 72.7 | 0.0 | | |
| Queue Length 95th (m) | m55.0 | m281.6 | 43.5 | 101.2 | 16.7 | | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | | |
| Base Capacity (vph) | 248 | 2270 | 1727 | 426 | 527 | | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | | |
| Reduced v/c Ratio | 0.90 | 0.88 | 0.68 | 0.69 | 0.28 | | |
| Intersection Summary | | | | | | | |
| m Volume for 95th percen | tile queue | is metere | d by unsti | eam sign | al | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 24 <2038 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | → | • | • | ← | 4 | ~ |
|------------------------------------|------------|-------|-------|-----------|-------|--------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ ⊅ | LUI | 7 | ** | ሻሻ | 7 |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | J./ | 2.1 | 0% | 0% | 3.7 |
| Storage Length (m) | U /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Length (III) Storage Lanes | | 0.0 | 47.5 | | 2 | 52.0 |
| • | | U | 22.3 | | 2.5 | - 1 |
| Taper Length (m) | 0.95 | 0.05 | 1.00 | 0.05 | 0.97 | 1.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | | |
| Ped Bike Factor | 0.000 | | | | 1.00 | 0.98 |
| Frt | 0.998 | | 0.050 | | 0.050 | 0.850 |
| Flt Protected | 0577 | • | 0.950 | 0040 | 0.950 | 4047 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 224 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1843 | 25 | 200 | 874 | 720 | 376 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1868 | 0 | 200 | 874 | 720 | 376 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | rugin | Lon | 3.1 | 7.6 | ragilt |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| | 0.50 | 1.03 | 24 | 0.57 | | 14 |
| Turning Speed (k/h) | ^ | 14 | | ^ | 24 | |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | 2.0 |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| | CI+Ex | | | CI+Ex | | |
| Detector 2 Type | CI+EX | | | U+EX | | |

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<2038 Future Total>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | → ✓ | • | 4 | / | |
|--------------------------------------|-------------|----------------|------------|------------|--------------|---|
| Lane Group | EBT | EBR WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | |
| Detector 2 Extend (s) | 0.0 | | 0.0 | | | |
| Turn Type | NA | Prot | | Prot | Perm | |
| Protected Phases | 2 | 1 100 | | 8 | 1 Cilli | |
| Permitted Phases | | ' | | · | 8 | |
| Detector Phase | 2 | 1 | 6 | 8 | 8 | |
| Switch Phase | | ' | | · | U | |
| Minimum Initial (s) | 20.0 | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | 10.0 | | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | 21.0 | | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | 16.2% | | 29.2% | 29.2% | |
| | 63.8 | 16.0 | | 31.3 | 31.3 | |
| Maximum Green (s) Yellow Time (s) | 4.2 | 3.0 | | 31.3 | 31.3 | |
| | 3.0 | 2.0 | | 3.7 | 3.7 | |
| All-Red Time (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Lost Time Adjust (s) | | | | | | |
| Total Lost Time (s) | 7.2 | 5.0 | — | 6.7 | 6.7 | |
| Lead/Lag | Lag | Lead | | | | |
| Lead-Lag Optimize? | | 0.0 | | 0.0 | | |
| /ehicle Extension (s) | 0.2 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | C-Max | None | | None | None | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.3 | 16.0 | | 29.8 | 29.8 | |
| Actuated g/C Ratio | 0.50 | 0.12 | | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | 1.03 | | 0.89 | 0.70 | |
| Control Delay | 68.3 | 127.0 | | 62.0 | 25.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 | |
| LOS | E | F | | Е | С | |
| Approach Delay | 68.3 | | 25.1 | 49.4 | | |
| Approach LOS | Е | | С | D | | |
| ntersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | |
| Offset: 69 (53%), Referen | | 2:EBT and 6:WE | T, Start o | f Green | | |
| Natural Cycle: 130 | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | |
| ntersection Signal Delay: | 51.7 | | , li | ntersectio | n LOS: D | |
| ntersection Capacity Utili | | | | | of Service F | |
| Analysis Period (min) 15 | | | · | . , | | |
| Calita and Dhagas 44: | Uhar 404 MD | Damna 0 Vi | on Dood | | | |
| Splits and Phases: 11: | nwy 401 WB | Ramps & Kingst | un Koad | | | 1 |
| √ø1 •- | →Ø2 (R) | | | | | |
| 21s 71 | s | | | | | |
| + | | | | | | • |
| | | | | | | |



Queues 11: Hwy 401 WB Ramps & Kingston Road <2038 Future Total>PM 12-20-2024

| | - | • | • | 1 | ~ |
|------------------------|--------|--------|-------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1868 | 200 | 874 | 720 | 376 |
| v/c Ratio | 1.04 | 1.03 | 0.36 | 0.89 | 0.70 |
| Control Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Length 50th (m) | ~285.7 | ~48.6 | 6.4 | 91.1 | 35.3 |
| Queue Length 95th (m) | #329.1 | #100.6 | 6.0 | #114.7 | 71.2 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1795 | 194 | 2401 | 853 | 553 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.36 | 0.84 | 0.68 |

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Lanes, Volumes, Timings

<2038 Future Total>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | ← | • | 1 | † | ~ | / | ļ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|---------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | - ↑ | | ሻ | ^ | |
| Traffic Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.987 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3403 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1648 | 3343 | 0 | 1704 | 3403 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 12 | | | 129 | | | 141 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1703 | 41 | 97 | 1373 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1744 | 0 | 97 | 1505 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | , i | | 3.6 | | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | A | | | | | J/ | A | | J/ | n | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 2.0 | 9.4 | | | 9.4 | | 2.0 | 9.4 | | 2.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| 20100101 L 13P0 | | O1 - LX | | | 31. LX | | | J1 . L∧ | | | J1. L∧ | |

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<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

Lanes, Volumes, Timings

<2038 Future Total>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | ← | • | 1 | † | / | / | ţ | 4 |
|-------------------------|-------|----------|-----|-------|----------|-----|-------|-------|----------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | 13.0 | 76.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | | 10.0% | 58.5% | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | 8.0 | 69.1 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 13 | | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | 8.0 | 70.3 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 0.06 | 0.54 | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 0.93 | 0.82 | | 0.93 | 0.36 | | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | | 122.1 | 23.9 | | 93.7 | 14.4 | | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | | 0.0 | 0.0 | | 0.0 | 75.1 | | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | | 122.1 | 24.0 | | 93.7 | 89.5 | | 198.9 | 13.9 | |
| LOS | F | С | | F | С | | F | F | | F | В | |
| Approach Delay | | 26.7 | | | 29.9 | | | 91.9 | | | 77.7 | |
| Approach LOS | | С | | | С | | | F | | | Е | |

| Intersection Summa | ary | | | |
|----------------------|-----------------------|------------------------|------------------------|--|
| Area Type: | Other | | | |
| Cycle Length: 130 | | | | |
| Actuated Cycle Ler | gth: 130 | | | |
| Offset: 6 (5%), Refe | erenced to phase 2:EB | Tand 6:WBT, Start of 0 | Green | |
| Natural Cycle: 110 | | | | |
| Control Type: Actua | ated-Coordinated | | | |
| Maximum v/c Ratio | : 0.93 | | | |
| Intersection Signal | Delay: 37.2 | | Intersection LOS: D | |
| Intersection Capaci | ty Utilization 97.1% | | ICU Level of Service F | |
| Analysis Period (mi | n) 15 | | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2038 Future Total>PM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | 1 | • | 1 | † | - | ţ | |
|------------------------|-------|--------|--------|-------|-------|----------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1744 | 97 | 1505 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.82 | 0.93 | 0.36 | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | 122.1 | 23.9 | 93.7 | 14.4 | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 75.1 | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | 122.1 | 24.0 | 93.7 | 89.5 | 198.9 | 13.9 | |
| Queue Length 50th (m) | 36.7 | 144.1 | 26.0 | 85.8 | 54.0 | 7.7 | 19.7 | 5.9 | |
| Queue Length 95th (m) | m38.0 | m147.6 | m#48.1 | 218.0 | #99.2 | 26.9 | 36.4 | 25.8 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1845 | 243 | 481 | 240 | 417 | |
| Starvation Cap Reductn | 0 | 38 | 0 | 10 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 57 | 0 | 0 | 0 | 366 | 223 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.82 | 0.88 | 1.44 | 5.24 | 0.41 | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Total>PM 12-20-2024

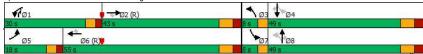
| | ۶ | → | • | € | + | • | 1 | † | ~ | / | + | -√ |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | ^ | 7 | * | ^ | 7 | ሻ | ተተተ | 7 | 7 | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1637 | 3400 | 1549 | 1717 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2038 Future Total>PM 12-20-2024

| | ٠ | → | • | • | ← | • | 4 | † | / | > | ↓ | 4 |
|------------------------------|-------------|-----------|----------|------------|------------|----------|--------|----------|--------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBI |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | 2000 | 9 | 9 | 2000 | 9 | 9 | 2000 | 9 | 2000 | 2000 | 9 | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 7.0 | 110110 | 7.0 | 110110 | 110110 | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| Control Delay | 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | Е | D | D | Е | D | A |
| Approach Delay | • | 76.4 | | • | 46.9 | Ū | _ | 46.1 | | _ | 35.3 | • |
| Approach LOS | | Е | | | D | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 10 | | | | | | | | | | | |
| Offset: 32 (25%), Reference | | 2:EBT a | nd 6:WB | T. Start o | f Green | | | | | | | |
| Natural Cycle: 130 | | | | , | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.08 | | | | | | | | | | | | |
| Intersection Signal Delay: | 51.8 | | | l | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | | % | | | CU Level | | е Н | | | | | |
| Analysis Period (min) 15 | | | | | | 20 | | | | | | |
| Califo and Dhagaer 42:1 | Mhitaa D | l O Vinc- | ion Dog- | | | | | | | | | |
| 8 | Whites Road | a & Kings | on Road | | | | 1.4 | | | | | |
| 1 | | 12172 | | | | 4 | 9/2 | | | | | |



Queues

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (m)
Queue Length 95th (m)
Internal Link Dist (m)
Turn Bay Length (m)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn

<2038 Future Total>PM 12-20-2024

0.97

0.84 0.42

13: Whites Road & Kingston Road

| ٠ | → | • | • | + | • | • | <u></u> | ~ | / | | √ |
|-------|----------|--------|---------|----------|---------|-------|---------|--------|----------|--------------|----------|
| EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| 43.7 | 125.5 | 55.7 | ~100.9 | 48.8 | 37.1 | 42.7 | 55.8 | 156.8 | 35.9 | 49.8 | 0.0 |
| #89.4 | #169.5 | 93.4 r | m#144.4 | m83.0 n | n#138.2 | #83.4 | 68.3 | #189.3 | #70.3 | 61.7 | 17.0 |
| | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| 168 | 941 | 540 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1.00 1.03 0.72 1.08 0.62 0.84 0.88 0.45

Storage Cap Reductn Reduced v/c Ratio

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1105-1163 Kingston Road Synchro 11 Report

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2038 Future Total>PM 12-20-2024

| | • | • | 4 | † | ţ | 4 |
|----------------------------|-------------------|-------|------|---------------|-------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ካ ነ | 7 | | 44 | 44 | |
| Traffic Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Future Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 2.0 | | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | | 2.5 | | | |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.98 | 1.00 | 0.00 | 0.00 | 1.00 |
| Frt | 0.993 | 0.850 | | | | |
| Flt Protected | 0.954 | 0.000 | | | | |
| Satd. Flow (prot) | 3450 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.954 | 1727 | J | 0000 | 0010 | J |
| Satd. Flow (perm) | 3450 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | J 4 JU | Yes | J | 3333 | 3010 | Yes |
| Satd. Flow (RTOR) | 7 | 100 | | | | 168 |
| | 50 | 100 | | 60 | 60 | |
| Link Speed (k/h) | | | | | 316.9 | |
| Link Distance (m) | 295.9 21.3 | | | 185.9 11.2 | 19.0 | |
| Travel Time (s) | 21.3 | 2 | 4 | 11.2 | 19.0 | 4 |
| Confl. Peds. (#/hr) | 0.00 | 3 | | 0.00 | 0.00 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1352 | 640 | 0 | 937 | 663 | 0 |
| Shared Lane Traffic (%) | | 10% | | 005 | 005 | |
| Lane Group Flow (vph) | 1416 | 576 | 0 | 937 | 663 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | CITLX | OITEX | |
| DETECTOR & CHAILIE | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 34

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Ø6 (R)

1105-1163 Kingston Road WSP

<2038 Future Total>PM 12-20-2024

Synchro 11 Report Page 35

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

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| | | • | 7 | - 1 | * | • |
|------------------------------|--------------|------------|--------------|---------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | |
| Total Split (%) | 56.0% | 56.0% | | 4.0% | 44.0% | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | 0.0 | 0.0 | | 0.1 | 0 | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | C- | -Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | Ū | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 47.7 | 47.7 | | 40.1 | 40.1 | |
| Actuated g/C Ratio | 0.48 | 0.48 | | 0.40 | 0.40 | |
| v/c Ratio | 0.86 | 0.80 | | 0.66 | 0.46 | |
| Control Delay | 29.0 | 27.1 | | 27.8 | 23.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 29.0 | 27.1 | | 27.8 | 23.9 | |
| LOS | C | C | | C | C | |
| Approach Delay | 28.5 | U | | 27.8 | 23.9 | |
| Approach LOS | 20.5 C | | | C | 20.5 C | |
| | U | | | U | 0 | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 100 | | | | | | |
| Actuated Cycle Length: 10 | | | | | | |
| Offset: 8 (8%), Referenced | d to phase 2 | :NBT and | 6:SBT, Start | t of Gr | reen | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | |
| Intersection Signal Delay: | | | | lr | ntersection | n LOS: C |
| Intersection Capacity Utiliz | zation 75.7% | | | [0 | CU Level o | of Service D |
| Analysis Period (min) 15 | | | | | | |
| Splits and Phases: 14: \ | Whites Road | ł & Highwa | y 401 EB O | ff Rar | mp | |
| ↑ ↑ø2 (R) | | | | 1 | Ø4 | |
| 44 s | | | | 56 s | | |
| 63.0 | | | | 9 6 | | |

Queues

<2038 Future Total>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1416 | 576 | 937 | 663 |
| v/c Ratio | 0.86 | 0.80 | 0.66 | 0.46 |
| Control Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Length 50th (m) | 115.7 | 81.0 | 78.9 | 50.2 |
| Queue Length 95th (m) | 141.9 | 130.5 | 102.6 | 67.3 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1745 | 758 | 1417 | 1449 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.81 | 0.76 | 0.66 | 0.46 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36

<2038 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance

| | • | • | † | <i>></i> | > | ļ |
|----------------------------|-------|-------|----------|-------------|-------------|-------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | f. | | | 4 |
| Traffic Volume (vph) | 0 | 281 | 0 | 0 | 466 | 0 |
| Future Volume (vph) | 0 | 281 | 0 | 0 | 466 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.950 |
| Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Flt Permitted | | | | | | 0.950 |
| Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1848 |
| Link Speed (k/h) | 30 | | 40 | | | 40 |
| Link Distance (m) | 193.0 | | 106.6 | | | 44.0 |
| Travel Time (s) | 23.2 | | 9.6 | | | 4.0 |
| Confl. Peds. (#/hr) | | 11 | | | 12 | |
| Confl. Bikes (#/hr) | | | | | 1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 305 | 0 | 0 | 507 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 305 | 0 | 0 | 0 | 0 | 507 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 4.1 | | 3.6 | Ť | | 3.6 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | |
| Sign Control | Stop | | Free | | | Free |
| Intersection Summary | | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.0%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2038 Future Total>PM 12-20-2024

| | < | • | † | 1 | - | ļ |
|------------------------------|--------------|--------------|----------|------|-----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | 1> | | | 4 |
| Traffic Volume (veh/h) | 0 | 281 | 0 | 0 | 466 | 0 |
| Future Volume (Veh/h) | 0 | 281 | 0 | 0 | 466 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 305 | 0 | 0 | 507 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | 110110 | | | 110110 |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1026 | 23 | | | 12 | |
| vC1, stage 1 conf vol | 1020 | 20 | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1026 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | V. 1 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 70 | | | 68 | |
| cM capacity (veh/h) | 175 | 1029 | | | 1587 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 305 | 0 | 507 | | | |
| | 0 | 0 | 507 | | | |
| Volume Left | 305 | 0 | 0 | | | |
| Volume Right cSH | | - | 1587 | | | |
| | 1029 0.30 | 1700 0.00 | 0.32 | | | |
| Volume to Capacity | | | | | | |
| Queue Length 95th (m) | 9.5 | 0.0 | 10.6 | | | |
| Control Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Lane LOS | A | | Α | | | |
| Approach Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.9 | | | |
| Intersection Capacity Utiliz | ation | | 51.0% | IC | U Level o | of Service |
| Analysis Period (min) | | | 15 | | | |
| , , | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 37

Synchro 11 Report Page 38 1105-1163 Kingston Road

Lanes, Volumes, Timings 17: Street B

Lane Group Lane Configurations Traffic Volume (vph) Future Volume (vph)
Ideal Flow (vphpl)
Lane Util. Factor

Frt Flt Protected Satd. Flow (prot) <2038 Future Total>PM

| | | | | | | 12-20-2024 |
|-------|------|----------|------|----------|-------|------------|
| • | • | † | ~ | / | ţ | |
| WBL | WBR | NBT | NBR | SBL | SBT | |
| ¥ | | f) | | | ર્ન | |
| 19 | 142 | 112 | 22 | 63 | 50 | |
| 19 | 142 | 112 | 22 | 63 | 50 | |
| 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| 0.881 | | 0.978 | | | | |
| 0.994 | | | | | 0.973 | |
| 1649 | 0 | 1842 | 0 | 0 | 1833 | |
| 0.994 | | | | | 0.973 | |
| 1649 | 0 | 1842 | 0 | 0 | 1833 | |

| outu. i ion (piot) | | • | | • | • | .000 | |
|----------------------------|-------|-------|------|-------|------|-------|--|
| Flt Permitted | 0.994 | | | | | 0.973 | |
| Satd. Flow (perm) | 1649 | 0 | 1842 | 0 | 0 | 1833 | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 | |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 21 | 154 | 122 | 24 | 68 | 54 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 175 | 0 | 146 | 0 | 0 | 122 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |

Intersection Summary Area Type:

Control Type: Unsignalized Intersection Capacity Utilization 33.2% Analysis Period (min) 15 ICU Level of Service A

97

0.99 0.99

97

Stop

Headway Factor Turning Speed (k/h) Sign Control HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2038 Future Total>PM 12-20-2024

| | • | * | † | ~ | > | ţ |
|------------------------------|-------|-------|----------|------|--------------|---------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | ĵ» | | | ર્ન |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Future Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 21 | 154 | 122 | 24 | 68 | 54 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 175 | 146 | 122 | | | |
| Volume Left (vph) | 21 | 0 | 68 | | | |
| Volume Right (vph) | 154 | 24 | 0 | | | |
| Hadj (s) | -0.47 | -0.06 | 0.15 | | | |
| Departure Headway (s) | 4.0 | 4.4 | 4.6 | | | |
| Degree Utilization, x | 0.20 | 0.18 | 0.16 | | | |
| Capacity (veh/h) | 830 | 787 | 742 | | | |
| Control Delay (s) | 8.0 | 8.3 | 8.4 | | | |
| Approach Delay (s) | 8.0 | 8.3 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 8.2 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | ation | | 33.2% | IC | U Level of S | Service |
| Analysis Period (min) | | | 15 | | | |
| | | | | | | |

0.99 0.99 0.99 0.99

Stop

97 97

| | ۶ | • | 4 | † | ↓ | 4 |
|-------------------------------|------------|-------|------|-------|----------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Y | | | ર્ન | f) | |
| Traffic Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Future Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.912 | | | | 0.986 | |
| Flt Protected | 0.983 | | | 0.992 | | |
| Satd. Flow (prot) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Flt Permitted | 0.983 | | | 0.992 | | |
| Satd. Flow (perm) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Link Speed (k/h) | 30 | | | 40 | 40 | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 32 | 60 | 140 | 767 | 299 | 35 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 92 | 0 | 0 | 907 | 334 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Free | Free | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utiliza | tion 75.7% | | | IC | CU Level | of Service D |
| Analysis Period (min) 15 | | | | | | |

| | • | • | 1 | Ī | ¥ | 4 |
|-------------------------------|-------|------|-------|------|------------|------------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Y | | | ની | 1> | |
| Traffic Volume (veh/h) | 29 | 55 | 129 | 706 | 275 | 32 |
| Future Volume (Veh/h) | 29 | 55 | 129 | 706 | 275 | 32 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 32 | 60 | 140 | 767 | 299 | 35 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | 114 | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1364 | 316 | 334 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1364 | 316 | 334 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 78 | 92 | 89 | | | |
| cM capacity (veh/h) | 144 | 724 | 1225 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 92 | 907 | 334 | | | |
| Volume Left | 32 | 140 | 0 | | | |
| Volume Right | 60 | 0 | 35 | | | |
| cSH | 302 | 1225 | 1700 | | | |
| Volume to Capacity | 0.30 | 0.11 | 0.20 | | | |
| Queue Length 95th (m) | 9.5 | 2.9 | 0.0 | | | |
| Control Delay (s) | 22.1 | 2.7 | 0.0 | | | |
| Lane LOS | C | Α | 2.0 | | | |
| Approach Delay (s) | 22.1 | 2.7 | 0.0 | | | |
| Approach LOS | C | | 0.0 | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 3.4 | | | |
| Intersection Capacity Utiliza | ation | | 75.7% | IC | CU Level o | of Service |
| Analysis Period (min) | | | 15 | | 20 201010 | 55. 1100 |
| ranarysis i cilou (ililii) | | | 13 | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

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Lanes, Volumes, Timings

<2038 Future Total>PM 12-20-2024

21: Building Driveways & Street A

| | ۶ | - | \rightarrow | • | — | • | 1 | † | * | - | ţ | 4 |
|----------------------------|------|-------|---------------|------|----------|-------|------|----------|----------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.966 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 415 | 0 | 0 | 436 | 0 | 0 | 126 | 0 | 0 | 99 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 97 | | 97 | 97 | | 97 | 97 | | 97 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2038 Future Total>PM 12-20-2024

| | • | → | \rightarrow | • | ← | • | 4 | † | <i>></i> | - | ļ | 4 |
|--------------------------------|-------|----------|---------------|------|----------|------------|------|----------|-------------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 415 | 436 | 126 | 99 | | | | | | | | |
| Volume Left (vph) | 82 | 121 | 0 | 99 | | | | | | | | |
| Volume Right (vph) | 103 | 95 | 126 | 0 | | | | | | | | |
| Hadj (s) | -0.08 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| Departure Headway (s) | 5.2 | 5.2 | 5.7 | 6.6 | | | | | | | | |
| Degree Utilization, x | 0.60 | 0.63 | 0.20 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 664 | 670 | 525 | 452 | | | | | | | | |
| Control Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach LOS | С | С | В | В | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 14.9 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utilizat | tion | | 52.2% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Lanes, Volumes, Timings 20: Street A & Walnut Lane

| | - | • | • | ← | 4 | 1 |
|----------------------------|----------|-------|-------------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | <u> </u> | | | 4 | Y | |
| Traffic Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Future Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.984 | | | | 0.947 | |
| Flt Protected | 0.001 | | | 0.974 | 0.970 | |
| Satd. Flow (prot) | 1853 | 0 | 0 | 1834 | 1730 | 0 |
| Flt Permitted | .000 | | | 0.741 | 0.970 | |
| Satd. Flow (perm) | 1853 | 0 | 0 | 1396 | 1730 | 0 |
| Right Turn on Red | 1000 | Yes | J | 1000 | 1700 | Yes |
| Satd. Flow (RTOR) | 12 | 165 | | | 31 | 169 |
| Link Speed (k/h) | 40 | | | 40 | 30 | |
| Link Distance (m) | 121.1 | | | 433.1 | 80.3 | |
| Travel Time (s) | 10.9 | | | 39.0 | 9.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | 160 | 0.92 | 0.92 414 | | 278 | 177 |
| Adj. Flow (vph) | 001 | 21 | 414 | 375 | 218 | 1// |
| Shared Lane Traffic (%) | 104 | 0 | 0 | 789 | AEC | 0 |
| Lane Group Flow (vph) | 181 | No | - | | 455 | No. |
| Enter Blocked Intersection | No | | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | | 97 | 97 | | 97 | 97 |
| Number of Detectors | 2 | | 1 | _ 2 | 1 | |
| Detector Template | Thru | | Left | Thru | Left | |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | · | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | . 0 | 6 | 8 | |
| Permitted Phases | | | 6 | | | |
| Detector Phase | 2 | | 6 | 6 | 8 | |
| Switch Phase | | | | | | |
| | 20.0 | | 20.0 | 20.0 | 8.0 | |
| Minimum Initial (s) | 20.0 | | 20.0 | 20.0 | 0.0 | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| WSP | Page 1 |

| | _ | * | • | | 7 | 7 | | |
|-------------------------------|---------------|-----------|-------|-------|-------------|--------------|-------------|--|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | | |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | | | |
| Total Split (s) | 67.0 | | 67.0 | 67.0 | 33.0 | | | |
| Total Split (%) | 67.0% | | 67.0% | 67.0% | 33.0% | | | |
| Maximum Green (s) | 61.2 | | 61.2 | 61.2 | 26.3 | | | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | | | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | | | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | | | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | | | |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | | |
| Recall Mode | Max | | Max | Max | None | | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | | | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0.0 | | | |
| Act Effct Green (s) | 61.2 | | - | 61.2 | 26.0 | | | |
| Actuated g/C Ratio | 0.61 | | | 0.61 | 0.26 | | | |
| v/c Ratio | 0.16 | | | 0.92 | 0.96 | | | |
| Control Delay | 8.1 | | | 35.7 | 67.8 | | | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | | | |
| Total Delay | 8.1 | | | 35.7 | 67.8 | | | |
| LOS | A | | | D | Е | | | |
| Approach Delay | 8.1 | | | 35.7 | 67.8 | | | |
| Approach LOS | A | | | D | E | | | |
| Intersection Summary | ., | | | | _ | | | |
| Area Type: | Other | | | | | | | |
| Cycle Length: 100 | Olilei | | | | | | | |
| Actuated Cycle Length: 99. | 7 | | | | | | | |
| Natural Cycle: 90 | ı | | | | | | | |
| Control Type: Semi Act-Un | coord | | | | | | | |
| Maximum v/c Ratio: 0.96 | LOUIU | | | | | | | |
| Intersection Signal Delay: 4 | 12.4 | | | le. | ntersection | 1 08· D | | |
| Intersection Capacity Utiliza | | | | | | of Service F | | |
| Analysis Period (min) 15 | auo11 33.3 /0 | | | I | JO LEVEL | y Ocivice I. | | |
| mayor t enou (min) 10 | | | | | | | | |
| Splits and Phases: 20: S | treet A & Wa | alnut Lar | ie | | | | | |
| → ø2 | | | | | | | C . | |
| F7.2 | | | | | | | 4 | |
| 4 | | | | | | | | |
| √ Ø6 | | | | | | | ↑ Ø8 | |
| 67 s | | | | | | | 33 s | |
| | | | | | | | | |
| | | | | | | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total_PHF>PM 12-20-2024

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|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Future Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.337 | | | 0.191 | | |
| Satd. Flow (perm) | 1661 | 3461 | 1512 | 1709 | 3579 | 1517 | 628 | 3773 | 1564 | 401 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 93 | | | 160 | | | 170 | | | 159 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 806 | 232 | 95 | 580 | 159 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2038 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | - | - | ↓ | 1 |
|------------------------------|-----------------------------|-----------|-----------|------------|------------|------------|-------------|-----------|-----------|-----------|-----------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | . 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8. |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50. |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50. |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.59 |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40. |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3. |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9. |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | La |
| Lead-Lag Optimize? | Loud | Lug | Loud | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Lu |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3. |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Ma |
| Walk Time (s) | INOTIC | 7.0 | 140110 | None | 7.0 | 7.0 | INOTIC | 7.0 | 7.0 | TAOTIC | 7.0 | 7. |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33. |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 1 |
| Act Effct Green (s) | 25.6 | 38.9 | 48.0 | 21.0 | 34.3 | 34.3 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40. |
| Actuated g/C Ratio | 0.20 | 0.30 | 0.37 | 0.16 | 0.26 | 0.26 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.3 |
| v/c Ratio | 0.20 | 0.97 | 0.37 | 0.10 | 0.20 | 0.20 | 0.53 | 0.68 | 0.40 | 0.40 | 0.50 | 0.3 |
| Control Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.15 | 32.9 | 42.3 | 12.6 | 29.4 | 38.2 | 6.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.5 | 32.9 | 42.3 | 12.6 | 29.4 | 38.2 | 6. |
| LOS | D D | 07.0 | 52.0 D | 103.0 | 42.4 D | 0.5 A | 32.9 C | 42.3 D | 12.0 B | 23.4 C | J0.2 | 0. |
| Approach Delay | U | 60.3 | U | Г | 61.0 | A | U | 35.3 | ь | U | 31.0 | , |
| Approach LOS | | 00.3 E | | | 01.0 E | | | 33.3 D | | | 31.0 C | |
| •• | | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | _ | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | 0.555 | 101110 | - 0 | | | | | | | | |
| Offset: 78 (60%), Reference | ed to phase | e 2:EBT a | and 6:WB | I, Start o | Green | | | | | | | |
| Natural Cycle: 135 | P () | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.98 | 10 = | | | | | | | | | | | |
| Intersection Signal Delay: | | 0.1 | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 105.8 | % | | l' | CU Level | of Service | e G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | verpool Roa | ıd & King | ston Road | d | | | | | | | | |
| ÿ1 | - √ Ø ≱ (| R) | | | | \$ 0 | 3 \$\psi_04 | 1 | | | | |
| 26 s | 46 s | 4 | | | | 8 s | 50 s | | | | | |
| Ø5 | | Ø6 (F | ₹) | | | Ø | 7 Tøs | 3 | | | | |
| MOD | 3 | δS | | | | Ø S | 50 S | | | | | Dan |
| WSP | | | | | | | | | | | | Page : |

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Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT | urations ne (vph) 0 0 ne (vph) 0 0 obph) 1900 1900 m) 3.7 3.7 tht (m) 0.0 s 0 n (m) 2.5 |
|--|---|
| Lane Configurations 7 3 7 3 4 7 4 | ne (vph) 0 0 0 ne (vph) 0 0 0 phpl) 1900 1900 mm) 3.7 3.7 gth (m) 0.0 ss 0 n (m) 2.5 |
| Traffic Volume (vph) 0 0 454 278 500 293 204 1110 0 0 1189 1 Future Volume (vph) 0 0 454 278 500 293 204 1110 0 0 1189 1 Ideal Flow (vphpl) 1900 | ne (vph) 0 0 0 ne (vph) 0 0 0 phpl) 1900 1900 mm) 3.7 3.7 gth (m) 0.0 ss 0 n (m) 2.5 |
| Future Volume (vph) 0 0 454 278 500 293 204 1110 0 0 1189 1 Ideal Flow (vphpl) 1900 | ne (vph) 0 0 phpl) 1900 1900 m) 3.7 3.7 yth (m) 0.0 es 0 n (m) 2.5 |
| Ideal Flow (vphpt) 1900 <td>phpl) 1900 1900 m) 3.7 3.7 gth (m) 0.0 es 0 n (m) 2.5</td> | phpl) 1900 1900 m) 3.7 3.7 gth (m) 0.0 es 0 n (m) 2.5 |
| Lane Width (m) 3.7 3.7 3.7 3.7 3.5 3.7 3.5 3.7 3.4 3 | m) 3.7 3.7 gth (m) 0.0 es 0 n (m) 2.5 |
| | gth (m) 0.0 es 0 n (m) 2.5 |
| | es 0 n (m) 2.5 |
| | n (m) 2.5 |
| | . , |
| 1 | |
| Ped Bike Factor 0. | |
| Frt 0.865 0.850 0.8 | |
| Fit Protected 0.950 0.997 0.950 | |
| Satd. Flow (prot) 0 0 1662 1734 1820 1581 1825 5079 0 0 4972 16 | |
| Fit Permitted 0.950 0.997 0.136 | |
| Satd. Flow (perm) 0 0 1662 1734 1820 1581 261 5079 0 0 4972 15 | perm) 0 0 |
| Right Turn on Red No Yes Yes Y | |
| Satd. Flow (RTOR) 85 | |
| Link Speed (k/h) 50 50 50 50 | |
| Link Distance (m) 433.1 226.7 372.2 162.3 | . , |
| Travel Time (s) 31.2 16.3 26.8 11.7 | . () |
| Confl. Peds. (#/hr) 17 15 15 | 1-7 |
| Confl. Bikes (#/hr) 6 | \ / |
| Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0 | |
| Heavy Vehicles (%) 0% 2% 0% 0% 0% 1% 0% 1% 6% 2% 2% (| |
| Adj. Flow (vph) 0 0 454 278 500 293 204 1110 0 0 1189 1 | |
| Shared Lane Traffic (%) 10% | |
| Lane Group Flow (vph) 0 0 454 250 528 293 204 1110 0 0 1189 1 | |
| Enter Blocked Intersection No | d Intersection No No |
| Lane Alignment Left Left Right | |
| Median Width(m) 3.7 3.7 3.7 3.7 | |
| Link Offset(m) 0.0 0.0 0.0 0.0 | |
| Crosswalk Width(m) 1.6 1.6 1.6 1.6 | /idth(m) 1.6 |
| Two way Left Turn Lane | |
| Headway Factor 0.99 0.99 0.99 0.99 1.01 0.99 1.01 0.99 0.99 | |
| Turning Speed (k/h) 97 97 24 14 97 14 24 | ed (k/h) 97 |
| Number of Detectors 1 1 2 1 1 2 2 | |
| Detector Template Right Left Thru Right Left Thru Right | nplate |
| Leading Detector (m) 2.0 2.0 10.0 2.0 10.0 10.0 | ector (m) |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | osition(m) |
| Detector 1 Size(m) 2.0 2.0 0.6 2.0 2.0 0.6 0.6 | ize(m) |
| Detector 1 Type CI+Ex CI | |
| Detector 1 Channel | |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | xtend (s) |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | |
| Detector 2 Position(m) 9.4 9.4 9.4 | |
| Detector 2 Size(m) 0.6 0.6 0.6 | |
| Detector 2 Type CI+Ex CI+Ex CI+Ex | |

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Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ^ ⊣ | • • | • | - | • | 1 | Ť | | - | ¥ | 4 |
|-----------------------------------|-------------|--------------|------------|------------|-----------|--------------|-------|-----|-----|-------|-------|
| Lane Group | EBL EB | T EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | 28.3 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.9 | 24.9 |
| Actuated g/C Ratio | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | 0.97 | 0.48 | 0.97 | 0.55 | 0.34 | 0.38 | | | 0.96 | 0.33 |
| Control Delay | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 11.9 | | | 51.4 | 14.1 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 11.9 | | | 51.4 | 14.1 |
| LOS | | E | С | Е | С | В | В | | | D | В |
| Approach Delay | 70. | 4 | | 47.5 | | | 11.9 | | | 46.8 | |
| Approach LOS | | E | | D | | | В | | | D | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Othe | r | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to ph | ase 2:NBTL | and 6:SBT, | Start of C | Green | | | | | | | |
| Natural Cycle: 90 | | | | | | | | | | | |
| Control Type: Actuated-Coordina | ated | | | | | | | | | | |
| Maximum v/c Ratio: 0.97 | | | | | | | | | | | |
| Intersection Signal Delay: 38.6 | | | | ntersectio | | | | | | | |
| Intersection Capacity Utilization | 91.4% | | I | CU Level | of Servic | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |
| Splits and Phases: 9: Liverpoo | l Road & Wa | alnut Lane/H | lwy 401 \ | NB Off-Ra | amp | | | | | | |
| < ↑ | | | • | | - | - 1 € | - | | | | |



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Lanes, Volumes, Timings 11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | ← | 1 | ~ |
|----------------------------|-------------|-------|-------|-------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | * | 44 | ሻሻ | 7 |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | * | | 0% | 0% | |
| Storage Length (m) | • / • | 0.0 | 47.5 | | 0.0 | 52.0 |
| Storage Lanes | | 0 | 1 | | 2 | 1 |
| Taper Length (m) | | - | 22.3 | | 2.5 | - |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.98 |
| Frt | 0.998 | | | | 1.00 | 0.850 |
| Flt Protected | 0.330 | | 0.950 | | 0.950 | 0.000 |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Fit Permitted | 3311 | U | 0.950 | 3010 | 0.950 | 1017 |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| | 3311 | Yes | 10// | 3018 | 3337 | Yes |
| Right Turn on Red | 4 | res | | | | |
| Satd. Flow (RTOR) | 1 | | | 00 | | 226 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1719 | 0 | 184 | 804 | 662 | 346 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 14 | 24 | 0.01 | 24 | 14 |
| Number of Detectors | 2 | 1.7 | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| (/ | | | | | 2.0 | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | → | • | • | ← | 4 | ~ | |
|-------------------------------|-----------------|----------|-----------|-------------|-------------|-------------|---|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | 7 01111 | |
| Permitted Phases | | | | U | 3 | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | | | | Ŭ | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | 1.2 | 0.7 | 0.7 | |
| Lead-Lag Optimize? | Lag | | Leau | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | INOTIE | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 35.0 | | | 35.0 | 14 | 14 | |
| Act Effct Green (s) | 66.4 | | 16.0 | 87.4 | 28.7 | 28.7 | |
| | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| Actuated g/C Ratio v/c Ratio | 0.94 | | 0.12 | 0.07 | 0.22 | 0.22 | |
| | 46.6 | | 110.9 | 1.5 | 59.4 | 21.6 | |
| Control Delay | | | | | | | |
| Queue Delay | 0.4 46.9 | | 0.0 | 0.0 | 0.0 59.4 | 0.0 | |
| Total Delay | | | 110.9 | 1.5 | | 21.6 | |
| LOS | D | | F | Α | 4C 4 | С | |
| Approach Delay | 46.9 | | | 21.9 | 46.4 | | |
| Approach LOS | D | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 1 | 30 | | | | | | |
| Offset: 69 (53%), Referer | | 2:EBT ar | nd 6:WB | T. Start of | Green | | |
| Natural Cycle: 120 | | | | , | | | |
| Control Type: Actuated-C | Coordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | |
| Intersection Signal Delay | | | | Ir | ntersectio | n I OS: D | |
| Intersection Capacity Util | | | | | | of Service | F |
| Analysis Period (min) 15 | 12411011 00:170 | | | | JO 20101 | 01 001 1100 | |
| rularyolo i olloa (Illili) io | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | & Kingsto | n Road | | | |
| ∠ | (n) | | | | | | |
| Ø1 | Ø2 (R) | | | | | | |
| 21 s 71 | S | | | | | | |
| Ø6 (R) | | | | | | | |
| 92 s | | | | | | | |
| WSP | | | | | | | |
| ***** | | | | | | | |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2038 Future Total_PHF>PM 12-20-2024

| Bane Crough | | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ţ | 4 |
|--|----------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|------------|-------|
| Traffic Volume (yph) | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Future Volume (Volh) | Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ^ ^ | 7 |
| | Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Lane Width (m) | Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Strade (%) | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Storage Lanes | Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Taper Length (m) | Storage Length (m) | | | | | | | | | | | | |
| Lane Utili. Factor | Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Ped Bike Factor | Taper Length (m) | | | | | | | | | | | | |
| Fit | | | 0.95 | | | 0.95 | | | 0.91 | | | 0.91 | |
| Fit Protected | Ped Bike Factor | 0.97 | | | 0.99 | | | 0.99 | | | 0.98 | | |
| Satid. Flow (prot) 1681 3400 1622 1733 3579 1654 1767 5255 1588 1750 5105 1627 | | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Fit Permitted | | | | | | | | | | | | | |
| Satd. Flow (perm) 1633 3400 1549 1715 3579 1502 666 5255 1470 582 5105 1550 1550 1561 1700 1700 1700 160 | | | 3400 | 1622 | | 3579 | 1654 | | 5255 | 1588 | | 5105 | 1627 |
| No | | | | | | | | | | | | | |
| Said. Flow (RTOR) | | 1633 | 3400 | | 1715 | 3579 | | 666 | 5255 | | 582 | 5105 | |
| Link Speed (k/h) | | | | | | | | | | | | | |
| Link Distance (m) | | | | 154 | | | 147 | | | 59 | | | 186 |
| Travel Time (s) | | | | | | | | | | | | | |
| Confi. Peds. (#hr) | | | | | | | | | | | | | |
| Peak Hour Factor | | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Heavy Vehicles (%) | | | | | | | | | | | | | |
| Bus Blockages (##rr) | | | | | | | | | | | | | |
| Adj. Flow (vph) | | | | | | | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 155 857 358 331 753 496 228 684 737 196 617 186 | | | | | | | | | | | | | |
| Lane Group Flow (vph) | | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Enter Blocked Intersection No No No No No No No | \ / | | | | | | | | | | | | |
| Left Left Right Median Width(m) 3.5 | | | | | | | | | | | | | |
| Median Width(m) | | | | | | | | | | | | | |
| Crosswalk Width(m) | | Left | | Right | Left | | Right | Left | | Right | Left | | Right |
| Crosswalk Width(m) | | | | | | | | | | | | | |
| Two way Left Turn Lane Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 0.96 1.00 1.01 0.96 0.96 0.96 1.00 1.01 0.96 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 1.01 0.96 1.00 1.01 1.01 0.96 1.00 1.01 | | | | | | | | | | | | | |
| Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 0.96 1.00 1.01 0.96 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 0.96 0.96 1.00 1.01 1.01 0.96 0.96 1.00 1.01 1.01 0.96 1.01 | | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Turning Speed (k/h) | | 4.00 | 4.04 | 0.00 | 4.04 | 0.00 | 0.04 | 4.04 | 0.00 | 4.00 | 4.04 | 0.00 | 0.00 |
| Number of Detectors | | | 1.04 | | | 0.99 | | | 0.96 | | | 0.96 | |
| Detector Template | | | 2 | | | 2 | | | 2 | | | 2 | |
| Leading Detector (m) | | | | | | | | | | | | | |
| Trailing Detector (m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Position(m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 | | | | | | | | | | | | | |
| Detector 1 Type | | | | | | | | | | | | | |
| Detector 1 Channel 0.0 | | | | | | | | | | | | | |
| Detector 1 Extend (s) 0.0 | | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX | CITLX |
| Detector 1 Queue (s) 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) 0.0 | | | | | | | | | | | | | |
| Detector 2 Position(m) 9.4 9.4 9.4 9.4 | | | | | | | | | | | | | |
| | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| | Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

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 Synchro 11 Report

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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2038 Future Total_PHF>PM 12-20-2024

| | • | → | • | • | + | • | 1 | † | / | / | ↓ | 4 |
|------------------------------|-------------|------------|-----------|-------------|------------|---------------|-------------------|-----------|-----------|-----------|-----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Pern |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Loud | Loud | Lug | Luş |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | Nonc | 7.0 | 7.0 | IVOIIC | 7.0 | 7.0 | IVOIIC | 7.0 | None | None | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.10 | 0.20 | 0.26 | 0.13 | 0.57 | 0.37 | 0.75 | 0.42 | 0.89 | 0.72 | 0.39 | 0.30 |
| Control Delay | 109.5 | 60.1 | 29.8 | 103.1 | 25.5 | 21.6 | 47.4 | 36.3 | 36.8 | 45.5 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 63.5 | 29.8 | 103.1 | 25.5 | 21.6 | 47.4 | 36.3 | 36.8 | 45.5 | 35.8 | 5.8 |
| LOS | 103.5 | 03.5 | 23.0 C | F | 23.3 C | 21.0 C | 47.4 D | 30.3 D | 50.0 D | 43.3 D | 33.0 D | J.C |
| Approach Delay | Г | 59.9 | C | Г | 40.6 | C | U | 38.1 | U | U | 32.2 | - |
| Approach LOS | | 55.5 E | | | 40.0 D | | | 30.1 D | | | 32.2 C | |
| Approacti LOS | | | | | U | | | U | | | U | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | _ | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 32 (25%), Reference | ed to phase | e 2:EBT a | ind 6:WB | T, Start of | Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | ation 114.6 | % | | 10 | CU Level | of Servic | e H | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: V | Vhites Road | d & Kingst | ton Road | | | | | | | | | |
| ۯ1 | | | | | | 4 | 13 | | | | | |
| | 42 | Ø2 (R) | <u></u> | | | 7 (| | 14 | <u></u> | | | |
| 30 s | 43 S | | | | | e s | 49 s | | | | | |
| Ø5 0 | 6 (R) | | | | | > € | 07 [™] 0 | 18 | | | | |
| 18 s 55 s | - 277 | | | | | 0.0 | 49 s | _ | | | | |

APPENDIX

H-4 2043 FUTURE TOTAL CONDITIONS

Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Total>AM 12-20-2024

| | ၨ | - | • | • | ← | • | 4 | † | <i>></i> | - | ļ | 1 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|-------|-------------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | ∱ β | | ሻ | | 7 | ሻ | 1> | |
| Traffic Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Future Volume (vph) | 20 | 872 | 56 | 102 | 443 | 30 | 224 | 0 | 344 | 14 | 6 | 29 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | | 0.99 | 1.00 | 0.98 | |
| Frt | | 0.991 | | | 0.990 | | | | 0.850 | | 0.877 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3428 | 0 | 1652 | 3379 | 0 | 1745 | 0 | 1585 | 1725 | 1601 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.732 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3428 | 0 | 1644 | 3379 | 0 | 1330 | 0 | 1563 | 1720 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 8 | | | | 210 | | 32 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 4 | | 8 | 8 | | 4 | 9 | | 2 | 2 | | 9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 6% | 2% | 5% | 14% | 0% | 0% | 3% | 0% | 0% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 22 | 948 | 61 | 111 | 482 | 33 | 243 | 0 | 374 | 15 | 7 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 22 | 1009 | 0 | 111 | 515 | 0 | 243 | 0 | 374 | 15 | 39 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.1 | | | 3.1 | | | 3.3 | | | 3.3 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | Yes | | | Yes | | | | | | | |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |

 1105-1163 Kingston Road
 Synchro 11 Report

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Lanes, Volumes, Timings
1: Walnut Lane & Kingston Road

<2043 Future Total>AM 12-20-2024

| | • | - | • | • | ← | • | 1 | † | - | - | ţ | 4 |
|-----------------------------|--------------|----------|----------|------------|-------------|------------|-------|----------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | | 10.0 | 33.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (s) | 10.0 | 52.0 | | 19.0 | 61.0 | | 49.0 | | 49.0 | 49.0 | 49.0 | |
| Total Split (%) | 8.3% | 43.3% | | 15.8% | 50.8% | | 40.8% | | 40.8% | 40.8% | 40.8% | |
| Maximum Green (s) | 5.0 | 45.4 | | 14.0 | 54.4 | | 41.0 | | 41.0 | 41.0 | 41.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 7 | | | 5 | | 5 | | 5 | 14 | 14 | |
| Act Effct Green (s) | 7.0 | 59.6 | | 13.1 | 70.0 | | 27.8 | | 27.8 | 27.8 | 27.8 | |
| Actuated g/C Ratio | 0.06 | 0.50 | | 0.11 | 0.58 | | 0.23 | | 0.23 | 0.23 | 0.23 | |
| v/c Ratio | 0.23 | 0.59 | | 0.62 | 0.26 | | 0.79 | | 0.72 | 0.04 | 0.10 | |
| Control Delay | 74.5 | 20.6 | | 55.6 | 17.7 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 74.5 | 20.6 | | 55.6 | 17.7 | | 60.8 | | 25.1 | 31.8 | 13.2 | |
| LOS | Е | С | | Е | В | | Е | | С | С | В | |
| Approach Delay | | 21.7 | | | 24.4 | | | 39.2 | | | 18.4 | |
| Approach LOS | | С | | | С | | | D | | | В | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 1 (1%), Reference | d to phase 2 | :EBT and | 6:WBT, S | Start of G | reen | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.79 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersection | | | | | | | |
| Intersection Capacity Utili | zation 73.1% | 5 | | 10 | CU Level of | of Service | D | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| | | | _ | | | | | | | | | |



1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Queues

1: Walnut Lane & Kingston Road

<2043 Future Total>AM 12-20-2024

| | • | - | • | • | 1 | ~ | - | ţ | |
|------------------------|-------|-------|-------|-------|------|------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 22 | 1009 | 111 | 515 | 243 | 374 | 15 | 39 | |
| v/c Ratio | 0.23 | 0.59 | 0.62 | 0.26 | 0.79 | 0.72 | 0.04 | 0.10 | |
| Control Delay | 74.5 | 20.6 | 55.6 | 17.7 | 60.8 | 25.1 | 31.8 | 13.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 74.5 | 20.6 | 55.6 | 17.7 | 60.8 | 25.1 | 31.8 | 13.2 | |
| Queue Length 50th (m) | 5.4 | 96.1 | 26.2 | 43.7 | 54.3 | 35.8 | 2.8 | 1.3 | |
| Queue Length 95th (m) | m12.5 | 139.1 | m42.3 | 67.8 | 75.1 | 62.8 | 7.5 | 9.0 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 97 | 1704 | 205 | 1974 | 454 | 672 | 587 | 568 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.23 | 0.59 | 0.54 | 0.26 | 0.54 | 0.56 | 0.03 | 0.07 | |
| | | | | | | | | | |

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 2: Street B & Kingston Road <2043 Future Total>AM 12-20-2024

| | - | \rightarrow | • | ← | 1 | / |
|----------------------------|----------|---------------|------|----------|------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (vph) | 818 | 98 | 0 | 752 | 0 | 131 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | | 45.0 | 0.0 | | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0 | | 0 | 1 |
| Taper Length (m) | | | 2.5 | | 2.5 | |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | 0.850 | | | | 0.865 |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 3433 | 1516 | 0 | 3400 | 0 | 1808 |
| Link Speed (k/h) | 60 | | | 60 | 30 | |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | | 4 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 4% | 3% | 2% | 5% | 2% | 0% |
| Adj. Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | | | 3.0 | 0.0 | • |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Sign Control | Free | | | Free | Stop | |
| Intersection Cummers | | | | | | |

| Intersection Summa | ary | | |
|----------------------|-----------------------|------------------------|--|
| Area Type: | Other | | |
| Control Type: Unsign | gnalized | | |
| Intersection Capaci | ity Utilization 37.4% | ICU Level of Service A | |
| Analysis Period (mi | in) 15 | | |

| | - | • | • | • | 1 | |
|------------------------------|-------------|------|-------|----------|------------|------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | ^ | | 7 |
| Traffic Volume (veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Future Volume (Veh/h) | 818 | 98 | 0 | 752 | 0 | 131 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 889 | 107 | 0 | 817 | 0 | 142 |
| Pedestrians | | | | | 4 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| Upstream signal (m) | 191 | | | 129 | | |
| pX, platoon unblocked | | | 0.88 | , | 0.91 | 0.88 |
| vC, conflicting volume | | | 893 | | 1302 | 448 |
| vC1, stage 1 conf vol | | | 000 | | 893 | |
| vC2, stage 2 conf vol | | | | | 408 | |
| vCu, unblocked vol | | | 601 | | 801 | 95 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | 0.0 |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 83 |
| cM capacity (veh/h) | | | 850 | | 423 | 830 |
| . , , | 50 4 | == 0 | | 11/5 / | | |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 444 | 444 | 107 | 408 | 408 | 142 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 107 | 0 | 0 | 142 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 830 |
| Volume to Capacity | 0.26 | 0.26 | 0.06 | 0.24 | 0.24 | 0.17 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.2 |
| Lane LOS | | | | | | В |
| Approach Delay (s) | 0.0 | | | 0.0 | | 10.2 |
| Approach LOS | | | | | | В |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.7 | | | |
| Intersection Capacity Utiliz | zation | | 37.4% | IC | CU Level o | of Service |
| Analysis Period (min) | | | 15 | | | |
| , | | | | | | |

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| Lane Group EBL EBT EBR WBL WBT WBR NBT NBR SBL SBT Lane Configurations Traffic Volume (vph) 80 738 139 76 579 94 67 15 29 155 35 Future Volume (vph) 80 738 139 76 579 94 67 15 29 155 35 Grade (%) 1900 1900 1900 1900 1900 1900 1900 1900 | Dixie Road & King | | touu | | | | | | | | | | 0-202 |
|--|-------------------|-------|------------|---------|-------|-------|---------|-------|----------|---------|-------|----------|-------|
| Lane Configurations | | ۶ | - | • | • | • | • | 1 | † | | - | ↓ | 4 |
| Traffic Volume (vph) 80 738 139 78 579 94 67 15 29 155 38 deal Flow (vphpl) 80 738 139 78 579 94 67 15 29 155 38 deal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190 | e Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Future Volume (vph) | e Configurations | ሻ | ↑ ↑ | | ሻ | | | | ĵ» | | | 1> | |
| | fic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 14 |
| Lane Width (m) | ure Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 14 |
| Strade (%) | al Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 190 |
| Storage Length (m) | e Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3. |
| Storage Lanes | de (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Taper Length (m) | rage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0. |
| Lane Util. Factor | rage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | |
| Ped Bike Factor | er Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| First Frite 1 | e Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.0 |
| Fit Protected | Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Satd. Flow (prot) 1564 3280 0 1645 3298 0 1752 1769 0 1827 1755 | | | 0.976 | | | 0.979 | | | 0.900 | | | 0.879 | |
| Fit Permitted 0.950 0.950 0.950 0.554 0.726 Satd. Flow (perm) 1554 3280 0 1640 3298 0 1019 1769 0 1393 1755 Right Turn on Red Yes Yes Yes Yes Satd. Flow (RTOR) 23 18 32 1575 Link Speed (k/h) 60 60 60 40 40 66 Link Distance (m) 896.3 191.2 44.0 236.2 Travel Time (s) 53.8 11.5 40 20 22 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) 1554 3280 0 1640 3298 0 1019 1769 0 1393 1755 | d. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1769 | 0 | 1827 | 1759 | |
| Right Turn on Red | Permitted | 0.950 | | | 0.950 | | | 0.554 | | | 0.726 | | |
| Right Turn on Red | | | 3280 | 0 | | 3298 | 0 | | 1769 | 0 | | 1759 | |
| Said Flow (RTOR) 23 | | | | Yes | | | Yes | | | Yes | | | Ye |
| Link Speed (k/h) 60 896.3 191.2 44.0 236.5 Confl. Peds. (#hr) 6 53.8 11.5 4.0 14.2 Confl. Peds. (#hr) 6 4 4 4 6 6 3 2 2 2 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | | | 23 | | | 18 | | | 32 | | | 157 | |
| Link Distance (m) | | | | | | | | | | | | 60 | |
| Travel Time (s) | | | | | | | | | | | | 236.2 | |
| Confl. Peds. (#/hr) | | | | | | 11.5 | | | | | | 14.2 | |
| Peak Hour Factor 0.92 0.93 0.92 0.93 0.93 0.93 0.93 0.93 168 38 38 168 38 188 188 188 188 188 189 189 189 189 189 189 189 189 189 189 | . , | 6 | | 4 | 4 | | 6 | 3 | | 2 | 2 | | |
| Heavy Vehicles (%) | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | 0.92 | | | 0.92 | 0.9 |
| Bus Blockages (#hr) 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | | 0% | 00 |
| Adj. Flow (vph) | | | | | | | | | | | 0 | 0 | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 87 953 0 85 731 0 73 48 0 168 195 | | 87 | | | 85 | 629 | 102 | | 16 | 32 | 168 | 38 | 15 |
| Lane Group Flow (vph) | | | | | | | | | | | | | |
| Enter Blocked Intersection | | 87 | 953 | 0 | 85 | 731 | 0 | 73 | 48 | 0 | 168 | 195 | |
| Left Left Left Right Left Right Left Right Left Right Left Left Right Left Left Right Left Left Right Left Left Left Left Left Left Right Left Left Left Left Left Left Left Right Left | | | | - | | | - | | | _ | | No | N |
| Median Width(m) 2.8 2.8 3.8 3.8 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.5 Irwo way Left Turn Lane Yes Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 Turning Speed (k/h) 24 14 | | | | | | | | | | | | Left | Rigl |
| Link Offset(m) 0.0 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.9 4.9 Iwo way Left Turn Lane Yes Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 Turning Speed (k/h) 24 14 24 <td></td> <td>2011</td> <td></td> <td>· ug.ic</td> <td>2011</td> <td></td> <td>. ug.ic</td> <td>2011</td> <td></td> <td>. ug.ii</td> <td>2011</td> <td>3.8</td> <td>9</td> | | 2011 | | · ug.ic | 2011 | | . ug.ic | 2011 | | . ug.ii | 2011 | 3.8 | 9 |
| Crosswalk Width(m) 4.9 4.9 4.9 4.9 4.5 Two way Left Turn Lane Yes Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 Turning Speed (k/h) 24 14 2 | | | | | | | | | | | | 0.0 | |
| Two way Left Turn Lane Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 Number of Detectors 0 0 0 0 0 0 0 1 1 Detector Template Leading Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.5 7.5 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.15 -1.5 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 Detector 1 Type CI+Ex C | | | | | | | | | | | | 4.9 | |
| Headway Factor 1.17 1.04 1.07 1.13 1.01 1.08 1.00 0.94 0.99 0.97 0.92 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 Number of Detectors 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 | , , | | 1.0 | | | | | | | | | | |
| Turning Speed (k/h) | | 1 17 | 1 04 | 1.07 | 1 13 | | 1.08 | 1.00 | 0.94 | 0 99 | 0.97 | 0.92 | 0.9 |
| Number of Detectors 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 | | | 1.01 | | | 1.01 | | | 0.01 | | | 0.02 | 1 |
| Detector Template | | | 0 | | | 0 | - 11 | | 0 | | | 1 | |
| Leading Detector (m) 0.0 0.0 0.0 0.0 0.0 7.5 7.5 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 1.5 -1.5 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 9.0 9.0 Detector 1 Type CI+Ex CI+ | | Ŭ | | | | | | | | | | | |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 -1.5 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 -1.5 -1.5 0-1.5 | | | | | | | | | | | | | |
| Detector 1 Size(m) | | | | | | | | | | | | | |
| Detector 1 Type CI+Ex | | | | | | | | | | | | 9.0 | |
| Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | | | | | | | | | | | | | |
| Detector 1 Extend (s) 0.0 | | OI+LX | OITLX | | OITEX | OITLX | | OI+LX | OITEX | | OI+LX | OITLX | |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| TUTI TYPE PROT INA PROT INA PERMINA PERMINA | | | | | | | | | | | | | |
| | | | | | | | | Perm | | | Perm | NA 4 | |

Synchro 11 Report Page 6 1105-1163 Kingston Road WSP

<2043 Future Total>AM

3: Dixie Road & Kingston Road

| | ۶ | - | \rightarrow | • | • | • | 1 | † | 1 | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.5 | 72.5 | | 6.0 | 69.0 | | 20.4 | 20.4 | | 20.4 | 20.4 | |
| Actuated g/C Ratio | 0.08 | 0.60 | | 0.05 | 0.58 | | 0.17 | 0.17 | | 0.17 | 0.17 | |
| v/c Ratio | 0.71 | 0.48 | | 1.04 | 0.38 | | 0.42 | 0.15 | | 0.71 | 0.45 | |
| Control Delay | 83.0 | 14.8 | | 169.7 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 83.0 | 14.8 | | 169.7 | 8.3 | | 50.1 | 19.1 | | 62.4 | 13.5 | |
| LOS | F | В | | F | Α | | D | В | | Е | В | |
| Approach Delay | | 20.5 | | | 25.1 | | | 37.8 | | | 36.2 | |
| Approach LOS | | С | | | С | | | D | | | D | |

Area Type: Cycle Length: 120 Other

Actuated Cycle Length: 120 Offset: 107.8 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 85

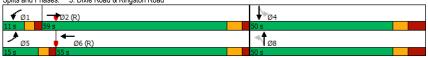
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 25.4 Intersection Capacity Utilization 73.7% Intersection LOS: C ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 7 Queues

<2043 Future Total>AM 12-20-2024

3: Dixie Road & Kingston Road

| | • | - | • | • | 1 | Ť | - | ţ |
|------------------------|-------|-------|-------|-------|------|------|------|-------|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Lane Group Flow (vph) | 87 | 953 | 85 | 731 | 73 | 48 | 168 | 195 |
| v/c Ratio | 0.71 | 0.48 | 1.04 | 0.38 | 0.42 | 0.15 | 0.71 | 0.45 |
| Control Delay | 83.0 | 14.8 | 169.7 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 14.8 | 169.7 | 8.3 | 50.1 | 19.1 | 62.4 | 13.5 |
| Queue Length 50th (m) | 20.2 | 59.7 | ~21.1 | 36.7 | 15.6 | 3.2 | 37.9 | 7.7 |
| Queue Length 95th (m) | #43.5 | 92.8 | #54.0 | 50.7 | 27.6 | 12.4 | 55.9 | 25.6 |
| Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Base Capacity (vph) | 130 | 1991 | 82 | 1904 | 343 | 618 | 470 | 697 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.67 | 0.48 | 1.04 | 0.38 | 0.21 | 0.08 | 0.36 | 0.28 |
| | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2043 Future Total>AM 12-20-2024

4: Street B & Shopping Plaza Entrance

| | • | • | 1 | Ť | ¥ | 4 | |
|--------------------------------|------------|-------|------|-------|----------|--------------|---|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Lane Configurations | ¥ | | | ની | f) | | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 | |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.883 | | | | 0.942 | | |
| Flt Protected | 0.993 | | | 0.991 | | | |
| Satd. Flow (prot) | 1628 | 0 | 0 | 1904 | 1770 | 0 | |
| Flt Permitted | 0.993 | | | 0.991 | | | |
| Satd. Flow (perm) | 1628 | 0 | 0 | 1904 | 1770 | 0 | |
| Link Speed (k/h) | 30 | | | 30 | 30 | | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 4% | 0% | |
| Adj. Flow (vph) | 14 | 92 | 24 | 111 | 72 | 55 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 106 | 0 | 0 | 135 | 127 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | |
| Sign Control | Stop | | | Stop | Stop | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | tion 25.9% | | | IC | CU Level | of Service A | Α |
| Analysis Period (min) 15 | | | | | | | |
| | | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 9

HCM Unsignalized Intersection Capacity Analysis
4: Street B & Shopping Plaza Entrance

<2043 Future Total>AM 12-20-2024

| | • | • | 4 | † | ↓ | 4 |
|-------------------------------|-------|------|-------|----------|------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | 4 | î, | |
| Sign Control | Stop | | | Stop | Stop | |
| Traffic Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Future Volume (vph) | 13 | 85 | 22 | 102 | 66 | 51 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 14 | 92 | 24 | 111 | 72 | 55 |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 106 | 135 | 127 | | | |
| Volume Left (vph) | 14 | 24 | 0 | | | |
| Volume Right (vph) | 92 | 0 | 55 | | | |
| Hadj (s) | -0.44 | 0.04 | -0.22 | | | |
| Departure Headway (s) | 4.0 | 4.3 | 4.1 | | | |
| Degree Utilization, x | 0.12 | 0.16 | 0.14 | | | |
| Capacity (veh/h) | 840 | 809 | 860 | | | |
| Control Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach Delay (s) | 7.6 | 8.1 | 7.7 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliza | ation | | 25.9% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 10

Lanes, Volumes, Timings 5: Street B & Street A

<2043 Future Total>AM 12-20-2024

| | • | 4 | † | 1 | \ | ↓ |
|--------------------------------|------------|-------|------------|-------|----------|------------|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | W | | 1 > | | | 4 |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util, Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.865 | | | | | |
| Flt Protected | | | | | | 0.953 |
| Satd. Flow (prot) | 1662 | 0 | 1883 | 0 | 0 | 1778 |
| Flt Permitted | .002 | | . 500 | | | 0.953 |
| Satd. Flow (perm) | 1662 | 0 | 1883 | 0 | 0 | 1778 |
| Link Speed (k/h) | 30 | | 30 | | , | 30 |
| Link Distance (m) | 193.3 | | 78.3 | | | 49.0 |
| Travel Time (s) | 23.2 | | 9.4 | | | 5.9 |
| Confl. Peds. (#/hr) | 1 | 4 | U. 1 | | | 0.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 100% | 0% | 2% | 0% | 3% | 0% |
| Adj. Flow (vph) | 0 | 132 | 0 | 0.0 | 149 | 1 |
| Shared Lane Traffic (%) | - 0 | 102 | - 3 | 3 | 110 | - |
| Lane Group Flow (vph) | 132 | 0 | 0 | 0 | 0 | 150 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Right | Left | Left |
| Median Width(m) | 3.7 | ragni | 0.0 | ragni | Leit | 0.0 |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 |
| Two way Left Turn Lane | 1.0 | | 1.0 | | | 1.0 |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 0.99 | 14 | 24 | 0.55 |
| Sign Control | Stop | 14 | Stop | 14 | 24 | Stop |
| • | эшр | | эюр | | | оюр |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | tion 22.9% | | | IC | U Level | of Service |
| Analysis Period (min) 15 | | | | | | |
| , , | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 11

HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

<2043 Future Total>AM 12-20-2024

| | € | • | † | / | > | ↓ |
|------------------------------|--------|------|----------|------|-------------|----------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y | | 1> | | | ર્ના |
| Sign Control | Stop | | Stop | | | Stop |
| Traffic Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Future Volume (vph) | 0 | 121 | 0 | 0 | 137 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 132 | 0 | 0 | 149 | 1 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total (vph) | 132 | 0 | 150 | | | |
| Volume Left (vph) | 0 | 0 | 149 | | | |
| Volume Right (vph) | 132 | 0 | 0 | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | |
| Departure Headway (s) | 3.7 | 4.3 | 4.4 | | | |
| Degree Utilization, x | 0.13 | 0.00 | 0.18 | | | |
| Capacity (veh/h) | 945 | 807 | 793 | | | |
| Control Delay (s) | 7.2 | 7.3 | 8.4 | | | |
| Approach Delay (s) | 7.2 | 0.0 | 8.4 | | | |
| Approach LOS | Α | Α | Α | | | |
| Intersection Summary | | | | | | |
| Delay | | | 7.8 | | | |
| Level of Service | | | Α | | | |
| Intersection Capacity Utiliz | zation | | 22.9% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Total>AM ____12-20-2024

| · | • | → | • | • | + | 4 | • | † | <i>></i> | / | + | → |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|----------|----------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | * | ^ | 7 | * | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | · |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.212 | | | 0.466 | | |
| Satd. Flow (perm) | 1645 | 3299 | 1487 | 1676 | 3510 | 1517 | 393 | 3700 | 1536 | 973 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 139 | | | 174 | | | 159 | | | 237 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 443 | 159 | 91 | 827 | 250 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 443 | 159 | 91 | 827 | 250 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 13

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Total>AM 12-20-2024

| | • | - | • | • | - | * | 4 | † | - | - | ↓ | 4 |
|------------------------------|-------------|------------|-----------|-----------|------------|------------|-------|----------|--------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 53.0 | 41.9 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.17 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.44 | 0.35 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.63 | 0.34 | 0.28 | 0.19 | 0.65 | 0.38 |
| Control Delay | 110.4 | 34.5 | 58.7 | 121.9 | 40.9 | 0.4 | 34.2 | 29.8 | 6.3 | 19.1 | 35.9 | 6.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 58.7 | 121.9 | 40.9 | 0.4 | 34.2 | 29.8 | 6.3 | 19.1 | 35.9 | 6.0 |
| LOS | F | С | Е | F | D | Α | С | С | Α | В | D | Α |
| Approach Delay | | 59.7 | | | 63.0 | | | 25.7 | | | 28.2 | |
| Approach LOS | | Е | | | Е | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | .0 | | | | | | | | | | | |
| Offset: 29.4 (25%), Refere | nced to pha | se 2:EBT | and 6:W | 3T, Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.02 | | | | | | | | | | | | |
| Intersection Signal Delay: | | | | li li | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utiliz | ation 99.1% | 5 | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Li | verpool Roa | ıd & Kings | ston Road | | | | | | | | | |
| √øı - | P (R) | | | | - | ø3 🏰 | Ø4 | | | | | |
| 19 s 42 s | | | | | 8 s | 51 s | דע | | | | | |
| 1 🛦 | 4 | | | | - 1 | - 4 | | | | | | |

Queues 6: Liverpool Road & Kingston Road <2043 Future Total>AM 12-20-2024

| | • | - | • | • | — | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|--------|-------|--------|-------|----------|-------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 275 | 535 | 524 | 201 | 382 | 54 | 146 | 443 | 159 | 91 | 827 | 250 |
| v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.63 | 0.34 | 0.28 | 0.19 | 0.65 | 0.38 |
| Control Delay | 110.4 | 34.5 | 58.7 | 121.9 | 40.9 | 0.4 | 34.2 | 29.8 | 6.3 | 19.1 | 35.9 | 6.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 110.4 | 34.5 | 58.7 | 121.9 | 40.9 | 0.4 | 34.2 | 29.8 | 6.3 | 19.1 | 35.9 | 6.0 |
| Queue Length 50th (m) | 69.0 | 28.4 | 30.9 | ~49.1 | 40.5 | 0.0 | 19.5 | 40.3 | 0.0 | 11.7 | 85.8 | 2.0 |
| Queue Length 95th (m) | #122.6 | 64.2 | #136.9 | #96.6 | 55.4 | 0.0 | 32.4 | 54.0 | 15.4 | 21.1 | 107.2 | 19.4 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 278 | 959 | 531 | 197 | 845 | 497 | 231 | 1291 | 559 | 473 | 1263 | 661 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.99 | 0.56 | 0.99 | 1.02 | 0.45 | 0.11 | 0.63 | 0.34 | 0.28 | 0.19 | 0.65 | 0.38 |

Synchro 11 Report Page 15 1105-1163 Kingston Road

Lanes, Volumes, Timings

<2043 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|----------------------------|---------|------------|-------|-------|----------|-------|---------|---------|---------|---------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | 1,4 | † | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 568 | 272 | 146 | 1218 | 24 |
| Future Volume (vph) | 10 | 17 | 36 | 194 | 19 | 59 | 53 | 568 | 272 | 146 | 1218 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.1 | 3.7 | 3.0 | 3.4 | 3.2 | 2.8 | 3.6 | 3.5 | 3.2 | 3.5 | 3.5 |
| Storage Length (m) | 0.0 | | 0.0 | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 2.5 | | | 12.0 | | | 29.5 | | | 28.9 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.99 | | | | | 0.98 | 1.00 | | 0.97 | 0.99 | | 0.96 |
| Frt | | 0.897 | | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1705 | 3058 | 0 | 3113 | 1858 | 1204 | 1645 | 5036 | 1523 | 1675 | 5029 | 1521 |
| Flt Permitted | 0.000 | | | 0.000 | | | 0.168 | | | 0.379 | | |
| Satd. Flow (perm) | 0 | 3058 | 0 | 0 | 1858 | 1181 | 290 | 5036 | 1483 | 665 | 5029 | 1458 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | | 141 | | | 296 | | | 144 |
| Link Speed (k/h) | | 30 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 82.8 | | | 328.5 | | | 162.3 | | | 257.7 | |
| Travel Time (s) | | 9.9 | | | 23.7 | | | 11.7 | | | 18.6 | |
| Confl. Peds. (#/hr) | 7 | | | | | 7 | 10 | | 11 | 11 | | 10 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 0% | 23% | 0% | 3% | 4% | 3% | 2% | 5% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 2 | 0 | 0 | 0 |
| Adj. Flow (vph) | 11 | 18 | 39 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 1324 | 26 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 11 | 57 | 0 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 1324 | 26 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 6.0 | | | 6.0 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.08 | 1.08 | 0.99 | 1.09 | 1.03 | 1.12 | 1.13 | 1.00 | 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | 5. · LX | J X | | 5 LA | J Z. | J X | 5. · LA | 5. · LX | 5. · LX | 5. · LA | 5 LX | J X |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | 0.0 |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| בסנססנטו ב טובט(ווו) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |

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Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

<2043 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | \rightarrow | • | ← | • | 4 | † | / | - | ţ | 4 |
|-------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 15.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 17.0 | 17.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 37.0 | 37.0 | 12.0 | 40.0 | 40.0 |
| Total Split (%) | 17.0% | 17.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 37.0% | 37.0% | 12.0% | 40.0% | 40.0% |
| Maximum Green (s) | 10.4 | 10.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 30.7 | 30.7 | 9.0 | 33.7 | 33.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 0 | 0 | | 21 | 21 | | 21 | 21 |
| Act Effct Green (s) | 8.0 | 8.0 | | 12.1 | 12.1 | 12.1 | 61.3 | 52.1 | 52.1 | 66.4 | 56.1 | 56.1 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.12 | 0.12 | 0.12 | 0.61 | 0.52 | 0.52 | 0.66 | 0.56 | 0.56 |
| v/c Ratio | 0.08 | 0.20 | | 0.56 | 0.09 | 0.24 | 0.23 | 0.24 | 0.32 | 0.30 | 0.47 | 0.03 |
| Control Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 7.9 | 13.1 | 4.0 | 9.1 | 15.6 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 44.1 | 22.1 | | 46.9 | 38.5 | 2.1 | 7.9 | 13.1 | 4.0 | 9.1 | 15.6 | 0.0 |
| LOS | D | С | | D | D | Α | Α | В | Α | Α | В | Α |
| Approach Delay | | 25.7 | | | 36.6 | | | 10.0 | | | 14.6 | |
| Approach LOS | | С | | | D | | | В | | | В | |

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 34 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Offset: 34 (34%), Referenced to phase 2
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 15.6
Intersection Capacity Utilization 56.1%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Liverpool Road & Private Access/Pickering Parkway



Queues

<2043 Future Total>AM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ۶ | → | • | ← | • | 1 | † | 1 | - | ţ | 4 | |
|------------------------|------|----------|------|----------|------|------|----------|------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 11 | 57 | 211 | 21 | 64 | 58 | 617 | 296 | 159 | 1324 | 26 | |
| v/c Ratio | 0.08 | 0.20 | 0.56 | 0.09 | 0.24 | 0.23 | 0.24 | 0.32 | 0.30 | 0.47 | 0.03 | |
| Control Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.9 | 13.1 | 4.0 | 9.1 | 15.6 | 0.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 44.1 | 22.1 | 46.9 | 38.5 | 2.1 | 7.9 | 13.1 | 4.0 | 9.1 | 15.6 | 0.0 | |
| Queue Length 50th (m) | 2.0 | 1.7 | 20.2 | 3.7 | 0.0 | 2.4 | 24.8 | 9.8 | 11.3 | 59.2 | 0.0 | |
| Queue Length 95th (m) | 7.4 | 7.8 | 30.3 | 10.1 | 0.0 | m5.5 | 37.9 | 20.1 | 21.5 | 77.5 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 177 | 352 | 852 | 509 | 425 | 259 | 2621 | 913 | 533 | 2821 | 881 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.06 | 0.16 | 0.25 | 0.04 | 0.15 | 0.22 | 0.24 | 0.32 | 0.30 | 0.47 | 0.03 | |

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m Volume for 95th percentile queue is metered by upstream signal.

<2043 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | → | • | • | ← | 4 | • | † | <u> </u> | \ | | √ |
|----------------------------|------|----------|-------|-------|----------|-------|-------|----------|----------|----------|--------------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ች | 4 | 7 | ኘ | ^ | 11011 | 052 | ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 549 | 0 | 0 | 979 | 220 |
| Future Volume (vph) | 0 | 0 | 424 | 188 | 69 | 310 | 203 | 549 | 0 | 0 | 979 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | 0.1 | 0.0 | 0.0 | 0.7 | 125.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Storage Lanes | 0.0 | | 1 | 1 | | 120.0 | 1 | | 0.0 | 0.0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.01 | 1.00 | 1.00 | 0.01 | 0.96 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | 0.000 | 0.950 | 0.977 | 0.000 | 0.950 | | | | | 0.000 |
| Satd. Flow (prot) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 1460 | 4932 | 0 | 0 | 4877 | 1601 |
| Flt Permitted | | | 1100 | 0.950 | 0.977 | 1001 | 0.141 | 1002 | | | 1011 | 1001 |
| Satd. Flow (perm) | 0 | 0 | 1108 | 1700 | 1767 | 1551 | 217 | 4932 | 0 | 0 | 4877 | 1538 |
| Right Turn on Red | | | No | | | Yes | | .002 | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 110 | | | 336 | | | 100 | | | 239 |
| Link Speed (k/h) | | 50 | | | 50 | 550 | | 50 | | | 50 | 200 |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | 01.2 | | | 10.0 | | 7 | 20.0 | 14 | 14 | 11.7 | 7 |
| Confl. Bikes (#/hr) | | | | | | | , | | 4 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.32 | 2% | 50% | 2% | 0.32 | 3% | 25% | 4% | 4% | 2% | 4% | 2% |
| Adj. Flow (vph) | 0 | 0 | 461 | 204 | 75 | 337 | 221 | 597 | 0 | 0 | 1064 | 239 |
| Shared Lane Traffic (%) | | | 701 | 32% | 7.5 | 001 | 221 | 001 | | | 1004 | 200 |
| Lane Group Flow (vph) | 0 | 0 | 461 | 139 | 140 | 337 | 221 | 597 | 0 | 0 | 1064 | 239 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 3.7 | ragni | LOIL | 3.7 | ragni | LOIL | 3.7 | rtigrit | LOIL | 3.7 | rtigitt |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 24 | 0.00 | 14 | 24 | 0.00 | 14 | 24 | 1.01 | 14 | 24 | 1.00 | 14 |
| Number of Detectors | 27 | | 1 | 1 | 2 | 1 | 1 | 2 | 17 | 27 | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | OITEX | OIILX | OIILX | OITEX | OITEX | OILLX | | | OITEX | OIILX |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 9.4 | | | 9.4 | 0.0 |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | | | | OITEX | | | OITEX | | | OITEX | |

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<2043 Future Total>AM

Page 20

Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

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|-----------------------------------|----------------|-------------|-----------|------------|------------|-------|----------|-------------|----------|-------|-------|
| Lane Group | EBL EB | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | 46.0 | 25.0 | 25.0 | 25.0 | 46.0 | 75.0 | | | 29.0 | 29.0 |
| Total Split (%) | | 46.0% | 25.0% | 25.0% | 25.0% | 46.0% | 75.0% | | | 29.0% | 29.0% |
| Maximum Green (s) | | 41.5 | 19.0 | 19.0 | 19.0 | 41.5 | 68.7 | | | 22.7 | 22.7 |
| Yellow Time (s) | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | Lead | | | | Lead | | | | Lag | Lac |
| Lead-Lag Optimize? | | | | | | | | | | 3 | 3 |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | 0.0 | 0.0 | 0.0 | | 15 | | | 17 | 17 |
| Act Effct Green (s) | | 45.6 | 13.7 | 13.7 | 13.7 | 75.8 | 74.0 | | | 23.9 | 23.9 |
| Actuated g/C Ratio | | 0.46 | 0.14 | 0.14 | 0.14 | 0.76 | 0.74 | | | 0.24 | 0.24 |
| v/c Ratio | | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | | | 0.91 | 0.44 |
| Control Delay | | 51.2 | 50.7 | 49.5 | 11.5 | 7.5 | 4.3 | | | 39.5 | 5.3 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | 51.2 | 50.7 | 49.5 | 11.5 | 7.5 | 4.3 | | | 39.5 | 5.3 |
| LOS | | D | D | D | В | A | A | | | D | A |
| Approach Delay | 51.2 | _ | | 28.9 | | | 5.2 | | | 33.2 | |
| Approach LOS | [| | | С | | | Α | | | С | |
| Intersection Summary | | | | | | | | | | | |
| Area Type: Othe | r | | | | | | | | | | |
| Cycle Length: 100 | il | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | |
| Offset: 38 (38%), Referenced to | nhase 2·NRT | and 6:SF | T Start o | f Green | | | | | | | |
| Natural Cycle: 100 | pridoo Z.IAD I | L and o.oL | , otali c | n Oloon | | | | | | | |
| Control Type: Actuated-Coordina | ated | | | | | | | | | | |
| Maximum v/c Ratio: 0.91 | | | | | | | | | | | |
| Intersection Signal Delay: 27.8 | | | - In | ntersectio | n I OS: C | | | | | | |
| Intersection Capacity Utilization | 66.2% | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | 00.E /0 | | | OO LOVO | 01 001 110 | | | | | | |
| Splits and Phases: 9: Liverpoo | ol Road & Wa | Inut Lane/H | lwv 401 \ | NR Off-Ra | amn | | | | | | |
| + | 7771000 0 770 | | , | 15 0 | лр | | | 42 | | | |
| Ø2 (R) | | | Ţ | | | | | → Ø8 | | | |
| 75 s | | | | | | | | 25 s | | | |
| ♣ ø5 | | | | ∯ Ø6 (R | 3 | | | | | | |
| 46 c | | | 20 | + ₩0 (R | .) | | | | | | |

<2043 Future Total>AM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

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|------------------------|--------|------|-------|-------|------|-------|--------|------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 461 | 139 | 140 | 337 | 221 | 597 | 1064 | 239 | |
| v/c Ratio | 0.91 | 0.60 | 0.58 | 0.67 | 0.30 | 0.16 | 0.91 | 0.44 | |
| Control Delay | 51.2 | 50.7 | 49.5 | 11.5 | 7.5 | 4.3 | 39.5 | 5.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.2 | 50.7 | 49.5 | 11.5 | 7.5 | 4.3 | 39.5 | 5.3 | |
| Queue Length 50th (m) | 78.2 | 27.1 | 27.2 | 0.2 | 10.1 | 10.3 | 76.3 | 12.0 | |
| Queue Length 95th (m) | #152.5 | 44.3 | 44.3 | 23.5 | 30.3 | 17.3 | #104.1 | 9.2 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 505 | 323 | 335 | 566 | 731 | 3651 | 1165 | 549 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.91 | 0.43 | 0.42 | 0.60 | 0.30 | 0.16 | 0.91 | 0.44 | |
| | | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

1105-1163 Kingston Road WSP Synchro 11 Report Page 21

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Total>AM 12-20-2024

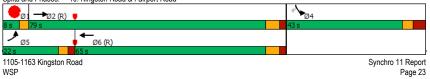
| | ၨ | - | ← | • | > | 1 | |
|-----------------------------------|-------|----------|-------------|-------|-------------|-------------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | ች | ^ | † 1> | | * | 7 | |
| Traffic Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Future Volume (vph) | 96 | 749 | 703 | 99 | 182 | 229 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | 0.0 | 6% | 0% | 0.1 | 0% | 1.0 | |
| Storage Length (m) | 75.0 | 0,0 | 070 | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0.0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | U | 31.3 | • | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.00 | 0.981 | 0.00 | 1.00 | 0.850 | |
| Flt Protected | 0.950 | | 0.501 | | 0.950 | 0.000 | |
| Satd. Flow (prot) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Flt Permitted | 0.950 | 5555 | 3304 | U | 0.950 | 1700 | |
| Satd. Flow (perm) | 1602 | 3335 | 3384 | 0 | 1736 | 1708 | |
| Right Turn on Red | 1002 | 3333 | 3304 | Yes | 1730 | Yes | |
| Satd. Flow (RTOR) | | | 16 | res | | 7 es 249 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | 249 | |
| 1 \ / | | 424.0 | 896.3 | | 280.0 | | |
| Link Distance (m) Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| | | | | | | | |
| Heavy Vehicles (%) | 2% | 5% | 3% | 7% | 4% | 4% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 104 | 814 | 764 | 108 | 198 | 249 | |
| Shared Lane Traffic (%) | 101 | 211 | 070 | • | 400 | 0.40 | |
| Lane Group Flow (vph) | 104 | 814 | 872 | 0 | 198 | 249 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | 9.4 | | | | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | |
| Detector 2 Channel | | JI-LX | JI-LX | | | | |

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Total>AM 12-20-2024

| | • | → | ← | 4 | - | 1 | |
|--------------------------------|--------------|-----------|-------------|------------|-----------|------------|------|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 |
| Permitted Phases | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 |
| Minimum Split (s) | 10.0 | 32.3 | 32.3 | | 38.1 | 38.1 | 8.0 |
| Total Split (s) | 22.0 | 79.0 | 65.0 | | 43.0 | 43.0 | 8.0 |
| Total Split (%) | 16.9% | 60.8% | 50.0% | | 33.1% | 33.1% | 6% |
| Maximum Green (s) | 17.0 | 72.7 | 58.7 | | 35.7 | 35.7 | 5.0 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | | None | None | None |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 |
| Pedestrian Calls (#/hr) | 40.0 | 0 | 1 | | 2 | 2 | 20 |
| Act Effct Green (s) | 13.3 | 90.9 | 77.4 | | 20.7 | 20.7 | |
| Actuated g/C Ratio | 0.10 | 0.70 | 0.60 | | 0.16 | 0.16 | |
| v/c Ratio | 0.64 | 0.35 | 0.43 | | 0.72 | 0.52 | |
| Control Delay | 104.2 | 0.8 | 16.2 | | 65.5 | 9.1 | |
| Queue Delay | 0.0 104.2 | 0.0 | 0.0 16.2 | | 0.0 | 0.0 9.1 | |
| Total Delay LOS | 104.2 F | 0.8 A | 16.2 B | | 65.5 E | 9.1 A | |
| | F | 12.5 | 16.2 | | 34.1 | A | |
| Approach Delay Approach LOS | | 12.5 B | 10.2 B | | 34.1 C | | |
| •• | | В | В | | U | | |
| Intersection Summary | | | | | | | |
| Jr - | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | |
| Offset: 105 (81%), Reference | ced to phas | se 2:EBT | and 6:WB | T, Start o | f Green | | |
| Natural Cycle: 85 | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | |
| Maximum v/c Ratio: 0.72 | | | | | | | |
| Intersection Signal Delay: 1 | | | | | tersectio | | |
| Intersection Capacity Utiliza | ition 53.5% | 1 | | IC | CU Level | of Service | e A |
| Analysis Period (min) 15 | | | | | | | |

Splits and Phases: 10: Kingston Road & Fairport Road



1105-1163 Kingston Road WSP

Queues

<2043 Future Total>AM 12-20-2024

10: Kingston Road & Fairport Road

| | ၨ | → | • | - | 4 | |
|------------------------|-------|----------|-------|-------|------|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | |
| Lane Group Flow (vph) | 104 | 814 | 872 | 198 | 249 | |
| v/c Ratio | 0.64 | 0.35 | 0.43 | 0.72 | 0.52 | |
| Control Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 104.2 | 0.8 | 16.2 | 65.5 | 9.1 | |
| Queue Length 50th (m) | 26.4 | 2.6 | 59.3 | 49.0 | 0.0 | |
| Queue Length 95th (m) | 42.6 | 2.5 | 94.4 | 68.5 | 20.6 | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | |
| Base Capacity (vph) | 209 | 2331 | 2021 | 476 | 649 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 42 | 0 40 | 0 20 | |
| Reduced v/c Ratio | 0.50 | 0.35 | 0.43 | 0.42 | 0.38 | |
| Intersection Summary | | | | | | |

Synchro 11 Report Page 24 1105-1163 Kingston Road WSP

<2043 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | • | • | 4 | 1 |
|----------------------------|-------------|-------|------------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | † 1> | | ኘ | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 783 | 12 | 284 | 667 | 461 | 65 |
| Future Volume (vph) | 783 | 12 | 284 | 667 | 461 | 65 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 5.1 | 2.1 | 0% | 0% | 0.1 |
| Storage Length (m) | 0 /0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| Taper Length (m) | | J | 22.3 | | 2.5 | - 1 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Frt | 0.95 | 0.53 | 1.00 | 0.55 | 0.57 | 0.850 |
| Flt Protected | 0.550 | | 0.950 | | 0.950 | 0.000 |
| | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Satd. Flow (prot) | 3479 | U | | J048 | | 1033 |
| Fit Permitted | 2470 | _ | 0.950 | 2540 | 0.950 | 4000 |
| Satd. Flow (perm) | 3479 | 0 | 1593 | 3548 | 3442 | 1633 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 71 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 5% | 0% | 2% | 4% | 4% | 0% |
| Adj. Flow (vph) | 851 | 13 | 309 | 725 | 501 | 71 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 864 | 0 | 309 | 725 | 501 | 71 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | Ŭ | | 3.1 | 7.6 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | 0.00 | 1.03 | 24 | 0.51 | 24 | 14 |
| Number of Detectors | 2 | 1-7 | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| | 10.0 | | Leπ 2.0 | | 2.0 | 2.0 |
| Leading Detector (m) | | | | 10.0 | | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | J | | | J/ | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| DOLOGIOI E ENIGITA (3) | 0.0 | | | 0.0 | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 25

<2043 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | \rightarrow | • | • | 1 | ~ |
|--------------------------|----------------|---------------|------------|-------------|------------|------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Turn Type | NA | | Prot | NA | Prot | Perm |
| Protected Phases | 2 | | 1 | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 39.0 | 39.0 |
| Total Split (s) | 51.0 | | 40.0 | 91.0 | 39.0 | 39.0 |
| Total Split (%) | 39.2% | | 30.8% | 70.0% | 30.0% | 30.0% |
| Maximum Green (s) | 43.8 | | 35.0 | 83.8 | 32.3 | 32.3 |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 |
| Lead/Lag | Lag | | Lead | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 |
| Recall Mode | C-Max | | None | C-Max | None | None |
| Walk Time (s) | 7.0 | | | 7.0 | 7.0 | 7.0 |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 |
| Pedestrian Calls (#/hr) | 0 | | | 3 | 3 | 3 |
| Act Effct Green (s) | 57.3 | | 29.4 | 91.7 | 24.4 | 24.4 |
| Actuated g/C Ratio | 0.44 | | 0.23 | 0.71 | 0.19 | 0.19 |
| v/c Ratio | 0.56 | | 0.86 | 0.29 | 0.78 | 0.20 |
| Control Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.9 | | 58.9 | 15.7 | 58.6 | 10.2 |
| LOS | B | | Е | В | E | В |
| Approach Delay | 12.9 | | | 28.6 | 52.6 | |
| Approach LOS | В | | | С | D | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 130 | | | | | | |
| Actuated Cycle Length: | | | | | | |
| Offset: 66 (51%), Refere | enced to phase | 2:EBT ar | nd 6:WBT | Γ, Start of | Green | |
| Natural Cycle: 110 | | | | | | |
| Control Type: Actuated- | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | 100.5 |
| Intersection Signal Dela | | | | | ntersectio | |
| Intersection Capacity Ut | | | | I | JU Level | of Service |
| Analysis Period (min) 15 | Ď. | | | | | |
| Splits and Phases: 11 | : Hwy 401 WB | Damne 8 | 2. Kinaeta | n Road | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 26 Queues

<2043 Future Total>AM 12-20-2024

11: Hwy 401 WB Ramps & Kingston Road

| | - | • | — | 1 | |
|------------------------|-------|-------|----------|-------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 864 | 309 | 725 | 501 | 71 |
| v/c Ratio | 0.56 | 0.86 | 0.29 | 0.78 | 0.20 |
| Control Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.9 | 58.9 | 15.7 | 58.6 | 10.2 |
| Queue Length 50th (m) | 20.8 | 75.6 | 69.7 | 63.7 | 0.0 |
| Queue Length 95th (m) | 58.3 | 106.7 | 90.3 | 77.4 | 12.0 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1534 | 428 | 2502 | 855 | 459 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.72 | 0.29 | 0.59 | 0.15 |
| Intersection Summary | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 27

<2043 Future Total>AM 12-20-2024

Lanes, Volumes, Timings
12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | → | • | • | ← | • | • | † | ~ | / | ţ | ✓ |
|----------------------------|-------|------------|---------|-------|------------|--------|-------|-------|---------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | 7 | † } | | ሻ | 1> | | ሻ | 1> | |
| Traffic Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Future Volume (vph) | 76 | 1010 | 37 | 96 | 1035 | 74 | 140 | 6 | 92 | 42 | 13 | 124 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util, Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | | | | 1.00 | | 0.99 | 0.98 | | 1.00 | 0.98 | |
| Frt | | 0.995 | | | 0.990 | | | 0.860 | | | 0.864 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1673 | 3280 | 0 | 1671 | 3381 | 0 | 1805 | 1755 | 0 | 1643 | 1468 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.662 | | | 0.688 | | |
| Satd. Flow (perm) | 1662 | 3280 | 0 | 1671 | 3381 | 0 | 1249 | 1755 | 0 | 1185 | 1468 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 8 | | | 100 | | | 135 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 13 | | | | | 13 | 6 | | 3 | 3 | 10.0 | 6 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 2% | 3% | 3% | 0% | 0% | 2% | 5% | 0% | 0% |
| Adj. Flow (vph) | 83 | 1098 | 40 | 104 | 1125 | 80 | 152 | 7 | 100 | 46 | 14 | 135 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 83 | 1138 | 0 | 104 | 1205 | 0 | 152 | 107 | 0 | 46 | 149 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | 2011 | 3.5 | - ugiii | 2011 | 3.5 | . ugut | 2011 | 3.6 | · ug.i. | 2011 | 3.6 | rugin |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | 1.07 | 14 | 24 | 1.00 | 14 | 24 | 0.01 | 14 | 24 | 1.10 | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | - 17 | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | OIILX | OILLX | | OITEX | OITEX | | OITEX | OITEX | | OITEX | OITEX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | | 0.0 | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Type | | UI+EX | | | UI+EX | | | UI+EX | | | UI+EX | |

Synchro 11 Report Page 28 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings

<2043 Future Total>AM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ٠ | - | \rightarrow | • | • | • | 1 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-----|-------|----------|----------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 31.9 | | 10.0 | 31.9 | | 37.6 | 37.6 | | 37.6 | 37.6 | |
| Total Split (s) | 16.0 | 72.0 | | 19.0 | 75.0 | | 39.0 | 39.0 | | 39.0 | 39.0 | |
| Total Split (%) | 12.3% | 55.4% | | 14.6% | 57.7% | | 30.0% | 30.0% | | 30.0% | 30.0% | |
| Maximum Green (s) | 11.0 | 65.1 | | 14.0 | 68.1 | | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | 3.0 | 4.7 | | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | 5.0 | 6.9 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | 3.0 | 0.2 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | | 18.0 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 1 | | | 16 | | 0 | 0 | | 1 | 1 | |
| Act Effct Green (s) | 10.0 | 75.0 | | 12.1 | 77.1 | | 20.9 | 20.9 | | 20.9 | 20.9 | |
| Actuated g/C Ratio | 0.08 | 0.58 | | 0.09 | 0.59 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.65 | 0.60 | | 0.67 | 0.60 | | 0.76 | 0.29 | | 0.24 | 0.43 | |
| Control Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 86.0 | 27.4 | | 80.4 | 28.5 | | 74.1 | 11.5 | | 48.1 | 12.9 | |
| LOS | F | С | | F | С | | Е | В | | D | В | |
| Approach Delay | | 31.4 | | | 32.7 | | | 48.2 | | | 21.2 | |
| Approach LOS | | С | | | С | | | D | | | С | |

Intersection Summary Area Type: Other Cycle Length: 130 Actuated Cycle Length: 130 Offset: 49 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Green Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.76 Intersection Signal Delay: 32.7 Intersection LOS: C Intersection Capacity Utilization 81.0% ICU Level of Service D Analysis Period (min) 15

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2043 Future Total>AM 12-20-2024

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | ← | 1 | Ť | - | ţ | |
|------------------------|-------|-------|-------|----------|------|-------|------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 83 | 1138 | 104 | 1205 | 152 | 107 | 46 | 149 | |
| v/c Ratio | 0.65 | 0.60 | 0.67 | 0.60 | 0.76 | 0.29 | 0.24 | 0.43 | |
| Control Delay | 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 86.0 | 27.4 | 80.4 | 28.5 | 74.1 | 11.5 | 48.1 | 12.9 | |
| Queue Length 50th (m) | 21.9 | 127.4 | 27.4 | 162.3 | 37.6 | 1.5 | 10.4 | 3.1 | |
| Queue Length 95th (m) | #40.7 | 162.8 | 44.7 | 187.7 | 57.4 | 16.2 | 20.7 | 20.6 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 141 | 1894 | 179 | 2009 | 278 | 469 | 264 | 432 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.59 | 0.60 | 0.58 | 0.60 | 0.55 | 0.23 | 0.17 | 0.34 | |
| | | | | | | | | | |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Total>AM 12-20-2024

| Bane Corolgurations | | ۶ | → | • | • | ← | • | 4 | † | ~ | / | ļ | 4 |
|--|----------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|----------|-------|-------|
| Traffic Volume (yph) | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Future Volume (Volh) | Lane Configurations | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ተተተ | 7 | ሻ | ተተተ | 7 |
| | Traffic Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Lane Width (m) | Future Volume (vph) | 78 | 283 | 294 | 286 | 557 | 290 | 146 | 390 | 462 | 180 | 796 | 175 |
| Strade (%) 12.0 123.0 87.1 35.0 72.0 35.0 88.5 47.0 | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Storage Lanes | Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Taper Length (m) | Storage Length (m) | | | | | | | | | | | | |
| Lane Utili. Factor | Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Ped Bike Factor | Taper Length (m) | | | | | | | | | | | | |
| Fit | | | 0.95 | | | 0.95 | | | 0.91 | | | 0.91 | |
| Fit Protected | Ped Bike Factor | 0.98 | | | 0.99 | | | 0.99 | | | 0.99 | | |
| Satid. Flow (prot) 1633 3335 1607 1767 3510 1606 1700 5057 1558 1750 5057 1625 Fil Permitted 0.950 0.950 0.232 0.232 0.495 Fil Permitted 0.950 0.950 0.232 0.232 0.495 Satid. Flow (perm) 1604 3335 1665 1751 3510 1522 413 5057 1509 902 5057 1574 Right Turn on Red Yes | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Fit Permitted | | | | | | | | | | | | | |
| Satd. Flow (perm) 1604 3335 1565 1751 3510 1522 413 5057 1509 902 5057 1574 Right Turn on Red Yes Ye | | | 3335 | 1607 | | 3510 | 1606 | | 5057 | 1558 | | 5057 | 1625 |
| No | | | | | | | | | | | | | |
| Said. Flow (RTOR) | | 1604 | 3335 | | 1751 | 3510 | | 413 | 5057 | | 902 | 5057 | |
| Link Speed (k/h) | | | | | | | | | | | | | |
| Link Distance (m) | | | | 154 | | | 250 | | | 240 | | | 173 |
| Travel Time (s) | | | | | | | | | | | | | |
| Confi. Peds. (#hr) | | | | | | | | | | | | | |
| Peak Hour Factor | | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Heavy Vehicles (%) | | | | | | | | | | | | | |
| Bus Blockages (##rr) | | | | | | | | | | | | | |
| Adj. Flow (vph) | | | | | | | | | | | | | |
| Shared Lane Traffic (%) Lane Group Flow (vph) 85 308 320 311 605 315 159 424 502 196 865 190 | | | | | | | | | | | | | |
| Lane Group Flow (vph) | | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| Enter Blocked Intersection | \ / | ٥٢ | 200 | 200 | 044 | 005 | 045 | 450 | 404 | 500 | 400 | 005 | 400 |
| Left Left Right Median Width(m) 3.5 | | | | | | | | | | | | | |
| Median Width(m) | | | | | | | | | | | | | |
| Crosswalk Width(m) | | Leπ | | Right | Leπ | | Right | Leπ | | Right | Leπ | | Right |
| Crosswalk Width(m) | | | | | | | | | | | | | |
| Two way Left Turn Lane Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.95 | | | | | | | | | | | | | |
| Headway Factor 1.06 1.04 0.96 1.01 0.99 0.94 1.01 0.96 1.00 1.01 0.96 0.95 | | | 1.0 | | | 1.0 | | | 1.0 | | | 1.0 | |
| Turning Speed (k/h) | | 1.06 | 1.04 | 0.06 | 1.01 | 0.00 | 0.04 | 1.01 | 0.06 | 1.00 | 1.01 | 0.06 | 0.05 |
| Number of Detectors | | | 1.04 | | | 0.55 | | | 0.90 | | | 0.90 | |
| Detector Template | | | 2 | | | 2 | | | 2 | | | 2 | |
| Leading Detector (m) | | | | | | | | | | | | | |
| Trailing Detector (m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Position(m) 0.0 | | | | | | | | | | | | | |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 | | | | | | | | | | | | | |
| Detector 1 Type | | | | | | | | | | | | | |
| Detector 1 Channel 0.0 | | | | | | | | | | | | | - |
| Detector 1 Extend (s) 0.0 | | OITEX | OITEX | OITEX | OIILX | OIILX | OITEX | OITEX | OITEX | OITEX | OITEX | OITEX | OIILX |
| Detector 1 Queue (s) 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) 0.0 | | | | | | | | | | | | | |
| Detector 2 Position(m) 9.4 9.4 9.4 9.4 | | | | | | | | | | | | | |
| | | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| | Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
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Lanes, Volumes, Timings
13: Whites Road & Kingston Road

Ø6 (R)

<2043 Future Total>AM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | / | > | ↓ | 1 |
|------------------------------|--------------|-----------|----------|----------|------------|------------|---------------|----------|-------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 16.0 | 43.0 | 43.0 | 30.0 | 57.0 | 57.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 12.3% | 33.1% | 33.1% | 23.1% | 43.8% | 43.8% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 11.0 | 36.0 | 36.0 | 25.0 | 50.0 | 50.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | - 0 | - 3 | | - 3 | | | - 3 | | | - 0 | J |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 31 | 31 | | 75 | 75 | | 65 | | | 37 | 37 |
| Act Effct Green (s) | 10.1 | 36.5 | 36.5 | 24.5 | 50.9 | 50.9 | 51.0 | 40.6 | 68.5 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.08 | 0.28 | 0.28 | 0.19 | 0.39 | 0.39 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| LOS | F | D | C | E | С | В | D | С | В | C | D | Α |
| Approach Delay | | 37.8 | - | | 34.5 | | | 26.0 | | - | 33.0 | |
| Approach LOS | | D | | | С | | | С | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 107 (82%), Refere | nced to phas | se 2:EBT | and 6:WE | T, Start | of Green | | | | | | | |
| Natural Cycle: 120 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | | | | | | | | | | | | |
| Intersection Signal Delay: | 32.4 | | | li li | ntersectio | n LOS: C | | | | | | |
| Intersection Capacity Utiliz | zation 109.5 | % | | 10 | CU Level | of Service | е Н | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 13: | Whites Road | I & Kings | ton Road | | | | | | | | | |
| √ 8ø1 | | ma (n) | | | | 4 | 4 | | | | | |
| | | Ø2 (R) | | | | 9.0 | 33 ▼ Ø | 14 | | | | |
| 30 s | 43 s | | | | | ō S | 49 S | | | | | |

Ø7 108

Queues

<2043 Future Total>AM 13: Whites Road & Kingston Road

12-20-2024

| | • | - | • | • | ← | • | 4 | † | 1 | - | ↓ | 4 |
|------------------------|-------|-------|-------|--------|----------|------|-------|----------|------|------|----------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 85 | 308 | 320 | 311 | 605 | 315 | 159 | 424 | 502 | 196 | 865 | 190 |
| v/c Ratio | 0.67 | 0.33 | 0.58 | 0.94 | 0.44 | 0.42 | 0.75 | 0.27 | 0.55 | 0.51 | 0.55 | 0.31 |
| Control Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 83.0 | 38.4 | 25.1 | 65.9 | 28.9 | 14.3 | 52.0 | 34.1 | 10.8 | 32.7 | 38.7 | 7.6 |
| Queue Length 50th (m) | 21.4 | 33.2 | 36.4 | 80.3 | 77.0 | 46.7 | 25.9 | 29.8 | 36.3 | 32.6 | 67.3 | 3.0 |
| Queue Length 95th (m) | #42.5 | 46.2 | 67.4 | #129.4 | 90.5 | 63.5 | #50.2 | 39.1 | 63.0 | 50.3 | 81.1 | 19.8 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 138 | 936 | 550 | 339 | 1373 | 747 | 211 | 1579 | 922 | 386 | 1579 | 610 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.33 | 0.58 | 0.92 | 0.44 | 0.42 | 0.75 | 0.27 | 0.54 | 0.51 | 0.55 | 0.31 |

1105-1163 Kingston Road WSP Synchro 11 Report Page 33 Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2043 Future Total>AM 12-20-2024

| | • | • | • | † | + | ✓ |
|----------------------------|-------|-------|---------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻሻ | 7 | -,,,,,, | * | ^ | |
| Traffic Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Future Volume (vph) | 653 | 268 | 0 | 698 | 447 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 3.0 | 3.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| | 2.5 | - 1 | 2.5 | | | U |
| Taper Length (m) | | 0.04 | | 0.05 | 0.05 | 4.00 |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | 0.007 | 0.050 | | | | |
| Frt | 0.994 | 0.850 | | | | |
| Flt Protected | 0.954 | | | | | |
| Satd. Flow (prot) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| Flt Permitted | 0.954 | | | | | |
| Satd. Flow (perm) | 3391 | 1400 | 0 | 3374 | 3481 | 0 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 4 | 262 | | | | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | | | 7 | | .0.3 | 7 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 5% | 2% | 7% | 6% | 2% |
| Adj. Flow (vph) | 710 | 291 | 2% | 759 | 486 | 2% |
| | 7 10 | | U | 159 | 400 | 0 |
| Shared Lane Traffic (%) | 700 | 10% | | 750 | 400 | ^ |
| Lane Group Flow (vph) | 739 | 262 | 0 | 759 | 486 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 7.2 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | | | | | | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | | | 9.4 | 9.4 | |
| Detector 2 Size(m) | | | | 0.6 | 0.6 | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | OITEX | OIILX | |
| Detector & Cridilitel | | | | | | |

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

<2043 Future Total>AM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | * | 1 | Ť | ¥ | 4 |
|------------------------------|--------------|-----------|-----------|-----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | |
| Turn Type | Prot | Perm | | NA | NA | |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | |
| Total Split (s) | 46.2 | 46.2 | | 63.8 | 63.8 | |
| Total Split (%) | 42.0% | 42.0% | | 58.0% | 58.0% | |
| Maximum Green (s) | 40.7 | 40.7 | | 57.1 | 57.1 | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | |
| Recall Mode | None | None | | C-Max | C-Max | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | |
| Pedestrian Calls (#/hr) | 3 | 3 | | 0 | 0 | |
| Act Effct Green (s) | 30.3 | 30.3 | | 67.5 | 67.5 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.61 | 0.61 | |
| v/c Ratio | 0.79 | 0.46 | | 0.37 | 0.23 | |
| Control Delay | 42.9 | 6.1 | | 11.9 | 10.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 42.9 | 6.1 | | 11.9 | 10.6 | |
| LOS | D | A | | В | В | |
| Approach Delay | 33.2 | | | 11.9 | 10.6 | |
| Approach LOS | С | | | В | В | |
| | | | | | | |
| Intersection Summary | Others | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 110 | | | | | | |
| Actuated Cycle Length: 11 | | O NIDT | 10.05 | T 01 1 | | |
| Offset: 79.2 (72%), Refere | enced to pha | se 2:NB I | and 6:SE | 31, Start | of Green | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | |
| Maximum v/c Ratio: 0.79 | 04.4 | | | | | 100.0 |
| Intersection Signal Delay: | | | | | ntersection | |
| Intersection Capacity Utiliz | zation 50.9% | | | I | CU Level o | of Service A |
| Analysis Period (min) 15 | | | | | | |
| 0.11 1.01 44.1 | D | 0.111.1 | 404 = | 0.00 | | |
| | Whites Road | & Highwa | ay 401 El | B Off Rar | np | |
| ♦ | | | | | | ≱ |



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2043 Future Total>AM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | \rightarrow | † | ļ |
|------------------------|-------|---------------|-------|-------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 739 | 262 | 759 | 486 |
| v/c Ratio | 0.79 | 0.46 | 0.37 | 0.23 |
| Control Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.9 | 6.1 | 11.9 | 10.6 |
| Queue Length 50th (m) | 75.3 | 0.0 | 39.7 | 22.8 |
| Queue Length 95th (m) | 88.3 | 18.7 | 60.4 | 36.5 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1257 | 683 | 2069 | 2135 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.59 | 0.38 | 0.37 | 0.23 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 <2043 Future Total>AM

12-20-2024

| Cane Configurations | | • | • | † | - | - | ţ | |
|--|----------------------------|------------|-------|----------|-------|---------|--------------|---|
| Traffic Volume (vph) 0 1111 0 0 252 0 Tuture Volume (vph) 0 1111 0 0 252 0 Tuture Volume (vph) 1900 1900 1900 1900 1900 1900 _ane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 _ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor Tit 0.865 Tit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Tit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Link Speed (k/h) 30 40 40 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 9.6 4.0 Donnf. Peds. (#/hr) 5 8 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Leavy Vehicles (%) 2% 2% 2% 2% 1% 2% 0.40 Adj. Flow (vph) 0 121 0 0 274 0 Shared Lane Traffic (%) Lane Group Flow (vph) 121 0 0 0 7274 Tinter Blocked Intersection No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 | Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Future Volume (vph) 0 1111 0 0 0 252 0 0 deal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190 | Lane Configurations | W | | f) | | | 4 | |
| Deal Flow (vphpi) | Traffic Volume (vph) | 0 | 111 | 0 | 0 | 252 | Ö | |
| Anne Width (m) | Future Volume (vph) | 0 | 111 | 0 | 0 | 252 | 0 | |
| Anne Util. Factor | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Ped Bike Factor Fit 0.865 Fit Protected 0.950 Satd. Flow (prot) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 1701 0 1946 0 0 1867 Fit Permitted 0.950 Satd. Flow (perm) 193.0 106.6 44.0 Fit Permitted 0.950 Fit Permitt | Lane Width (m) | 4.1 | 3.7 | 4.0 | 3.7 | 3.7 | 4.0 | |
| Ent Chrocted | Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| The Protected 0.950 Sard. Flow (prot) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Sard. Flow (perm) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Sard. Flow (perm) 1701 0 1946 0 0 1867 Elt Permitted 0.950 Sard. Flow (perm) 1701 0 1946 0 0 1867 Elt Permitted 1867 Elt Permitt | Ped Bike Factor | | | | | | | |
| Satd. Flow (prot) 1701 0 1946 0 0 1867 | Frt | 0.865 | | | | | | |
| Tell Permitted | Flt Protected | | | | | | 0.950 | |
| Satd. Flow (perm) 1701 0 1946 0 0 1867 | Satd. Flow (prot) | 1701 | 0 | 1946 | 0 | 0 | 1867 | |
| Ink Speed (k/h) 30 | Flt Permitted | | | | | | 0.950 | |
| Ink Distance (m) | Satd. Flow (perm) | 1701 | 0 | 1946 | 0 | 0 | 1867 | |
| Travel Time (s) 23.2 9.6 4.0 Confl. Peds. (#hr) 5 8 Peak Hour Factor 0.92 0.93 0.91 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Link Speed (k/h) | 30 | | 40 | | | 40 | |
| Confi. Peds. (#/hr) | Link Distance (m) | 193.0 | | 106.6 | | | 44.0 | |
| Deak Hour Factor 0.92 0.93 0. | Travel Time (s) | 23.2 | | 9.6 | | | 4.0 | |
| Heavy Vehicles (%) | Confl. Peds. (#/hr) | | 5 | | | 8 | | |
| Adj. Flow (vph) 0 121 0 0 274 0 Shared Lane Traffic (%) Lane Group Flow (vph) 121 0 0 0 274 Lane Group Flow (vph) 121 0 0 0 0 274 Enter Blocked Intersection No No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Turning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Area Type: Other Control Type: Unsignalized Intersection Capacity Utilization 28.9% ICU Level of Service A | Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Chared Lane Traffic (%) | Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 1% | 2% | |
| Lane Group Flow (vph) 121 0 0 0 0 274 | Adj. Flow (vph) | 0 | 121 | 0 | 0 | 274 | 0 | |
| Inter Blocked Intersection | Shared Lane Traffic (%) | | | | | | | |
| Left Right Left Right Left Right Left Left | Lane Group Flow (vph) | 121 | 0 | 0 | 0 | 0 | 274 | |
| Median Width(m) 4.1 3.6 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 Frow way Left Turn Lane Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 5 5 5 Free Free Tree ntersection Summary Name Type: Other Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Enter Blocked Intersection | No | No | No | No | No | No | |
| Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 I'wo way Left Turn Lane 1.6 1.6 1.6 Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 24 14 14 24 14 14 24 16 </td <td>Lane Alignment</td> <td>Left</td> <td>Right</td> <td>Left</td> <td>Right</td> <td>Left</td> <td>Left</td> <td></td> | Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Crosswalk Width(m) 1.6 1.6 1.6 Fivo way Left Turn Lane leadway Factor 0.93 0.99 0.94 0.99 0.99 0.94 Furning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free Intersection Summary Area Type: Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Median Width(m) | 4.1 | | 3.6 | | | 3.6 | |
| Two way Left Turn Lane | Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Headway Factor 0.93 0.99 0.94 0.99 0.99 0.94 | Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Furning Speed (k/h) 24 14 14 24 Sign Control Stop Free Free ntersection Summary Area Type: Other Control Type: Unsignalized ICU Level of Service A Intersection Capacity Utilization 28.9% ICU Level of Service A | Two way Left Turn Lane | | | | | | | |
| Sign Control Stop Free Free ntersection Summary Area Type: Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Headway Factor | 0.93 | 0.99 | 0.94 | 0.99 | 0.99 | 0.94 | |
| Area Type: Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| Area Type: Other Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Sign Control | Stop | | Free | | | Free | |
| Control Type: Unsignalized ntersection Capacity Utilization 28.9% ICU Level of Service A | Intersection Summary | | | | | | | |
| ntersection Capacity Utilization 28.9% ICU Level of Service A | Area Type: | Other | | | | | | |
| ntersection Capacity Utilization 28.9% ICU Level of Service A | Control Type: Unsignalized | | | | | | | |
| | | tion 28.9% | | | IC | U Level | of Service A | Α |
| Analysis Period (min) 15 | Analysis Period (min) 15 | | | | | | | |

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HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance

<2043 Future Total>AM 12-20-2024

| | € | 4 | † | ~ | / | ţ |
|-----------------------------|---------|------|----------|------|----------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | f) | | | 4 |
| Traffic Volume (veh/h) | | 111 | 0 | 0 | 252 | 0 |
| Future Volume (Veh/h) | 0 | 111 | 0 | 0 | 252 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 121 | 0 | 0 | 274 | 0 |
| Pedestrians | 8 | | | | | 5 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | 110110 | | | 110110 |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 556 | 13 | | | 8 | |
| vC1, stage 1 conf vol | 000 | 10 | | | Ŭ | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 556 | 13 | | | 8 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0 | 0.2 | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 89 | | | 83 | |
| cM capacity (veh/h) | 405 | 1053 | | | 1605 | |
| | | | 05.4 | | 1000 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 121 | 0 | 274 | | | |
| Volume Left | 0 | 0 | 274 | | | |
| Volume Right | 121 | 0 | 0 | | | |
| cSH | 1053 | 1700 | 1605 | | | |
| Volume to Capacity | 0.11 | 0.00 | 0.17 | | | |
| Queue Length 95th (m) | 3.0 | 0.0 | 4.7 | | | |
| Control Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 8.9 | 0.0 | 7.7 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.1 | | | |
| Intersection Capacity Utili | ization | | 28.9% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| raidifolo i onod (ililii) | | | 10 | | | |

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Lanes, Volumes, Timings 17: Street B <2043 Future Total>AM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2043 Future Total>AM 12-20-2024

| | < | • | † | | - | ↓ | |
|-------------------------------|-------|-------|----------|------|------------|----------|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | ¥ | | 4î | | | ર્ન | |
| Sign Control | Stop | | Stop | | | Stop | |
| Traffic Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 | |
| Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 47 | 76 | 83 | 26 | 82 | 57 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 123 | 109 | 139 | | | | |
| Volume Left (vph) | 47 | 0 | 82 | | | | |
| Volume Right (vph) | 76 | 26 | 0 | | | | |
| Hadj (s) | -0.26 | -0.11 | 0.15 | | | | |
| Departure Headway (s) | 4.2 | 4.2 | 4.4 | | | | |
| Degree Utilization, x | 0.14 | 0.13 | 0.17 | | | | |
| Capacity (veh/h) | 812 | 818 | 775 | | | | |
| Control Delay (s) | 7.9 | 7.8 | 8.4 | | | | |
| Approach Delay (s) | 7.9 | 7.8 | 8.4 | | | | |
| Approach LOS | Α | Α | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 8.1 | | | | |
| Level of Service | | | Α | | | | |
| Intersection Capacity Utiliza | ation | | 26.9% | IC | U Level of | Service | |
| Analysis Period (min) | | | 15 | | | | |
| | | | | | | | |

| ane Configurations | | • | • | Ť | | - | ţ | |
|--|----------------------------|-----------|-------|-------|-------|---------|------------|---|
| raffic Volume (vph) | Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| rraffic Volume (vph) | Lane Configurations | Y | | f) | | | ર્ન | |
| Deal Flow (vphpl) | Traffic Volume (vph) | | 70 | | 24 | 75 | | |
| ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 rt 0.917 0.968 lt | Future Volume (vph) | 43 | 70 | 76 | 24 | 75 | 52 | |
| rit | Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| It Protected 0.981 0.971 atd. Flow (prot) 1694 0 1823 0 0 1829 It Permitted 0.981 0.981 atd. Flow (prot) 1694 0 1823 0 0 1829 It Permitted 0.981 0.991 atd. Flow (perm) 1694 0 1823 0 0 1829 ink Speed (k/h) 30 30 30 30 ink Distance (m) 112.2 49.9 96.9 ravel Time (s) 13.5 6.0 11.6 reak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 dj. Flow (vph) 47 76 83 26 82 57 chared Lane Traffic (%) ane Group Flow (vph) 123 0 109 0 0 139 inter Blocked Intersection No No No No No No ane Alignment Left Right Left Right Left Left Redian Width(m) 3.7 0.0 0.0 crosswalk Width(m) 3.7 0.0 0.0 crosswalk Width(m) 1.6 1.6 1.6 readway Factor 0.99 0.99 0.99 0.99 0.99 0.99 urning Speed (k/h) 24 14 14 24 igin Control Stop Stop Stop Stop tersection Summary rea Type: Other Control Type: Unsignalized Itcu Level of Service A | Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Statility Form Fo | Frt | 0.917 | | 0.968 | | | | |
| It Permitted | Flt Protected | 0.981 | | | | | 0.971 | |
| tatd. Flow (perm) 1694 0 1823 0 0 1829 ink Speed (k/h) 30 30 30 30 30 30 ink Speed (k/h) 30 30 30 30 30 30 30 ink Distance (m) 112.2 49.9 96.9 ravel Time (s) 13.5 6.0 111.6 reak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | Satd. Flow (prot) | 1694 | 0 | 1823 | 0 | 0 | 1829 | |
| ink Speed (k/h) 30 30 30 30 30 ink Distance (m) 112.2 49.9 96.9 ravel Time (s) 13.5 6.0 11.6 reak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 d.j. 92 0.92 0.92 0.92 d.j. 92 0.92 d.j. 92 d | Flt Permitted | 0.981 | | | | | 0.971 | |
| ink Distance (m) 112.2 49.9 96.9 ravel Time (s) 13.5 6.0 11.6 leak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 deak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 deak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 leak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 leak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 leak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | Satd. Flow (perm) | 1694 | 0 | 1823 | 0 | 0 | 1829 | |
| ravel Time (s) 13.5 6.0 11.6 reak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | Link Speed (k/h) | 30 | | 30 | | | 30 | |
| leak Hour Factor 0.92 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.99 | Link Distance (m) | 112.2 | | 49.9 | | | 96.9 | |
| dj. Flow (vph) 47 76 83 26 82 57 ihared Lane Traffic (%) ane Group Flow (vph) 123 0 109 0 0 139 inter Blocked Intersection No | Travel Time (s) | 13.5 | | 6.0 | | | 11.6 | |
| hared Lane Traffic (%) ane Group Flow (vph) 123 0 109 0 0 139 Inter Blocked Intersection No No No No No No No No Anae Alignment Left Right Left Right Left Hedian Width(m) 3.7 0.0 0.0 Ink Offset(m) 0.0 0.0 0.0 Ink Offset(m) 1.6 1.6 1.6 1.6 Increased Width(m) 1.6 1.6 1.6 Increased Width(m) 1.6 1.6 1.6 Increased Width(m) 1.6 1.6 Increased Width(m) 1.6 Increased Width | Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| ane Group Flow (vph) | Adj. Flow (vph) | 47 | 76 | 83 | 26 | 82 | 57 | |
| Inter Blocked Intersection No No No No No No No | Shared Lane Traffic (%) | | | | | | | |
| Anne Alignment | Lane Group Flow (vph) | 123 | 0 | 109 | 0 | 0 | 139 | |
| Median Width(m) 3.7 0.0 0.0 | Enter Blocked Intersection | No | No | No | No | No | No | |
| ink Offset(m) 0.0 0.0 0.0 prosswalk Width(m) 1.6 1.6 1.6 1.6 wo way Left Turn Lane leadway Factor 0.99 0.99 0.99 0.99 0.99 0.99 urning Speed (k/h) 24 14 14 24 ign Control Stop Stop Stop Stop tersection Summary rea Type: Other Outrol Type: Unsignalized tersection Capacity Utilization 26.9% ICU Level of Service A | Lane Alignment | | Right | | Right | Left | | |
| Crosswalk Width(m) | Median Width(m) | 3.7 | | 0.0 | - | | 0.0 | |
| In the color In the color In the color | Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| leadway Factor | Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| urning Speed (k/h) 24 14 14 24 sign Control Stop Stop Stop ntersection Summary Stop Stop rea Type: Other Stop ontrol Type: Unsignalized ICU Level of Service A tersection Capacity Utilization 26.9% ICU Level of Service A | Two way Left Turn Lane | | | | | | | |
| ign Control Stop Stop Stop htersection Summary rea Type: Other control Type: Unsignalized htersection Capacity Utilization 26.9% ICU Level of Service A | Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| tersection Summary vea Type: Other Control Type: Unsignalized ntersection Capacity Utilization 26.9% ICU Level of Service A | Turning Speed (k/h) | 24 | 14 | | 14 | 24 | | |
| vea Type: Other Control Type: Unsignalized ntersection Capacity Utilization 26.9% ICU Level of Service A | Sign Control | Stop | | Stop | | | Stop | |
| Control Type: Unsignalized Iterated Iter | Intersection Summary | | | | | | | |
| ntersection Capacity Utilization 26.9% ICU Level of Service A | | Other | | | | | | |
| | Control Type: Unsignalized | | | | | | | |
| analysis Period (min) 15 | | ion 26.9% | | | IC | U Level | of Service | Α |
| | Analysis Period (min) 15 | | | | | | | |

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|----------------------------|---|-------|------|----------|----------|--------------|--|--|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | | | |
| Lane Configurations | Y | | | ર્ન | ĥ | | | | |
| Traffic Volume (vph) | 32 | 67 | 42 | 507 | 211 | 71 | | | |
| Future Volume (vph) | 32 | 67 | 42 | 507 | 211 | 71 | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Frt | 0.909 | | | | 0.966 | | | | |
| Flt Protected | 0.984 | | | 0.996 | | | | | |
| Satd. Flow (prot) | 1685 | 0 | 0 | 1876 | 1819 | 0 | | | |
| Flt Permitted | 0.984 | | | 0.996 | | | | | |
| Satd. Flow (perm) | 1685 | 0 | 0 | 1876 | 1819 | 0 | | | |
| Link Speed (k/h) | 30 | | | 40 | 40 | | | | |
| Link Distance (m) | | | | 121.1 | 114.0 | | | | |
| Travel Time (s) | | | | 10.9 | 10.3 | | | | |
| Peak Hour Factor | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | |
| Adj. Flow (vph) | 35 | 73 | 46 | 551 | 229 | 77 | | | |
| Shared Lane Traffic (%) | | | | | | | | | |
| Lane Group Flow (vph) | 108 | 0 | 0 | 597 | 306 | 0 | | | |
| Enter Blocked Intersection | No | No | No | No | No | No | | | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | | | |
| Median Width(m) | | | | 3.3 | 3.3 | | | | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | | | |
| Two way Left Turn Lane | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | | | |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 | | | |
| Sign Control | Stop | | | Free | Free | | | | |
| Intersection Summary | | | | | | | | | |
| Area Type: | Other | | | | | | | | |
| Control Type: Unsignalized | | | | | | | | | |
| | td. Flow (prot) 1685 Permitted 0.984 td. Flow (perm) 1685 tk Speed (k/h) 30 tk Distance (m) 112.2 avel Time (s) 13.5 ak Hour Factor 0.92 0.9 j. Flow (vph) 35 7 ared Lane Traffic (%) ne Group Flow (vph) 108 ter Blocked Intersection No Right (m) 100 ter Blocked Intersection No Right (m) 100 to way Left Turn Lane adway Factor 0.99 0.9 ming Speed (k/h) 24 1. mr Control Stop ersection Summary tea Type: Other entrol Type: Unsignalized ersection Capacity Utilization 60.3% | | | | | of Service B | | | |
| Analysis Period (min) 15 | | | | | | | | | |

| | • | • | 4 | † | ↓ | ✓ |
|-------------------------------|-------|------|-------|----------|-------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ¥ | | | 4 | ₽. | |
| Traffic Volume (veh/h) | 32 | 67 | 42 | 507 | 211 | 71 |
| Future Volume (Veh/h) | 32 | 67 | 42 | 507 | 211 | 71 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 35 | 73 | 46 | 551 | 229 | 77 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | 114 | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 910 | 268 | 306 | | | |
| vC1, stage 1 conf vol | 0.0 | _00 | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 910 | 268 | 306 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 91 | 96 | | | |
| cM capacity (veh/h) | 293 | 771 | 1255 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 108 | 597 | 306 | | | |
| | | | | | | |
| Volume Left | 35 | 46 | 0 | | | |
| Volume Right | 73 | 0 | 77 | | | |
| cSH | 505 | 1255 | 1700 | | | |
| Volume to Capacity | 0.21 | 0.04 | 0.18 | | | |
| Queue Length 95th (m) | 6.1 | 0.9 | 0.0 | | | |
| Control Delay (s) | 14.1 | 1.0 | 0.0 | | | |
| Lane LOS | В | Α | | | | |
| Approach Delay (s) | 14.1 | 1.0 | 0.0 | | | |
| Approach LOS | В | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 2.1 | | | |
| Intersection Capacity Utiliza | ation | | 60.3% | IC | CU Level of | Service |
| Analysis Period (min) | | | 15 | | | |
| , | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

Lanes, Volumes, Timings

<2043 Future Total>AM 12-20-2024

21: Building Driveways & Street A

| | • | - | • | • | - | • | 1 | † | - | - | ţ | 4 |
|----------------------------|------|-------|-------|------|-------|-------|------|----------|-------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Future Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.984 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.995 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1844 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 336 | 0 | 0 | 179 | 0 | 0 | 143 | 0 | 0 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.2%
Analysis Period (min) 15

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2043 Future Total>AM 12-20-2024

| | • | → | \rightarrow | • | ← | • | • | † | - | > | ļ | 4 |
|--------------------------------|-------|----------|---------------|------|----------|------------|------|----------|------|-------------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Future Volume (vph) | 30 | 241 | 38 | 46 | 83 | 36 | 0 | 0 | 132 | 104 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 262 | 41 | 50 | 90 | 39 | 0 | 0 | 143 | 113 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 336 | 179 | 143 | 113 | | | | | | | | |
| Volume Left (vph) | 33 | 50 | 0 | 113 | | | | | | | | |
| Volume Right (vph) | 41 | 39 | 143 | 0 | | | | | | | | |
| Hadj (s) | -0.02 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| Departure Headway (s) | 4.8 | 5.0 | 4.8 | 5.6 | | | | | | | | |
| Degree Utilization, x | 0.45 | 0.25 | 0.19 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 709 | 668 | 660 | 572 | | | | | | | | |
| Control Delay (s) | 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| Approach Delay (s) | 11.7 | 9.6 | 8.9 | 9.8 | | | | | | | | |
| Approach LOS | В | Α | Α | Α | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 10.4 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utilizat | tion | | 43.2% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Detector Phase

Minimum Initial (s)

Switch Phase

2

20.0

| 20: Street A & Waln | nut Lane | Э | | | | | 12-20-2024 |
|----------------------------|----------|--------|-------|-------|-------|----------|------------|
| | | _ | | 1 | 4 | <u> </u> | |
| | - | * | • | | 7 | • | |
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | ₽ | | | ર્ન | Y | | |
| Traffic Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 | |
| Future Volume (vph) | 79 | 42 | 123 | 231 | 279 | 197 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.953 | | | | 0.944 | | |
| Flt Protected | | | | 0.983 | 0.972 | | |
| Satd. Flow (prot) | 1795 | 0 | 0 | 1851 | 1728 | 0 | |
| Flt Permitted | | | | 0.839 | 0.972 | | |
| Satd. Flow (perm) | 1795 | 0 | 0 | 1580 | 1728 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 46 | | | | 61 | | |
| Link Speed (k/h) | 40 | | | 40 | 30 | | |
| Link Distance (m) | 121.1 | | | 433.1 | 80.3 | | |
| Travel Time (s) | 10.9 | | | 39.0 | 9.6 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 86 | 46 | 134 | 251 | 303 | 214 | |
| Shared Lane Traffic (%) | | 10 | 104 | 201 | 000 | | |
| Lane Group Flow (vph) | 132 | 0 | 0 | 385 | 517 | 0 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Left | Left | Right | |
| Median Width(m) | 0.0 | rugiit | Lon | 0.0 | 3.7 | rugiit | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | | |
| Two way Left Turn Lane | 1.0 | | | 1.0 | 1.0 | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 0.55 | 14 | 24 | 0.55 | 24 | 14 | |
| Number of Detectors | 2 | 17 | 1 | 2 | 1 | 17 | |
| Detector Template | Thru | | Left | Thru | Left | | |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | | |
| Detector 1 Channel | OITLX | | CITLX | CITLX | CITLX | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| Detector 1 Delay (s) | 9.4 | | 0.0 | 9.4 | 0.0 | | |
| Detector 2 Position(m) | 0.6 | | | 0.6 | | | |
| Detector 2 Size(m) | | | | | | | |
| Detector 2 Type | CI+Ex | | | Cl+Ex | | | |
| Detector 2 Channel | 0.0 | | | 0.0 | | | |
| Detector 2 Extend (s) | 0.0 | | - | 0.0 | ъ. | | |
| Turn Type | NA | | Perm | NA | Prot | | |
| Protected Phases | 2 | | ^ | 6 | 8 | | |
| Permitted Phases | | | 6 | | | | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 1

8

8.0

6

6

20.0 20.0

Lanes, Volumes, Timings 20: Street A & Walnut Lane

| | - | • | • | • | 1 | / |
|--------------------------|-------|-----|-------|-------|-------|-----|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | |
| Total Split (s) | 35.0 | | 35.0 | 35.0 | 25.0 | |
| Total Split (%) | 58.3% | | 58.3% | 58.3% | 41.7% | |
| Maximum Green (s) | 29.2 | | 29.2 | 29.2 | 18.3 | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | | Max | Max | None | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | |
| Act Effct Green (s) | 29.2 | | | 29.2 | 17.8 | |
| Actuated g/C Ratio | 0.49 | | | 0.49 | 0.30 | |
| v/c Ratio | 0.15 | | | 0.50 | 0.92 | |
| Control Delay | 6.3 | | | 13.2 | 44.1 | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | |
| Total Delay | 6.3 | | | 13.2 | 44.1 | |
| LOS | Α | | | В | D | |
| Approach Delay | 6.3 | | | 13.2 | 44.1 | |
| Approach LOS | Α | | | В | D | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Cycle Length: 60 | | | | | | |
| Actuated Cycle Length: 5 | 9.5 | | | | | |
| Natural Cycle: 60 | | | | | | |
| Control Type: Semi Act-U | | | | | | |
| | | | | | | |

Actuated Cycle Length: 59.5

Natural Cycle: 60

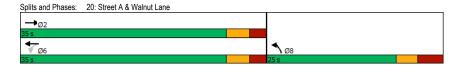
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 27.8

Intersection Capacity Utilization 78.4%

Analysis Period (min) 15



<2043 Future Total_PHF>AM 12-20-2024

| | ۶ | - | \rightarrow | • | ← | • | 4 | † | / | > | ţ | 4 |
|----------------------------|-------|------------|---------------|-------|------------|---------|-------|----------|-------|-------------|-------|--------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | † } | | ሻ | ↑ ↑ | | ሻ | 1≽ | | ሻ | 1> | |
| Traffic Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Future Volume (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.976 | | | 0.979 | | | 0.901 | | | 0.879 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1564 | 3280 | 0 | 1645 | 3298 | 0 | 1752 | 1771 | 0 | 1827 | 1759 | 0 |
| Flt Permitted | 0.950 | | • | 0.950 | | • | 0.592 | | | 0.728 | | - |
| Satd, Flow (perm) | 1553 | 3280 | 0 | 1639 | 3298 | 0 | 1089 | 1771 | 0 | 1397 | 1759 | 0 |
| Right Turn on Red | 1000 | 0200 | Yes | 1000 | 0200 | Yes | 1000 | | Yes | 1001 | | Yes |
| Satd. Flow (RTOR) | | 23 | | | 18 | | | 29 | . 00 | | 144 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 6 | 00.0 | 4 | 4 | 11.0 | 6 | 3 | 1.0 | 2 | 2 | 17.2 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 4% | 2% | 0% | 6% | 2% | 3% | 0% | 0% | 1% | 0% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0,0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 80 | 738 | 139 | 78 | 579 | 94 | 67 | 15 | 29 | 155 | 35 | 144 |
| Shared Lane Traffic (%) | 00 | 700 | 100 | 10 | 010 | 01 | 01 | 10 | 20 | 100 | 00 | |
| Lane Group Flow (vph) | 80 | 877 | 0 | 78 | 673 | 0 | 67 | 44 | 0 | 155 | 179 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | Loit | 2.8 | rtigitt | Loit | 2.8 | rtigitt | Lon | 3.8 | ragni | Loit | 3.8 | ragiit |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | 1.0 | | | Yes | | | 1.0 | | | 1.0 | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | 1.04 | 1.07 | 24 | 1.01 | 1.00 | 24 | 0.54 | 14 | 24 | 0.52 | 14 |
| Number of Detectors | 0 | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 17 | 1 | 1 | 17 |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | Cl+Ex | CI+Ex | | Cl+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | | CITLX | CITLX | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | | | | | | | | | | | | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 1

Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2043 Future Total_PHF>AM 12-20-2024

| | ٠ | → | • | • | ← | • | 4 | † | ~ | > | ļ | 4 |
|------------------------------|-------------|------------|-----------|---------|-------------|------------|-----------------|----------|-----|-------------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 43.0 | 43.0 | | 41.0 | 41.0 | |
| Total Split (s) | 15.0 | 59.0 | | 11.0 | 55.0 | | 50.0 | 50.0 | | 50.0 | 50.0 | |
| Total Split (%) | 12.5% | 49.2% | | 9.2% | 45.8% | | 41.7% | 41.7% | | 41.7% | 41.7% | |
| Maximum Green (s) | 10.0 | 52.4 | | 6.0 | 48.4 | | 40.5 | 40.5 | | 40.5 | 40.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | • | | | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 6 | | | 1 | | 7 | 7 | | 4 | 4 | |
| Act Effct Green (s) | 9.3 | 73.4 | | 6.0 | 72.5 | | 19.5 | 19.5 | | 19.5 | 19.5 | |
| Actuated g/C Ratio | 0.08 | 0.61 | | 0.05 | 0.60 | | 0.16 | 0.16 | | 0.16 | 0.16 | |
| v/c Ratio | 0.66 | 0.44 | | 0.95 | 0.34 | | 0.38 | 0.14 | | 0.69 | 0.44 | |
| Control Delay | 78.8 | 13.8 | | 149.3 | 7.2 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 78.8 | 13.8 | | 149.3 | 7.2 | | 48.7 | 19.8 | | 61.5 | 13.9 | |
| LOS | E | В | | F | A | | D | В | | Е | В | |
| Approach Delay | | 19.2 | | | 21.9 | | | 37.3 | | | 36.0 | |
| Approach LOS | | В | | | С | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | | | | | | | | | | | |
| Offset: 107.8 (90%), Refer | enced to ph | ase 2:EB1 | Γand 6:WB | T, Star | t of Green | | | | | | | |
| Natural Cycle: 85 | | | | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.95 | | | | | | | | | | | | |
| Intersection Signal Delay: 2 | | | | lr | ntersection | LOS: C | | | | | | |
| Intersection Capacity Utiliz | ation 73.7% | b | | 10 | CU Level o | of Service | D D | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 3: Di | xie Road & | Kingston F | Road | | | | | | | | | |
| √ø1 →ø2 (R) | | • | | | | 1 | Ø4 | | | | | |
| 11s 59s | | | | | | 50 s | | | | | - 3 | |
| ♪ _{Ø5} ← | (R) | | | | | 4 | T _{Ø8} | | | | 74 | |
| 23 26 | Try. | | | | - | - | 120 | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 2

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Total_PHF>AM 12-20-2024

| | ၨ | → | • | • | ← | • | 4 | † | <i>></i> | / | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|-------|-------------|----------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | 44 | 7 | ሻ | ^ | 7 |
| Traffic Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Future Volume (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.97 | 0.99 | | 0.96 | 0.99 | | 0.93 | 0.98 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1671 | 3299 | 1538 | 1694 | 3510 | 1579 | 1774 | 3700 | 1647 | 2026 | 3618 | 1516 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.246 | | | 0.509 | | |
| Satd. Flow (perm) | 1644 | 3299 | 1487 | 1675 | 3510 | 1517 | 455 | 3700 | 1536 | 1061 | 3618 | 1452 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 151 | | | 174 | | | 146 | | | 230 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 21 | | 17 | 17 | | 21 | 34 | | 44 | 44 | | 34 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 7% | 5% | 3% | 4% | 0% | 4% | 3% | 8% | 0% | 2% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| Adj. Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 253 | 492 | 482 | 185 | 351 | 50 | 134 | 408 | 146 | 84 | 761 | 230 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.88 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

1105-1163 Kingston RoadSynchro 11 ReportWSPPage 3

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Total_PHF>AM 12-20-2024

| | ۶ | - | • | • | ← | • | 4 | † | 1 | - | ţ | 1 |
|------------------------------|--------------|-----------|-----------|-----------|------------|------------|-------|----------|--------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 36.0 | 10.0 | 36.0 | 36.0 | 8.0 | 51.0 | 36.0 | 8.0 | 51.0 | 51.0 |
| Total Split (s) | 25.0 | 42.0 | 42.0 | 19.0 | 36.0 | 36.0 | 8.0 | 51.0 | 42.0 | 8.0 | 51.0 | 51.0 |
| Total Split (%) | 20.8% | 35.0% | 35.0% | 15.8% | 30.0% | 30.0% | 6.7% | 42.5% | 35.0% | 6.7% | 42.5% | 42.5% |
| Maximum Green (s) | 20.0 | 34.9 | 34.9 | 14.0 | 28.9 | 28.9 | 5.0 | 41.9 | 34.9 | 5.0 | 41.9 | 41.9 |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 7.1 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | - 5 | - 0 | | - 0 | - 3 | | - 3 | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | 21.0 | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 44 | 44 | | 31 | 31 | | 61 | 44 | | 40 | 40 |
| Act Effct Green (s) | 19.7 | 34.9 | 34.9 | 14.0 | 29.2 | 29.2 | 53.6 | 43.5 | 34.9 | 53.0 | 41.9 | 41.9 |
| Actuated g/C Ratio | 0.16 | 0.29 | 0.29 | 0.12 | 0.24 | 0.24 | 0.45 | 0.36 | 0.29 | 0.44 | 0.35 | 0.35 |
| v/c Ratio | 0.93 | 0.51 | 0.89 | 0.94 | 0.41 | 0.10 | 0.52 | 0.30 | 0.27 | 0.17 | 0.60 | 0.35 |
| Control Delay | 98.2 | 34.0 | 40.5 | 103.0 | 40.0 | 0.4 | 27.6 | 28.7 | 6.4 | 18.8 | 34.6 | 5.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 98.2 | 34.0 | 40.5 | 103.0 | 40.0 | 0.4 | 27.6 | 28.7 | 6.4 | 18.8 | 34.6 | 5.0 |
| LOS | F | С | D | F | D | Α | C | C | Α | В | С | A |
| Approach Delay | • | 49.8 | _ | | 56.5 | | = = = | 23.7 | | _ | 27.1 | |
| Approach LOS | | D | | | Е | | | C | | | С | |
| | | | | | | | | | | | | |
| Intersection Summary | 011 | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 120 | ١٥. | | | | | | | | | | | |
| Actuated Cycle Length: 12 | | 0 EDT | 1014 | DT 01 1 | | | | | | | | |
| Offset: 29.4 (25%), Refere | enced to pha | se 2:EBT | and 6:W | BT, Start | of Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.94 | 00.4 | | | | | | | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | | |
| Intersection Capacity Utiliz | zation 99.1% | 1 | | 10 | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| K | verpool Roa | d & Kings | ston Road | l | | 1.1 | | | | | | |
| ï1 = | Ptg (R) | | | | 1 | ø3 🏰 | Ø4 | | | | | |

<2043 Future Total>PM 12-20-2024

| 1: Walnut Lane & K | ingstor | n Road | | | | | | | | | 12-2 | 20-2024 |
|--------------------------------------|---------|------------|---------------|-------|----------|-------|----------|----------|--------|-------------|-------|---------|
| | ۶ | → | \rightarrow | • | ← | • | 4 | † | ~ | > | ļ | 4 |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ∱ ∱ | | . ነ | ∱î≽ | | ች | | 7 | ሻ | ₽ | |
| Traffic Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Future Volume (vph) | 38 | 1592 | 225 | 37 | 646 | 43 | 223 | 0 | 323 | 24 | 16 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.0 | 3.6 | 3.7 | 3.3 | 3.5 | 3.7 | 3.2 | 3.7 | 3.7 |
| Storage Length (m) | 26.0 | | 25.8 | 37.0 | | 0.0 | 63.2 | | 0.0 | 18.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 24.0 | | | 26.0 | | | 24.4 | | | 18.1 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.98 | | 0.98 | 0.99 | 0.98 | |
| Frt | | 0.981 | | | 0.991 | | | | 0.850 | | 0.907 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1685 | 3464 | 0 | 1685 | 3505 | 0 | 1745 | 0 | 1633 | 1725 | 1709 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.728 | | | 0.950 | | |
| Satd. Flow (perm) | 1677 | 3464 | 0 | 1683 | 3505 | 0 | 1313 | 0 | 1603 | 1713 | 1709 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | . 00 | | 9 | | | | 85 | | 28 | . 00 |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 40 | |
| Link Distance (m) | | 129.3 | | | 694.6 | | | 114.0 | | | 179.7 | |
| Travel Time (s) | | 7.8 | | | 41.7 | | | 10.3 | | | 16.2 | |
| Confl. Peds. (#/hr) | 5 | 1.0 | 7 | 7 | 41.7 | 5 | 14 | 10.0 | 5 | 5 | 10.2 | 14 |
| Confl. Bikes (#/hr) | , | | 1 | , | | | 17 | | J | , | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0.92 | 2% | 0.32 | 0.32 | 2% | 0.92 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| Bus Blockages (#/hr) | 0 /8 | 0 | 3 | 0 /8 | 0 | 0 /0 | 0 /8 | 0 /8 | 0 /8 | 0 /8 | 0 /0 | 0 /0 |
| Adj. Flow (vph) | 41 | 1730 | 245 | 40 | 702 | 47 | 242 | 0 | 351 | 26 | 17 | 28 |
| Shared Lane Traffic (%) | 71 | 1730 | 240 | 40 | 102 | 41 | 242 | U | 331 | 20 | 17 | 20 |
| Lane Group Flow (vph) | 41 | 1975 | 0 | 40 | 749 | 0 | 242 | 0 | 351 | 26 | 45 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | | Left | Left | Right | Left | Left | |
| | Leit | 3.1 | Right | Leit | 3.1 | Right | Leit | 3.3 | Rigiil | Leit | 3.3 | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) Crosswalk Width(m) | | 4.9 | | | 1.6 | | | 4.9 | | | 4.9 | |
| () | | Yes | | | Yes | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | 4.00 | | 4.04 | 4.00 | | 0.00 | 4.04 | 4.04 | 0.00 | 4.00 | 0.00 | 0.00 |
| Headway Factor | 1.09 | 1.00 | 1.01 | 1.09 | 1.00 | 0.99 | 1.04 | 1.01 | 0.99 | 1.06 | 0.99 | 0.99 |
| Turning Speed (k/h) | 24 | _ | 14 | 24 | _ | 14 | 24 | | 14 | 24 | _ | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 1 | | 1 | 0 | 0 | |
| Detector Template | | | | | | | | | Right | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | | 6.1 | 0.0 | 0.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | | 6.1 | 6.1 | 1.8 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | | CI+Ex | Cl+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | | Perm | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | | | | 4 | |

Synchro 11 Report Page 1 1105-1163 Kingston Road WSP

Lanes, Volumes, Timings 1: Walnut Lane & Kingston Road <2043 Future Total>PM 12-20-2024

| | • | - | • | • | ← | * | 4 | † | / | - | ţ | 4 |
|-----------------------------|---------------|------------|-------------|--------|-------------|------------|-------|--------------------|-------|-------|-------|-----|
| Lane Group | EBL | EBT | EBR V | VBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Permitted Phases | | | | | | | 8 | | 8 | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | | 8 | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 33.0 | • | 10.0 | 33.0 | | 38.0 | | 38.0 | 38.0 | 38.0 | |
| Total Split (s) | 10.0 | 76.0 | | 15.0 | 81.0 | | 39.0 | | 39.0 | 39.0 | 39.0 | |
| Total Split (%) | 7.7% | 58.5% | 11 | .5% | 62.3% | | 30.0% | | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 5.0 | 69.4 | | 10.0 | 74.4 | | 31.0 | | 31.0 | 31.0 | 31.0 | |
| Yellow Time (s) | 3.0 | 4.4 | | 3.0 | 4.4 | | 3.3 | | 3.3 | 3.3 | 3.3 | |
| All-Red Time (s) | 2.0 | 2.2 | | 2.0 | 2.2 | | 4.7 | | 4.7 | 4.7 | 4.7 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 8.0 | | 8.0 | 8.0 | 8.0 | |
| Lead/Lag | Lead | Lag | L | ead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | N | one | C-Max | | None | | None | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 19.0 | | | 19.0 | | 22.0 | | 22.0 | 22.0 | 22.0 | |
| Pedestrian Calls (#/hr) | | 8 | | | 4 | | 2 | | 2 | 9 | 9 | |
| Act Effct Green (s) | 5.0 | 76.8 | | 8.2 | 79.9 | | 27.5 | | 27.5 | 27.5 | 27.5 | |
| Actuated g/C Ratio | 0.04 | 0.59 | (| 0.06 | 0.61 | | 0.21 | | 0.21 | 0.21 | 0.21 | |
| v/c Ratio | 0.64 | 0.96 | | 0.38 | 0.35 | | 0.87 | | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | | 33.6 | 10.5 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | (| 33.6 | 10.5 | | 78.7 | | 58.1 | 39.5 | 20.5 | |
| LOS | F | D | | Е | В | | Е | | E | D | C | |
| Approach Delay | | 38.0 | | | 13.2 | | | 66.5 | | | 27.5 | |
| Approach LOS | | D | | | В | | | Е | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 1: | | | | | | | | | | | | |
| Offset: 77 (59%), Referen | iced to phase | e 2:EBT an | d 6:WBT, St | art of | Green | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.96 | | | | | | | | | | | | |
| Intersection Signal Delay: | 37.0 | | | In | ntersection | n LOS: D | | | | | | |
| Intersection Capacity Utili | zation 97.9% | , | | IC | CU Level | of Service | F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 1: V | Valnut Lane | & Kinaston | Road | | | | | | | | | |
| | 800 | g | | | | | | 1 | 2 | | | - 9 |
| | (K) | | | | | | | 100 | Ø4 | | 41 | |
| 15s 76s | | | | | | | | 39 s | | | | |
| Ø5 Ø6 (R) | | | | | | | | M | Ø8 | | - | |
| | | | | | | | | THE PARTY NAMED IN | 77813 | | | 100 |

<2043 Future Total>PM 12-20-2024

1: Walnut Lane & Kingston Road

| | • | - | 1 | — | 1 | 1 | / | ↓ | |
|------------------------|--------|---------|-------|----------|-------|--------|----------|----------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBR | SBL | SBT | |
| Lane Group Flow (vph) | 41 | 1975 | 40 | 749 | 242 | 351 | 26 | 45 | |
| v/c Ratio | 0.64 | 0.96 | 0.38 | 0.35 | 0.87 | 0.86 | 0.07 | 0.12 | |
| Control Delay | 80.2 | 37.1 | 63.6 | 10.5 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 80.2 | 37.1 | 63.6 | 10.5 | 78.7 | 58.1 | 39.5 | 20.5 | |
| Queue Length 50th (m) | 10.9 | ~279.5 | 10.7 | 33.3 | 59.0 | 66.3 | 5.3 | 3.4 | |
| Queue Length 95th (m) | m14.2ı | m#316.7 | m20.4 | 46.5 | #97.1 | #109.3 | 12.9 | 13.3 | |
| Internal Link Dist (m) | | 105.3 | | 670.6 | | | | 155.7 | |
| Turn Bay Length (m) | 26.0 | | 37.0 | | 63.2 | | 18.5 | | |
| Base Capacity (vph) | 64 | 2054 | 129 | 2157 | 313 | 446 | 408 | 428 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.96 | 0.31 | 0.35 | 0.77 | 0.79 | 0.06 | 0.11 | |

Lanes, Volumes, Timings 2: Street B & Kingston Road <2043 Future Total>PM 12-20-2024

| Z. Otrect B & Rings | ton rtoc | au . | | | | |
|----------------------------|----------|--------|------|----------|------|-------|
| | → | * | 1 | ← | 1 | ~ |
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 44 | 7 | | * | 1102 | 7 |
| Traffic Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (vph) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.3 | 3.7 | 3.5 | 3.7 | 4.5 |
| Storage Length (m) | 0.0 | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Storage Lanes | | 1 | 0.0 | | 0.0 | 1 |
| Taper Length (m) | | ' | 2.5 | | 2.5 | ' |
| Lane Util. Factor | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Ped Bike Factor | 0.33 | 1.00 | 1.00 | 0.55 | 1.00 | 1.00 |
| Frt | | 0.850 | | | | 0.865 |
| Fit Protected | | 0.000 | | | | 0.000 |
| Satd. Flow (prot) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Flt Permitted | 3300 | 1001 | U | 3300 | U | 1000 |
| Satd. Flow (perm) | 3500 | 1561 | 0 | 3500 | 0 | 1808 |
| Link Speed (k/h) | 60 | 1001 | U | 60 | 30 | 1000 |
| Link Distance (m) | 191.2 | | | 129.3 | 96.9 | |
| Travel Time (s) | 11.5 | | | 7.8 | 11.6 | |
| Confl. Peds. (#/hr) | 11.5 | 3 | 3 | 1.0 | 11.0 | |
| Confl. Bikes (#/hr) | | ა 1 | 3 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| | | | | | 2% | |
| Heavy Vehicles (%) | 2% | 0% | 2% | 2% | | 0% |
| Adj. Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Shared Lane Traffic (%) | 4744 | 0.5 | | 4440 | | 070 |
| Lane Group Flow (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.0 | | | 3.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | | |
| Headway Factor | 1.01 | 1.04 | 0.99 | 1.01 | 0.99 | 0.88 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Sign Control | Free | | | Free | Stop | |
| Intersection Summary | | | | | | |
| | O# | | | | | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 66.4%
Analysis Period (min) 15

ICU Level of Service C

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

 Volume for 95th percentile queue is metered by upstream signal.

| <2043 Future | Total>PM |
|--------------|------------|
| | 12-20-2024 |

| | - | • | • | • | 1 | _ |
|-----------------------------|----------|------|-------|-------|------------|-------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ^ | 7 | | 44 | | 7 |
| Traffic Volume (veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Future Volume (Veh/h) | 1602 | 78 | 0 | 1023 | 0 | 250 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1741 | 85 | 0 | 1112 | 0 | 272 |
| Pedestrians | | | | | 3 | |
| Lane Width (m) | | | | | 4.5 | |
| Walking Speed (m/s) | | | | | 1.1 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | U | |
| Median type | TWLTL | | | TWLTL | | |
| Median storage veh) | 2 | | | 2 | | |
| | 191 | | | 129 | | |
| Upstream signal (m) | 191 | | 0.40 | 129 | 0.40 | 0.40 |
| pX, platoon unblocked | | | 0.43 | | 0.48 | 0.43 |
| vC, conflicting volume | | | 1744 | | 2300 | 874 |
| vC1, stage 1 conf vol | | | | | 1744 | |
| vC2, stage 2 conf vol | | | | | 556 | |
| vCu, unblocked vol | | | 103 | | 609 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | 5.8 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 42 |
| cM capacity (veh/h) | | | 642 | | 365 | 471 |
| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | NB 1 |
| Volume Total | 870 | 870 | 85 | 556 | 556 | 272 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 85 | 0 | 0 | 272 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 471 |
| Volume to Capacity | 0.51 | 0.51 | 0.05 | 0.33 | 0.33 | 0.58 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 27.2 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.5 |
| Lane LOS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C |
| Approach Delay (s) | 0.0 | | | 0.0 | | 22.5 |
| Approach LOS | 0.0 | | | 0.0 | | C |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.9 | | | |
| Intersection Capacity Utili | zotion | | 66.4% | 10 | CU Level o | of Consider |
| | Zauon | | | IC | o Level (| oervice |
| Analysis Period (min) | | | 15 | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 5

| | • | - | • | • | ← | • | 1 | † | ~ | - | ↓ | 4 |
|----------------------------|-------|-------------|-------|-------|------------|-------|-------|----------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ľ | † î> | | ٦ | † } | | Ţ | f) | | 7 | f) | |
| Traffic Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Future Volume (vph) | 204 | 1461 | 398 | 40 | 813 | 169 | 164 | 54 | 63 | 148 | 28 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 2.8 | 3.6 | 3.4 | 2.8 | 3.5 | 3.1 | 3.6 | 4.0 | 3.7 | 3.8 | 4.2 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 145.4 | | 64.5 | 51.0 | | 79.5 | 13.0 | | 0.0 | 16.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 66.4 | | | 48.0 | | | 18.0 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 0.99 | 0.99 | |
| Frt | | 0.968 | | | 0.974 | | | 0.920 | | | 0.885 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1579 | 3296 | 0 | 1597 | 3407 | 0 | 1770 | 1786 | 0 | 1827 | 1730 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.674 | | | 0.676 | | |
| Satd. Flow (perm) | 1578 | 3296 | 0 | 1595 | 3407 | 0 | 1250 | 1786 | 0 | 1290 | 1730 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 43 | | | 24 | | | 42 | | | 100 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 40 | | | 60 | |
| Link Distance (m) | | 896.3 | | | 191.2 | | | 44.0 | | | 236.2 | |
| Travel Time (s) | | 53.8 | | | 11.5 | | | 4.0 | | | 14.2 | |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 4 | | 7 | 7 | | 4 |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 3% | 2% | 0% | 2% | 0% | 2% | 1% | 0% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Adj. Flow (vph) | 222 | 1588 | 433 | 43 | 884 | 184 | 178 | 59 | 68 | 161 | 30 | 100 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 222 | 2021 | 0 | 43 | 1068 | 0 | 178 | 127 | 0 | 161 | 130 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 2.8 | | | 2.8 | | | 3.8 | | | 3.8 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 4.9 | | | 4.9 | | | 4.9 | | | 4.9 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.17 | 1.04 | 1.07 | 1.13 | 1.01 | 1.08 | 1.00 | 0.94 | 0.99 | 0.97 | 0.92 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 0 | 0 | | 0 | 0 | | 0 | 0 | | 1 | 1 | |
| Detector Template | | | | | | | | | | | | |
| Leading Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 7.5 | 7.5 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | -1.5 | -1.5 | |
| Detector 1 Size(m) | 6.1 | 1.8 | | 6.1 | 1.8 | | 6.1 | 1.8 | | 9.0 | 9.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 6 Lanes, Volumes, Timings 3: Dixie Road & Kingston Road <2043 Future Total>PM

| | • | - | • | • | ← | • | 1 | † | 1 | - | ţ | 1 |
|-------------------------|-------|-------|-----|-------|-------|-----|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 5.0 | 20.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 28.0 | | 10.0 | 28.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (s) | 26.0 | 79.0 | | 10.0 | 63.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 20.0% | 60.8% | | 7.7% | 48.5% | | 31.5% | 31.5% | | 31.5% | 31.5% | |
| Maximum Green (s) | 21.0 | 72.4 | | 5.0 | 56.4 | | 31.5 | 31.5 | | 31.5 | 31.5 | |
| Yellow Time (s) | 3.0 | 4.2 | | 3.0 | 4.2 | | 4.4 | 4.4 | | 4.4 | 4.4 | |
| All-Red Time (s) | 2.0 | 2.4 | | 2.0 | 2.4 | | 5.1 | 5.1 | | 5.1 | 5.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.6 | | 5.0 | 6.6 | | 9.5 | 9.5 | | 9.5 | 9.5 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | | None | C-Max | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 14.0 | | | 14.0 | | 23.0 | 23.0 | | 23.0 | 23.0 | |
| Pedestrian Calls (#/hr) | | 4 | | | 6 | | 2 | 2 | | 3 | 3 | |
| Act Effct Green (s) | 20.3 | 82.4 | | 5.0 | 65.2 | | 23.5 | 23.5 | | 23.5 | 23.5 | |
| Actuated g/C Ratio | 0.16 | 0.63 | | 0.04 | 0.50 | | 0.18 | 0.18 | | 0.18 | 0.18 | |
| v/c Ratio | 0.90 | 0.96 | | 0.70 | 0.62 | | 0.79 | 0.36 | | 0.69 | 0.33 | |
| Control Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 71.8 | 35.4 | | 117.4 | 25.6 | | 74.1 | 32.0 | | 64.5 | 14.8 | |
| LOS | Е | D | | F | С | | Е | С | | Е | В | |
| Approach Delay | | 39.0 | | | 29.2 | | | 56.6 | | | 42.3 | |
| Approach LOS | | D | | | С | | | Е | | | D | |

Intersection Summary

Area Type:

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 115 (88%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96

Intersection Signal Delay: 37.8
Intersection Capacity Utilization 92.7%

Intersection LOS: D ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Dixie Road & Kingston Road



1105-1163 Kingston Road Synchro 11 Report Page 7

Queues

<2043 Future Total>PM 12-20-2024

3: Dixie Road & Kingston Road

| Lane Group Flow (vph) 222 2021 43 1068 178 127 161 130 w/c Ratio 0.90 0.96 0.70 0.62 0.79 0.36 0.69 0.33 Control Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 Queue Delay 0.0 | | • | - | • | - | 1 | Ť | - | Į. |
|---|------------------------|--------|--------|--------|-------|------|------|------|-------|
| v/c Ratio 0.90 0.96 0.70 0.62 0.79 0.36 0.69 0.33 Control Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 Queue Delay 0.0 | Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
| Control Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 Queue Delay 0.0 | Lane Group Flow (vph) | 222 | 2021 | 43 | 1068 | 178 | 127 | 161 | 130 |
| Queue Delay 0.0 0.5 0.0 0.5 0.0 0.5 0.0 0.5 0.5 0.0 0.0 0.5 0.5 0.5 0.0 <th< td=""><td>v/c Ratio</td><td>0.90</td><td>0.96</td><td>0.70</td><td>0.62</td><td>0.79</td><td>0.36</td><td>0.69</td><td>0.33</td></th<> | v/c Ratio | 0.90 | 0.96 | 0.70 | 0.62 | 0.79 | 0.36 | 0.69 | 0.33 |
| Total Delay 71.8 35.4 117.4 25.6 74.1 32.0 64.5 14.8 Queue Length 50th (m) 53.2 275.4 11.7 84.0 43.9 18.9 38.9 6.5 Queue Length 95th (m) m#68.0 #350.7 m#26.9 102.8 65.4 34.9 58.8 22.1 Internal Link Dist (m) 872.3 167.2 20.0 212.2 Turn Bay Length (m) 145.4 51.0 13.0 16.0 Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reductn 0 </td <td>Control Delay</td> <td>71.8</td> <td>35.4</td> <td>117.4</td> <td>25.6</td> <td>74.1</td> <td>32.0</td> <td>64.5</td> <td>14.8</td> | Control Delay | 71.8 | 35.4 | 117.4 | 25.6 | 74.1 | 32.0 | 64.5 | 14.8 |
| Queue Length 50th (m) 53.2 275.4 11.7 84.0 43.9 18.9 38.9 6.5 Queue Length 95th (m) m#68.0 #350.7 m#26.9 102.8 65.4 34.9 58.8 22.1 Internal Link Dist (m) 872.3 167.2 20.0 212.2 Turn Bay Length (m) 145.4 51.0 13.0 16.0 Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reducth 0 | Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Queue Length 95th (m) m#68.0 #350.7 m#26.9 102.8 65.4 34.9 58.8 22.1 Internal Link Dist (m) 872.3 167.2 20.0 212.2 Turn Bay Length (m) 145.4 51.0 13.0 16.0 Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 0 | Total Delay | 71.8 | 35.4 | 117.4 | 25.6 | 74.1 | 32.0 | 64.5 | 14.8 |
| Internal Link Dist (m) 872.3 167.2 20.0 212.2 Turn Bay Length (m) 145.4 51.0 13.0 16.0 Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reducth 0 0 0 0 0 0 0 Spillback Cap Reducth 0 0 0 0 0 0 0 Storage Cap Reducth 0 0 0 0 0 0 0 0 | Queue Length 50th (m) | 53.2 | 275.4 | 11.7 | 84.0 | 43.9 | 18.9 | 38.9 | 6.5 |
| Turn Bay Length (m) 145.4 51.0 13.0 16.0 Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reducth 0 <t< td=""><td>Queue Length 95th (m)</td><td>m#68.0</td><td>#350.7</td><td>m#26.9</td><td>102.8</td><td>65.4</td><td>34.9</td><td>58.8</td><td>22.1</td></t<> | Queue Length 95th (m) | m#68.0 | #350.7 | m#26.9 | 102.8 | 65.4 | 34.9 | 58.8 | 22.1 |
| Base Capacity (vph) 255 2105 61 1720 302 464 312 494 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Internal Link Dist (m) | | 872.3 | | 167.2 | | 20.0 | | 212.2 |
| Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Turn Bay Length (m) | 145.4 | | 51.0 | | 13.0 | | 16.0 | |
| Spillback Cap Reductn 0 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 0 0 | Base Capacity (vph) | 255 | 2105 | 61 | 1720 | 302 | 464 | 312 | 494 |
| Storage Cap Reductn 0 0 0 0 0 0 0 | Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| D-4:4::/- D-#- 0.07 0.00 0.70 0.00 0.70 0.00 0.00 | Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced V/C Ratio 0.87 0.96 0.70 0.62 0.59 0.27 0.52 0.26 | Reduced v/c Ratio | 0.87 | 0.96 | 0.70 | 0.62 | 0.59 | 0.27 | 0.52 | 0.26 |

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 4: Street B & Shopping Plaza Entrance <2043 Future Total>PM 12-20-2024

| | ᄼ | • | 1 | † | ţ | 4 |
|--------------------------------|-----------|-------|------|----------|-----------|------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | ર્ન | 1> | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.885 | | | | 0.898 | |
| Flt Protected | 0.993 | | | 0.988 | | |
| Satd. Flow (prot) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Flt Permitted | 0.993 | | | 0.988 | | |
| Satd. Flow (perm) | 1633 | 0 | 0 | 1898 | 1725 | 0 |
| Link Speed (k/h) | 30 | | | 30 | 30 | |
| Link Distance (m) | 193.0 | | | 49.0 | 49.9 | |
| Travel Time (s) | 23.2 | | | 5.9 | 6.0 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 61 | 352 | 51 | 161 | 28 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 413 | 0 | 0 | 212 | 113 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 0.0 | 0.0 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Stop | Stop | |
| Intersection Summary | | | | | | |
| | Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | ion 46.9% | | | IC | U Level o | of Service |
| Analysis Period (min) 15 | | | | | | |
| | | | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 9 HCM Unsignalized Intersection Capacity Analysis 4: Street B & Shopping Plaza Entrance

<2043 Future Total>PM 12-20-2024

| | • | • | 1 | † | ↓ . | 1 | |
|-------------------------------|-------|------|-------|----------|--------------|--------|--|
| Movement | EBL | EBR | NBL | NBT | SBT : | SBR | |
| Lane Configurations | Y | | | 4 | ĵ. | | |
| Sign Control | Stop | | | Stop | Stop | | |
| Traffic Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 | |
| Future Volume (vph) | 56 | 324 | 47 | 148 | 26 | 78 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 61 | 352 | 51 | 161 | 28 | 85 | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 413 | 212 | 113 | | | | |
| Volume Left (vph) | 61 | 51 | 0 | | | | |
| Volume Right (vph) | 352 | 0 | 85 | | | | |
| Hadj (s) | -0.42 | 0.05 | -0.45 | | | | |
| Departure Headway (s) | 4.3 | 5.1 | 4.7 | | | | |
| Degree Utilization, x | 0.49 | 0.30 | 0.15 | | | | |
| Capacity (veh/h) | 796 | 664 | 693 | | | | |
| Control Delay (s) | 11.4 | 10.2 | 8.5 | | | | |
| Approach Delay (s) | 11.4 | 10.2 | 8.5 | | | | |
| Approach LOS | В | В | Α | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 10.6 | | | | |
| Level of Service | | | В | | | | |
| Intersection Capacity Utiliza | ation | | 46.9% | IC | U Level of S | ervice | |
| Analysis Period (min) | | | 15 | | | | |

Lanes, Volumes, Timings 5: Street B & Street A

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 37.2%
Analysis Period (min) 15

<2043 Future Total>PM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 5: Street B & Street A

<2043 Future Total>PM 12-20-2024

| | Movement | | | | |
|--|--|-----------------------------------|-----------------------------------|---|--|
| | MOVOMONE | Movement WBL | Movement WBL WBR | Movement WBL WBR NBT | Movement WBL WBR NBT NBR |
| | Lane Configurations | Lane Configurations | Lane Configurations | Lane Configurations Y | Lane Configurations 🌱 😘 |
| | Sign Control | Sign Control Stop | Sign Control Stop | Sign Control Stop Stop | Sign Control Stop Stop |
| | Traffic Volume (vph) | Traffic Volume (vph) 0 | Traffic Volume (vph) 0 171 | Traffic Volume (vph) 0 171 0 | Traffic Volume (vph) 0 171 0 0 |
| | Future Volume (vph) | | | | |
| | Peak Hour Factor | Peak Hour Factor 0.92 | | | |
| | Hourly flow rate (vph) | Hourly flow rate (vph) 0 | Hourly flow rate (vph) 0 186 | Hourly flow rate (vph) 0 186 0 | Hourly flow rate (vph) 0 186 0 0 |
| | Direction, Lane # | Direction. Lane # WB 1 | Direction, Lane # WB 1 NB 1 | Direction, Lane # WB 1 NB 1 SB 1 | Direction Lane # WR 1 NR 1 SR 1 |
| | Volume Total (vph) | | | | |
| | | | | | |
| | Volume Left (vph) | | | | |
| | Volume Right (vph) | 3 () , | 3 () | 3 () / | 3 () / |
| | Hadj (s) | | | | |
| | Departure Headway (s) | | -1 | -1 | 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 |
| | Degree Utilization, x Capacity (veh/h) | | | | |
| | | | | | |
| | Control Delay (s) | | | | |
| | Approach Delay (s) | | | | |
| | Approach LOS | Approach LOS A | Approach LOS A A | Approach LOS A A B | Approach LOS A A B |
| | Intersection Summary | Intersection Summary | Intersection Summary | Intersection Summary | Intersection Summary |
| | Delay | Delay | Delay | Delay 10.6 | Delay 10.6 |
| | Level of Service | Level of Service | Level of Service | Level of Service B | Level of Service B |
| | Intersection Capacity Utiliz | Intersection Capacity Utilization | Intersection Capacity Utilization | Intersection Capacity Utilization 37.2% | Intersection Capacity Utilization 37.2% IC |
| | Analysis Period (min) | | | | |
| | , | , , , , | , , , , | , | . , |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | ₹ | _ | ı | | * | * | |
|-----------------------------------|-------|------|-------|------|-----------|-----------|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | Y | | î, | | | ર્ન | |
| Sign Control | Stop | | Stop | | | Stop | |
| Traffic Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 | |
| Future Volume (vph) | 0 | 171 | 0 | 0 | 342 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 0 | 186 | 0 | 0 | 372 | 3 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total (vph) | 186 | 0 | 375 | | | | |
| Volume Left (vph) | 0 | 0 | 372 | | | | |
| Volume Right (vph) | 186 | 0 | 0 | | | | |
| Hadj (s) | -0.60 | 0.00 | 0.25 | | | | |
| Departure Headway (s) | 4.2 | 4.8 | 4.6 | | | | |
| Degree Utilization, x | 0.22 | 0.00 | 0.48 | | | | |
| Capacity (veh/h) | 788 | 713 | 761 | | | | |
| Control Delay (s) | 8.4 | 7.8 | 11.7 | | | | |
| Approach Delay (s) | 8.4 | 0.0 | 11.7 | | | | |
| Approach LOS | Α | Α | В | | | | |
| Intersection Summary | | | | | | | |
| Delay | | | 10.6 | | | | |
| Level of Service | | | В | | | | |
| Intersection Capacity Utilization | on | | 37.2% | IC | U Level o | f Service | |
| Analysis Period (min) | | | 15 | | | | |

ICU Level of Service A

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

<2043 Future Total>PM 12-20-2024

| Bane Group | | ۶ | → | • | • | ← | • | 1 | † | <i>></i> | / | + | -√ |
|--|----------------------------|-------|----------|-------|-------|----------|-------|-------|----------|-------------|----------|----------|-------|
| Traffic Volume (vph) 284 1001 546 274 413 67 155 826 232 95 591 159 | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | | SBL | SBT | SBR |
| Traffic Volume (vph) 284 1001 546 274 413 67 155 826 232 95 591 159 | Lane Configurations | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 | ሻ | ^ | 7 |
| Ideal Flow (vphpl) | Traffic Volume (vph) | 284 | | 546 | 274 | | 67 | 155 | | 232 | 95 | | 159 |
| Ideal Flow (ypip) | | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 826 | 232 | 95 | 591 | 159 |
| Lane Width (m) | | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Lanes | | 188.8 | | | | | 117.0 | 185.5 | | 52.0 | 49.0 | | |
| Lane Util. Factor 1.00 0.95 1.00 1.00 0.95 0.99 0.96 0.99 0.90 0.90 0.99 0.95 0.99 0.96 0.99 0.90 0.99 0.95 0.850 0. | | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | |
| Ped Bike Factor 0.99 | Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Frit Protected | Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Fit Protected 0.950 | Ped Bike Factor | 0.99 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Satd. Flow (prot) 1688 3461 1599 1728 3579 1579 1791 3773 1732 2026 3654 1561 Fit Permitted | Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Fit Permitted | Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Fit Permitted | Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Right Turn on Red | Flt Permitted | 0.950 | | | 0.950 | | | 0.293 | | | 0.142 | | |
| Satd. Flow (RTOR) | | | 3461 | 1512 | | 3579 | 1517 | | 3773 | 1564 | | 3654 | 1499 |
| Satd. Flow (RTOR) | Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Link Speed (k/h) 60 50 50 50 Link Distance (m) 694.6 396.4 257.7 348.6 Travel Time (s) 41.7 23.8 18.6 25.1 Confl. Peds. (#hr) 20 31 31 20 29 62 62 29 Peak Hour Factor 0.92 | | | | 93 | | | 160 | | | 165 | | | 173 |
| Link Distance (m) | | | 60 | | | 60 | | | 50 | | | 50 | |
| Travel Time (s) | | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Confi. Peds. (#/hr) | | | | | | | | | | | | | |
| Heavy Vehicles (%) | | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Bus Blockages (#hr) 0 0 0 0 0 0 0 0 0 | Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Bus Blockages (#hr) 0 0 0 0 0 0 0 0 0 | Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Shared Lane Traffic (%) Lane Group Flow (vph) 309 1088 593 298 449 73 168 898 252 103 642 173 | | | | | | | | | | 4 | | | |
| Lane Group Flow (vph) 309 1088 593 298 449 73 168 898 252 103 642 173 | Adj. Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 898 | 252 | 103 | 642 | 173 |
| Enter Blocked Intersection | Shared Lane Traffic (%) | | | | | | | | | | | | |
| Left Left Right Right Left Right Left Right Left Right Right Left Right Left Right Right Left Left Left Right Left | Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 898 | 252 | 103 | 642 | 173 |
| Median Width(m) 3.3 3.3 4.7 4.7 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 Two way Left Turn Lane Yes 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 1.04 Turning Speed (k/h) 24 14 24 | Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 1.6 Two way Left Turn Lane Yes Yes Yes Yes Yes Headway Factor 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 1.04 Turning Speed (k/h) 24 14 14 24 14 14 24 14 14 24 14 14 24 14 14 | Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Crosswalk Width(m) 1.6 Yes Headway Factor 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 1.04 Turning Speed (k/h) 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.4 2.4 1.0 1.0 2.0 1.0 2.0 1.0 2.0 <td< td=""><td>Median Width(m)</td><td></td><td>3.3</td><td>, i</td><td></td><td>3.3</td><td>Ť</td><td></td><td>4.7</td><td>Ť</td><td></td><td>4.7</td><td></td></td<> | Median Width(m) | | 3.3 | , i | | 3.3 | Ť | | 4.7 | Ť | | 4.7 | |
| Two way Left Turn Lane Headway Factor 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 1.04 Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 24 14 Number of Detectors 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 Detector Template Left Thru Right Left Thru Right Left Thru Right Left Thru Right Leading Detector (m) 2.0 10.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 | Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Headway Factor 1.08 1.03 1.00 1.04 0.99 1.03 0.97 0.93 0.87 0.86 0.97 1.04 Turning Speed (k/h) 24 | Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Turning Speed (k/h) 24 14 <td>Two way Left Turn Lane</td> <td></td> <td>Yes</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Yes</td> <td></td> | Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Number of Detectors 1 2 1 | Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Detector Template | Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Leading Detector (m) 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 10.0 2.0 2.0 0.0 | Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Trailing Detector (m) 0.0 | Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Detector 1 Position(m) 0.0 | Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Detector 1 Size(m) 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 2.0 0.6 2.0 | Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Type | Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Channel | Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Extend (s) 0.0 | Detector 1 Type | CI+Ex | CI+Ex | Cl+Ex | CI+Ex | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Queue (s) 0.0 | Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Delay (s) 0.0 | Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) 9.4 9.4 9.4 Detector 2 Size(m) 0.6 0.6 0.6 | Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Size(m) 0.6 0.6 0.6 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex | Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| | Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 13 Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

<2043 Future Total>PM 12-20-2024

| | • | - | • | • | • | • | 1 | † | - | - | Ţ | 4 |
|---------------------------------|--------------|-----------|------------|-------------|------------|------------|---------|----------|--------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perr |
| Protected Phases | 5 | 2 | . 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8. |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50. |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50. |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40. |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3. |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5. |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0. |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9. |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | La |
| Lead-Lag Optimize? | | - 3 | | | - 3 | - 3 | | . 3 | - 3 | | - 3 | - |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3. |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Ma |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 1 |
| Act Effct Green (s) | 26.8 | 38.9 | 48.0 | 21.0 | 33.1 | 33.1 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.21 | 0.30 | 0.37 | 0.16 | 0.25 | 0.25 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.3 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.63 | 0.76 | 0.43 | 0.55 | 0.56 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 38.7 | 45.0 | 15.2 | 35.6 | 39.3 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 38.7 | 45.0 | 15.2 | 35.6 | 39.3 | 5.9 |
| LOS | D | F | E | F | D | A | D | D | В | D | D | , |
| Approach Delay | | 73.7 | _ | | 69.4 | - ' | | 38.5 | | | 32.6 | • |
| Approach LOS | | E | | | E | | | D | | | C | |
| •• | | | | | _ | | | | | | | |
| Intersection Summary Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | Other | | | | | | | | | | | |
| Actuated Cycle Length: 130 | | | | | | | | | | | | |
| Offset: 78 (60%), Reference | | O FDT a | and GIMD. | T Ctart of | Croon | | | | | | | |
| Natural Cycle: 145 | ed to priase | 2.EDI a | IIIU O.VVD | i, Start of | Green | | | | | | | |
| Control Type: Actuated-Coo | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.07 | Jrumateu | | | | | | | | | | | |
| Intersection Signal Delay: 5 | -c a | | | 1. | ntersectio | - I OO. F | | | | | | |
| | | 0/ | | | | | | | | | | |
| Intersection Capacity Utiliza | o.cui nont | % | | 19 | CU Level | or Service | 9 G | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 6: Liv | erpool Roa | d & Kings | ston Road | i | | | | | | | | |
| √ ø1 | - Pay(| R) | | | | 10 | 3 \$ Ø4 | 0) | | | | |
| 26 s | 46 s | 40. | | | | 8 s | 50 s | | | | | |
| Ø5 | 2 | Ø6 (F | 3) | | | Ø | Ø8 | | | | | |
| MIT D | - 3 | - | | | | | 20.0 | | | | | |

Queues 6: Liverpool Road & Kingston Road <2043 Future Total>PM 12-20-2024

| | • | - | • | • | ← | • | 4 | † | 1 | - | ļ | 4 |
|------------------------|---------|-----------|--------|--------|----------|-------|-------|----------|------|------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 309 | 1088 | 593 | 298 | 449 | 73 | 168 | 898 | 252 | 103 | 642 | 173 |
| v/c Ratio | 0.89 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.63 | 0.76 | 0.43 | 0.55 | 0.56 | 0.29 |
| Control Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 38.7 | 45.0 | 15.2 | 35.6 | 39.3 | 5.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 54.0 | 86.5 | 60.7 | 124.3 | 44.1 | 0.6 | 38.7 | 45.0 | 15.2 | 35.6 | 39.3 | 5.9 |
| Queue Length 50th (m) | 79.7 | ~164.6 | 138.8 | ~84.3 | 53.1 | 0.0 | 27.0 | 108.8 | 16.6 | 15.8 | 71.8 | 0.0 |
| Queue Length 95th (m) | m87.5 r | n#182.6 n | #159.9 | #139.7 | 70.0 | 0.0 | 42.7 | 132.7 | 40.1 | 27.4 | 90.7 | 15.8 |
| Internal Link Dist (m) | | 670.6 | | | 372.4 | | | 233.7 | | | 324.6 | |
| Turn Bay Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Base Capacity (vph) | 376 | 1035 | 620 | 279 | 911 | 505 | 266 | 1187 | 583 | 186 | 1149 | 590 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.82 | 1.05 | 0.96 | 1.07 | 0.49 | 0.14 | 0.63 | 0.76 | 0.43 | 0.55 | 0.56 | 0.29 |

Lanes, Volumes, Timings

<2043 Future Total>PM

8: Liverpool Road & Private Access/Pickering Parkway

| Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR Lane Configurations 1 4 1 1 4 7 4 4 7 4 7 4 4 7 7 4 4 7 7 4 4 7 7 4 7 7 4 4 7 7 4 4 7 7 4 4 7 7 4 4 7 7 4 4 7 4 4 1 1 8 4 4 1 8 4 4 4 1 1 8 4 4 4 1 1 8 4 4 4 1 1 8 4 4 4 1 1 8 4 4 1 1 8 4 4 1 1 8 4 4 1 1 4< | 196 196 190 3.2 132.5 | \$BT 1360 1360 1900 3.5 | SBR 46 46 |
|---|------------------------------------|-------------------------------------|-----------------|
| Traffic Volume (vph) 87 69 130 412 58 174 116 894 401 Future Volume (vph) 87 69 130 412 58 174 116 894 401 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 | 196 196 1900 3.2 132.5 | 1360 1360 1900 | 46 46 |
| Traffic Volume (vph) 87 69 130 412 58 174 116 894 401 Future Volume (vph) 87 69 130 412 58 174 116 894 401 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 | 196 1900 3.2 132.5 | 1360 1900 | 46 |
| Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190 | 1900 3.2 132.5 | 1900 | |
| (| 3.2 132.5 | | |
| | 132.5 | 2 5 | 1900 |
| Lane Width (m) 3.1 3.1 3.7 3.0 3.4 3.2 2.8 3.6 3.5 | | 3.5 | 3.5 |
| Storage Length (m) 0.0 0.0 57.0 62.1 54.4 75.7 | | | 35.5 |
| Storage Lanes 1 0 1 1 1 1 | 1 | | 1 |
| Taper Length (m) 2.5 12.0 29.5 | 28.9 | | |
| Lane Util. Factor 1.00 0.95 0.95 0.97 1.00 1.00 1.00 0.91 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor 0.96 0.98 0.96 | 0.99 | | 0.93 |
| Frt 0.902 0.850 0.850 | | | 0.850 |
| | 0.950 | | |
| Satd. Flow (prot) 1705 2959 0 3204 1858 1399 1645 5085 1569 | 1708 | 5079 | 1597 |
| | 0.221 | | |
| Satd. Flow (perm) 0 2959 0 0 1858 1399 175 5085 1502 | 395 | 5079 | 1482 |
| Right Turn on Red Yes Yes Yes | | | Yes |
| Satd. Flow (RTOR) 141 189 436 | | | 144 |
| Link Speed (k/h) 30 50 50 | | 50 | |
| Link Distance (m) 82.8 328.5 162.3 | | 257.7 | |
| Travel Time (s) 9.9 23.7 11.7 | | 18.6 | |
| Confl. Peds. (#/hr) 21 21 21 21 | 21 | | 21 |
| Confl. Bikes (#/hr) 2 5 | | | 6 |
| Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) 0% 0% 0% 2% 0% 5% 0% 2% 1% | 1% | 1% | 0% |
| Bus Blockages (#/hr) 0 0 0 0 12 0 0 2 | 0 | 0 | 0 |
| Adj. Flow (vph) 95 75 141 448 63 189 126 972 436 | 213 | 1478 | 50 |
| Shared Lane Traffic (%) | | | |
| Lane Group Flow (vph) 95 216 0 448 63 189 126 972 436 | 213 | 1478 | 50 |
| Enter Blocked Intersection No No No No No No No No | No | No | No |
| Lane Alignment Left Left Right Left Right Left Right | Left | Left | Right |
| Median Width(m) 6.0 6.0 3.8 | | 3.8 | |
| Link Offset(m) 0.0 0.0 0.0 | | 0.0 | |
| Crosswalk Width(m) 1.6 1.6 1.6 | | 1.6 | |
| Two way Left Turn Lane | | | |
| Headway Factor 1.08 1.08 0.99 1.09 1.03 1.13 1.13 1.00 1.03 | 1.06 | 1.01 | 1.01 |
| Turning Speed (k/h) 24 14 24 14 24 14 | 24 | | 14 |
| Number of Detectors 1 2 1 2 1 1 2 1 | 1 | 2 | 1 |
| Detector Template Left Thru Left Thru Right Left Thru Right | Left | Thru | Right |
| Leading Detector (m) 2.0 10.0 2.0 10.0 2.0 10.0 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) 2.0 0.6 2.0 0.6 2.0 0.6 2.0 | 2.0 | 0.6 | 2.0 |
| | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | |
| Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) 9.4 9.4 9.4 | | 9.4 | |
| Detector 2 Size(m) 0.6 0.6 0.6 | | 0.6 | |

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1105-1163 Kingston Road Synchro 11 Report Page 15

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2043 Future Total>PM

8: Liverpool Road & Private Access/Pickering Parkway

12-20-2024

| | • | - | \rightarrow | • | • | • | 4 | † | / | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 7 | | 4 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 7 | | | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 3 | 7 | | 4 | 8 | 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 8.0 | 8.0 | 8.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 15.0 | 15.0 | | 34.0 | 34.0 | 34.0 | 8.0 | 30.0 | 30.0 | 8.0 | 30.0 | 30.0 |
| Total Split (s) | 21.0 | 21.0 | | 34.0 | 34.0 | 34.0 | 9.0 | 36.0 | 36.0 | 9.0 | 36.0 | 36.0 |
| Total Split (%) | 21.0% | 21.0% | | 34.0% | 34.0% | 34.0% | 9.0% | 36.0% | 36.0% | 9.0% | 36.0% | 36.0% |
| Maximum Green (s) | 14.4 | 14.4 | | 27.4 | 27.4 | 27.4 | 6.0 | 29.7 | 29.7 | 6.0 | 29.7 | 29.7 |
| Yellow Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 |
| All-Red Time (s) | 3.3 | 3.3 | | 3.3 | 3.3 | 3.3 | 0.0 | 2.1 | 2.1 | 0.0 | 2.1 | 2.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 | 3.0 | 6.3 | 6.3 | 3.0 | 6.3 | 6.3 |
| Lead/Lag | | | | | | | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Walk Time (s) | | | | | 19.0 | 19.0 | | 17.0 | 17.0 | | 17.0 | 17.0 |
| Flash Dont Walk (s) | | | | | 8.0 | 8.0 | | 6.0 | 6.0 | | 6.0 | 6.0 |
| Pedestrian Calls (#/hr) | | | | | 20 | 20 | | 28 | 28 | | 15 | 15 |
| Act Effct Green (s) | 11.0 | 11.0 | | 20.9 | 20.9 | 20.9 | 48.9 | 39.6 | 39.6 | 48.9 | 39.6 | 39.6 |
| Actuated g/C Ratio | 0.11 | 0.11 | | 0.21 | 0.21 | 0.21 | 0.49 | 0.40 | 0.40 | 0.49 | 0.40 | 0.40 |
| v/c Ratio | 0.51 | 0.48 | | 0.67 | 0.16 | 0.43 | 0.73 | 0.48 | 0.51 | 0.78 | 0.74 | 0.07 |
| Control Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.1 | 20.3 | 8.7 | 41.2 | 30.2 | 0.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.0 | 18.9 | | 40.8 | 31.2 | 7.5 | 38.1 | 20.3 | 8.7 | 41.2 | 30.2 | 0.2 |
| LOS | D | В | | D | С | Α | D | С | Α | D | С | Α |
| Approach Delay | | 28.7 | | | 31.0 | | | 18.5 | | | 30.7 | |
| Approach LOS | | С | | | С | | | В | | | С | |

Intersection Summary Area Type: O Cycle Length: 100 Actuated Cycle Length: 100

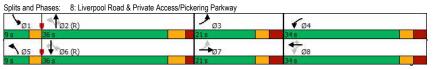
Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Natural Cycle. 30
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 26.2
Intersection Capacity Utilization 71.5%

Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15



Queues

<2043 Future Total>PM 12-20-2024

8: Liverpool Road & Private Access/Pickering Parkway

| | ᄼ | → | • | ← | * | ~ | † | / | - | ţ | 4 | |
|------------------------|------|----------|------|-------|------|----------|----------|------|-------|--------|------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Group Flow (vph) | 95 | 216 | 448 | 63 | 189 | 126 | 972 | 436 | 213 | 1478 | 50 | |
| v/c Ratio | 0.51 | 0.48 | 0.67 | 0.16 | 0.43 | 0.73 | 0.48 | 0.51 | 0.78 | 0.74 | 0.07 | |
| Control Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.1 | 20.3 | 8.7 | 41.2 | 30.2 | 0.2 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 51.0 | 18.9 | 40.8 | 31.2 | 7.5 | 38.1 | 20.3 | 8.7 | 41.2 | 30.2 | 0.2 | |
| Queue Length 50th (m) | 17.7 | 7.1 | 42.3 | 10.3 | 0.0 | 8.1 | 53.8 | 32.4 | 20.8 | 84.8 | 0.0 | |
| Queue Length 95th (m) | 32.2 | 17.3 | 52.8 | 19.3 | 15.9 | m#42.6 | 77.1 | 55.5 | #63.3 | #134.6 | 0.0 | |
| Internal Link Dist (m) | | 58.8 | | 304.5 | | | 138.3 | | | 233.7 | | |
| Turn Bay Length (m) | | | 57.0 | | 62.1 | 54.4 | | 75.7 | 132.5 | | 35.5 | |
| Base Capacity (vph) | 245 | 546 | 877 | 509 | 520 | 173 | 2012 | 857 | 272 | 2010 | 673 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.40 | 0.51 | 0.12 | 0.36 | 0.73 | 0.48 | 0.51 | 0.78 | 0.74 | 0.07 | |

Queue shown is maximum after two cycles.

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^{# 95}th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

<2043 Future Total>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

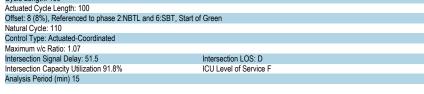
| Lane Configurations | 9. Liverpoor Road & | vvairia | Lanc | // I IVV y | 70 I VV | D 011 1 | tump | | | | | | |
|--|------------------------|---------|------|---------------|---------|---------|-------|-------|------------|-------|------|------------|-------|
| Lane Configurations | | ۶ | - | \rightarrow | • | - | • | 1 | † | / | - | ţ | 4 |
| Traffic Volume (vph) 0 0 454 278 500 293 204 1137 0 0 1211 Future Volume (vph) 0 0 454 278 500 293 204 1137 0 0 1211 Ideal Flow (vphpip) 1900 1900 1900 1900 1900 1900 1900 190 | Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Future Volume (vph) | Lane Configurations | | | 7 | Ť | ર્ના | 7 | ň | ^ ^ | | | ^ ^ | 7 |
| Ideal Flow (yphpl) | Traffic Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Lane Width (m) | Future Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Lane Width (m) | | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Lanes | | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Taper Length (m) | | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Lane Util. Factor | | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Ped Bike Factor Fit | | | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Fit Protected | | 1.00 | | 1.00 | 0.00 | 0.00 | | 1.00 | 0.01 | 1.00 | 1.00 | 0.01 | 0.92 |
| Fit Protected Satd. Flow (prot) O O 1662 1734 1820 1581 1825 5079 O O 4972 Fit Permitted O 0,950 0,997 O O 4972 Fit Permitted O 0,950 O 0,997 O O 4972 Fit Permitted O 0,950 O 0,997 O O 4972 Fit Permitted O 0,950 O 0,997 O O 4972 Fit Permitted O 0,950 O 0,997 O O 4972 Fit Permitted O 0,950 O 0,997 O O 4972 Fit Permitted O 0,950 O O 0,972 Fit Permitted O 0,950 O O O 0,972 O 0 O 0 O 0 O 0 O 0 O 0 O 0 O 0 O O | | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Satd. Flow (prot) | | | | 0.000 | 0.950 | 0 997 | 0.000 | 0.950 | | | | | 0.000 |
| Fit Permitted | | 0 | 0 | 1662 | | | 1581 | | 5079 | 0 | 0 | 4972 | 1633 |
| Satd. Flow (perm) 0 | | | | 1002 | | | 1001 | | 0010 | | · | 1012 | 1000 |
| Right Turn on Red No | | 0 | 0 | 1662 | | | 1581 | | 5079 | 0 | 0 | 4972 | 1508 |
| Satd. Flow (RTOR) | | U | | | 1704 | 1020 | | 200 | 3073 | | U | 7312 | Yes |
| Link Speed (k/h) 50 50 50 50 Link Distance (m) 433.1 226.7 372.2 162.3 Travel Time (s) 31.2 16.3 26.8 11.7 Confl. Peds. (#/hr) 17 15 15 Confl. Bikes (#/hr) 6 17 15 15 Peak Hour Factor 0.92 < | | | | INU | | | | | | 163 | | | 180 |
| Link Distance (m) 433.1 226.7 372.2 162.3 Travel Time (s) 31.2 16.3 26.8 11.7 Confl. Peds. (#/hr) 17 15 15 Confl. Bikes (#/hr) | | | 50 | | | 50 | 00 | | 50 | | | 50 | 100 |
| Travel Time (s) | | | | | | | | | | | | | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | 31.2 | | | 10.3 | | 17 | 20.0 | 15 | 15 | 11.7 | 17 |
| Peak Hour Factor 0.92 0.93 0. | | | | | | | | 17 | | | 15 | | |
| Heavy Vehicles (%) | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 7 |
| Adj. Flow (vph) 0 0 493 302 543 318 222 1236 0 0 1316 Shared Lane Traffic (%) Lane Group Flow (vph) 0 0 493 272 573 318 222 1236 0 0 1316 Enter Blocked Intersection No No <td></td> <td>0.92</td> | | | | | | | | | | | | | 0.92 |
| Shared Lane Traffic (%) | | | | | | | | | | | | | 0% |
| Lane Group Flow (vph) | | 0 | 0 | 493 | | 543 | 318 | 222 | 1236 | U | U | 1316 | 180 |
| Enter Blocked Intersection | | _ | _ | 400 | | 570 | 040 | 000 | 4000 | _ | ^ | 4040 | 400 |
| Left Alignment | | - | - | | | | | | | - | - | | 180 |
| Median Width(m) 3.7 | | | | | | | | | | | | | No |
| Link Offset(m) 0.0 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 0.99 0.99 0.99 0.99 1.01 0.99 1.01 0.99 0.99 1.03 Turning Speed (k/h) 97 97 24 14 97 14 24 Number of Detectors 1 1 2 1 1 2 2 Detector Template Right Left Thru Right Left Thru Thru <td></td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> <td>Left</td> <td></td> <td>Right</td> | | Left | | Right | Left | | Right | Left | | Right | Left | | Right |
| Crosswalk Width(m) 1.6 1.8 1.8 1.8 2.0 2.0 2.0 2.0 1.0 2.0 2.0 1.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 | | | | | | | | | | | | | |
| Two way Left Turn Lane Headway Factor 0.99 0.99 0.99 0.99 1.01 0.99 1.01 0.99 0.99 1.03 Turning Speed (k/h) 97 97 24 14 97 14 24 Number of Detectors 1 1 2 1 1 2 2 Detector Template Right Left Thru Right Left Thru Thru Thru Thru Thru 10.0< | | | | | | | | | | | | | |
| Headway Factor 0.99 0.99 0.99 0.99 0.99 1.01 0.99 1.01 0.99 0.99 1.03 Turning Speed (k/h) 97 97 24 14 97 14 24 Number of Detectors 1 1 2 1 1 2 2 2 Detector Template Right Left Thru Right Left Thru Right Left Thru Thru Figure Thru Thru Figure Thru Thru Figure Thru Figure Thru Thru Figure Thru Figure Thru Figure Thru Figure Thru Thru Figure Thru Thru Figure Thru Figure Thru Figure Thru Thru Thru Figure Thru Thru Thru Figure Thru Thru Figure Thru Thru Figure Thru Thru Figure Thru Thru Thru Figure Thru Thru Figure Thru Thru Figure Thru Thru Thru Figure Thru Thru Thru Figure Thru Th | | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Turning Speed (k/h) 97 97 24 14 97 14 24 Number of Detectors 1 1 2 1 1 2 2 2 Detector Template Right Left Thru Right Left Thru Thru Thru Thru Thru 1 0 2.0 2.0 10.0 </td <td></td> | | | | | | | | | | | | | |
| Number of Detectors | • | | 0.99 | | | 0.99 | | | 1.01 | | | 1.03 | 0.99 |
| Detector Template Right Left Thru Right Left Thru Thru Leading Detector (m) 2.0 2.0 10.0 2.0 2.0 10.0 10.0 10.0 Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Size(m) 2.0 2.0 0.6 2.0 2.0 0.6 0.6 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 2 Position(m) 9.4 9.4 9.4 | | 97 | | | | | | | | 14 | 24 | | 97 |
| Leading Detector (m) 2.0 2.0 10.0 2.0 2.0 10.0 10.0 10.0 Trailing Detector (m) 0.0 | | | | • | | | | | | | | | 1 |
| Trailing Detector (m) 0.0 | | | | | | | | | | | | | Right |
| Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | | | | | | | | | | | | | 2.0 |
| Detector 1 Size(m) 2.0 2.0 0.6 2.0 2.0 0.6 0.6 | Trailing Detector (m) | | | | | | | | | | | | 0.0 |
| Detector 1 Type CI+Ex | Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Channel Detector 1 Extend (s) 0.0 | Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Extend (s) 0.0 | Detector 1 Type | | | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Queue (s) 0.0 | Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 2 Position(m) 9.4 9.4 9.4 9.4 | Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) 9.4 9.4 9.4 | Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) 9.4 9.4 9.4 | Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| | | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) 0.6 0.6 0.6 | | | | | | 0.6 | | | | | | 0.6 | |
| Detector 2 Type CI+Ex CI+Ex CI+Ex | | | | | | | | | | | | | |

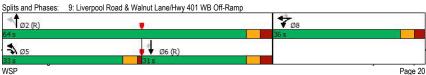
1105-1163 Kingston Road Synchro 11 Report Page 19 Lanes, Volumes, Timings

<2043 Future Total>PM

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | - | • | • | • | • | 4 | † | - | - | ļ | 4 |
|-------------------------------|-----------|----------|----------|------------|-------|-------|-------|----------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.7 | 24.7 |
| Actuated g/C Ratio | | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.42 | | | 1.07 | 0.35 |
| Control Delay | | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.4 | | | 79.6 | 14.0 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.4 | | | 79.6 | 14.0 |
| LOS | | | F | С | F | С | В | В | | | Е | В |
| Approach Delay | | 89.2 | | | 58.3 | | | 12.4 | | | 71.7 | |
| Approach LOS | | F | | | Е | | | В | | | Е | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: Of | ther | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to | phase 2:N | NBTL and | d 6:SBT, | Start of C | Green | | | | | | | |
| Natural Cycle: 110 | | | | | | | | | | | | |
| Control Type: Actuated-Coord | inated | | | | | | | | | | | |





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<2043 Future Total>PM 12-20-2024

9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | • | ← | • | 1 | † | ↓ | 4 | |
|------------------------|--------|------|----------|-------|------|----------|----------|-------|--|
| Lane Group | EBR | WBL | WBT | WBR | NBL | NBT | SBT | SBR | |
| Lane Group Flow (vph) | 493 | 272 | 573 | 318 | 222 | 1236 | 1316 | 180 | |
| v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.42 | 1.07 | 0.35 | |
| Control Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.4 | 79.6 | 14.0 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 89.2 | 33.4 | 87.6 | 26.9 | 12.7 | 12.4 | 79.6 | 14.0 | |
| Queue Length 50th (m) | ~103.9 | 45.8 | ~128.1 | 38.1 | 18.5 | 45.9 | ~98.4 | 1.7 | |
| Queue Length 95th (m) | #163.9 | 72.1 | #194.2 | 66.2 | 35.1 | 55.6 | #127.2 | m21.7 | |
| Internal Link Dist (m) | | | 202.7 | | | 348.2 | 138.3 | | |
| Turn Bay Length (m) | | | | 125.0 | 50.0 | | | | |
| Base Capacity (vph) | 473 | 520 | 546 | 533 | 601 | 2930 | 1228 | 508 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 1.04 | 0.52 | 1.05 | 0.60 | 0.37 | 0.42 | 1.07 | 0.35 | |

- Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.

 Queue shown is maximum after two cycles.

 M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Total>PM 12-20-2024

| | • | - | • | • | - | 4 | |
|----------------------------|-------|----------|-------------|-------|-------|-------|----|
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 |
| Lane Configurations | 1 | ^ | † 1> | | ች | 7 | |
| Traffic Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Future Volume (vph) | 205 | 1839 | 852 | 223 | 271 | 137 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Width (m) | 3.0 | 3.6 | 3.5 | 3.7 | 3.6 | 4.5 | |
| Grade (%) | | 6% | 0% | | 0% | | |
| Storage Length (m) | 75.0 | | | 18.5 | 15.5 | 0.0 | |
| Storage Lanes | 1 | | | 0 | 1 | 1 | |
| Taper Length (m) | 2.5 | | | | 31.3 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Ped Bike Factor | 1.00 | | 1.00 | | | 0.99 | |
| Frt | | | 0.969 | | | 0.850 | |
| Flt Protected | 0.950 | | | | 0.950 | | |
| Satd. Flow (prot) | 1618 | 3433 | 3356 | 0 | 1805 | 1777 | |
| Flt Permitted | 0.950 | | | | 0.950 | | |
| Satd. Flow (perm) | 1617 | 3433 | 3356 | 0 | 1805 | 1751 | |
| Right Turn on Red | | | | Yes | | Yes | |
| Satd. Flow (RTOR) | | | 34 | | | 149 | |
| Link Speed (k/h) | | 60 | 60 | | 40 | | |
| Link Distance (m) | | 424.0 | 896.3 | | 280.0 | | |
| Travel Time (s) | | 25.4 | 53.8 | | 25.2 | | |
| Confl. Peds. (#/hr) | 1 | | | 1 | | 2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Heavy Vehicles (%) | 1% | 2% | 3% | 1% | 0% | 0% | |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 9 | 0 | 0 | |
| Adj. Flow (vph) | 223 | 1999 | 926 | 242 | 295 | 149 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 0 | 295 | 149 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Left | Left | Right | Left | Right | |
| Median Width(m) | | 3.0 | 3.0 | | 3.6 | | |
| Link Offset(m) | | 0.0 | 0.0 | | 0.0 | | |
| Crosswalk Width(m) | | 1.6 | 1.6 | | 1.6 | | |
| Two way Left Turn Lane | | Yes | | | | | |
| Headway Factor | 1.14 | 1.04 | 1.01 | 0.99 | 1.00 | 0.88 | |
| Turning Speed (k/h) | 24 | | | 14 | 24 | 14 | |
| Number of Detectors | 1 | 2 | 2 | | 1 | 1 | |
| Detector Template | Left | Thru | Thru | | Left | Right | |
| Leading Detector (m) | 2.0 | 10.0 | 10.0 | | 2.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | 0.6 | | 2.0 | 2.0 | |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | J/ | -: _x | | J/ | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 9.4 | 9.4 | | 0.0 | 0.0 | |
| Detector 2 Size(m) | | 0.6 | 0.6 | | | | |
| DOLOGIOI E OILO(III) | | 0.0 | 0.0 | | | | |

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Lanes, Volumes, Timings 10: Kingston Road & Fairport Road <2043 Future Total>PM 12-20-2024

| TO: Tangeter Freder | • | - CIT I TO | + | • | _ | 7 | | | | | | |
|---|--|------------|-------|-----|-------|-------|------|--|--|--|--|--|
| | | _ | | ` | _ | • | | | | | | |
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR | Ø1 | | | | | |
| Detector 2 Type | | CI+Ex | CI+Ex | | | | | | | | | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | 0.0 | | | | | | | | | |
| Turn Type | Prot | NA | NA | | Prot | Perm | | | | | | |
| Protected Phases | 5 | 2 | 6 | | 4 | | 1 | | | | | |
| Permitted Phases | | | | | | 4 | | | | | | |
| Detector Phase | 5 | 2 | 6 | | 4 | 4 | | | | | | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | | 8.0 | 8.0 | 5.0 | | | | | |
| Minimum Split (s) | 10.0 | 33.0 | 33.0 | | 38.0 | 38.0 | 8.0 | | | | | |
| Total Split (s) | 25.0 | 84.0 | 67.0 | | 38.0 | 38.0 | 8.0 | | | | | |
| Total Split (%) | 19.2% | 64.6% | 51.5% | | 29.2% | 29.2% | 6% | | | | | |
| Maximum Green (s) | 20.0 | 77.7 | 60.7 | | 30.7 | 30.7 | 5.0 | | | | | |
| Yellow Time (s) | 3.0 | 4.3 | 4.3 | | 3.3 | 3.3 | 3.0 | | | | | |
| All-Red Time (s) | 2.0 | 2.0 | 2.0 | | 4.0 | 4.0 | 0.0 | | | | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | | | | |
| Total Lost Time (s) | 5.0 | 6.3 | 6.3 | | 7.3 | 7.3 | | | | | | |
| Lead/Lag | Lead | Lag | Lag | | | | Lead | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | | 3.0 | 3.0 | 3.0 | | | | | |
| Recall Mode | None | C-Max | C-Max | | None | None | None | | | | | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | 5.0 | | | | | |
| Flash Dont Walk (s) | | 19.0 | 19.0 | | 23.0 | 23.0 | 0.0 | | | | | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | 0 | 20 | | | | | |
| Act Effct Green (s) | 19.5 | 86.0 | 66.3 | | 25.6 | 25.6 | | | | | | |
| Actuated g/C Ratio | 0.15 | 0.66 | 0.51 | | 0.20 | 0.20 | | | | | | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | | 0.83 | 0.32 | | | | | | |
| Control Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | | | | | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | | | | | |
| Total Delay | 54.5 | 40.9 | 11.8 | | 69.5 | 8.0 | | | | | | |
| LOS | D | D | В | | Е | Α | | | | | | |
| Approach Delay | | 42.2 | 11.8 | | 48.9 | | | | | | | |
| Approach LOS | | D | В | | D | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | | | |
| Offset: 27 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Green | | | | | | | | | | | | |
| Natural Cycle: 115 | | | | | | | | | | | | |
| Control Type: Actuated-Co | atural Cycle: 115 notrol Type: Actuated-Coordinated | | | | | | | | | | | |

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.7
Intersection Capacity Utilization 77.8%
Analysis Period (min) 15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 10: Kingston Road & Fairport Road



Queues 10: Kingston Road & Fairport Road <2043 Future Total>PM 12-20-2024

| | • | - | - | - | 4 | | | | | |
|---|-------|-------|-------|-------|------|--|--|--|--|--|
| Lane Group | EBL | EBT | WBT | SBL | SBR | | | | | |
| Lane Group Flow (vph) | 223 | 1999 | 1168 | 295 | 149 | | | | | |
| v/c Ratio | 0.92 | 0.88 | 0.68 | 0.83 | 0.32 | | | | | |
| Control Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | | | | | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | |
| Total Delay | 54.5 | 40.9 | 11.8 | 69.5 | 8.0 | | | | | |
| Queue Length 50th (m) | 52.2 | 285.8 | 36.3 | 72.7 | 0.0 | | | | | |
| Queue Length 95th (m) | m55.0 | | 43.5 | 101.2 | 16.7 | | | | | |
| Internal Link Dist (m) | | 400.0 | 872.3 | 256.0 | | | | | | |
| Turn Bay Length (m) | 75.0 | | | 15.5 | | | | | | |
| Base Capacity (vph) | 248 | 2270 | 1727 | 426 | 527 | | | | | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | | | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | | | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | | | | | |
| Reduced v/c Ratio | 0.90 | 0.88 | 0.68 | 0.69 | 0.28 | | | | | |
| Intersection Summary | | | | | | | | | | |
| Volume for 95th percentile queue is metered by upstream signal. | | | | | | | | | | |

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Detector 2 Type

CI+Ex

| | → | • | • | + | • | <u> </u> |
|----------------------------|-------------|-------|-----------|----------|-----------|-----------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | LDI | WDL | <u>₩</u> | ሻሻ | NDK |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Ideal Flow (vphpl) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Lane Width (m) | | 3./ | 2.1 | | 3.8 0% | 3./ |
| Grade (%) | 6% | 0.0 | 47.5 | 0% | | E0.0 |
| Storage Length (m) | | 0.0 | 47.5 1 | | 0.0 | 52.0 1 |
| Storage Lanes | | 0 | | | 2 | 1 |
| Taper Length (m) | 0.05 | 0.05 | 22.3 | 0.05 | 2.5 | 4.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | 1.00 |
| Ped Bike Factor | 0.005 | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 224 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Distance (m) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| Confl. Peds. (#/hr) | | | | | 1 | 3 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1843 | 25 | 200 | 874 | 720 | 376 |
| Shared Lane Traffic (%) | 10.10 | | | 0 | | 0.0 |
| Lane Group Flow (vph) | 1868 | 0 | 200 | 874 | 720 | 376 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | Nigit | LEIL | 3.1 | 7.6 | ragilt |
| | 0.0 | | | | 0.0 | |
| Link Offset(m) | | | | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | 4.00 | 111 | Yes | 0.07 | 0.00 |
| Headway Factor | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Turning Speed (k/h) | | 14 | 24 | | 24 | 14 |
| Number of Detectors | _ 2 | | 1 | _ 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | 0.0 | 9.4 | 0.0 | 0.0 |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | O.0 | | | CI±Ev | | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| WSP | Page 25 |

Cl+Ex

| | - | • | • | ← | 1 | 1 | |
|----------------------------|---------------|-----------|------------|-------------|------------|------------|------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Furn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 | 6 | 8 | 1 01111 | |
| Permitted Phases | _ | | | · | | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | _ | | | · | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | 1 | 6.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| rellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| Lead/Lag | Lag | | Lead | 1.2 | 0.1 | 0.1 | |
| _ead-Lag Optimize? | Luy | | Load | | | | |
| /ehicle Extension (s) | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Recall Mode | C-Max | | None | C-Max | None | None | |
| Walk Time (s) | 7.0 | | 110110 | 7.0 | 7.0 | 7.0 | |
| Flash Dont Walk (s) | 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Pedestrian Calls (#/hr) | 0 | | | 0 | 14 | 14 | |
| Act Effct Green (s) | 65.3 | | 16.0 | 86.3 | 29.8 | 29.8 | |
| Actuated g/C Ratio | 0.50 | | 0.12 | 0.66 | 0.23 | 0.23 | |
| v/c Ratio | 1.04 | | 1.03 | 0.36 | 0.89 | 0.70 | |
| Control Delay | 68.3 | | 127.0 | 1.8 | 62.0 | 25.4 | |
| Queue Delay | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 68.3 | | 127.0 | 1.8 | 62.0 | 25.4 | |
| LOS | 66.3 E | | 127.0 F | 1.0 A | 62.0 E | 25.4 C | |
| Approach Delay | 68.3 | | г | 25.1 | 49.4 | U | |
| Approach LOS | 00.3 E | | | 25.1 C | 49.4 D | | |
| •• | | | | U | U | | |
| ntersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | | | | | | | |
| ctuated Cycle Length: 1 | | | | | | | |
| Offset: 69 (53%), Referen | ced to phase | 2:EBT and | 6:WB | T, Start of | Green | | |
| Natural Cycle: 130 | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 1.04 | | | | | | | |
| ntersection Signal Delay: | 51.7 | | | Ir | ntersectio | n LOS: D | |
| ntersection Capacity Utili | zation 93.1% | | | I | CU Level | of Service | F |
| analysis Period (min) 15 | | | | | | | |
| | Lluny 404 M/D | Domno 0 I | (ingoto | n Dood | | | |
| - | Hwy 401 WB | namps & r | vii igst0 | iii rtuad | | | 1 |
| Ø1 71 | 102 (R) | | | | | | |
| + ac (n) | - | | | | | | 108 |
| Ø6 (R) | 1 | | | | | | Y Ø8 |
| VSP | | | | | | | 80.5 |
| 101 | | | | | | | |

Queues 11: Hwy 401 WB Ramps & Kingston Road <2043 Future Total>PM

12-20-2024

| | - | • | — | 1 | |
|------------------------|--------|--------|----------|--------|------|
| Lane Group | EBT | WBL | WBT | NBL | NBR |
| Lane Group Flow (vph) | 1868 | 200 | 874 | 720 | 376 |
| v/c Ratio | 1.04 | 1.03 | 0.36 | 0.89 | 0.70 |
| Control Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 68.3 | 127.0 | 1.8 | 62.0 | 25.4 |
| Queue Length 50th (m) | ~285.7 | ~48.6 | 6.4 | 91.1 | 35.3 |
| Queue Length 95th (m) | #329.1 | #100.6 | 6.0 | #114.7 | 71.2 |
| Internal Link Dist (m) | 244.7 | | 400.0 | 192.6 | |
| Turn Bay Length (m) | | 47.5 | | | 52.0 |
| Base Capacity (vph) | 1795 | 194 | 2401 | 853 | 553 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 1.03 | 0.36 | 0.84 | 0.68 |

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Lanes, Volumes, Timings

12: Plaza Entrance/Delta Blvd & Kingston Road

<2043 Future Total>PM 12-20-2024

| | ۶ | → | • | • | ← | • | 4 | † | ~ | - | ļ | 4 |
|----------------------------|-------|------------|-------|-------|------------|-------|-------|-------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | ↑ ↑ | | ሻ | † } | | ሻ | ĵ. | | ሻ | ^ | |
| Traffic Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Future Volume (vph) | 130 | 1567 | 38 | 89 | 1263 | 121 | 198 | 15 | 138 | 82 | 13 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.2 | 3.4 | 3.5 | 3.1 | 3.4 | 3.4 | 3.6 | 4.6 | 3.7 | 3.2 | 2.8 | 3.7 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 51.8 | | 148.5 | 100.0 | | 18.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 35.3 | | | 2.5 | | | 2.5 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 0.99 | 1.00 | | 1.00 | 0.99 | | 1.00 | | | | 0.99 | |
| Frt | | 0.996 | | | 0.987 | | | 0.864 | | | 0.862 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1656 | 3343 | 0 | 1705 | 3403 | 0 | 1770 | 1824 | 0 | 1725 | 1474 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.630 | | | 0.637 | | |
| Satd. Flow (perm) | 1648 | 3343 | 0 | 1704 | 3403 | 0 | 1172 | 1824 | 0 | 1157 | 1474 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 12 | | | 129 | | | 141 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 30 | | | 40 | |
| Link Distance (m) | | 222.7 | | | 268.7 | | | 130.9 | | | 169.9 | |
| Travel Time (s) | | 13.4 | | | 16.1 | | | 15.7 | | | 15.3 | |
| Confl. Peds. (#/hr) | 16 | | 1 | 1 | | 16 | 1 | | | | | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 0% | 0% | 2% | 0% | 2% | 0% | 0% | 0% | 0% | 0% |
| Adj. Flow (vph) | 141 | 1703 | 41 | 97 | 1373 | 132 | 215 | 16 | 150 | 89 | 14 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 141 | 1744 | 0 | 97 | 1505 | 0 | 215 | 166 | 0 | 89 | 169 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.6 | | | 3.6 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | Yes | | | | | | | |
| Headway Factor | 1.10 | 1.07 | 1.06 | 1.08 | 1.03 | 1.03 | 1.00 | 0.87 | 0.99 | 1.06 | 1.13 | 0.99 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | | 1 | 2 | | 1 | 2 | | 1 | 2 | |
| Detector Template | Left | Thru | | Left | Thru | | Left | Thru | | Left | Thru | |
| Leading Detector (m) | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | | 2.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | | 2.0 | 0.6 | |
| Detector 1 Type | CI+Ex | Cl+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

Synchro 11 Report Page 28 1105-1163 Kingston Road WSP

<sup>Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.</sup>

Lanes, Volumes, Timings

<2043 Future Total>PM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | ۶ | - | > • | · • | - • | • 1 | † | - | - | ţ | 4 |
|-------------------------|-------|-------|---------------|-------|------|-------|----------|-----|-------|-------|-----|
| Lane Group | EBL | EBT | EBR W | BL WE | T WB | R NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | C | .0 | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Р | ot N | Α | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 8 | | | 4 | |
| Permitted Phases | | | | | | 8 | | | 4 | | |
| Detector Phase | 5 | 2 | | 1 | 6 | 8 | 8 | | 4 | 4 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | .0 20 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 32.0 | | .0 32 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (s) | 17.0 | 80.0 | | .0 76 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 13.1% | 61.5% | 10.0 | | | 28.5% | 28.5% | | 28.5% | 28.5% | |
| Maximum Green (s) | 12.0 | 73.1 | | .0 69 | | 27.0 | 27.0 | | 27.0 | 27.0 | |
| Yellow Time (s) | 3.0 | 4.7 | | | .7 | 3.8 | 3.8 | | 3.8 | 3.8 | |
| All-Red Time (s) | 2.0 | 2.2 | - | - | .2 | 6.2 | 6.2 | | 6.2 | 6.2 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | | .0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 5.0 | 6.9 | | | .9 | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Lead/Lag | Lead | Lag | Le | ad Li | ıg | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | | | .2 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | C-Max | No | | | None | None | | None | None | |
| Walk Time (s) | | 7.0 | | | .0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Flash Dont Walk (s) | | 18.0 | | 18 | | 20.0 | 20.0 | | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 3 | 3 | 3 | | 6 | 6 | |
| Act Effct Green (s) | 12.0 | 74.3 | | .0 70 | | 25.8 | 25.8 | | 25.8 | 25.8 | |
| Actuated g/C Ratio | 0.09 | 0.57 | | 06 0. | | 0.20 | 0.20 | | 0.20 | 0.20 | |
| v/c Ratio | 0.93 | 0.91 | | 93 0. | | 0.93 | 0.36 | | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | 122 | | | 93.7 | 14.4 | | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | | | .0 | 0.0 | 75.1 | | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | 122 | | | 93.7 | 89.5 | | 198.9 | 13.9 | |
| LOS | F | С | | F | С | F | F | | F | В | |
| Approach Delay | | 26.7 | | 29 | | | 91.9 | | | 77.7 | |
| Approach LOS | | С | | | С | | F | | | Е | |

| Intersection Summ | ary | | |
|---------------------|------------------------|-----------------------------|--------|
| Area Type: | Other | | |
| Cycle Length: 130 | | | |
| Actuated Cycle Le | ngth: 130 | | |
| Offset: 6 (5%), Ref | erenced to phase 2:EB7 | Γ and 6:WBT, Start of Green | |
| Natural Cycle: 110 | | | |
| Control Type: Actu | ated-Coordinated | | |
| Maximum v/c Ratio | o: 0.93 | | |
| Intersection Signal | Delay: 37.2 | Intersection LOS | : D |
| Intersection Capac | city Utilization 97.1% | ICU Level of Ser | vice F |
| Analysis Daried (m | in) 15 | | |

Splits and Phases: 12: Plaza Entrance/Delta Blvd & Kingston Road



Queues

<2043 Future Total>PM

12: Plaza Entrance/Delta Blvd & Kingston Road

| | • | - | • | ← | 4 | † | - | ↓ | |
|------------------------|-------|--------|--------|-------|-------|----------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | |
| Lane Group Flow (vph) | 141 | 1744 | 97 | 1505 | 215 | 166 | 89 | 169 | |
| v/c Ratio | 0.93 | 0.91 | 0.93 | 0.82 | 0.93 | 0.36 | 0.39 | 0.42 | |
| Control Delay | 81.9 | 21.0 | 122.1 | 23.9 | 93.7 | 14.4 | 50.3 | 13.9 | |
| Queue Delay | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 75.1 | 148.6 | 0.0 | |
| Total Delay | 81.9 | 22.2 | 122.1 | 24.0 | 93.7 | 89.5 | 198.9 | 13.9 | |
| Queue Length 50th (m) | 36.7 | 144.1 | 26.0 | 85.8 | 54.0 | 7.7 | 19.7 | 5.9 | |
| Queue Length 95th (m) | m38.0 | m147.6 | m#48.1 | 218.0 | #99.2 | 26.9 | 36.4 | 25.8 | |
| Internal Link Dist (m) | | 198.7 | | 244.7 | | 106.9 | | 145.9 | |
| Turn Bay Length (m) | 51.8 | | 100.0 | | | | | | |
| Base Capacity (vph) | 152 | 1912 | 104 | 1845 | 243 | 481 | 240 | 417 | |
| Starvation Cap Reductn | 0 | 38 | 0 | 10 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 57 | 0 | 0 | 0 | 366 | 223 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.93 | 0.94 | 0.93 | 0.82 | 0.88 | 1.44 | 5.24 | 0.41 | |

Synchro 11 Report Page 30 1105-1163 Kingston Road

^{# 95}th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Total>PM 12-20-2024

| | ۶ | → | • | • | + | • | • | † | ~ | / | + | ✓ |
|----------------------------|-------|----------|-------|-------|-------|-------|-------|------------|-------|----------|------------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ^ | 7 | ች | 44 | 7 | * | ^ ^ | 7 | ች | ^ ^ | 7 |
| Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.331 | | | 0.292 | | |
| Satd. Flow (perm) | 1637 | 3400 | 1549 | 1717 | 3579 | 1502 | 608 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 136 | | | 59 | | | 202 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | - | | 3.5 | Ū | | 3.5 | | | 3.5 | J |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

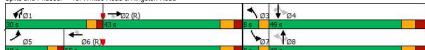
 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 31

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2043 Future Total>PM 12-20-2024

| | ٠ | → | • | • | ← | • | 4 | † | / | > | ↓ | 4 |
|---|--------------|-----------|-----------|------------|----------|------------|-------|----------|-------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Detector 2 Type | | Cl+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| Control Delay | 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| LOS | F | F | С | F | С | С | Е | D | D | Е | D | Α |
| Approach Delay | | 76.4 | | | 46.9 | | | 46.1 | | | 35.3 | |
| Approach LOS | | Е | | | D | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 30 | | | | | | | | | | | |
| Offset: 32 (25%), Referen | ced to phase | e 2:EBT a | ind 6:WB | T, Start o | f Green | | | | | | | |
| Natural Cycle: 130 | · · | | | | | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 1.08 | | | | | | | | | | | | |
| Intersection Signal Delay: 51.8 Intersection LOS: D | | | | | | | | | | | | |
| Intersection Capacity Utiliz | | % | | l l | CU Level | of Service | е Н | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Califo and Dhanna 42:1 | Mhitaa D | 1 0 1/in | ion Doc-l | | | | | | | | | |
| Splits and Phases: 13: | Whites Road | ı a Kıngs | ion Koad | | | | | | | | | |



Queues

<2043 Future Total>PM 13: Whites Road & Kingston Road

| | • | - | • | € | • | • | 1 | † | ~ | - | ţ | 4 |
|------------------------|-------|--------|-------|---------|---------|---------|-------|----------|--------|-------|-------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Group Flow (vph) | 168 | 932 | 389 | 360 | 818 | 539 | 248 | 743 | 801 | 213 | 671 | 202 |
| v/c Ratio | 1.00 | 0.99 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |
| Control Delay | 127.6 | 73.9 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Delay | 0.0 | 11.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 127.6 | 85.0 | 33.7 | 123.1 | 26.4 | 27.2 | 63.3 | 36.9 | 49.3 | 60.0 | 36.4 | 5.8 |
| Queue Length 50th (m) | 43.7 | 125.5 | 55.7 | ~100.9 | 48.8 | 37.1 | 42.7 | 55.8 | 156.8 | 35.9 | 49.8 | 0.0 |
| Queue Length 95th (m) | #89.4 | #169.5 | 93.4 | m#144.4 | m83.0 r | n#138.2 | #83.4 | 68.3 | #189.3 | #70.3 | 61.7 | 17.0 |
| Internal Link Dist (m) | | 273.5 | | | 198.7 | | | 134.6 | | | 361.2 | |
| Turn Bay Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Base Capacity (vph) | 168 | 941 | 540 | 333 | 1321 | 640 | 283 | 1641 | 830 | 253 | 1594 | 622 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.00 | 1.03 | 0.72 | 1.08 | 0.62 | 0.84 | 0.88 | 0.45 | 0.97 | 0.84 | 0.42 | 0.32 |

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp <2043 Future Total>PM 12-20-2024

| | • | • | 1 | † | ļ | 4 |
|----------------------------|------------|-------|------|----------|----------|-------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | ሻ ሻ | T T | | ^ | ^ | 05.1 |
| Traffic Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Future Volume (vph) | 1244 | 589 | 0 | 862 | 610 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.6 | 3.6 | 3.7 | 3.6 | 3.8 | 3.7 |
| Storage Length (m) | 0.0 | 225.0 | 0.0 | 5.0 | 0.0 | 0.0 |
| Storage Lanes | 2 | 1 | 0.0 | | | 0.0 |
| Taper Length (m) | 2.5 | 1 | 2.5 | | | U |
| Lane Util. Factor | 0.97 | 0.91 | 1.00 | 0.95 | 0.95 | 1.00 |
| Ped Bike Factor | | 0.91 | 1.00 | 0.95 | 0.90 | 1.00 |
| Ped Bike Factor | 1.00 | | | | | |
| | 0.993 | 0.850 | | | | |
| Fit Protected | | 4407 | | 2520 | 2040 | |
| Satd. Flow (prot) | 3450 | 1427 | 0 | 3539 | 3618 | 0 |
| Flt Permitted | 0.954 | 4407 | | 0500 | 0046 | |
| Satd. Flow (perm) | 3450 | 1404 | 0 | 3539 | 3618 | 0 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 7 | 100 | | | | |
| Link Speed (k/h) | 50 | | | 60 | 60 | |
| Link Distance (m) | 295.9 | | | 185.9 | 316.9 | |
| Travel Time (s) | 21.3 | | | 11.2 | 19.0 | |
| Confl. Peds. (#/hr) | | 3 | 4 | | | 4 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 1352 | 640 | 0 | 937 | 663 | 0 |
| Shared Lane Traffic (%) | | 10% | | | | |
| Lane Group Flow (vph) | 1416 | 576 | 0 | 937 | 663 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| | Leπ 7.2 | Rigit | Leit | 0.0 | 0.0 | Rigit |
| Median Width(m) | 0.0 | | | | 0.0 | |
| Link Offset(m) | | | | 0.0 | | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | 4.00 | 0.00 | 4.00 | 0.07 | 0.00 |
| Headway Factor | 1.00 | 1.00 | 0.99 | 1.00 | 0.97 | 0.99 |
| Turning Speed (k/h) | 24 | 14 | 24 | | | 14 |
| Number of Detectors | 1 | 1 | | 2 | 2 | |
| Detector Template | Left | Right | | Thru | Thru | |
| Leading Detector (m) | 2.0 | 2.0 | | 10.0 | 10.0 | |
| Trailing Detector (m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Size(m) | 2.0 | 2.0 | | 0.6 | 0.6 | |
| Detector 1 Type | CI+Ex | CI+Ex | | CI+Ex | CI+Ex | |
| Detector 1 Channel | J. 2/ | | | J/ | × | |
| Detector 1 Extend (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Detector 2 Position(m) | 0.0 | 0.0 | | 9.4 | 9.4 | |
| | | | | 0.6 | 0.6 | |
| Detector 2 Size(m) | | | | | | |
| Detector 2 Type | | | | CI+Ex | CI+Ex | |
| Detector 2 Channel | | | | | | |

1105-1163 Kingston Road Synchro 11 Report WSP Page 34

Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

^{# 95}th percentile volume exceeds capacity, queue may be longer.

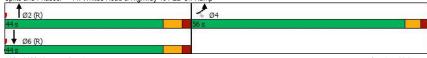
Queue shown is maximum after two cycles.

M Volume for 95th percentile queue is metered by upstream signal.

<2043 Future Total>PM 12-20-2024

Lanes, Volumes, Timings 14: Whites Road & Highway 401 EB Off Ramp

| | • | • | 1 | Ţ | ¥ | 4 | |
|-------------------------------|-------------|------------|-----------|-------------|-------------|--------------|--|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR | |
| Detector 2 Extend (s) | | | | 0.0 | 0.0 | | |
| Turn Type | Prot | Perm | | NA | NA | | |
| Protected Phases | 4 | | | 2 | 6 | | |
| Permitted Phases | | 4 | | | | | |
| Detector Phase | 4 | 4 | | 2 | 6 | | |
| Switch Phase | | | | | | | |
| Minimum Initial (s) | 8.0 | 8.0 | | 20.0 | 20.0 | | |
| Minimum Split (s) | 28.5 | 28.5 | | 27.7 | 27.7 | | |
| Total Split (s) | 56.0 | 56.0 | | 44.0 | 44.0 | | |
| Total Split (%) | 56.0% | 56.0% | | 44.0% | 44.0% | | |
| Maximum Green (s) | 50.5 | 50.5 | | 37.3 | 37.3 | | |
| Yellow Time (s) | 3.7 | 3.7 | | 4.5 | 4.5 | | |
| All-Red Time (s) | 1.8 | 1.8 | | 2.2 | 2.2 | | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.5 | 5.5 | | 6.7 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 0.2 | 0.2 | | |
| Recall Mode | None | None | | C-Max | C-Max | | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 16.0 | 16.0 | | 14.0 | 14.0 | | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | |
| Act Effct Green (s) | 47.7 | 47.7 | | 40.1 | 40.1 | | |
| Actuated g/C Ratio | 0.48 | 0.48 | | 0.40 | 0.40 | | |
| v/c Ratio | 0.86 | 0.80 | | 0.66 | 0.46 | | |
| Control Delay | 29.0 | 27.1 | | 27.8 | 23.9 | | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | |
| Total Delay | 29.0 | 27.1 | | 27.8 | 23.9 | | |
| LOS | С | С | | С | С | | |
| Approach Delay | 28.5 | | | 27.8 | 23.9 | | |
| Approach LOS | С | | | С | С | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 100 | | | | | | | |
| Actuated Cycle Length: 100 |) | | | | | | |
| Offset: 8 (8%), Referenced | | :NBT and | 6:SBT. S | Start of Gr | een | | |
| Natural Cycle: 60 | , p | 2 . 2 | | | | | |
| Control Type: Actuated-Cod | ordinated | | | | | | |
| Maximum v/c Ratio: 0.86 | | | | | | | |
| Intersection Signal Delay: 2 | 27.5 | | | Ir | ntersection | LOS: C | |
| Intersection Capacity Utiliza | | | | | | of Service D | |
| Analysis Period (min) 15 | | | | | | | |
| . , , , | | | | | | | |
| Splits and Phases: 14: W | /hites Road | I & Highwa | ay 401 El | B Off Rar | np | | |
| * | | | • | 1 | | | |



1105-1163 Kingston Road WSP Synchro 11 Report Page 35 Queues

<2043 Future Total>PM 12-20-2024

14: Whites Road & Highway 401 EB Off Ramp

| | • | • | † | ↓ |
|------------------------|-------|-------|----------|----------|
| Lane Group | EBL | EBR | NBT | SBT |
| Lane Group Flow (vph) | 1416 | 576 | 937 | 663 |
| v/c Ratio | 0.86 | 0.80 | 0.66 | 0.46 |
| Control Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.0 | 27.1 | 27.8 | 23.9 |
| Queue Length 50th (m) | 115.7 | 81.0 | 78.9 | 50.2 |
| Queue Length 95th (m) | 141.9 | 130.5 | 102.6 | 67.3 |
| Internal Link Dist (m) | 271.9 | | 161.9 | 292.9 |
| Turn Bay Length (m) | | 225.0 | | |
| Base Capacity (vph) | 1745 | 758 | 1417 | 1449 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.81 | 0.76 | 0.66 | 0.46 |
| Intersection Summary | | | | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 36 Lanes, Volumes, Timings 15: Dixie Road & Shopping Plaza Entrance <2043 Future Total>PM 12-20-2024

SBT Lane Group Lane Configurations Traffic Volume (vph) 281 Future Volume (vph) 0 281 0 0 466 0 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 Lane Width (m) 4.1 3.7 4.0 3.7 3.7 4.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 Ped Bike Factor 0.865 Flt Protected 0.950 Satd. Flow (prot) 1701 0 1946 1848 Flt Permitted 0.950 Satd. Flow (perm) 1701 1946 1848 Link Speed (k/h) 30 Link Distance (m) 193.0 106.6 44.0 Travel Time (s) 23.2 4.0 9.6 Confl. Peds. (#/hr) Confl. Bikes (#/hr) 0.92 0.92 0.92 0.92 0.92 Peak Hour Factor Adj. Flow (vph) 305 507 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 305 0 507 0 0 Enter Blocked Intersection No No No No No No Lane Alignment Left Right Left Right Left Left Median Width(m) 3.6 Link Offset(m) 0.0 0.0 0.0 Crosswalk Width(m) 1.6 Two way Left Turn Lane Headway Factor 0.93 0.99 0.99 Turning Speed (k/h) 97 97 97 97

Intersection Summary
Area Type: Other

Control Type: Unsignalized

Sign Control

Intersection Capacity Utilization 51.0% Analysis Period (min) 15

Stop

ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis 15: Dixie Road & Shopping Plaza Entrance <2043 Future Total>PM 12-20-2024

| | • | • | † | 1 | - | ţ |
|-------------------------------|-------|------|------------|------|---------|------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ¥ | | 1 > | | | 4 |
| Traffic Volume (veh/h) | 0 | 281 | 0 | 0 | 466 | Ö |
| Future Volume (Veh/h) | 0 | 281 | 0 | 0 | 466 | 0 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 305 | 0 | 0 | 507 | 0 |
| Pedestrians | 12 | | | | | 11 |
| Lane Width (m) | 4.1 | | | | | 4.0 |
| Walking Speed (m/s) | 1.1 | | | | | 1.1 |
| Percent Blockage | 1 | | | | | 1 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | 110110 | | | 140110 |
| Upstream signal (m) | | | | | | 44 |
| pX, platoon unblocked | | | | | | -1-7 |
| vC, conflicting volume | 1026 | 23 | | | 12 | |
| vC1, stage 1 conf vol | 1020 | 20 | | | 12 | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1026 | 23 | | | 12 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | 0.7 | 0.2 | | | 7.1 | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 70 | | | 68 | |
| cM capacity (veh/h) | 175 | 1029 | | | 1587 | |
| , | | | | | 1507 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 305 | 0 | 507 | | | |
| Volume Left | 0 | 0 | 507 | | | |
| Volume Right | 305 | 0 | 0 | | | |
| cSH | 1029 | 1700 | 1587 | | | |
| Volume to Capacity | 0.30 | 0.00 | 0.32 | | | |
| Queue Length 95th (m) | 9.5 | 0.0 | 10.6 | | | |
| Control Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Lane LOS | Α | | Α | | | |
| Approach Delay (s) | 10.0 | 0.0 | 8.3 | | | |
| Approach LOS | Α | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.9 | | | |
| Intersection Capacity Utiliza | ation | | 51.0% | IC | U Level | of Service |
| Analysis Period (min) | | | 15 | | | |
| mary sis i cilou (ililii) | | | 13 | | | |

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Lanes, Volumes, Timings 17: Street B <2043 Future Total>PM 12-20-2024 HCM Unsignalized Intersection Capacity Analysis 17: Street B

<2043 Future Total>PM 12-20-2024

| | • | • | † | ~ | - | ţ | | |
|-----------------------------------|-------|-------|----------|------|-----------|------------|---|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations | Y | | 1> | | | ર્ન | | |
| Sign Control | Stop | | Stop | | | Stop | | |
| Traffic Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 | | |
| Future Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Hourly flow rate (vph) | 21 | 154 | 122 | 24 | 68 | 54 | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | | |
| Volume Total (vph) | 175 | 146 | 122 | | | | | |
| Volume Left (vph) | 21 | 0 | 68 | | | | | |
| Volume Right (vph) | 154 | 24 | 0 | | | | | |
| Hadj (s) | -0.47 | -0.06 | 0.15 | | | | | |
| Departure Headway (s) | 4.0 | 4.4 | 4.6 | | | | | |
| Degree Utilization, x | 0.20 | 0.18 | 0.16 | | | | | |
| Capacity (veh/h) | 830 | 787 | 742 | | | | | |
| Control Delay (s) | 8.0 | 8.3 | 8.4 | | | | | |
| Approach Delay (s) | 8.0 | 8.3 | 8.4 | | | | | |
| Approach LOS | Α | Α | Α | | | | | |
| Intersection Summary | | | | | | | | |
| Delay | | | 8.2 | | | | | |
| Level of Service | | | Α | | | | | |
| Intersection Capacity Utilization | on | | 33.2% | IC | U Level o | of Service | Α | |
| Analysis Period (min) | | | 15 | | | | | |

| | • | • | † | 1 | - | ↓ | |
|--------------------------------|------------|-------|----------|-------|---------|------------|---|
| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | Y | | î, | | | 4 | |
| Traffic Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 | |
| Future Volume (vph) | 19 | 142 | 112 | 22 | 63 | 50 | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 0.881 | | 0.978 | | | | |
| Flt Protected | 0.994 | | | | | 0.973 | |
| Satd. Flow (prot) | 1649 | 0 | 1842 | 0 | 0 | 1833 | |
| Flt Permitted | 0.994 | | | | | 0.973 | |
| Satd. Flow (perm) | 1649 | 0 | 1842 | 0 | 0 | 1833 | |
| Link Speed (k/h) | 30 | | 30 | | | 30 | |
| Link Distance (m) | 112.2 | | 49.9 | | | 96.9 | |
| Travel Time (s) | 13.5 | | 6.0 | | | 11.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Adj. Flow (vph) | 21 | 154 | 122 | 24 | 68 | 54 | |
| Shared Lane Traffic (%) | | | | | | | |
| Lane Group Flow (vph) | 175 | 0 | 146 | 0 | 0 | 122 | |
| Enter Blocked Intersection | No | No | No | No | No | No | |
| Lane Alignment | Left | Right | Left | Right | Left | Left | |
| Median Width(m) | 3.7 | | 0.0 | | | 0.0 | |
| Link Offset(m) | 0.0 | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | 1.6 | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | |
| Turning Speed (k/h) | 97 | 97 | | 97 | 97 | | |
| Sign Control | Stop | | Stop | | | Stop | |
| Intersection Summary | | | | | | | |
| Area Type: (| Other | | | | | | |
| Control Type: Unsignalized | | | | | | | |
| Intersection Capacity Utilizat | tion 33.2% | | | IC | U Level | of Service | Α |
| Analysis Period (min) 15 | | | | | | | |
| | | | | | | | |

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| | ۶ | • | 1 | † | ↓ | 4 |
|--------------------------------|-----------|-------|------|----------|-------------|--------------|
| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | ની | 1 2 | |
| Traffic Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Future Volume (vph) | 29 | 55 | 129 | 706 | 275 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.912 | | | | 0.986 | |
| Flt Protected | 0.983 | | | 0.992 | | |
| Satd. Flow (prot) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Flt Permitted | 0.983 | | | 0.992 | | |
| Satd. Flow (perm) | 1688 | 0 | 0 | 1868 | 1857 | 0 |
| Link Speed (k/h) | 30 | | | 40 | 40 | |
| Link Distance (m) | 112.2 | | | 121.1 | 114.0 | |
| Travel Time (s) | 13.5 | | | 10.9 | 10.3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 32 | 60 | 140 | 767 | 299 | 35 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 92 | 0 | 0 | 907 | 334 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.7 | | | 3.3 | 3.3 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | 97 | 97 | | | 97 |
| Sign Control | Stop | | | Free | Free | |
| Intersection Summary | | | | | | |
| Area Type: (| Other | | | | | |
| Control Type: Unsignalized | | | | | | |
| Intersection Capacity Utilizat | ion 75.7% | | | IC | CU Level of | of Service D |
| Analysis Period (min) 15 | | | | | | |

| | • | • | 1 | † | ↓ | 4 |
|-------------------------------|-------|------|-------|----------|------------|---------|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | W | | | 4 | 1> | |
| Traffic Volume (veh/h) | 29 | 55 | 129 | 706 | 275 | 32 |
| Future Volume (Veh/h) | 29 | 55 | 129 | 706 | 275 | 32 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 32 | 60 | 140 | 767 | 299 | 35 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | 114 | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1364 | 316 | 334 | | | |
| vC1, stage 1 conf vol | | 0.0 | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1364 | 316 | 334 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | V. 1 | V | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 78 | 92 | 89 | | | |
| cM capacity (veh/h) | 144 | 724 | 1225 | | | |
| | | | | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 92 | 907 | 334 | | | |
| Volume Left | 32 | 140 | 0 | | | |
| Volume Right | 60 | 0 | 35 | | | |
| cSH | 302 | 1225 | 1700 | | | |
| Volume to Capacity | 0.30 | 0.11 | 0.20 | | | |
| Queue Length 95th (m) | 9.5 | 2.9 | 0.0 | | | |
| Control Delay (s) | 22.1 | 2.7 | 0.0 | | | |
| Lane LOS | С | Α | | | | |
| Approach Delay (s) | 22.1 | 2.7 | 0.0 | | | |
| Approach LOS | С | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 3.4 | | | |
| Intersection Capacity Utiliza | ation | | 75.7% | IC | U Level of | Service |
| Analysis Period (min) | | | 15 | | | |
| , | | | | | | |

HCM Unsignalized Intersection Capacity Analysis 19: Walnut Lane & Street B

Lanes, Volumes, Timings

<2043 Future Total>PM 12-20-2024

21: Building Driveways & Street A

| | • | - | • | • | • | • | 1 | † | ~ | - | ţ | 4 |
|----------------------------|------|-------|-------|------|-------|-------|------|----------|-------|------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.966 | | | 0.971 | | | 0.865 | | | | |
| Flt Protected | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Flt Permitted | | 0.990 | | | 0.986 | | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1801 | 0 | 0 | 1803 | 0 | 0 | 1629 | 0 | 0 | 1789 | 0 |
| Link Speed (k/h) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (m) | | 193.3 | | | 80.3 | | | 63.7 | | | 34.1 | |
| Travel Time (s) | | 23.2 | | | 9.6 | | | 7.6 | | | 4.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 415 | 0 | 0 | 436 | 0 | 0 | 126 | 0 | 0 | 99 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 97 | | 97 | 97 | | 97 | 97 | | 97 |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.2%
Analysis Period (min) 15

ICU Level of Service A

Intersection Summary

HCM Unsignalized Intersection Capacity Analysis 21: Building Driveways & Street A

<2043 Future Total>PM

| | • | - | • | • | — | • | 1 | † | / | - | ţ | 1 |
|-------------------------------|-------|-------|-------|------|----------|------------|------|----------|----------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Future Volume (vph) | 75 | 212 | 95 | 111 | 202 | 87 | 0 | 0 | 116 | 91 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 82 | 230 | 103 | 121 | 220 | 95 | 0 | 0 | 126 | 99 | 0 | 0 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 415 | 436 | 126 | 99 | | | | | | | | |
| Volume Left (vph) | 82 | 121 | 0 | 99 | | | | | | | | |
| Volume Right (vph) | 103 | 95 | 126 | 0 | | | | | | | | |
| Hadj (s) | -0.08 | -0.04 | -0.57 | 0.23 | | | | | | | | |
| Departure Headway (s) | 5.2 | 5.2 | 5.7 | 6.6 | | | | | | | | |
| Degree Utilization, x | 0.60 | 0.63 | 0.20 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 664 | 670 | 525 | 452 | | | | | | | | |
| Control Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach Delay (s) | 15.5 | 16.5 | 10.2 | 11.0 | | | | | | | | |
| Approach LOS | С | С | В | В | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 14.9 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utiliza | ation | | 52.2% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| | | | | | | | | | | | | |

| | - | * | • | • | 1 | 1 |
|-------------------------------------|------------|-------|---------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 1 > | | | 4 | W | |
| Traffic Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Future Volume (vph) | 147 | 19 | 381 | 345 | 256 | 163 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.984 | | | | 0.947 | |
| Flt Protected | 0.001 | | | 0.974 | 0.970 | |
| Satd. Flow (prot) | 1853 | 0 | 0 | 1834 | 1730 | 0 |
| Flt Permitted | 1000 | - 0 | - 3 | 0.741 | 0.970 | - 3 |
| Satd. Flow (perm) | 1853 | 0 | 0 | 1396 | 1730 | 0 |
| Right Turn on Red | 1000 | Yes | U | 1000 | 1750 | Yes |
| Satd. Flow (RTOR) | 12 | 162 | | | 31 | 163 |
| Link Speed (k/h) | 40 | | | 40 | 30 | |
| Link Speed (k/II) Link Distance (m) | 121.1 | | | 433.1 | 80.3 | |
| | 10.9 | | | 39.0 | 9.6 | |
| Travel Time (s) | | 0.00 | 0.00 | | | 0.00 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 160 | 21 | 414 | 375 | 278 | 177 |
| Shared Lane Traffic (%) | 40. | _ | _ | 700 | 455 | |
| Lane Group Flow (vph) | 181 | 0 | 0 | 789 | 455 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 0.0 | | | 0.0 | 3.7 | |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Turning Speed (k/h) | | 97 | 97 | | 97 | 97 |
| Number of Detectors | 2 | | 1 | 2 | 1 | |
| Detector Template | Thru | | Left | Thru | Left | |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | |
| Detector 2 Position(m) | 9.4 | | 0.0 | 9.4 | 0.0 | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |
| Detector 2 Channel | OITEX | | | OI+LX | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | |
| Turn Type | NA | | Perm | NA | Prot | |
| Protected Phases | 2 | | Fellill | 1NA 6 | 8 | |
| Permitted Phases | 2 | | 6 | 0 | 0 | |
| | ^ | | | _ | _ | |
| Detector Phase | 2 | | 6 | 6 | 8 | |
| Switch Phase | 00.5 | | 00.5 | 00.5 | | |
| Minimum Initial (s) | 20.0 | | 20.0 | 20.0 | 8.0 | |

| 1105-1163 Kingston Road | Synchro 11 Report |
|-------------------------|-------------------|
| WSP | Page 1 |

| | - | • | • | • | 1 | <i>></i> | |
|-----------------------------|---------------|-----------|-------|-------|------------|--------------|-------------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Minimum Split (s) | 28.0 | | 28.0 | 28.0 | 23.0 | | |
| Total Split (s) | 67.0 | | 67.0 | 67.0 | 33.0 | | |
| Total Split (%) | 67.0% | | 67.0% | 67.0% | 33.0% | | |
| Maximum Green (s) | 61.2 | | 61.2 | 61.2 | 26.3 | | |
| Yellow Time (s) | 3.3 | | 3.3 | 3.3 | 3.0 | | |
| All-Red Time (s) | 2.5 | | 2.5 | 2.5 | 3.7 | | |
| Lost Time Adjust (s) | 0.0 | | | 0.0 | 0.0 | | |
| Total Lost Time (s) | 5.8 | | | 5.8 | 6.7 | | |
| Lead/Lag | | | | | | | |
| Lead-Lag Optimize? | | | | | | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | |
| Recall Mode | Max | | Max | Max | None | | |
| Walk Time (s) | 7.0 | | 7.0 | 7.0 | 7.0 | | |
| Flash Dont Walk (s) | 15.0 | | 15.0 | 15.0 | 9.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 61.2 | | | 61.2 | 26.0 | | |
| Actuated g/C Ratio | 0.61 | | | 0.61 | 0.26 | | |
| v/c Ratio | 0.16 | | | 0.92 | 0.96 | | |
| Control Delay | 8.1 | | | 35.7 | 67.8 | | |
| Queue Delay | 0.0 | | | 0.0 | 0.0 | | |
| Total Delay | 8.1 | | | 35.7 | 67.8 | | |
| LOS | Α | | | D | Е | | |
| Approach Delay | 8.1 | | | 35.7 | 67.8 | | |
| Approach LOS | Α | | | D | E | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 100 | | | | | | | |
| Actuated Cycle Length: 9 | 9.7 | | | | | | |
| Natural Cycle: 90 | | | | | | | |
| Control Type: Semi Act-U | Incoord | | | | | | |
| Maximum v/c Ratio: 0.96 | | | | | | | |
| Intersection Signal Delay: | 42.4 | | | lr | tersection | LOS: D | |
| Intersection Capacity Utili | zation 95.3% | | | IC | CU Level o | of Service F | |
| Analysis Period (min) 15 | | | | | | | |
| Splits and Phases: 20: | Street A & Wa | alnut Lan | е | | | | |
| K | | | | | | | |
| →ø2 | | | | | | | |
| 67s | | | | | | | 8 |
| ₩ Ø6 | | | | | | | ↑ Ø8 |
| 67 s | | | | | | | 33 s |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Lanes, Volumes, Timings

20: Street A & Walnut Lane

Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road <2043 Future Total_PHF>PM 12-20-2024

| | ۶ | - | \rightarrow | • | ← | • | 4 | † | 1 | - | ļ | 4 |
|----------------------------|-------|----------|---------------|-------|----------|-------|-------|----------|-------|-------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | ^ | 7 | * | ^ | 7 | 7 | ^ | 7 | ሻ | 44 | 7 |
| Traffic Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 826 | 232 | 95 | 591 | 159 |
| Future Volume (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 826 | 232 | 95 | 591 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.4 | 3.6 | 3.3 | 3.7 | 3.4 | 3.8 | 4.1 | 4.8 | 4.7 | 3.8 | 3.3 |
| Storage Length (m) | 188.8 | | 97.9 | 170.7 | | 117.0 | 185.5 | | 52.0 | 49.0 | | 60.5 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 31.6 | | | 22.7 | | | 20.8 | | | 25.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.98 | | 0.95 | 0.99 | | 0.96 | 0.99 | | 0.90 | 0.99 | | 0.96 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1688 | 3461 | 1599 | 1728 | 3579 | 1579 | 1791 | 3773 | 1732 | 2026 | 3654 | 1561 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.329 | | | 0.180 | | |
| Satd. Flow (perm) | 1661 | 3461 | 1512 | 1709 | 3579 | 1517 | 614 | 3773 | 1564 | 378 | 3654 | 1499 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 93 | | | 160 | | | 165 | | | 159 |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 694.6 | | | 396.4 | | | 257.7 | | | 348.6 | |
| Travel Time (s) | | 41.7 | | | 23.8 | | | 18.6 | | | 25.1 | |
| Confl. Peds. (#/hr) | 20 | | 31 | 31 | | 20 | 29 | | 62 | 62 | | 29 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 1% | 1% | 2% | 0% | 3% | 1% | 4% | 0% | 1% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Adj. Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 826 | 232 | 95 | 591 | 159 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 284 | 1001 | 546 | 274 | 413 | 67 | 155 | 826 | 232 | 95 | 591 | 159 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.3 | | | 3.3 | | | 4.7 | | | 4.7 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | Yes | | | | | | | | | Yes | |
| Headway Factor | 1.08 | 1.03 | 1.00 | 1.04 | 0.99 | 1.03 | 0.97 | 0.93 | 0.87 | 0.86 | 0.97 | 1.04 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

1105-1163 Kingston Road WSP Synchro 11 Report Page 1 Lanes, Volumes, Timings 6: Liverpool Road & Kingston Road

<2043 Future Total_PHF>PM 12-20-2024

| | ٠ | → | • | • | ← | • | 4 | † | / | > | ↓ | 1 |
|------------------------------|-------------|----------|-----------|-------------|------------|------------|---------------|----------|--------|-------------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | pm+ov | Prot | NA | Perm | pm+pt | NA | custom | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | 3 | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 2 | | | 6 | 8 | | 2 | 4 | | 4 |
| Detector Phase | 5 | 2 | 3 | 1 | 6 | 6 | 3 | 8 | 2 | 7 | 4 | 4 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 20.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 36.0 | 8.0 | 10.0 | 36.0 | 36.0 | 8.0 | 50.0 | 36.0 | 8.0 | 50.0 | 50.0 |
| Total Split (s) | 34.0 | 46.0 | 8.0 | 26.0 | 38.0 | 38.0 | 8.0 | 50.0 | 46.0 | 8.0 | 50.0 | 50.0 |
| Total Split (%) | 26.2% | 35.4% | 6.2% | 20.0% | 29.2% | 29.2% | 6.2% | 38.5% | 35.4% | 6.2% | 38.5% | 38.5% |
| Maximum Green (s) | 29.0 | 38.9 | 5.0 | 21.0 | 30.9 | 30.9 | 5.0 | 40.9 | 38.9 | 5.0 | 40.9 | 40.9 |
| Yellow Time (s) | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 | 3.0 | 3.8 | 4.3 | 3.0 | 3.8 | 3.8 |
| All-Red Time (s) | 2.0 | 2.8 | 0.0 | 2.0 | 2.8 | 2.8 | 0.0 | 5.3 | 2.8 | 0.0 | 5.3 | 5.3 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.1 | 3.0 | 5.0 | 7.1 | 7.1 | 3.0 | 9.1 | 7.1 | 3.0 | 9.1 | 9.1 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | | - 3 | | | | | | - 3 | - 3 | | - 3 | - 3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | C-Max | None | Max | Max |
| Walk Time (s) | | 7.0 | | | 7.0 | 7.0 | | 7.0 | 7.0 | | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 21.0 | | | 21.0 | 21.0 | | 33.0 | 21.0 | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 15 | | | 20 | 20 | | 28 | 15 | | 15 | 15 |
| Act Effct Green (s) | 25.6 | 38.9 | 48.0 | 21.0 | 34.3 | 34.3 | 52.0 | 40.9 | 38.9 | 52.0 | 40.9 | 40.9 |
| Actuated g/C Ratio | 0.20 | 0.30 | 0.37 | 0.16 | 0.26 | 0.26 | 0.40 | 0.31 | 0.30 | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.86 | 0.97 | 0.88 | 0.98 | 0.44 | 0.13 | 0.53 | 0.70 | 0.40 | 0.44 | 0.51 | 0.27 |
| Control Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.5 | 33.3 | 42.8 | 13.2 | 30.0 | 38.4 | 6.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 51.5 | 67.0 | 52.6 | 103.8 | 42.4 | 0.5 | 33.3 | 42.8 | 13.2 | 30.0 | 38.4 | 6.0 |
| LOS | D | E | D | F | D | Α | С | D | В | С | D | Α |
| Approach Delay | | 60.3 | | | 61.0 | | | 36.0 | | | 31.3 | |
| Approach LOS | | Е | | | Е | | | D | | | С | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | 00101 | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 0 | | | | | | | | | | | |
| Offset: 78 (60%), Reference | | 2:EBT a | ind 6:WB | Γ. Start of | Green | | | | | | | |
| Natural Cycle: 135 | ou to phace | 2.25. | 0.112 | , otari o | 0.00 | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.98 | or amatoa | | | | | | | | | | | |
| Intersection Signal Delay: | 18.8 | | | li li | ntersectio | n I OS: D | | | | | | |
| Intersection Capacity Utiliz | | % | | | CU Level | | | | | | | |
| Analysis Period (min) 15 | ation 100.0 | 70 | | , | JO LCVCI | OI OCI VIO | | | | | | |
| ` ` ` ` | erpool Roa | d 9 Kina | oton Door | | | | | | | | | |
| _ | leipooi Roa | u & Ning | SION ROBO | 1 | | 4 | 1. | | | | | - 19 |
| √ Ø1 | -Pow(| R) | | | | 10 | 3 ♦ Ø- | 1 | | | _ | |
| 26 s | 46 s | | | | | / G S | 50 S | | | | | |
| . ▶ _{Ø5} | | Ø6 (F | (8) | | | Ø | 7 Tø8 | 3 | | | | |
| 34 s | 3 | 8s | | | | 8.5 | 50 s | | | | , | |



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Lanes, Volumes, Timings 9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | ۶ | → | • | € | — | • | 1 | † | / | / | + | -√ |
|----------------------------|------|----------|-------|-------|----------|-------|-------|----------|----------|------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | 7 | ň | ર્ન | 7 | ň | ^ | | | ^ | 7 |
| Traffic Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Future Volume (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.7 | 3.7 | 3.4 | 3.7 |
| Storage Length (m) | 0.0 | | 0.0 | 0.0 | | 125.0 | 50.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 1 | | 1 | 1 | | 0 | 0 | | 1 |
| Taper Length (m) | 2.5 | | | 2.5 | | | 30.0 | | | 2.5 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | 0.92 |
| Frt | | | 0.865 | | | 0.850 | | | | | | 0.850 |
| Flt Protected | | | | 0.950 | 0.997 | | 0.950 | | | | | |
| Satd. Flow (prot) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 1825 | 5079 | 0 | 0 | 4972 | 1633 |
| Flt Permitted | | | | 0.950 | 0.997 | | 0.136 | | | | | |
| Satd. Flow (perm) | 0 | 0 | 1662 | 1734 | 1820 | 1581 | 261 | 5079 | 0 | 0 | 4972 | 1508 |
| Right Turn on Red | | | No | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | | | | 85 | | | | | | 166 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 433.1 | | | 226.7 | | | 372.2 | | | 162.3 | |
| Travel Time (s) | | 31.2 | | | 16.3 | | | 26.8 | | | 11.7 | |
| Confl. Peds. (#/hr) | | | | | | | 17 | | 15 | 15 | | 17 |
| Confl. Bikes (#/hr) | | | | | | | | | 6 | | | 7 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 0% | 0% | 0% | 1% | 0% | 1% | 6% | 2% | 2% | 0% |
| Adj. Flow (vph) | 0 | 0 | 454 | 278 | 500 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Shared Lane Traffic (%) | | | | 10% | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 454 | 250 | 528 | 293 | 204 | 1137 | 0 | 0 | 1211 | 166 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.7 | , i | | 3.7 | , i | | 3.7 | | | 3.7 | Ĭ |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 1.01 | 0.99 | 1.01 | 0.99 | 0.99 | 1.03 | 0.99 |
| Turning Speed (k/h) | 97 | | 97 | 24 | | 14 | 97 | | 14 | 24 | | 97 |
| Number of Detectors | | | 1 | 1 | 2 | 1 | 1 | 2 | | | 2 | 1 |
| Detector Template | | | Right | Left | Thru | Right | Left | Thru | | | Thru | Right |
| Leading Detector (m) | | | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | | | 10.0 | 2.0 |
| Trailing Detector (m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Position(m) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Size(m) | | | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | | | 0.6 | 2.0 |
| Detector 1 Type | | | Cl+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | | | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Queue (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 1 Delay (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Detector 2 Position(m) | | | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | | | | 0.6 | | | 0.6 | | | 0.6 | _ |
| Detector 2 Type | | | | | CI+Ex | | | CI+Ex | | | CI+Ex | |

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Page 4

Lanes, Volumes, Timings
9: Liverpool Road & Walnut Lane/Hwy 401 WB Off-Ramp

| | • | - | • | • | • | • | 1 | Ť | | - | ¥ | 4 |
|----------------------------------|-----------|----------|-----------|------------|------------|------------|-------|-------|-----|-----|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | | | Over | Split | NA | Perm | pm+pt | NA | | | NA | Perm |
| Protected Phases | | | 5 | 8 | 8 | | 5 | 2 | | | 6 | |
| Permitted Phases | | | | | | 8 | 2 | | | | | 6 |
| Detector Phase | | | 5 | 8 | 8 | 8 | 5 | 2 | | | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | | 5.0 | 8.0 | 8.0 | 8.0 | 5.0 | 15.0 | | | 15.0 | 15.0 |
| Minimum Split (s) | | | 9.5 | 25.0 | 25.0 | 25.0 | 9.5 | 24.3 | | | 24.3 | 24.3 |
| Total Split (s) | | | 33.0 | 36.0 | 36.0 | 36.0 | 33.0 | 64.0 | | | 31.0 | 31.0 |
| Total Split (%) | | | 33.0% | 36.0% | 36.0% | 36.0% | 33.0% | 64.0% | | | 31.0% | 31.0% |
| Maximum Green (s) | | | 28.5 | 30.0 | 30.0 | 30.0 | 28.5 | 57.7 | | | 24.7 | 24.7 |
| Yellow Time (s) | | | 3.5 | 3.3 | 3.3 | 3.3 | 3.5 | 3.3 | | | 3.3 | 3.3 |
| All-Red Time (s) | | | 1.0 | 2.7 | 2.7 | 2.7 | 1.0 | 3.0 | | | 3.0 | 3.0 |
| Lost Time Adjust (s) | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Lost Time (s) | | | 4.5 | 6.0 | 6.0 | 6.0 | 4.5 | 6.3 | | | 6.3 | 6.3 |
| Lead/Lag | | | Lead | | | | Lead | | | | Lag | Lag |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | 3.0 |
| Recall Mode | | | None | None | None | None | None | C-Max | | | C-Max | C-Max |
| Walk Time (s) | | | | 14.0 | 14.0 | 14.0 | | 13.0 | | | 13.0 | 13.0 |
| Flash Dont Walk (s) | | | | 5.0 | 5.0 | 5.0 | | 5.0 | | | 5.0 | 5.0 |
| Pedestrian Calls (#/hr) | | | | 0 | 0 | 0 | | 14 | | | 7 | 7 |
| Act Effct Green (s) | | | 28.3 | 30.0 | 30.0 | 30.0 | 59.5 | 57.7 | | | 24.9 | 24.9 |
| Actuated g/C Ratio | | | 0.28 | 0.30 | 0.30 | 0.30 | 0.60 | 0.58 | | | 0.25 | 0.25 |
| v/c Ratio | | | 0.97 | 0.48 | 0.97 | 0.55 | 0.34 | 0.39 | | | 0.98 | 0.33 |
| Control Delay | | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 12.0 | | | 54.6 | 14.2 |
| Queue Delay | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Total Delay | | | 70.4 | 32.4 | 67.2 | 25.0 | 12.0 | 12.0 | | | 54.6 | 14.2 |
| LOS | | | Е | С | Е | С | В | В | | | D | В |
| Approach Delay | | 70.4 | | | 47.5 | | | 12.0 | | | 49.7 | |
| Approach LOS | | Е | | | D | | | В | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| Area Type: Ot | ther | | | | | | | | | | | |
| Cycle Length: 100 | | | | | | | | | | | | |
| Actuated Cycle Length: 100 | | | | | | | | | | | | |
| Offset: 8 (8%), Referenced to | phase 2:I | NBTL an | d 6:SBT, | Start of G | Green | | | | | | | |
| Natural Cycle: 90 | • | | | | | | | | | | | |
| Control Type: Actuated-Coord | inated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.98 | | | | | | | | | | | | |
| Intersection Signal Delay: 39.5 | 5 | | | Ir | ntersectio | n LOS: D | | | | | | |
| Intersection Capacity Utilizatio | | | | I | CU Level | of Service | e F | | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | | |
| Splits and Phases: 9: Liverp | nool Road | ł & Waln | ut Lane/F | lwv 401 V | NB Off-Ra | amn | | | | | | |
| 4 | | | | , | | | 4. | | | | | - 8 |
| Ø2 (R) | | | 4 | | | | - ▼ | Ø8 | | | | - 33 |
| 07S | | 9 | 1 | | | | 30 S | | | | | |
| ♦ Ø5 | | | ₩ Ø6 (F | 2) | | | | | | | | |
| 33 s | | 3 | 15 | 577 | | | | | | | | |

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Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | - | • | 1 | • | 1 | _ |
|----------------------------|-------------|-------|-------|----------|-------|-------|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↑ 1> | | * | ^ | ሻሻ | 7 |
| Traffic Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Future Volume (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 4.0 | 3.7 | 2.7 | 3.8 | 3.8 | 3.7 |
| Grade (%) | 6% | 0.1 | 2.1 | 0% | 0% | 0.7 |
| Storage Length (m) | 0 / 0 | 0.0 | 47.5 | 0 /0 | 0.0 | 52.0 |
| Storage Lanes | | 0.0 | 1 | | 2 | 1 |
| | | U | 22.3 | | 2.5 | - 1 |
| Taper Length (m) | 0.05 | 0.05 | 1.00 | 0.05 | | 1.00 |
| Lane Util. Factor | 0.95 | 0.95 | 1.00 | 0.95 | 0.97 | |
| Ped Bike Factor | | | | | 1.00 | 0.98 |
| Frt | 0.998 | | | | | 0.850 |
| Flt Protected | | | 0.950 | | 0.950 | |
| Satd. Flow (prot) | 3577 | 0 | 1577 | 3618 | 3544 | 1617 |
| Flt Permitted | | | 0.950 | | 0.950 | |
| Satd. Flow (perm) | 3577 | 0 | 1577 | 3618 | 3537 | 1591 |
| Right Turn on Red | | Yes | | | | Yes |
| Satd. Flow (RTOR) | 1 | | | | | 226 |
| Link Speed (k/h) | 60 | | | 60 | 50 | |
| Link Opeed (MI) | 268.7 | | | 424.0 | 216.6 | |
| Travel Time (s) | 16.1 | | | 25.4 | 15.6 | |
| | 10.1 | | | 20.4 | 15.0 | 3 |
| Confl. Peds. (#/hr) | 4.00 | 4.00 | 4.00 | 4.00 | | - |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 5% | 3% | 2% | 1% | 1% |
| Adj. Flow (vph) | 1696 | 23 | 184 | 804 | 662 | 346 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1719 | 0 | 184 | 804 | 662 | 346 |
| Enter Blocked Intersection | No | No | No | No | No | No |
| Lane Alignment | Left | Right | Left | Left | Left | Right |
| Median Width(m) | 3.1 | J | | 3.1 | 7.6 | J |
| Link Offset(m) | 0.0 | | | 0.0 | 0.0 | |
| Crosswalk Width(m) | 1.6 | | | 1.6 | 1.6 | |
| Two way Left Turn Lane | Yes | | | Yes | 1.0 | |
| | 0.98 | 1.03 | 1.14 | 0.97 | 0.97 | 0.99 |
| Headway Factor | 0.98 | | | 0.97 | | |
| Turning Speed (k/h) | _ | 14 | 24 | _ | 24 | 14 |
| Number of Detectors | 2 | | 1 | 2 | 1 | 1 |
| Detector Template | Thru | | Left | Thru | Left | Right |
| Leading Detector (m) | 10.0 | | 2.0 | 10.0 | 2.0 | 2.0 |
| Trailing Detector (m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 0.6 | | 2.0 | 0.6 | 2.0 | 2.0 |
| Detector 1 Type | CI+Ex | | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | |
| Detector 1 Extend (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 |
| , · · · · | | | 0.0 | | 0.0 | 0.0 |
| Detector 2 Position(m) | 9.4 | | | 9.4 | | |
| Detector 2 Size(m) | 0.6 | | | 0.6 | | |
| Detector 2 Type | CI+Ex | | | CI+Ex | | |

Synchro 11 Report Page 5 1105-1163 Kingston Road

<2043 Future Total_PHF>PM 12-20-2024

Lanes, Volumes, Timings
11: Hwy 401 WB Ramps & Kingston Road

| | → | • | • | ← | 4 | - | |
|-------------------------------|---------------------------------------|----------|-------------|-------------|-------------|-------------|-----|
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | |
| Detector 2 Channel | | | | | | | |
| Detector 2 Extend (s) | 0.0 | | | 0.0 | | | |
| Turn Type | NA | | Prot | NA | Prot | Perm | |
| Protected Phases | 2 | | 1 101 | 6 | 8 | 7 01117 | |
| Permitted Phases | | | | J | 3 | 8 | |
| Detector Phase | 2 | | 1 | 6 | 8 | 8 | |
| Switch Phase | _ | | | · | | | |
| Minimum Initial (s) | 20.0 | | 5.0 | 20.0 | 8.0 | 8.0 | |
| Minimum Split (s) | 50.0 | | 10.0 | 50.0 | 38.0 | 38.0 | |
| Total Split (s) | 71.0 | | 21.0 | 92.0 | 38.0 | 38.0 | |
| Total Split (%) | 54.6% | | 16.2% | 70.8% | 29.2% | 29.2% | |
| Maximum Green (s) | 63.8 | | 16.0 | 84.8 | 31.3 | 31.3 | |
| Yellow Time (s) | 4.2 | | 3.0 | 4.2 | 3.7 | 3.7 | |
| All-Red Time (s) | 3.0 | | 2.0 | 3.0 | 3.0 | 3.0 | |
| Lost Time Adjust (s) | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.2 | | 5.0 | 7.2 | 6.7 | 6.7 | |
| | | | 5.0 Lead | 1.2 | 0.7 | 0.7 | |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | 0.2 | | 3.0 | 0.2 | 3.0 | 3.0 | |
| Vehicle Extension (s) | | | None | C-Max | | None | |
| Recall Mode | C-Max 7.0 | | None | 7.0 | None 7.0 | None 7.0 | |
| Walk Time (s) | 7.0 35.0 | | | 35.0 | 24.0 | 24.0 | |
| Flash Dont Walk (s) | | | | | | | |
| Pedestrian Calls (#/hr) | 0 | | 40.0 | 0 | 14 | 14 | |
| Act Effct Green (s) | 66.4 | | 16.0 | 87.4 | 28.7 | 28.7 | |
| Actuated g/C Ratio | 0.51 | | 0.12 | 0.67 | 0.22 | 0.22 | |
| v/c Ratio | 0.94 | | 0.95 | 0.33 | 0.85 | 0.66 | |
| Control Delay | 46.6 | | 110.9 | 1.5 | 59.4 | 21.6 | |
| Queue Delay | 0.4 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 46.9 | | 110.9 | 1.5 | 59.4 | 21.6 | |
| LOS | D | | F | Α | Е | С | |
| Approach Delay | 46.9 | | | 21.9 | 46.4 | | |
| Approach LOS | D | | | С | D | | |
| Intersection Summary | | | | | | | |
| Area Type: | Other | | | | | | |
| Cycle Length: 130 | 0 0.10. | | | | | | |
| Actuated Cycle Length: 1: | 30 | | | | | | |
| Offset: 69 (53%), Referen | | 2:EBT ar | nd 6:WBT | T. Start of | Green | | |
| Natural Cycle: 120 | , , , , , , , , , , , , , , , , , , , | | | ., | | | |
| Control Type: Actuated-C | oordinated | | | | | | |
| Maximum v/c Ratio: 0.95 | ooramatoa | | | | | | |
| Intersection Signal Delay: | 40.1 | | | lr. | ntersectio | 1 \Q. D | |
| Intersection Capacity Utili | | | | | | of Service | F |
| Analysis Period (min) 15 | 2011011 93.170 | | | 11 | JO LEVEI | OI SEI VICE | |
| Allalysis i ellou (Illill) 13 | | | | | | | |
| Splits and Phases: 11: | Hwy 401 WB | Ramps 8 | k Kingsto | n Road | | | |
| √øı •- | ₩Ø2 (R) | | | | | | |
| 21s 71 | | | | | | | - 0 |
| CIO NI | (#S | | | | | | |
| Ø6 (R) | | | | | | | |
| 92 s | | | | | | | |
| WSP | | | | | | | |
| - | | | | | | | |

Lanes, Volumes, Timings 13: Whites Road & Kingston Road <2043 Future Total_PHF>PM 12-20-2024

| | ၨ | → | • | • | ← | • | 4 | † | <i>></i> | / | ļ | 4 |
|----------------------------|-------|----------|-------|-------|----------|-------|-------|------------|-------------|----------|-------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ሻ | 44 | 7 | ሻ | ^ | 7 | ሻ | ^ ^ | 7 | ሻ | ተተተ | 7 |
| Traffic Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Future Volume (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 684 | 737 | 196 | 617 | 186 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.5 | 3.6 | 4.2 | 3.5 | 3.7 | 4.0 | 3.5 | 3.9 | 3.7 | 3.5 | 3.9 | 4.0 |
| Grade (%) | | 6% | | | 0% | | | 0% | | | 0% | |
| Storage Length (m) | 127.0 | | 123.0 | 87.1 | | 35.0 | 72.0 | | 35.0 | 88.5 | | 47.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Taper Length (m) | 64.0 | | | 39.6 | | | 66.8 | | | 32.6 | | |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 |
| Ped Bike Factor | 0.97 | | 0.96 | 0.99 | | 0.91 | 0.99 | | 0.93 | 0.98 | | 0.95 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1681 | 3400 | 1622 | 1733 | 3579 | 1654 | 1767 | 5255 | 1588 | 1750 | 5105 | 1627 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.363 | | | 0.292 | | |
| Satd. Flow (perm) | 1633 | 3400 | 1549 | 1715 | 3579 | 1502 | 666 | 5255 | 1470 | 527 | 5105 | 1550 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 154 | | | 141 | | | 59 | | | 186 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 297.5 | | | 222.7 | | | 158.6 | | | 385.2 | |
| Travel Time (s) | | 17.9 | | | 13.4 | | | 9.5 | | | 23.1 | |
| Confl. Peds. (#/hr) | 75 | | 31 | 31 | | 75 | 37 | | 65 | 65 | | 37 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.92 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% | 1% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Adj. Flow (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 743 | 737 | 196 | 617 | 186 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 155 | 857 | 358 | 331 | 753 | 496 | 228 | 743 | 737 | 196 | 617 | 186 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(m) | | 3.5 | | | 3.5 | | | 3.5 | | | 3.5 | |
| Link Offset(m) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Crosswalk Width(m) | | 1.6 | | | 1.6 | | | 1.6 | | | 1.6 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.06 | 1.04 | 0.96 | 1.01 | 0.99 | 0.94 | 1.01 | 0.96 | 1.00 | 1.01 | 0.96 | 0.96 |
| Turning Speed (k/h) | 24 | | 14 | 24 | | 14 | 24 | | 14 | 24 | | 14 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Leading Detector (m) | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 | 2.0 | 10.0 | 2.0 |
| Trailing Detector (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Position(m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Size(m) | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 | 2.0 | 0.6 | 2.0 |
| Detector 1 Type | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex | CI+Ex |
| Detector 1 Channel | | | | | | | | | | | | |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector 2 Position(m) | | 9.4 | | | 9.4 | | | 9.4 | | | 9.4 | |
| Detector 2 Size(m) | | 0.6 | | | 0.6 | | | 0.6 | | | 0.6 | |

 1105-1163 Kingston Road
 Synchro 11 Report

 WSP
 Page 7

Lanes, Volumes, Timings
13: Whites Road & Kingston Road

<2043 Future Total_PHF>PM 12-20-2024

| | • | - | • | • | — | • | 1 | † | - | - | ļ | 4 |
|---------------------------------|---------------|-----------|-----------|------------|------------|-----------|-----------------|----------|-------|-------|-------|----------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector 2 Type | | CI+Ex | | | CI+Ex | | | CI+Ex | | | Cl+Ex | |
| Detector 2 Channel | | | | | | | | | | | | |
| Detector 2 Extend (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | pm+pt | NA | pm+ov | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | 1 | 7 | 4 | |
| Permitted Phases | · | = | 2 | | - | 6 | 8 | - | 8 | 4 | | 4 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 3 | 8 | 1 | 7 | 4 | 4 |
| Switch Phase | · | | | | - | - | - | - | | | | - |
| Minimum Initial (s) | 5.0 | 20.0 | 20.0 | 5.0 | 20.0 | 20.0 | 5.0 | 8.0 | 5.0 | 5.0 | 8.0 | 8.0 |
| Minimum Split (s) | 10.0 | 43.0 | 43.0 | 10.0 | 43.0 | 43.0 | 8.0 | 49.0 | 10.0 | 8.0 | 49.0 | 49.0 |
| Total Split (s) | 18.0 | 43.0 | 43.0 | 30.0 | 55.0 | 55.0 | 8.0 | 49.0 | 30.0 | 8.0 | 49.0 | 49.0 |
| Total Split (%) | 13.8% | 33.1% | 33.1% | 23.1% | 42.3% | 42.3% | 6.2% | 37.7% | 23.1% | 6.2% | 37.7% | 37.7% |
| Maximum Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 5.0 | 40.6 | 25.0 | 5.0 | 40.6 | 40.6 |
| Yellow Time (s) | 3.0 | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 3.0 | 4.3 | 3.0 | 3.0 | 4.3 | 4.3 |
| All-Red Time (s) | 2.0 | 2.8 | 2.8 | 2.0 | 2.8 | 2.8 | 0.0 | 4.1 | 2.0 | 0.0 | 4.1 | 4.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 3.0 | 8.4 | 5.0 | 3.0 | 8.4 | 8.4 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Loud | Lug | Lug | Loud | Lug | Lug | Loud | Lug | Loud | Loud | Lug | Lug |
| Vehicle Extension (s) | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 | 3.0 | 0.2 | 0.2 |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | None | None | Max | Max |
| Walk Time (s) | None | 7.0 | 7.0 | INOTIC | 7.0 | 7.0 | INOTIC | 7.0 | None | None | 7.0 | 7.0 |
| Flash Dont Walk (s) | | 29.0 | 29.0 | | 29.0 | 29.0 | | 33.0 | | | 33.0 | 33.0 |
| Pedestrian Calls (#/hr) | | 13 | 13 | | 38 | 38 | | 20 | | | 20 | 20 |
| Act Effct Green (s) | 13.0 | 36.0 | 36.0 | 25.0 | 48.0 | 48.0 | 51.0 | 40.6 | 69.0 | 51.0 | 40.6 | 40.6 |
| Actuated g/C Ratio | 0.10 | 0.28 | 0.28 | 0.19 | 0.37 | 0.37 | 0.39 | 0.31 | 0.53 | 0.39 | 0.31 | 0.31 |
| v/c Ratio | 0.10 | 0.20 | 0.66 | 0.19 | 0.57 | 0.77 | 0.75 | 0.45 | 0.89 | 0.77 | 0.39 | 0.30 |
| Control Delay | 109.5 | 60.1 | 29.8 | 103.1 | 25.5 | 22.2 | 47.4 | 36.9 | 36.8 | 51.6 | 35.8 | 5.8 |
| Queue Delay | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 109.5 | 63.5 | 29.8 | 103.1 | 25.5 | 22.2 | 47.4 | 36.9 | 36.8 | 51.6 | 35.8 | 5.8 |
| LOS | F | 00.5 E | 23.0 C | F | 25.5 C | C | D | D | D | D D | D | 3.0 A |
| Approach Delay | | 59.9 | U | | 40.8 | U | D | 38.3 | D | D | 33.4 | А |
| Approach LOS | | 55.5 E | | | 70.0 | | | D | | | C | |
| | | | | | | | | | | | 0 | |
| Intersection Summary Area Type: | Other | | | | | | | | | | | |
| Cycle Length: 130 | Other | | | | | | | | | | | |
| Actuated Cycle Length: 13 | RN | | | | | | | | | | | |
| Offset: 32 (25%), Referen | | 2.ERT a | nd 6:\MR | C Start o | Groon | | | | | | | |
| Natural Cycle: 120 | ceu to priast | 2.LD1 a | ilu o.vvb | i, otari u | Gleen | | | | | | | |
| Control Type: Actuated-Co | oordinated | | | | | | | | | | | |
| Maximum v/c Ratio: 0.99 | Jordinaled | | | | | | | | | | | |
| Intersection Signal Delay: | 12.2 | | | | ntersectio | n I OC: D | | | | | | |
| Intersection Capacity Utiliz | | 0/ | | | CU Level | | . Ц | | | | | |
| Analysis Period (min) 15 | 2011011 114.0 | /0 | | ľ | 50 Level | UI SEIVIU | 2 11 | | | | | |
| Splits and Phases: 13: | Whites Road | I & Kings | ton Road | | | | | | | | | |
| ₩ø1 | - | Ø2 (R) | | | | 1 | 33 \$ 6 | 14 | | | | - 8 |
| 71.2/1 | 42 0 | D2 [N] | | | | 0.0 | 40.0 | rate. | | | - | V (4) |