

# CHAPTER K – FUTURE MONITORING REQUIREMENTS

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## 1.0 INTRODUCTION

To assess the effectiveness of the measures recommended in this MESPA and provide potential recommendations for adjustments to the systems proposed for Seaton over time, the MESP Terms of Reference requires that a monitoring program be established in consultation with the City of Pickering, TRCA and the Seaton Landowners Group (SLG).

The following is a summary of the monitoring requirements (condensed) from the approved Terms of Reference.

- Establish a long-term environmental monitoring program, including implementation strategies and contingency planning. Details to be provided in the MESP shall include the type, location, frequency, duration of reporting, as well as potential contingency measures (where feasible) based on the results of the monitoring.
- The monitoring program for the Seaton Community will tie into the TRCA Regional Monitoring Network as well as any Provincial and Federal monitoring stations. The program should continue through the build out and post build out periods.
- The implementation strategy shall confirm the process by which the monitoring will be carried out including determination of the funding mechanisms and the roles and responsibilities of both the landowners/developers and approval agencies.
- The contingency plan shall identify performance measures in the identified categories and a contingency process to be used in the event that the performance measures are not met.

The performance measures and any resulting contingency actions must be sufficiently flexible to enable a suitable reaction to whatever changes are observed. These plans will form the basis of an adaptive management plan. Thus the environmental management framework for Seaton will be a flexible system through which potential, and possibly, unanticipated impacts can be identified, monitored and mitigated.

A significant amount of baseline environmental data has been collected for the Seaton Study Area during the preparation of the MESP Phase 1 and 2 reports, the MESPA, and for the CPDP Plan Regional Services Class EA Study. The majority of the data was presented in the MESP Phase 1 Existing Conditions study; additional information has been provided as part of the completion of the Phase 2 MESP and MESPA; and, further data collection will continue as part of establishing a comprehensive database. The data can be compared to future monitoring results and used to make potential recommendations on improvements to implementation of infrastructure and related development matters as Seaton develops over time.

This database has been documented using a GIS system, which is proposed to be transferred to the TRCA once the MESPA and associated monitoring has been

completed. It will provide the basis for comparative analysis of pre-development to post-development conditions.

## 2.0 PROPOSED MONITORING PROGRAM

A similar monitoring requirement was included in the recently completed Duffin Heights Environmental Servicing Plan (ESP). During consultation with the TRCA and the City of Pickering in preparing the Duffin Heights ESP, it was agreed that the monitoring model developed for Duffin Heights would be used as the basis for developing the Seaton monitoring program. After the submission and agency review of the Phase 2 MESP (July 2010), all parties including the TRCA, City of Pickering, SLG and the Region of Durham representatives met on January 5<sup>th</sup>, 2011 to discuss the proposed monitoring program. Minutes from this meeting are presented in **Chapter H**. From this meeting, it was established that further discussion around the monitoring program is required. It was agreed that this could take place after finalization of the MESPA.

Therefore, based on the approved monitoring program within the Duffin Heights ESP, the recommendations made in the Phase 2 MESP, and the subsequent meeting, it is recommended that the monitoring program for Seaton be divided into two components:

1. A Watershed System Monitoring and Management Program for Seaton to be undertaken by the TRCA and,
2. A Mitigation Measures and Best Management Practices Monitoring Program for the development of Seaton to be undertaken by the City of Pickering in consultation with TRCA.

Both programs are outlined below.

## 2.1 WATERSHED SYSTEM MONITORING AND MANAGEMENT PROGRAM

It is recognized that the Duffins Creek Watershed is currently one of the least developed watersheds within TRCA's jurisdiction. Seaton is only one of a number of new urban development areas located within the Duffins Creek Watershed that will develop over the next 10 to 20 years. Others include the Duffin Heights Neighbourhood, the former A9 Planning Area in Ajax, Federal Lands north of Highway 7 within the Duffins Creek Watershed, and additional growth lands in northeast Pickering.

Based on discussions with TRCA during the preparation of the Duffin Heights ESP, it was agreed that a single monitoring program would be prepared for the complete Duffins Creek Watershed. The monitoring program is to be undertaken by the TRCA, in consultation with the City of Pickering and the Town of Ajax. An overall Monitoring and Management Program would be developed for each development community, with input from the respective MESP's and/or ESP's.

Recognizing that considerable data have been collected, compiled and analyzed as part of the Seaton MESP and MESPA, and in light of the discussions held on January 5<sup>th</sup>, 2011, it is proposed that TRCA, in consultation with the City of Pickering and Town of

Ajax, undertake the Watershed System Monitoring and Management Program for the Duffins Creek Watershed after completion of the MESPA.

This program includes but may not be limited to:

- Augmenting the existing conditions database developed for the MESP and this MESPA, including the addition of supplementary flow gauging stations, if needed;
- Identifying terrestrial monitoring sites, including ESA Overall Benefit Plans' locations (refer to **Chapter E**) within Seaton that will form part of the overall terrestrial monitoring program throughout the Duffins Creek Watershed; and,
- Establishing a watercourse monitoring program that includes, but may not be limited to, fluvial geomorphic and fisheries monitoring at identified sensitive reaches throughout the Duffins Creek Watershed.

Once the program has been established and the required funding calculated, a per hectare cost for the monitoring program would be applied as conditions of subdivision or site plan approval on a development parcel basis for all of the lands to be developed in Seaton.

### **2.1.1 ADAPTIVE MANAGEMENT FRAMEWORK**

Adaptive management assumes a level of uncertainty with respect to potential impacts. The monitoring, including the baseline data collection outlined above, is a key component of adaptive management. The development of baseline data allows triggers to be quantified. These triggers can be integrated into the overall Watershed System Monitoring and Management Program. If the triggers are exceeded, the potential impacts can be assessed and a mitigation plan can be adapted to limit the observed impacts. Where baseline data are limited or do not exist, the triggers themselves can be adjusted as more data become available, if warranted.

As with the Watershed System Monitoring and Management Plan, funds for Adaptive Management will be established through the conditions of subdivision or site plan approval on a development parcel basis for all of the lands to be developed in Seaton. The "Duffins Watershed Adaptive Management Fund" will be maintained by TRCA and is to be used in consultation with the City of Pickering as results of the monitoring program become available over time and the need for changes to watershed management systems are identified.

Over time, as TRCA fully develops the watershed program, additional funding on a similar basis will be assessed to other benefiting development interests within the overall Duffins Watershed system area.

## **2.2 MONITORING OF MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES**

The need to monitor the effectiveness of the proposed mitigation measures and best management practices, with a focus on stormwater management (SWM) facilities and low impact development (LID) measures, has been identified. Based on the dialogue

held on January 5<sup>th</sup>, 2011, it was recommended that further discussions between the City and the SLG be undertaken to establish the scope of monitoring to be undertaken.

In 2012 the City of Pickering issued the City of Pickering Stormwater Management Guidelines. The guidelines provide recommendations for monitoring of SWM facilities and LID measures. The guidelines were written such that through the subdivision agreements the individual landowners/developers would be responsible for monitoring of SWMFs and/or LIDs to the satisfaction of the City prior to assumption of these facilities. Since that time, as identified through the Fiscal Impact Study (2013), funds for the long term monitoring of the SWM facilities and LID measures within Seaton after acceptance have been provided for by the SLG submitted to and accepted by the City. Further consultation between the City and SLG respecting Section 9.0 of the City's SWM Design Guidelines will be undertaken during processing of the individual draft plans for registration in order to determine the monitoring program of SWM facilities and LID measures that should occur in the post construction period prior to assumption of the infrastructure by the City.

It is still a recommendation of this MESPA that the City identify specific representative monitoring locations (i.e. which SWMFs and/or LIDs), monitoring protocols, the required monitoring frequency, period and reporting requirements in consultation with the SLG and TRCA.

As discussed in **Section K1.0**, an extensive monitoring database has been established and the collection of environmental data undertaken as part of this MESPA will continue for the 2013 monitoring season. These data will help to establish existing conditions, which can be used as a baseline for the monitoring of mitigation measures and best management practices in the future.