





North End-Trent University Area Transportation and Wastewater

Municipal Class Environmental Assessment

Project Update
Thursday March 26, 2020

Please email northendEA@Peterborough.ca to be added to the project contact list.





Purpose of this Project Update



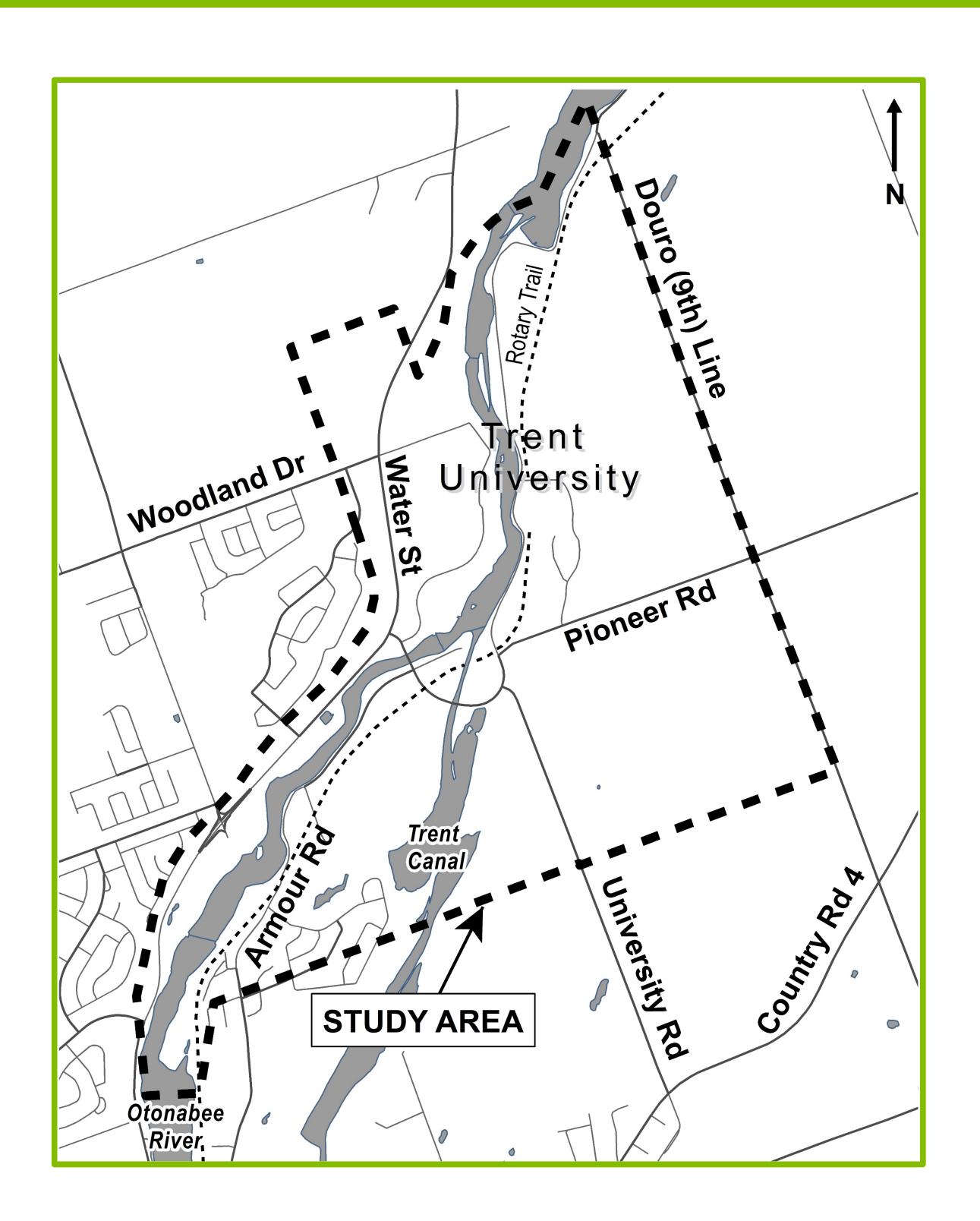
This update shares ongoing work for the study of the north end of Peterborough including Trent University lands west and east of the Otonabee River in advance of a future Public Information Centre.

This study is using the **Municipal Class EA** process to examine transportation, wastewater and stormwater infrastructure plans in an integrated manner to accommodate growth. This approach allows everyone to assess aspects of development in a holistic manner.

The growth assigned by the Province to Peterborough is more than anticipated when the Peterborough Transportation Plan Update was done in 2012. However, even with the lower growth forecast from 2012, Nassau Mills Road needed widening to address ongoing congestion and growth. Also, realignment of Armour Road has been identified in the City's Official Plan for many years. With development pressure in the north end of the City, the timing is right to plan improvements to the **transportation** network.

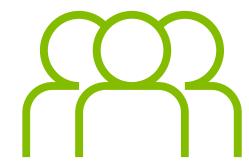
To complement the planning of future development in the study area and address existing issues with aging infrastructure, **wastewater servicing** options must be developed and evaluated.

A comprehensive examination of **stormwater** will also support planned development in the study area. The presence of the Intake Protection Zone along the Otonabee River for the water treatment plant is an important consideration.



North End – Trent University Area
Transportation and Wastewater EA Study Area

Summary of PIC #1



At Public Information Centre (PIC) #1 held in March 2017, we presented:

- Background of the study
- Overview of the Municipal Class EA Process
- Preliminary Existing Conditions in the study area
- Proposed evaluation criteria
- Alternative solutions and their preliminary assessment
- Proposed Problem and Opportunity Statement

Preferred Alternative Solutions:

- Four alternative solutions were identified to address the Problem / Opportunity Statement for each of Transportation, Stormwater and Wastewater.
- Solutions were evaluated against a broad range of criteria, which considered the effects of each alternative solution on the natural, social, cultural, built and economic environments.
- The recommended Alternative Solutions were presented.

Summary of Comments Received and Issues Identified:

- Concern for traffic volumes, pedestrian and cyclist safety.
- Concern for impacts to wells and private property; natural areas, natural features and wildlife; air quality and emissions.
- Need for a design for healthy living, a refined Problem/Opportunity statement, a Complete Streets design approach and improvements for active transportation.
- Ideas for evaluation criteria.
- Based on comments received, it was confirmed that:
 - Preferred Transportation Solution is a combination of transit, pedestrian and cycling improvements (as per the Transportation Master Plan), intersection improvements and widening roads and/or adding new roads.
 - Preferred Stormwater and Wastewater Solutions are a combination of measures to reduce the runoff and sewage volumes to the extent practical ("managing demand") and new infrastructure where needed to convey and treat wastewater and stormwater from new development.

What has been done since PIC #1?



Over the past 3 years, the team has:

- Refined the problem and opportunity statements for transportation, wastewater and stormwater
- Updated existing conditions in the study area including:
 - Various studies including geotechnical (soils and groundwater), archaeology, built heritage and natural heritage
 - Nassau Mills Guard Gate construction
 - Development plans for Woodland Drive area
 - University development and changes
- Re-examined the infrastructure needs including:
 - Sensitivity analysis for road infrastructure
 - Interim improvements and how work might be implemented
 - University Road within the City
- Following PIC No. 1 and the receipt of input, the Project Team selected the Preferred Alternative Solution(s) to address the transportation, wastewater and stormwater deficiencies
- Developed alternative design concepts to implement the Preferred Solution for each of transportation, wastewater and stormwater
- Completed an assessment of the design alternatives

Municipal Class EA Process

Study Initiation & Data Collection Phase 1 Define Problems & Opportunities **PIC #1 Develop Alternative Solutions March 2017 Assess Alternative Solutions** Present the Recommended Solution to Review Agencies/ Phase 2 Public for review/comment Consider comments & identify Preferred Solution This Project Update; Develop Alternative Design Concepts for implementing Preferred Solution followed by Update existing conditions inventory Phase 3 **Assess Alternative Design Concepts** Rescheduled PIC #2

Phase 3, continued



- Present Recommended Alternative Design Concepts to Review Agencies / Public for review / comment
- Consider comments & identify the Preferred Design Concepts

Complete & File Environmental Study Report for public review

Note: Work being done on Federal lands within the study area (i.e. Parks Canada) will be subject to the Impact Assessment Act (formerly the Canadian Environmental Assessment Act).

Upcoming Work

Problem and Opportunity Statement (Draft and Updated)



The draft Problem/Opportunity Statement was presented as part of PIC #1. Comments received from the public and other stakeholders were considered in the following final Problem/Opportunity Statement (changes for the final are shown in red):

Transportation:

- The 66 year old Otonabee River bridge will need replacement providing an opportunity to consider improvements to the river crossing (within the next 20 years).
- Improved transit, pedestrian and cycling infrastructure is needed to encourage the use of these modes of transportation
- Even with more use of alternative modes, improved road access including improved geometry and intersections are needed to support the development of the Auburn Secondary Plan Area and the Trent University Endowments lands.
- Anticipated traffic growth due to development in the City and County will result in more congestion on Water Street and Nassau Mills Road.
- There are safety concerns such as pedestrian crossings, vehicle speeds, intersection and commercial driveway
 operations and short distances between intersections.

Stormwater:

- Land development results in more impervious surfaces (asphalt, buildings, etc.), which will require management of storm water quantity to pre-development levels and maintenance of groundwater baseflows.
- · Water quality issues must also be addressed, especially in the intake zone for the City's water supply.
- There is an opportunity to implement Low Impact Development (LID) measures where feasible to reduce runoff.

Wastewater:

- Future land development will require expansion of the wastewater collection system to service homes, institutions and businesses.
- Any infrastructure work within the water intake protection zone and the transport pathway of the Trent Source Water Protection Plan needs to consider and mitigate risks associated with these projects.

How We Travel



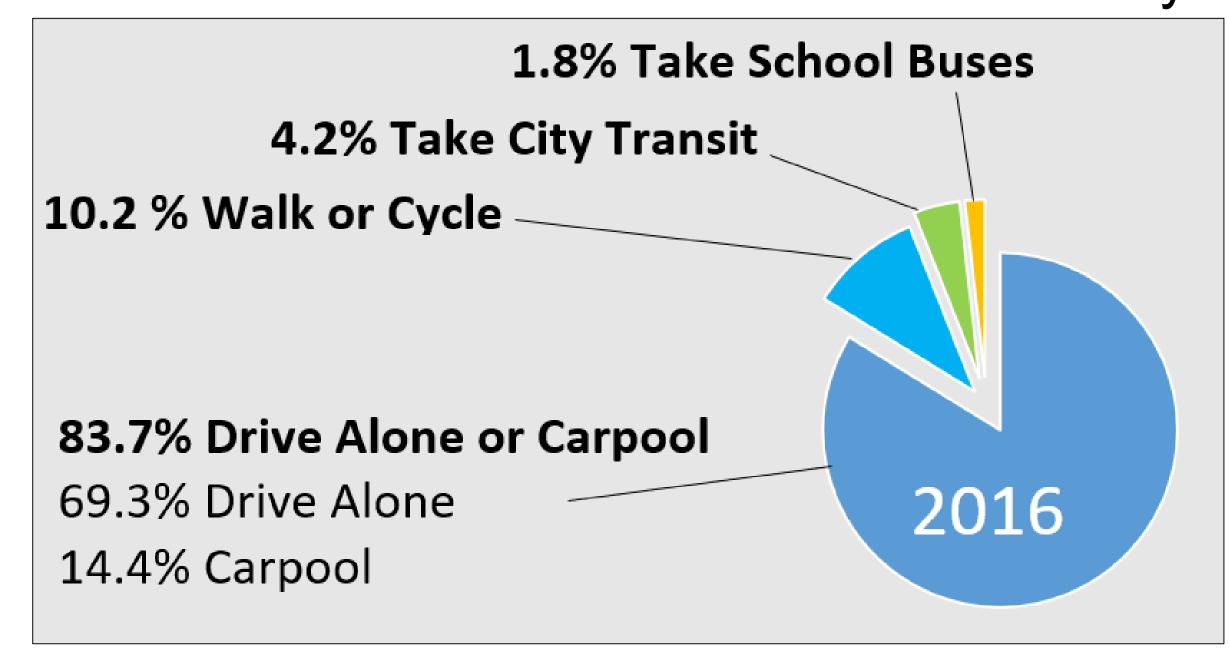
The City of Peterborough Transportation Master Plan (TMP) has set targets to increase the use of both walking and cycling by 2031, as well as the use of public transit. The percentages for 2011 and for 2031 from the transportation model are shown in the pie charts.

The City is already close to meeting the 2031 City-wide targets set in the current TMP and will be setting new targets in the TMP update.

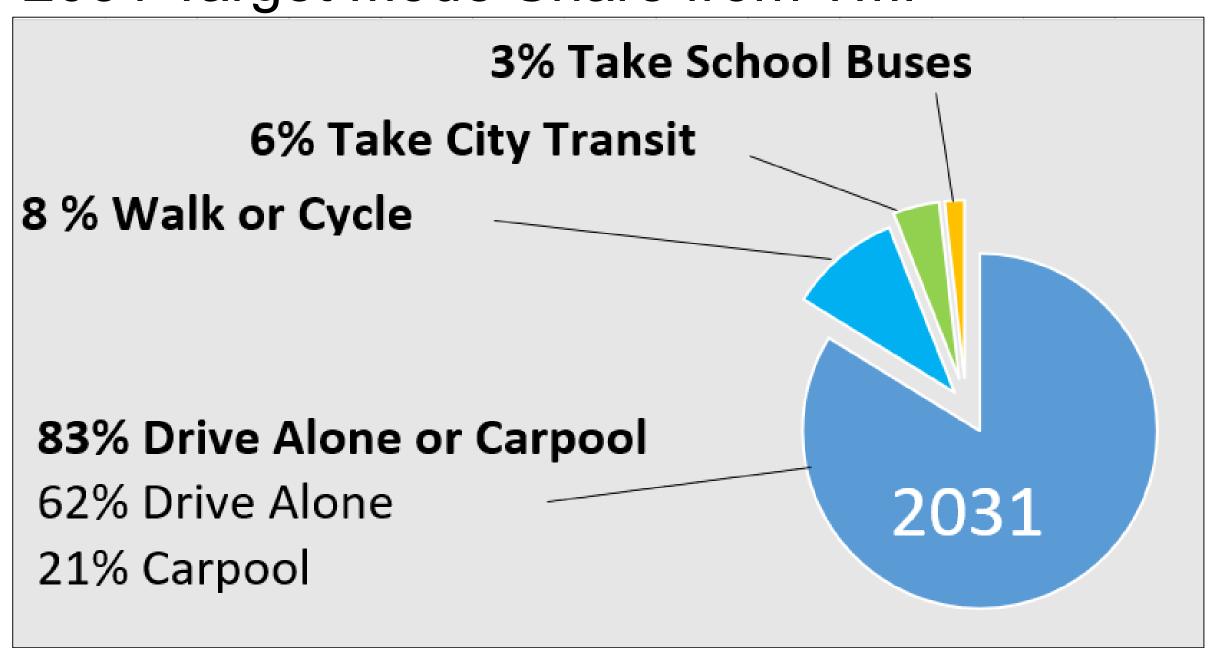
The percentage of people using each mode of travel varies across the city depending on the location. As examples:

- Walking and cycling percentages are higher for shorter trips. So, while the overall City mode share for walk or cycle is 8%, it is as high as 33% for areas adjacent to each other around Trent University.
- Transit percentages are higher between destinations such as downtown and Trent University. Overall City-wide transit is 6%, but leaving the north end it is 16% for all trips; 42% for trips to the area just west and east of downtown and 33% to downtown.

2016 Mode Share from most Recent Survey



2031 Target Mode Share from TMP



Sensitivity Analysis of Transportation Needs



After using the mode share established in the Transportation Master Plan (TMP) to analyze future travel demand, an analysis was done to determine if increases in the use of transit, walking and cycling modes would change traffic volumes enough to affect the need for more lanes.

Scenario-1: 2031 TMP target mode share achieved

Scenario-2: Increase City-wide transit trips to 50% more

than the TMP Target (i.e. 13.5%)

Scenario-3: Increase City-wide walk and cycle trips to 50%

more than the TMP target (i.e. 12%)

Scenario-4: Combine Scenarios 2 and 3

The findings of the sensitivity analysis are illustrated using the traffic volumes and volume/capacity ratios for Nassau Mills Road over the Otonabee River. These are listed in the adjacent table for each of the scenarios.

Note that a volume to capacity ratio of 0.90 is the target used in the Official Plan to indicate when a roadway link is approaching capacity and requires widening.

Scenario	2031 PM Peak Traffic Volumes on Nassau Mills Rd Bridge between West Bank Drive and Armour Road	
	Westbound Volume veh/h (V/C ratio)	Eastbound Volume veh/h (V/C ratio)
1: 2031 TMP Target mode share	761 (0.95)	684 (0.86)
2: Increase TMP Target transit share by 50%	727 (0.91)	669 (0.84)
3: Increase TMP Target walk and cycle share by 50%	736 (0.92)	681 (0.85)
4: Combine Scenario 2 and 3	725 (0.91)	667 (0.83)

It is clear from the above table that even increasing city-wide transit use by 50% and increasing walking and cycling trips by 50% over TMP targets will not significantly decrease the peak period traffic volume on Nassau Mills Road and will not change the conclusion that Nassau Mills Road will require widening from two to four lanes to support future growth.

Nassau Mills Road bridge is a strategic bridge crossing. Many vehicles using it have longer distance trips and do not have an origin or destination in the study area. That is why increasing transit, walking and cycling does not change the traffic volumes here much.

Updated Natural Environment Features in the Study Area



Natural environment field work and results are documented in the North End – Trent University Area Municipal Class EA: Natural Environment Report (AECOM, 2018). A copy of the report will be available soon on the website.

Within the study area, the Ministry of Natural Resources and Forestry (MNRF) has not identified any Areas of Natural and Scientific Interest. Significant Woodlands and unevaluated wetlands identified by Otonabee Conservation are present within the study area. More recently, MNRF has confirmed a Provincially Significant Wetland (PSW) within the Study Area, the Nassau Wetland Complex.

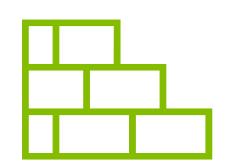
Significant Wildlife Habitat in the area includes turtle wintering areas, Great Blue Heron colony habitat, amphibian woodland breeding habitat and habitat for Species of Conservation Concern. A total of 12 terrestrial Species at Risk (SAR) were identified to potentially occur within the study area. Based on traditional knowledge provided by the Hiawatha and Curve Lake First Nations, Blanding's Turtle is known to occur within the study area.

With respect to aquatic habitat, there is Smallmouth bass spawning habitat along the Otonabee River shorelines and Riverview Creek. Other waterbodies provide seasonal and permanent habitat for small-bodied fish. There are no records or observations of aquatic Species at Risk in the area.

The assessment and evaluation of alternatives considered the natural heritage features of the area. Additional localized investigations may be required during detail design depending of the location of proposed work.



Updated Cultural Environment in the Study Area

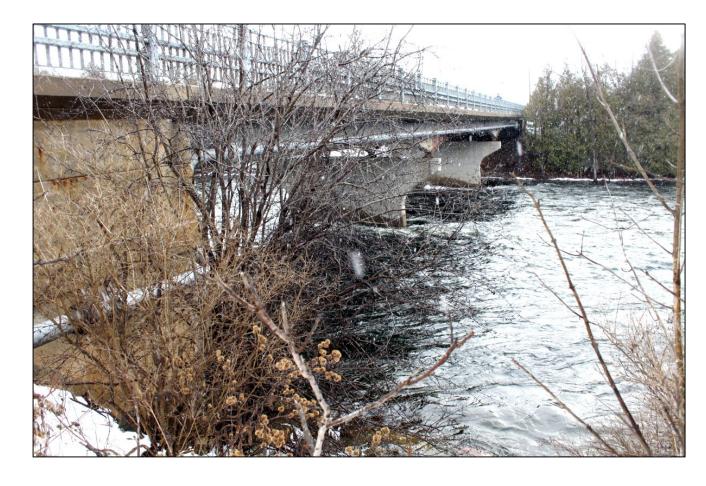


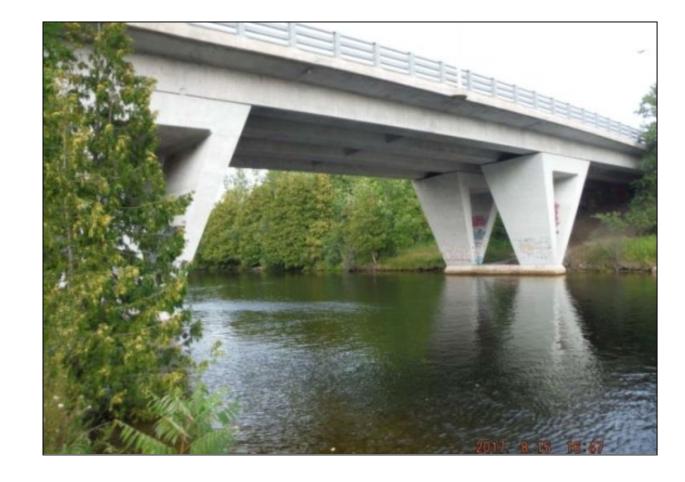
Field work and results are provided in detail in the Built Heritage and Archaeology reports available on the web site under "Reports". The assessment of alternatives was completed using the updated data.

Archaeological Assessments

Stage 2 Archaeological assessments will be completed where required.

Heritage Evaluations of the Nassau Mills Road bridges





The Nassau Mills Road Bridges over the Otonabee River and the Trent-Severn Waterway (TSW) have moderate local significance. The Otonabee River bridge was designed to complement the site and is fitting in scale and character with its context adjacent to the Trent-Severn Waterway National Historic Site,

Heritage attributes of the Otonabee River bridge include:

- o tapered and flared form of the piers;
- o open railings with views of the Otonabee River and dam;
- o lightening effect of the girders combined with the pier shape;
- o narrow sidewalks giving pedestrian access to the views; and,
- design features integrating the structure with its setting.

The TSW bridge was designed to enhance the character of the site, making use of modern design that complements the nearby campus of Trent University.

Heritage attributes of the TSW bridge include:

- o the inverted triangular, open form of the piers; and,
- o direct reference to the work of Paul Merrick and Ron Thom and the award-winning design of the Trent campus.

Built Heritage and Cultural Landscapes

The TSW is a National Historic Site and a significant Cultural Heritage Landscape. Any design that would encroach physically or visually would require a Heritage Impact Assessment and consultation with Parks Canada.

Sections of the Rotary Trail are along one of the first railway lines through Peterborough (opened 1858). If the alignment of the trail is moved, It would be appropriate to interpret the history of the area for users.

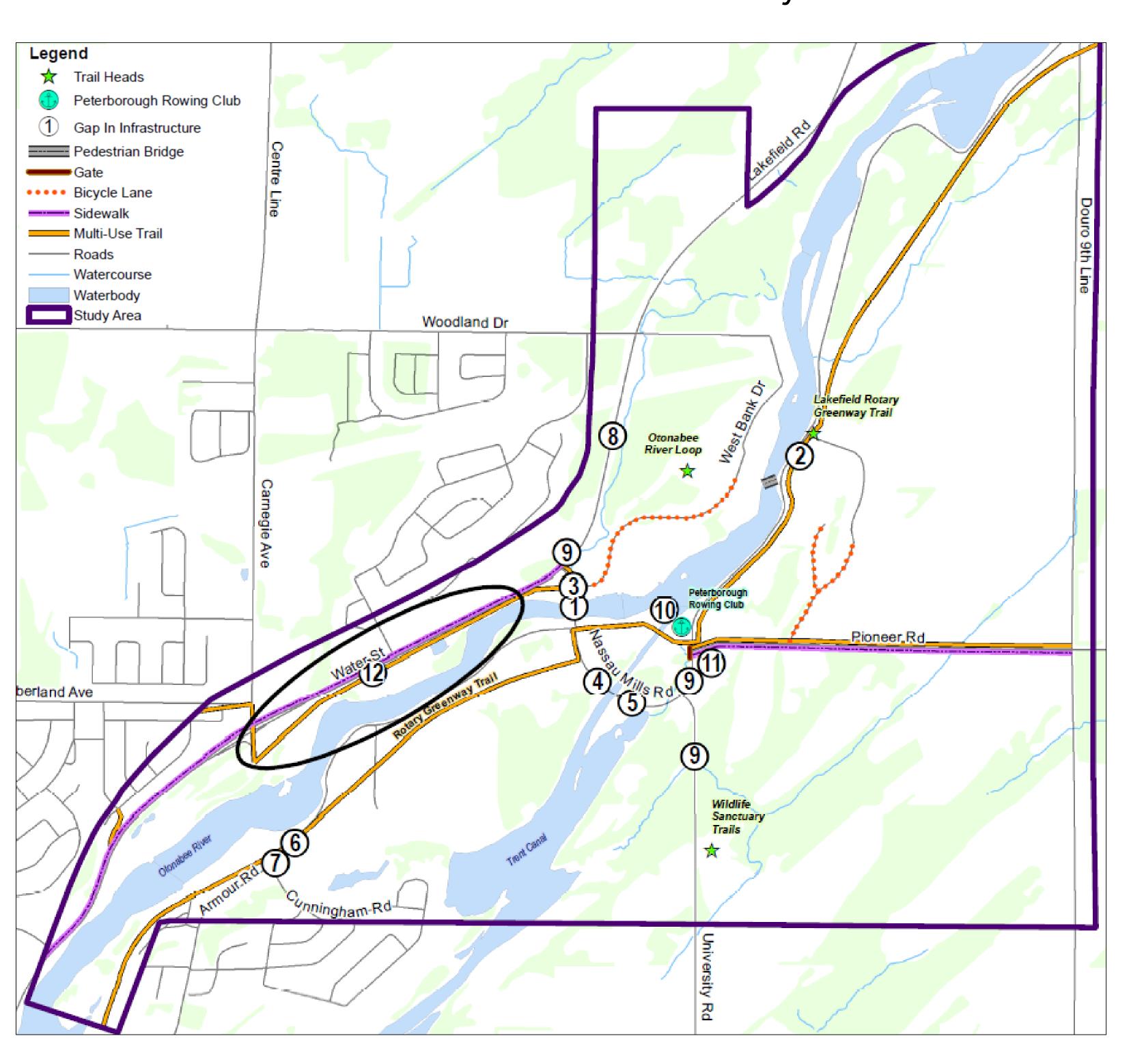
The historic swing bridge next to the canal on the old rail alignment is an opportunity to identify for visitors the significance of railway history in Peterborough.

The Orange Lodge building at 3595 Nassau Mills Road is a building of unknown age that appears to be unstable. It may date to the period of the early mills in the area. If the proposed improvements require the building to be removed, it should be recorded for the city archives.

Active Transportation Network



The existing network of sidewalks, trails and bicycle lanes is shown on the map. The Rotary Greenway Trail provides the primary off-road bicycle and pedestrian facility on the east side of the Otonabee River. There is a paved multi-use path (MUP) along Water Street south of Nassau Mills Road and a sidewalk on the west side of Water Street. Along Pioneer Road there is a MUP on the north side and sidewalk to the south. East Bank and West Bank Drives have bicycle lanes and there are numerous footpaths through the campuses and in natural areas.



There are gaps & issues in the active transportation network:

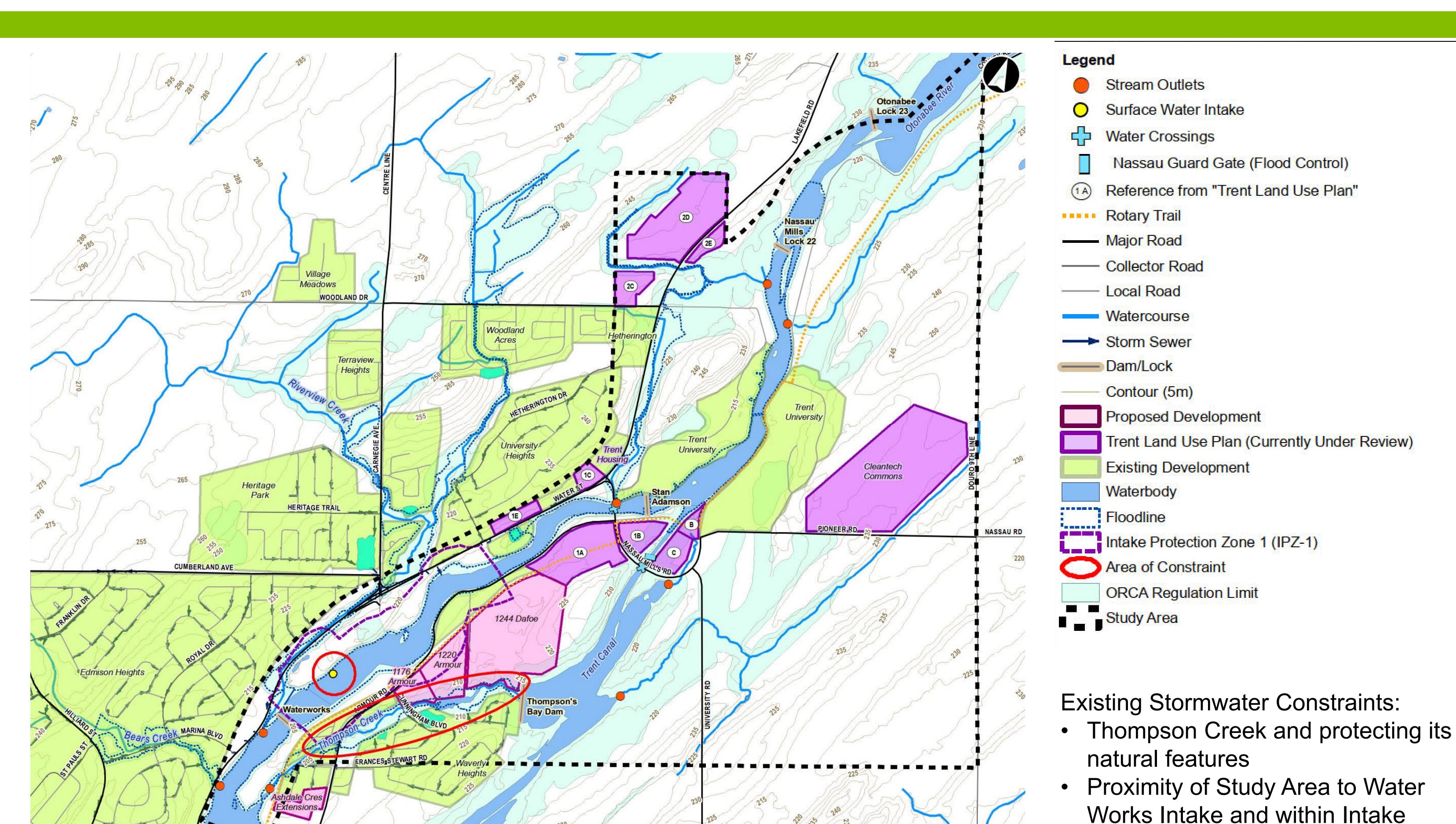
- 1. Narrow sidewalks crossing the Otonabee River
- 2. Gap in Rotary Trail north of East Campus
- 3. Unprotected crossing of Nassau Mills Rd. at West Bank Dr.
- 4. Gap on west approach to the Trent Canal and a narrow sidewalk on the bridge
- 5. Gap on east approach to the Trent Canal and a narrow sidewalk on the bridge
- 6. Unprotected trail crossing of Armour Rd. north of Cunningham Blvd.
- 7. Gap on Armour Road from Cunningham to Rotary Trail
- 8. Gap along Water St. north of Nassau Mills Rd.
- Gaps along the Nassau Mills Rd, West Bank Dr. and University Rd. corridors
- 10. Shared use of trail and driveway at Rowing Club
- 11. Unprotected trail crossing of Nassau Mills Rd. at Pioneer Rd.
- 12. Narrow MUP and conflicts with parking along Water Street corridor south of Nassau Mills Rd.

Issues and gaps in the active transportation network are being considered in the concept designs and the evaluation of transportation alternatives.

Existing Stormwater Conditions Update



Protection Zones 1 and 2



Stormwater vs Wastewater and Trent Source Water Protection

Stormwater vs Wastewater (Sewage)

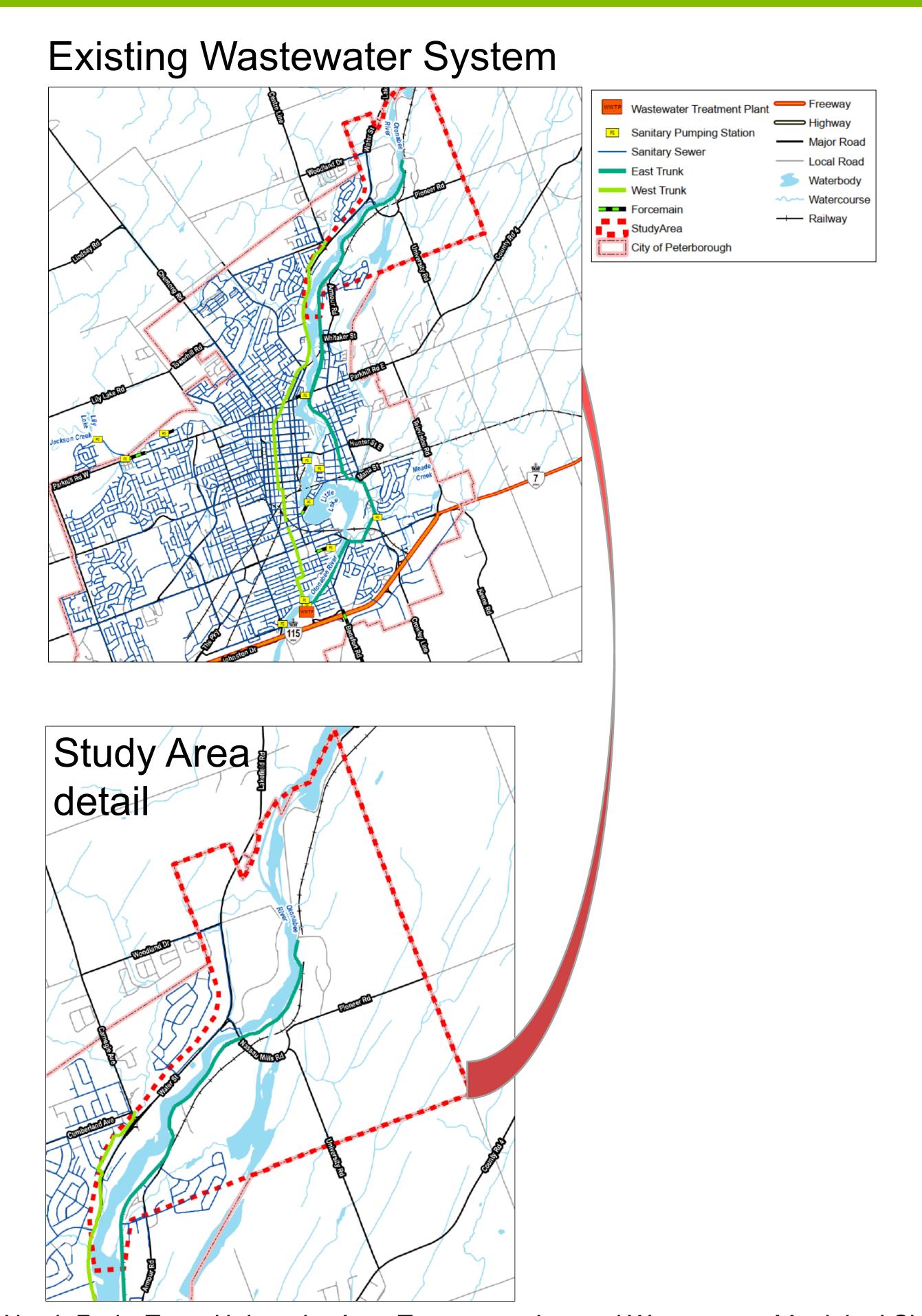
Stormwater	Excess rainfall and/or snowmelt on urban or rural land conveyed to a catchbasin, ditch or creek.
Wastewater	Household or industrial water waste that goes down the drain and is conveyed by a pipe system, separate from stormwater, to a wastewater plant for treatment prior to discharging into the environment. It is also commonly known as sewage.

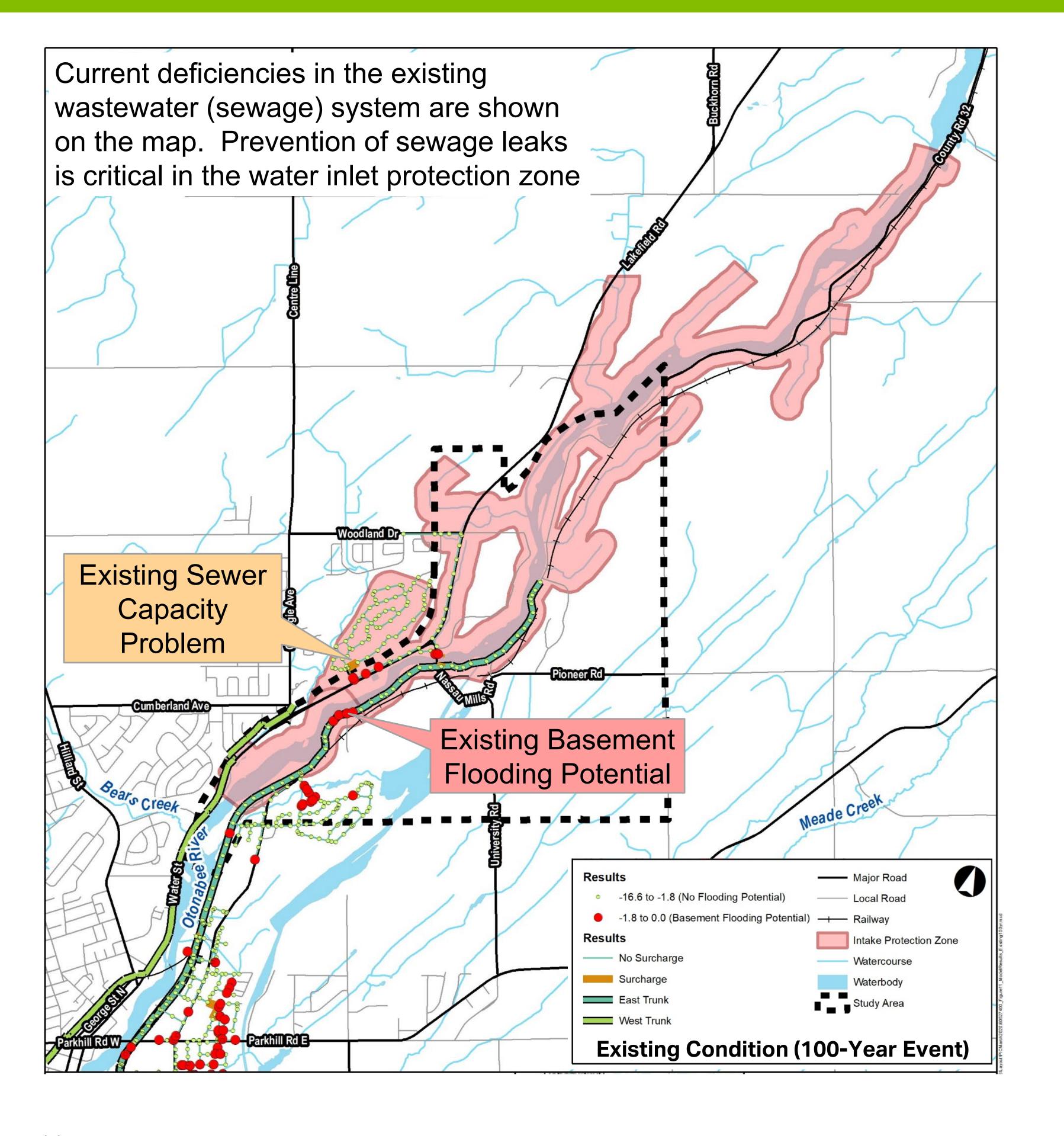
Trent Source Water Protection

- Mandated by Province by the Clean Water Act, 2006 to "assist communities with protecting their municipal drinking water supplies at the source"
- o Allows communities to identify potential risks to the local water supply (quality and quantity) from a watershed
- Allows for communities to plan for eliminating or reducing the risks
- Intake Protection Zones (IPZ) are identified within the Otonabee River watershed and are upstream of a water supply source
- Study Area is within IPZ 1 and 2 due to its proximity to the Water Works Intake
- Stormwater currently discharges into the Otonabee River in IPZ 1 and 2
- New stormwater outlets to IPZ 1 and 2 will require the City to notify Trent Source Water Protection that the creation or modification to a Transport Pathway is possible
- Transport Pathway is a "man-made feature on the landscape that increases the vulnerability of the raw water supply at the source of the municipal drinking water system"²
- City of Peterborough does not discharge wastewater (treated or untreated) into the IPZ.
 - 1. http://trentsourceprotection.on.ca
- 2. http://trentsourceprotection.on.ca/resources/transport-pathway-notification

Existing Wastewater Conditions update







Assessment and Evaluation Process



Design concepts for transportation, wastewater (sewage) and stormwater were developed independently of each other, but the study team did consider how they relate to each other. For example, roads are impervious surfaces that require management of stormwater runoff. Road rights-of-way may be used as a corridor for installing sanitary sewers.

Transportation design concepts are presented next in this series of displays, followed by Stormwater and Wastewater.

Information on future conditions and evaluation criteria is provided. The preliminary assessment of the design concepts is then presented. We invite your thoughts on this work to help inform the final evaluation and the selection of preferred options.

We hope to be able to meet and discuss the design concepts and the assessment and evaluation in person once Public Information Centres can be held safely. In the meantime, we will have to rely on written communications. We appreciate the time and effort involved and thank you for your ideas.

Further information on this project will be posted on the web site as it becomes available.

Next Steps

• The project team will consider all comments received from this consultation and from a Public Information Centre in the future, which will provide refined alternatives, preliminary evaluation and preliminary design alternatives.

Comments

How can you provide comments?

- Visit the Project website. Go to
 http://www.peterborough.ca/ and click on:
 "Doing Business", "Studies and Projects" and look under "Projects" for "North End Trent University Area Transportation and Wastewater Management Class Environmental Assessment"
- Send comments by email to:
 NorthEndEA@Peterborough.ca

Questions?

If you have any additional questions:

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