

**Municipality of Clarington**

# **Courtice Employment Lands and Southwest Courtice Secondary Plan**

**Servicing Existing Conditions, Opportunities and Constraints**

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# 1 Study Area

The study area focuses on a portion of the Southwest Coutice secondary plan area and the adjacent Courtice Employment Lands secondary plan area.

The study area includes the lands bound by Townline Road in the west, Highway 401 (HWY 401) to the south, a portion of Bloor Street to the north, and Courtice Road and the future Highway 418 (HWY 418) to the east. The following **Figure 1** depicts the local context within the Municipality of Clarington.

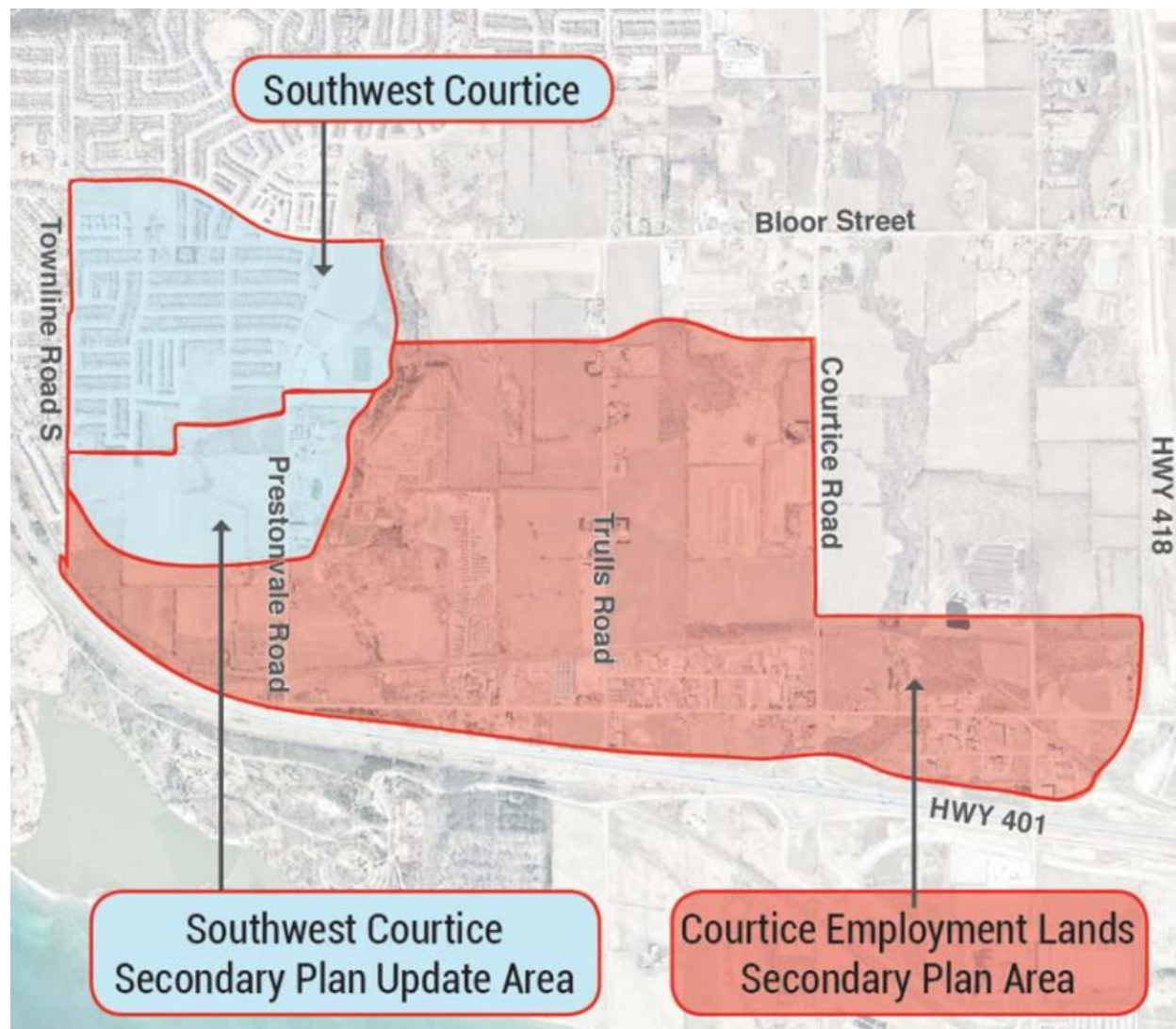


Figure 1: Study Area

## 1.1 Background and Context

The purpose of this report is to summarize the existing and previously planned municipal infrastructure that will provide water, wastewater and stormwater management services to future development within the study area. The Regional Municipal of Durham (Durham) is responsible

for the delivery of municipal water and wastewater services across Durham Region. Through its long-range planning processes the Region identifies water and wastewater infrastructure required to support growth within urban areas. Infrastructure projects required to support growth are included in the Region's Development Charges (DC) by-law. Stormwater infrastructure is the responsibility of the Municipality of Clarington. Stormwater infrastructure to support growth is typically planned and constructed by local developers or groups of developers and subsequently assumed by the Municipality.

## **2 Water Supply**

### **2.1 Existing System Overview**

The Regional Municipality of Durham's (Durham) Whitby-Oshawa-Courtice Drinking Water System (DWS) supplies water to a population approximately 320,000 people located in the Town of Whitby, City of Oshawa and the Municipality of Clarington. Within the Municipality of Clarington only the Courtice area is serviced by the Whitby-Oshawa-Courtice DWS, communities further east area serviced by other systems. Treated water is supplied to the Whitby-Oshawa-Courtice DWS from the Whitby Water Supply Plant (WSP) with a rated capacity of 118 ML/d and the Oshawa WSP with a rated capacity of 134 ML/d. The Whitby WSP is currently operating at 109 ML/d and a Class Environmental Assessment has been filed to expand its capacity to an anticipated 218 ML/d. The Oshawa WSP is currently operating at approximately 96 ML/d.

The distribution system is divided into to four (4) pressure zones. Courtice is situated in Zone 1 and Zone 2. Zones 1 and 2 are integrated, with areas below an elevation of 118 m serviced from Zone 1 and areas above 118 m (up to 154 m) are serviced from Zone 2. The Southwest Courtice Secondary Plan area is located entirely in Zone 1. The Courtice Employment Lands are divided between Zone 1 and Zone 2.

### **2.2 Planned Upgrades**

Durham's Development Charge (DC) background study identifies a number of projects to provide a network of feeder mains to support development within the study area.

#### **2.2.1 Zone 1 Upgrades**

The existing development in the northern portion of Southwest Courtice is serviced by an existing network of Zone 1 water mains. However, there is limited water distribution infrastructure south of the currently developed area.

An existing 300 mm dia. watermain along Townline Road connects to an existing 400 mm dia. watermain on the north side of Highway 401 that crosses the highway and connects to a 300 mm dia. watermain on the south side of Highway 401 on Colonel Sam Drive. This 300 mm dia. continues easterly to the Courtice Water Pollution Control Plant (WPCP) located east of Courtice Road.



To service the undeveloped portion of Southwest Courtice and the southern portion of the Courtice Employment Lands, new Zone 1 watermain is planned. The new watermain will consist of a 400 mm dia. watermain extended north from the Courtice WPCP under highway 401 to Baseline Road and west along Baseline Road to Courtice Road. This portion of the watermain has been constructed in conjunction with the Courtice Trunk Sanitary Sewer (TSS) project. The new 400 mm dia. watermain will run west along Baseline Road to Prestonvale Road where it will run north towards the future Type B Arterial Road and turn west to connect back to the existing 300 mm dia. watermain on Townline Road.

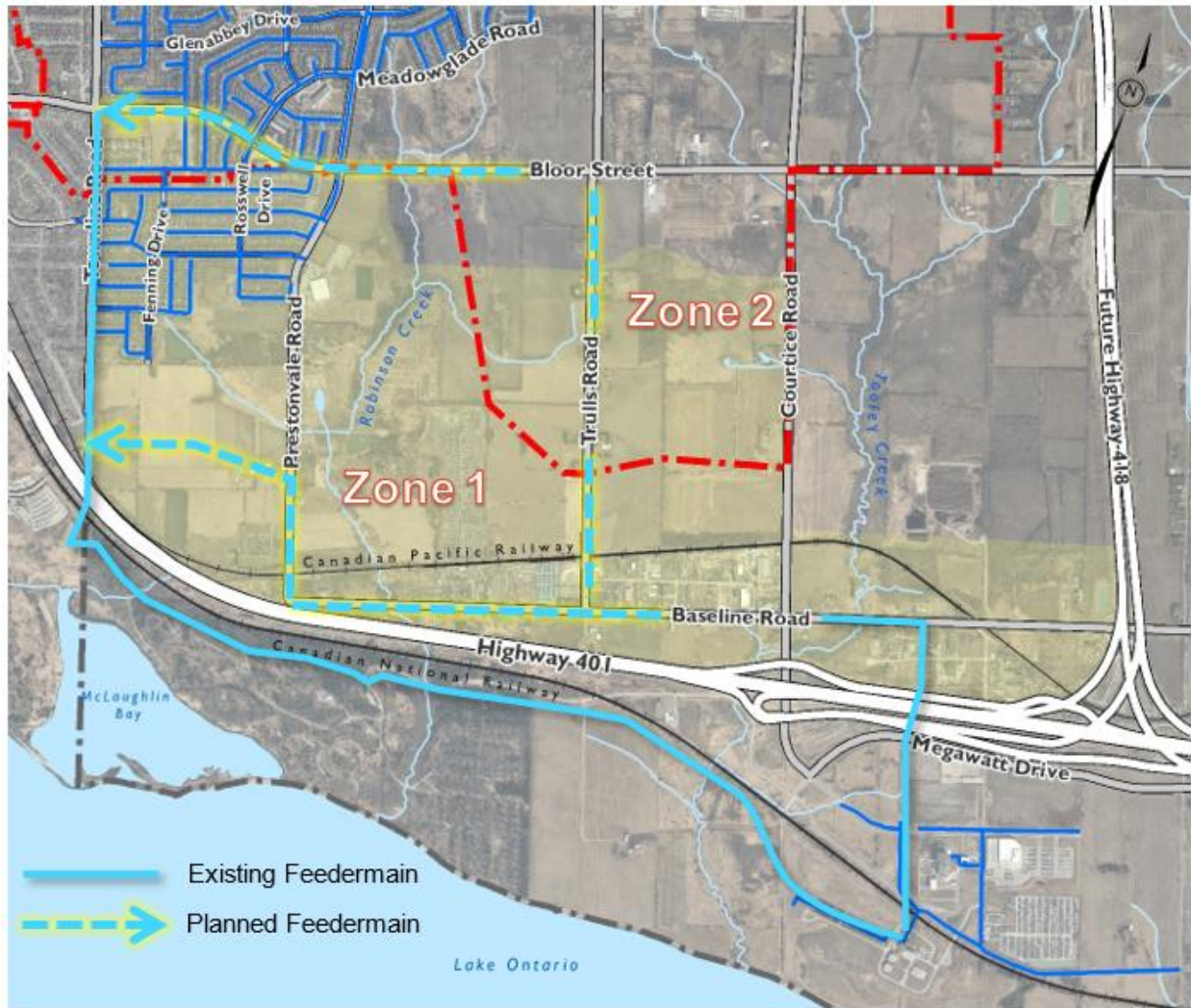


Figure 2: Planned Water Distribution Upgrades

### 2.2.2 Zone 2 Upgrades

To service the Courtice Employment Lands area a new Zone 2 feedermain is proposed. The new 600 mm dia. watermain will run east-west along Bloor Street from Townline Road to Trulls Road. A new 400 mm Zone 1/Zone 2 watermain will run south on Trulls Road to connect to the

new 400 mm dia. Zone 1 watermain at Baseline Road. A closed valve on Trulls Road will isolate the two zones at the Zone 1/Zone 2 boundary.

## 2.3 Opportunities and Constraints

There are no major constraints associated with the provision of water servicing to support growth within the study area. The existing water supply plants, booster pumping stations and storage facilities in Zones 1 and 2 have been planned to support growth and over the long-term the planned projects described above will provide a water supply system capable of providing water to local watermains in the study area to support development.

## 3 Wastewater

### 3.1 Existing System Overview

Courtice is within the sanitary sewage catchment area that is shared between the Harmony Creek Water Pollution Control Plant (WPCP) and the Courtice WPCP. The existing developed urban area in Southwest Courtice is generally limited to the land that can be drained by gravity to the Harmony Creek Sanitary Sewage Pumping Station (SSPS) and from there pumped to the Courtice WPCP for treatment. The undeveloped lands in Southwest Courtice and the Courtice Employment Lands are all within catchment area that will eventually flow directly to the Courtice WPCP by gravity.

### 3.2 Planned Upgrades

The Region of Durham's Development Charge (DC) background study identifies a number of projects to provide new trunk and sub-trunk sanitary sewers in the Courtice area. These new sanitary sewers will support development in the study area and beyond.

#### 3.2.1 Courtice Trunk Sanitary Sewer

The Courtice Trunk Sanitary Sewer (CTSS) is currently being extended north from the Courtice WPCP under Highway 401 and into Courtice Employment Lands. The northward extension of the CTSS will allow for servicing of the adjacent lands in south Courtice and will ultimately allow flows from north Oshawa to be diverted to the Courtice WPCP.

Several phases of the CTSS have been completed extending a 2100 mm dia. sewer from the Courtice WPCP north under Highway 401 to Baseline Road and west along Baseline Road to Courtice Road. The next phase of the project that is anticipated for construction in 2020 and will extend the 2100 mm dia. trunk sanitary sewer further west along Baseline Road to Trulls Road and extend an 1800 mm dia. sewer north on Trulls Road to Bloor Street.

#### 3.2.2 Southeast Courtice Sub-Trunk Sewer

Most of the Courtice Employment Lands west of Trulls Road will not be able to drain directly to the CTSS. Instead they will have to drain southwesterly towards a future sub-trunk sanitary sewer to be extended west along Baseline Road from Trulls Road towards Robinson Creek. This new sub-trunk sanitary sewer will convey flows easterly to the CTSS.

### 3.2.3 Baseline Road SPSS

A new sewage pumping station referred to as the Baseline Road SPSS will be required to convey flows from the undeveloped lands in Southwest Courtice that are located west of Robinson Creek. The new pumping station will likely be located in the vicinity of the Baseline Road crossing over Robinson Creek with a forcemain discharging to the southwest Courtice sub-trunk sanitary sewer. It is possible that the Baseline Road SPSS could be located further north along Prestonvale Road with a longer forcemain connecting back to the sewer on Baseline Road, subject to an amendment of the Municipal Class Environmental Assessment.

### 3.2.4 Southeast Courtice Sub-Trunk Sewer

There is a high point between Trulls Road and Courtice Road. As a result, not all flows from the lands east of Trulls Road will be able to be conveyed directly back to the CTSS. As such, a future sub-trunk sewer on Courtice Road is planned. A connection of this new sanitary sewer under the Canadian Pacific Railway to the CTSS at Baseline Road is not feasible. As a result, a connection west to the CTSS on Trulls Road in the vicinity of the railway or the future Type B Arterial Road.

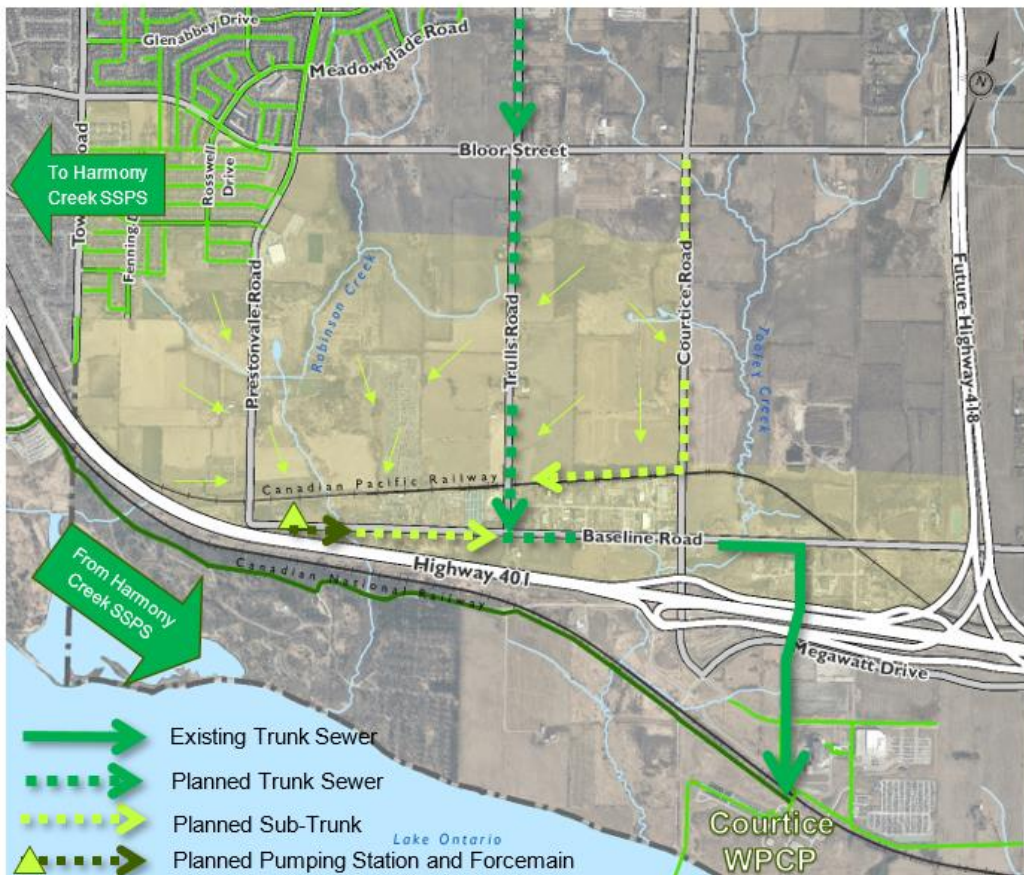


Figure 3: Planned Wastewater Upgrades



### 3.3 Opportunities and Constraints

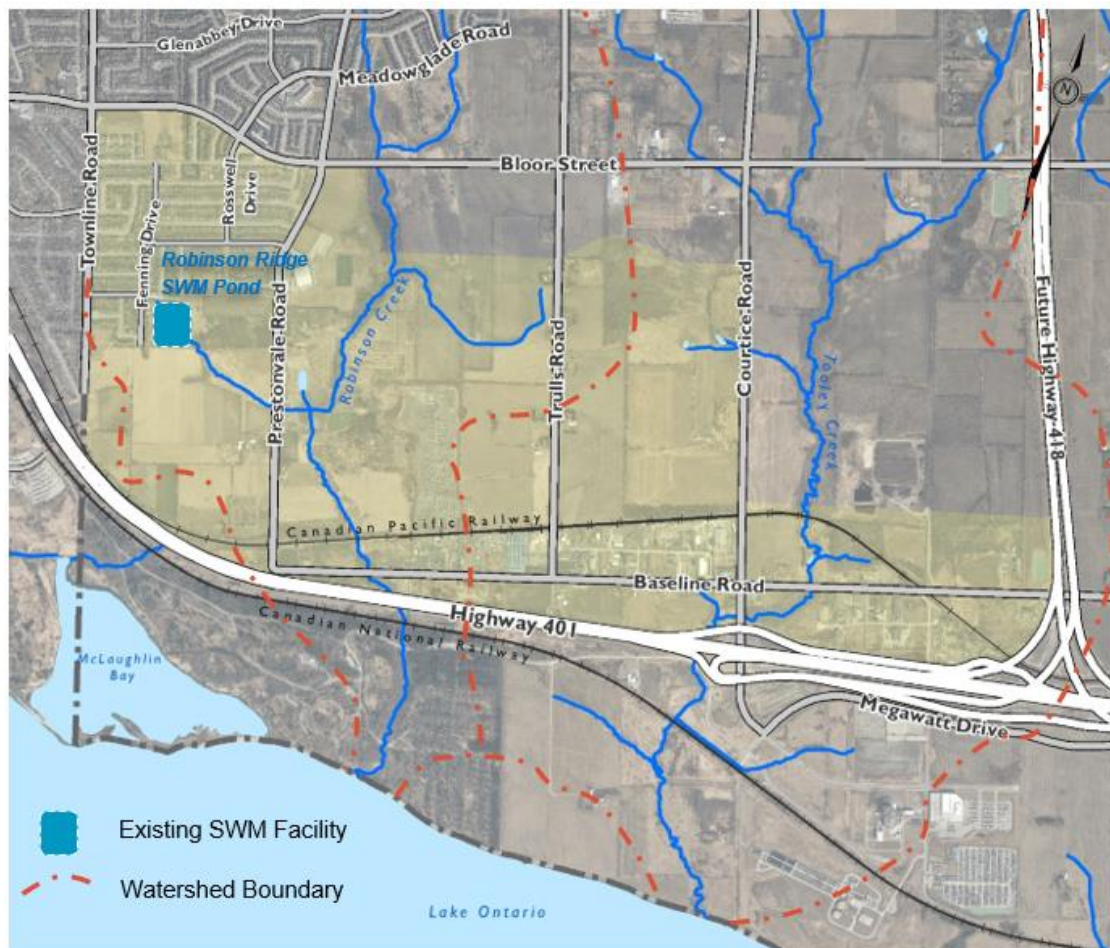
The planned trunk wastewater infrastructure within the study area will provide the framework for a network of local sanitary sewers to service development within the study area. There will be a need to confirm the specific location of the Baseline Road SPSS relative to the anticipated timing and configuration of development in Southwest Courtice. An alternative proposed location for the Baseline Road SPSS will require an amendment to the Municipal Class Environmental Assessment. There will also be a need to confirm the alignment of the east-west portion of the southeast Courtice sub-trunk sanitary sewer through the Courtice employment lands. One potential challenge will be servicing the portion of the Courtice employment lands situated east of Courtice Road. Depending on the development potential within this area either a local sewer connected directly to the CTSS or localized pumping station may be required.

## 4 Stormwater Management

### 4.1 Existing Conditions

The study area is located almost entirely within the watersheds of Robinson Creek and Tooley Creek. Southwest Courtice is located primarily within the Robinson Creek watershed. The Courtice Employment Lands are divided between the between the Robinson Creek and Tooley Creek watersheds. Approximately 18.3 ha in the most southwesterly portion of Southwest Courtice and the employments lands drains towards McLaughlin Bay via a small tributary that crosses under the CPR, Highway 401 and CNR corridors. The locations of watershed boundaries and existing stormwater management facilities are shown on **Figure 4**.





**Figure 4: Anticipated Southwest Courtice SWM Facilities**

Most of the study area is rural in nature and consists of agricultural and rural residential lands that do not have formalized stormwater management systems. These rural lands generally drain towards Robinson and Tooley Creeks via roadside ditches and drainage courses that follow the natural topography of the area.

Existing employment-type development along Baseline road is primarily located within the Tooley Creek watershed. These existing developed sites have minimal existing Stormwater Management (SWM) infrastructure and are generally graded to drain towards roadside ditches that convey flows towards Tooley Creek.

Existing urban residential development in Southwest Courtice is generally supported by roadways and storm sewers that respectively convey major and minor flows to the existing Robinson Ridge SWM Pond, which provides quantity and quality control.

## 4.2 Objectives

Stormwater Management (SWM) objectives for the study area are currently being confirmed through the completion of a subwatershed study for the Robinson Creek and Tooley Creek catchment areas. It is anticipated that facilities providing enhanced level stormwater quality

control and post-development to pre-development quantity control will be required. For large scale development areas these facilities typically take the form of wet or wetland type stormwater management ponds. These types of ponds may be potentially combined with Low Impact Development (LID) site level quality control measures to create a treatment train approach and/or dry pond facilities for quantity control purposes. Typically, centralized SWM facilities that ultimately become public infrastructure are established to service multiple residential developments. SWM facilities for employment-type development often take the form of onsite facilities that remain private infrastructure.

### 4.3 Opportunities and Constraints

As noted, most of the lands within Southwest Courtice and of the study area (62.6 ha) drain towards Robinson Creek via several smaller tributary drainage courses. However, approximately 18.3 ha in the most southwesterly part of Southwest Courtice and the Courtice Employment lands (west of Prestonvale Road) drain towards McLaughlin Bay via a small tributary that crosses under the CPR, Highway 401 and CNR corridors. This tributary discharges to the north end of McLaughlin Bay just west of the Clarington boundary. Maintaining the balance of run-off that is discharged towards Robinson Creek and McLaughlin Bay has been identified by CLOCA as a priority. As a result, it is anticipated that proposed development in Southwest Courtice will be required to maintain the existing drainage divide between the two watersheds with separate SWM facilities to provide water quality and quantity control for each. Furthermore, given existing topography and drainage courses it is anticipated that multiple SWM facilities will be required to control flows being discharged to Robinson Creek.

### 4.4 Southwest Courtice Stormwater Management Facilities

It is anticipated that three SWM Facilities will be required to provide control for flows to Robinson Creek. It is anticipated that this will include a facility for:

- The area west of Prestonvale Road and south of the tributary that originates at the existing Robinson Ridge SWM Facility;
- The area west of Prestonvale Road and north of the tributary that originates at the existing Robinson Ridge SWM Facility; and
- The area east of Prestonvale Road and north of the of the tributary that originates at the existing Robinson Ridge SWM Facility.

Depending on detailed development grading plans and the ultimate development of grade separated crossing of Prestonvale Road over the CPR there may also be a requirement for a SWM facility to control flows from the area east of Prestonvale Road immediately north of the CPR. An additional SWM facility is anticipated to be required to provide control for drainage that will continue to be directed towards McLaughlin Bay. It may be necessary to over control post-development flows from this facility due to suit the capacity of existing culverts under the CPR, Highway 401 and CNR. This SWM facility will most likely be located outside the

Southwest Courtice residential lands and within Courtice Employment lands. The conceptual location of these facilities is shown in **Figure 5**.



**Figure 5: Anticipated Southwest Courtice SWM Facilities**

#### 4.5 Courtice Employment Lands SWM Facilities

Similar to Southwest Courtice, the development of the Courtice Employment lands will require SWM facilities to control post-development flows to both Robison Creek in the west and Tooley Creek in the east and the existing drainage divide between the two watersheds will have to be maintained. If the Courtice Employment lands are consolidated and developed in a relatively comprehensive fashion it may be possible to establish a smaller number of centralized SWM facilities planned for through a master drainage plan process. However, it is not uncommon for employment land areas to include individual SWM facilities for each site that is developed.



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