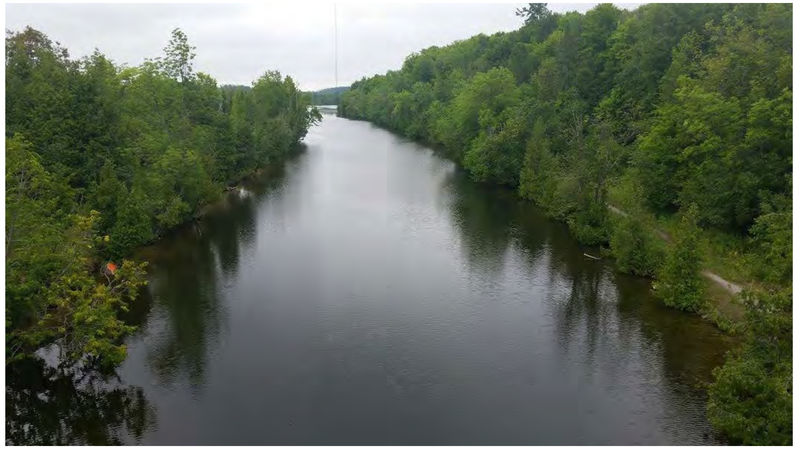




Welcome

North End-Trent University Area
Transportation and Wastewater
Municipal Class Environmental Assessment

Public Information Centre #1
March 29, 2017

Please sign in so we can keep you updated on this project.

City of Peterborough

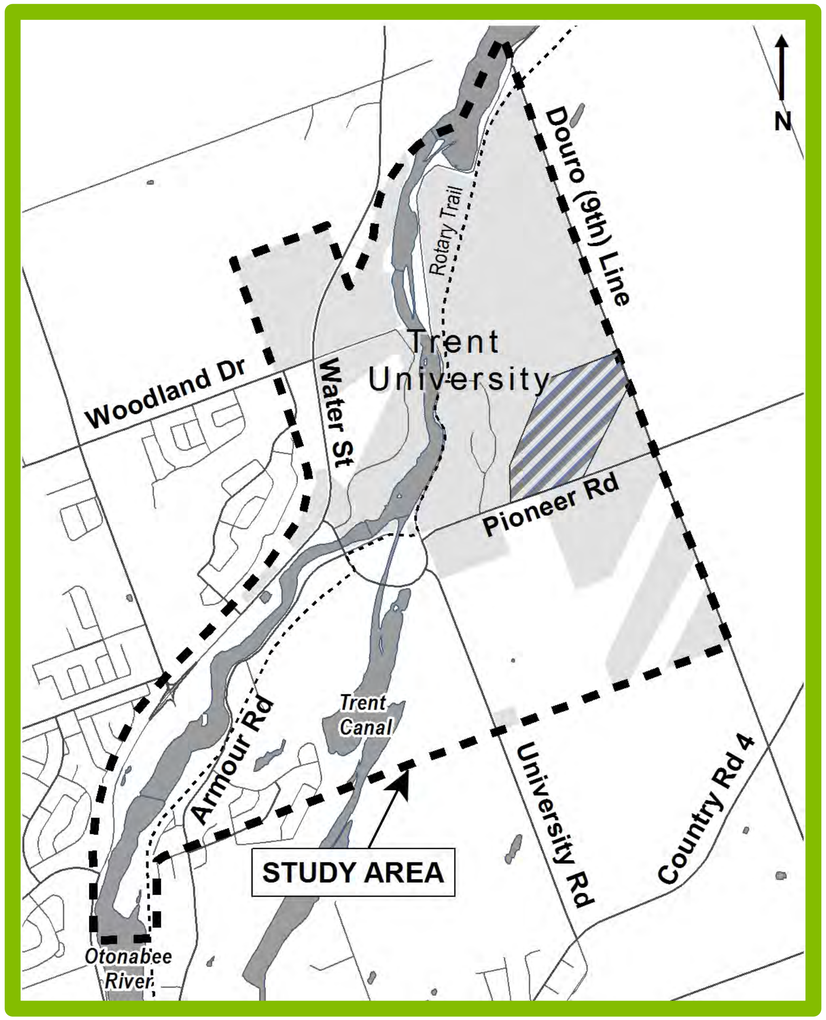
Introduction and Purpose of PIC #1

The City of Peterborough has initiated a Municipal Class Environmental Assessment (EA) Study within the north end of the City to:

- Explore options to realign Armour Road, north of Cunningham Boulevard
- Reconstruct or realign the Nassau Mills Road bridges over the Otonabee River and Trent-Severn Waterway to increase capacity
- Develop a stormwater management plan for the study area
- Develop a sanitary sewage servicing plan
- Develop a plan to address emerging congestion along Nassau Mills Road and Water Street with short-term and longer-term solutions

This is the first of two Public Information Centres (PICs) planned as part of this Class EA study. The purpose of this PIC is to present and obtain public input on:

- Background information and existing conditions in the study area
- The problem statement
- Proposed evaluation criteria
- Alternative solutions and their assessment
- Preliminary network alternatives
- Next steps in the Class EA process



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

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Study Background

Comprehensive Transportation Plan (2012)

- The widening of the Nassau Mills Road bridges over the Otonabee River and the Trent-Severn Waterway is detailed in the City's Comprehensive Transportation Plan. Ongoing congestion and future growth have created a need to address capacity issues on these bridges.

City of Peterborough Official Plan

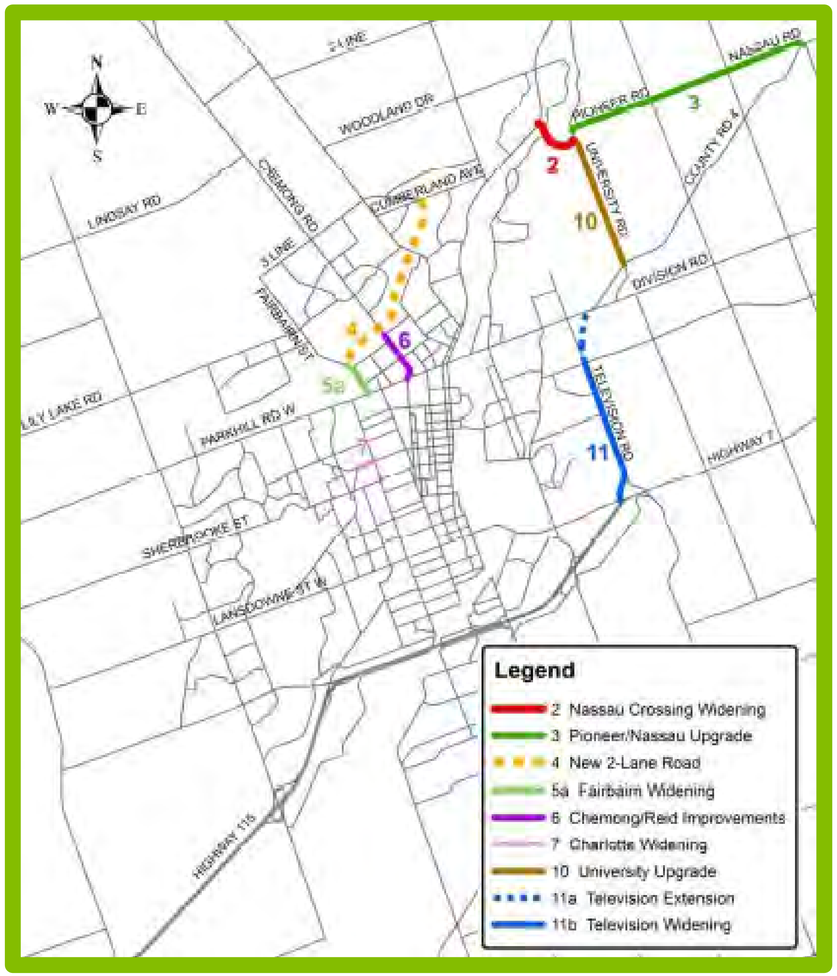
- The realignment of Armour Road has been detailed in the City's Official Plan for many years. As development pressure in the north end of the City has increased, the timing is now appropriate to plan the realignment.

Amendment 2 of the Provincial Growth Plan has allocated additional growth to Peterborough County and City that was not anticipated at the time of the Transportation Plan Update (TPU) in 2012. In addition, new developments at Trent University were not considered as part of the TPU.

As part of this study, the need to widen Water Street will be determined.

New developments will intensify existing traffic issues. The interrelation of area roads creates an opportunity to develop short and longer term plans for transportation management in the project area through the Municipal Class EA process.

Recommended Ultimate Road Network by 2031
source: Comprehensive Transportation Plan (2012)



Considering these as one integrated project to accommodate longer term growth of the City is consistent with the intent of the Class EA process.

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Municipal Class EA Process

Phase 1

- Study Initiation & Data Collection
- Define Problems & Opportunities

Phase 2

- Develop Alternative Solutions
- Assess Alternative Solutions
- Present the Recommended Solution to Review Agencies/Public for review/comment

Work Completed to Date

- Consider comments & identify Preferred Solution

Phase 3

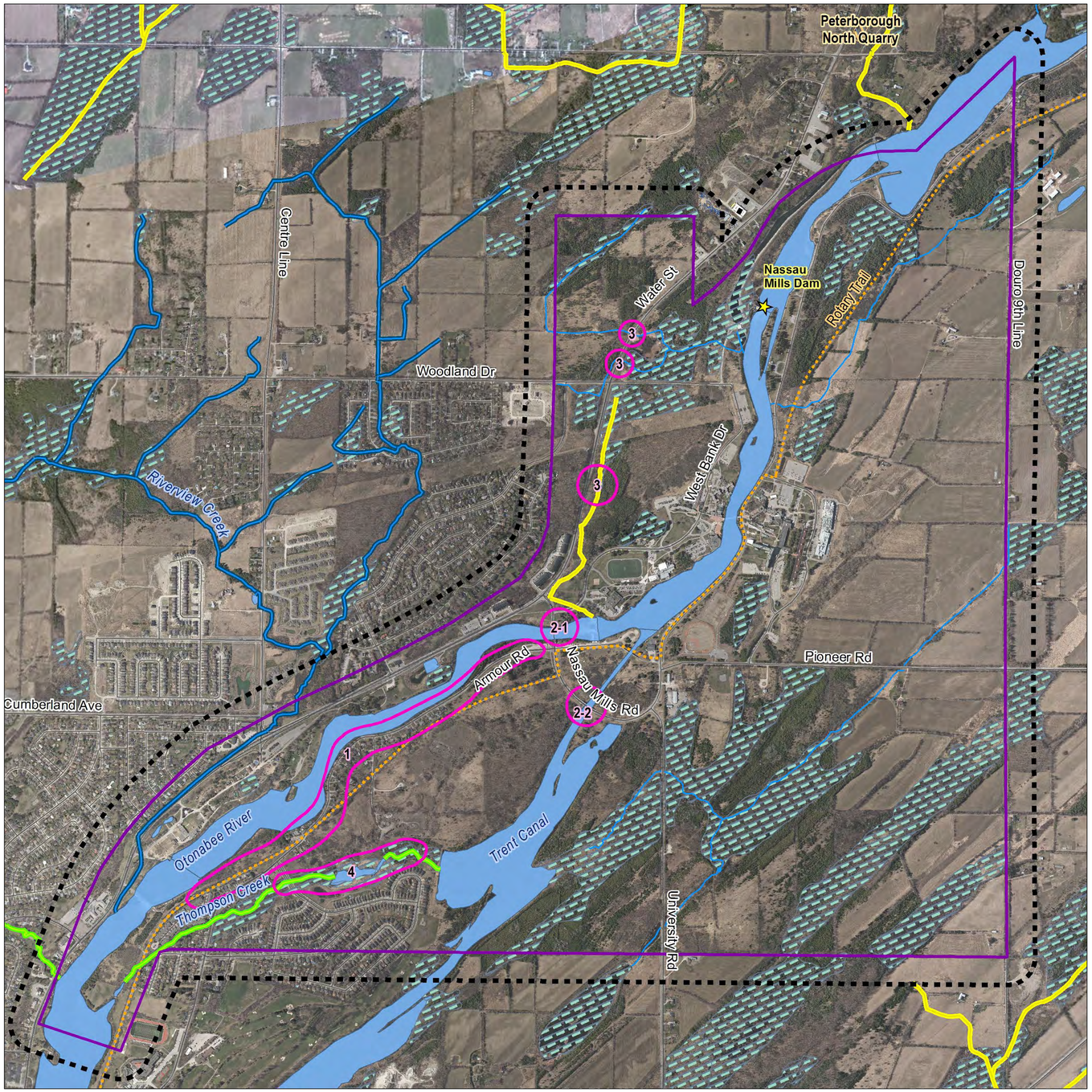
- Develop Alternative Design Concepts for implementing Preferred Solution
- Undertake environmental field investigations
- Assess Alternative Design Concepts
- Present Recommend Alternative Design Concept to Review Agencies / Public for review / comment
- Consider comments & identify the Preferred Design Concept

Phase 4

- Complete & File Environmental Study Report

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

Existing Conditions – Natural Environment



Legend

N

- Roads
- Rotary Greenway Trail
- Study Area
- Study Area 120m Buffer
- Locations where projects may affect Watercourses

Thermal Regime

- Cold
- Cool
- Unknown
- Warm

Wetlands

- Not evaluated per OWES
- ANSI
- Waterbody

Locations where Projects may Affect Watercourses:

1. Armour Rd. Realignment

2-1. Nassau Mills Rd Bridge over the Otonabee River

2-2. Nassau Mills Rd. Bridge over TSW

3. Water St. Reconstruction / Widening

4. Sanitary Sewage Servicing Plan

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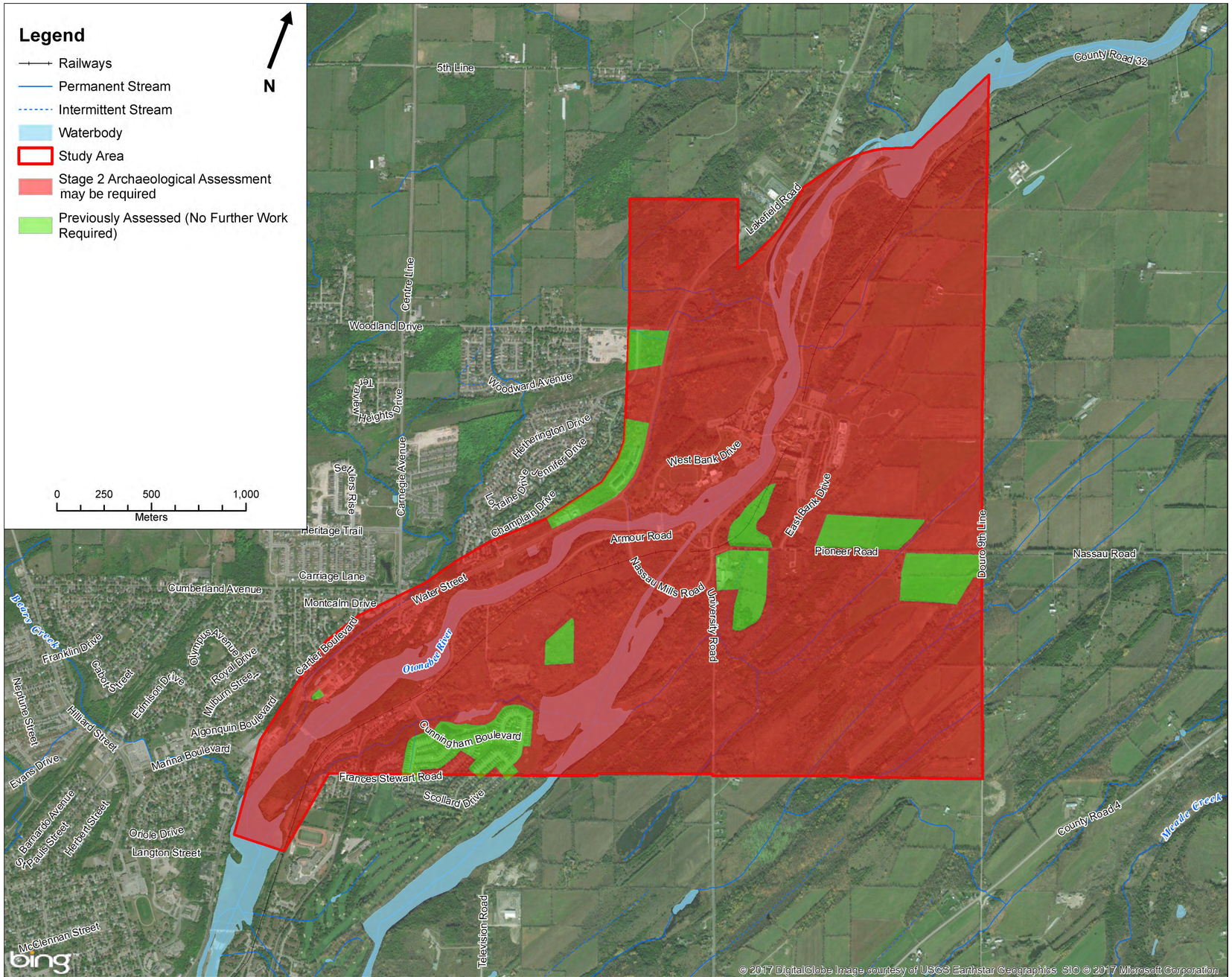
Existing Conditions – Archaeology

Stage 1 Background Study completed

Potential for recovery of both First Nation and Euro-Canadian archaeological resources within the study area is high.

A review of the areas marked in red is currently being undertaken to determine where Stage 2 field surveys will be undertaken in the coming months.



Existing Conditions - Cultural Heritage

1180 Water St.

1096 Water St.

1262 Armour Rd.

1200 Water St.

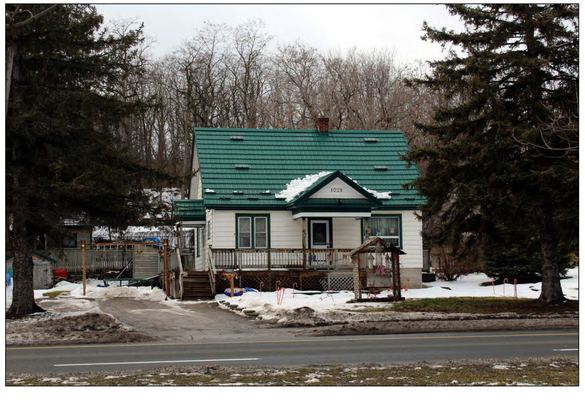
The James Reid House at 1154 Armour Road and the Old Pump House (1200 Water Street) are both designated heritage properties under Part IV of the Ontario Heritage Act. The Orange Lodge at 3595 Nassau Mills Road, built in 1852, has high potential for heritage value.

The Rotary Greenway Trail has value as a cultural landscape, as it was originally the Port Hope, Lindsay & Beaverton Railway Alignment. The recreational pathway has preserved its character but not the features of the railway infrastructure.

Cultural Heritage Evaluation Reports (CHERs) are being prepared for the Nassau Mills Road bridges over the Otonabee River and the Trent Canal.

3595 Nassau Mills Rd.

1029 Water St.



1039 Water St.

1154 Armour Rd.

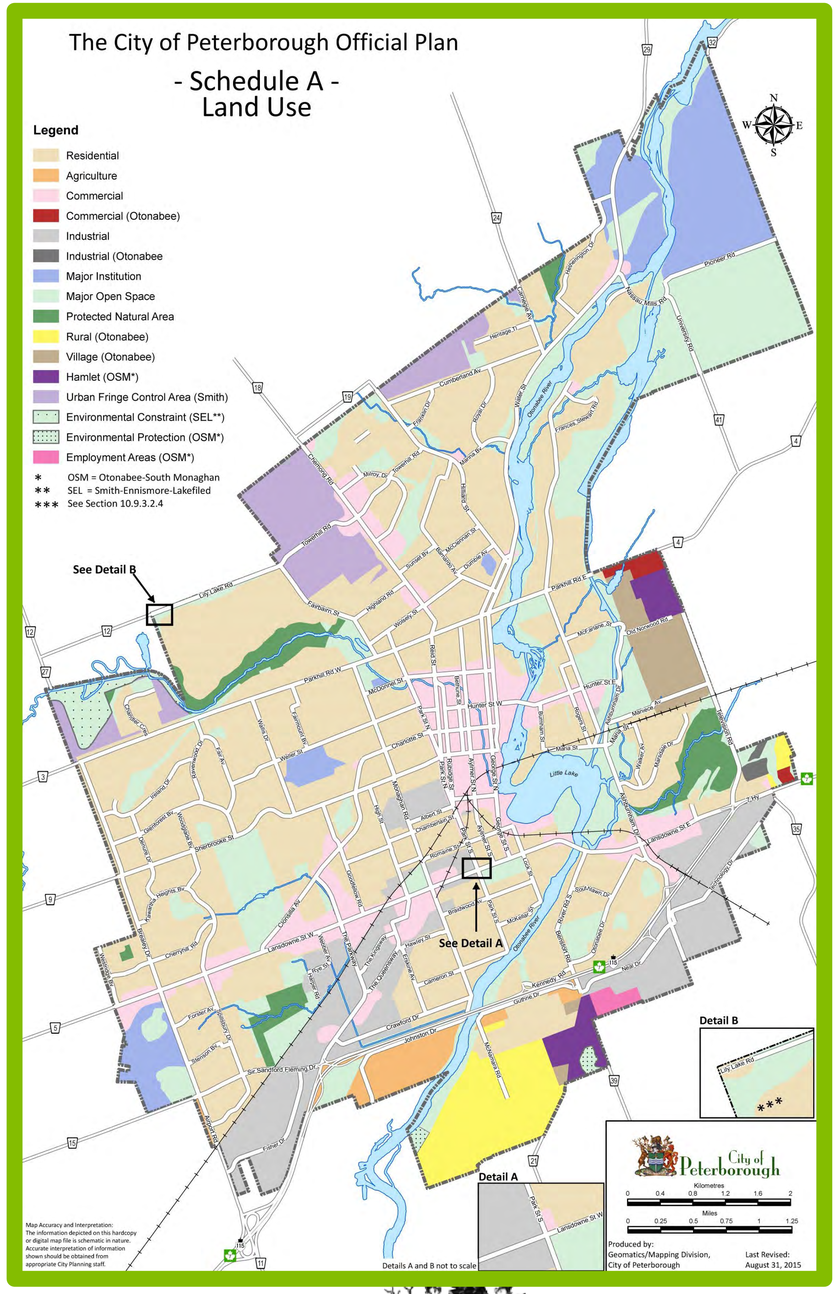
Existing Conditions – Land Use

City of Peterborough Official Plan

- North of Nassau Mills Road and Pioneer Road, the study area is primarily designated Major Institution (home to Trent University) with some pockets of Major Open Space.
- South of Nassau Mills Road, the study area is primarily designated Residential, again with some Major Open Space.
- The area surrounding the intersection of Nassau Mills Road and Water Street is designated Commercial, as is the area around the intersection of Cunningham Boulevard and Armour Road.

Official Plan Update

- The City of Peterborough is currently undertaking an update of its Official Plan.
- The update will establish the planning principles and policies that will determine how Peterborough will grow and develop over the next 20 years.
- The update will bring the plan into conformity with Provincial policy, particularly the Provincial Planning Statement 2014 and amendments to the Growth Plan for the Greater Golden Horseshoe.



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Growth for the City of Peterborough

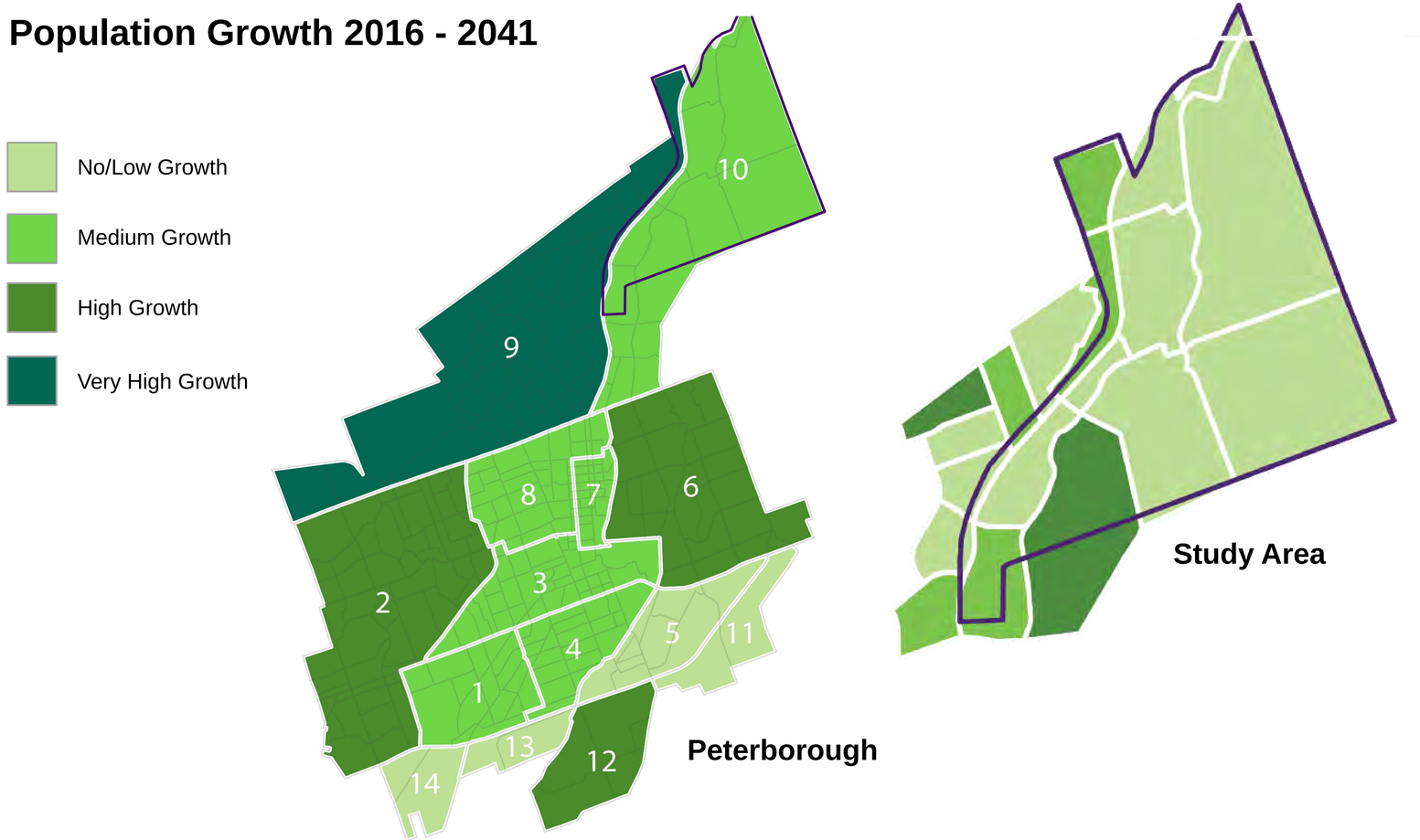
Growth Forecasts

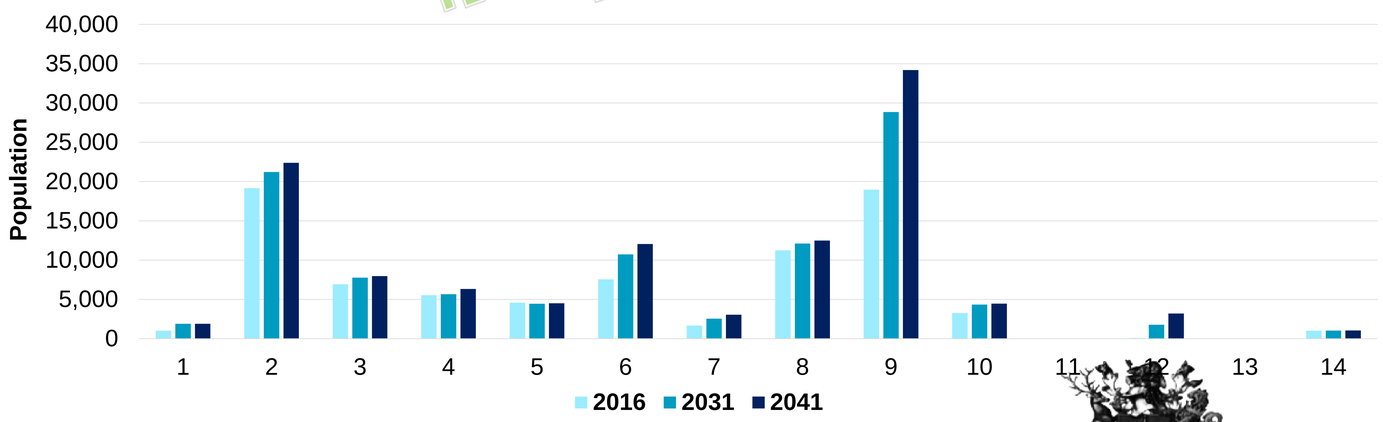
- Growth forecasts are established for the City of Peterborough by the Province's Growth Plan for the Greater Golden Horseshoe.
- In 2013, Amendment 2 of the Provincial Growth Plan allocated additional growth to the City of Peterborough.

Growth Forecast Analysis

- The City of Peterborough is currently undertaking a growth forecast analysis to determine where growth will occur. The growth forecasts included on the map are draft and subject to approval by Council.

Population Growth 2016 - 2041





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Existing Conditions – Stormwater Management

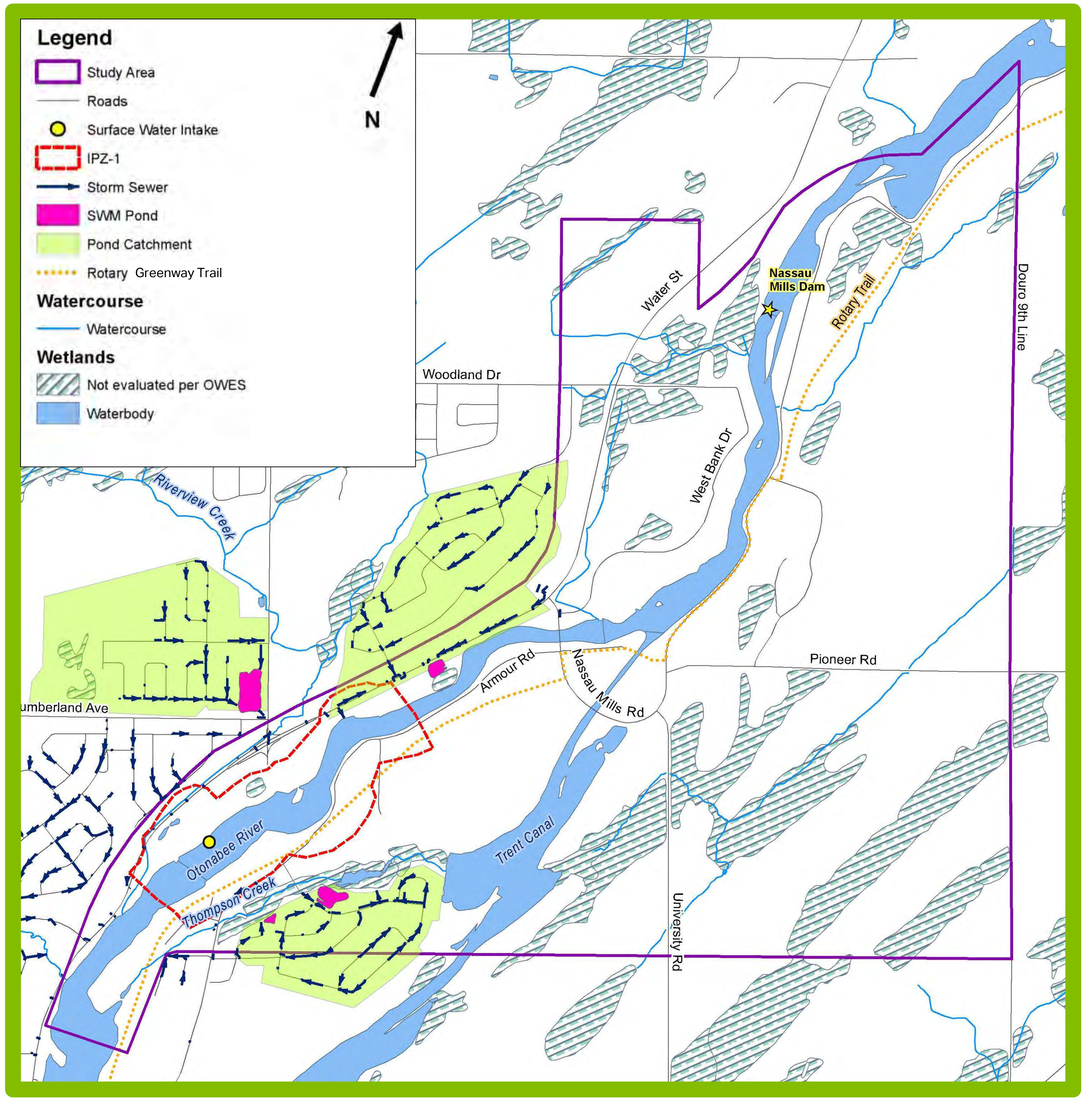
Watersheds

There are several watersheds flowing into the Otonabee River system within the Study Area, along with numerous smaller subwatersheds/ catchment areas .

The creeks associated with the watersheds are:

- Riverview Creek
- Curtis Creek
- Thompson Creek

There are also several unnamed tributaries to the Otonabee River.



Stormwater Management (SWM)

Existing SWM facilities include several SWM ponds serving development on the west and south sides of the Study Area. The ponds and their catchment areas are illustrated on the adjacent map.

Stormwater discharge is to be avoided in the area around the Intake Protection Zone (IPZ) where drinking water is taken from the river.

Existing Conditions – Wastewater

Existing Wastewater Gravity Conveyance Infrastructure

- Local sanitary sewers (sewers < 375mm diameter)
- Trunk sanitary sewers (TSS) (sewers 375mm diameter and greater)
- Syphon under Otonabee River (upstream of Nassau Mills Rd Bridge)

The Wastewater study area (orange line) does not correspond directly to the project study area (purple line). The Wastewater Study Area is serviced by two Trunk Sanitary Sewers. TSS-1 services the majority of the study area and is located along Armour Rd and the Rotary Greenway Trail on the east side of the Otonabee River. The portion of the Study Area located along Water Street south of University Heights Boulevard is serviced by TSS-2 which outlets to the Bethune Street TSS.

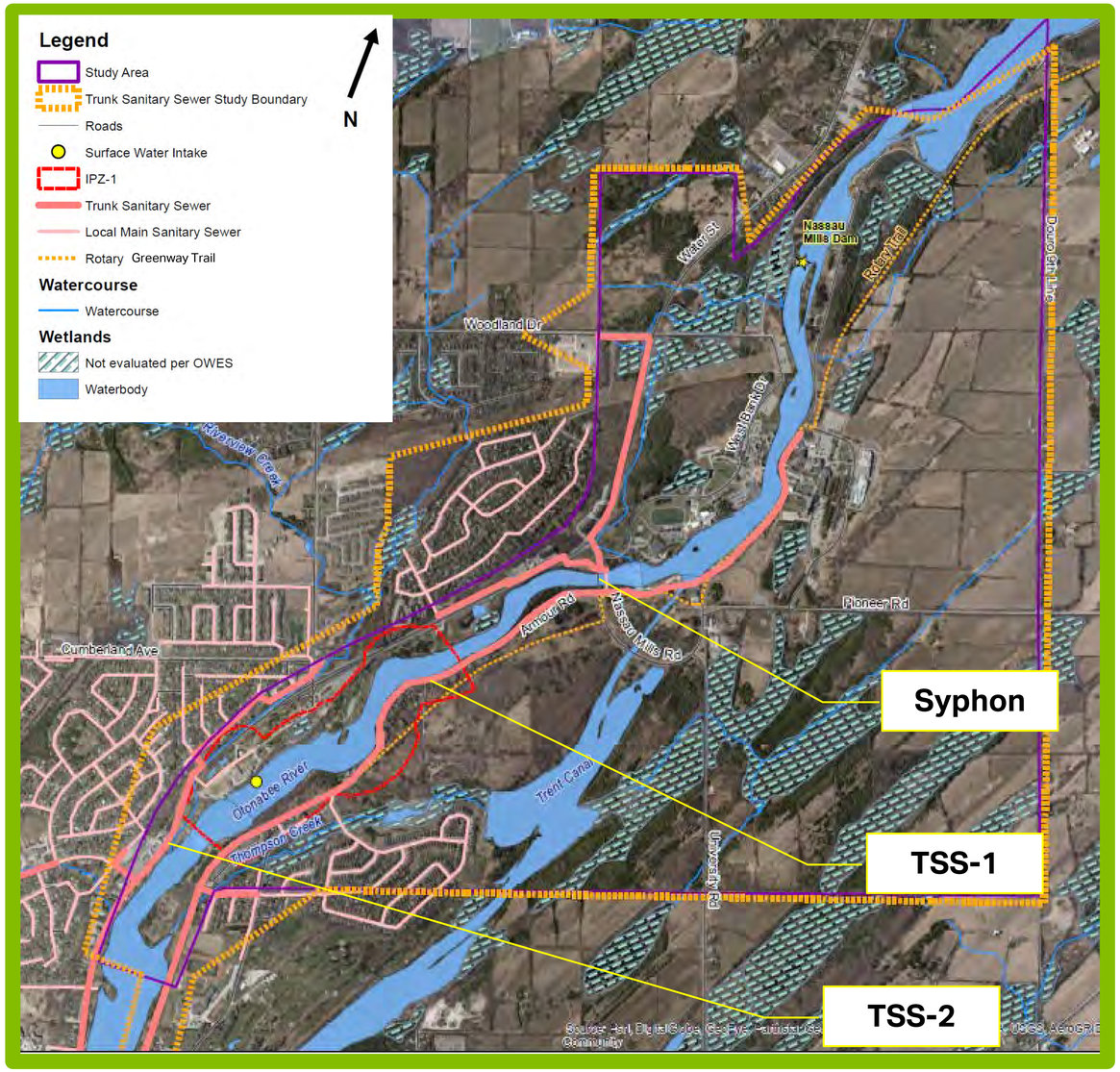
Not all of the project study area will be able to be serviced by gravity sewer

Trent Source Protection Plan

- The Study Area includes the Intake Protection Zones for the Peterborough Water Supply Plant. Policies related to planning and development of sewage systems, sewage transportation corridors and sewage transport pathway areas must be considered in the completion of the EA study.

City of Peterborough Official Plan

- Provides anticipated development densities within the study area, which will be used to estimate future sanitary flow rates.



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Existing Transportation Conditions

Armour Road

- 2-lane arterial road with gravel shoulders and 50 km/h speed limit
- Carries approximately 6,200 vehicles per day
- Provides an alternative north-south access to Trent University
- Currently traffic operates at a good Level of Service (LOS) in peak hours
- No pedestrian or cycling facilities

Woodland Drive

- 2-lane east-west road with gravel shoulders and 60 km/h speed limit

- Carries ~2,000 vehicles per day
- Provides access to the north area of Trent University lands and other development
- Currently traffic operates at a good LOS in peak hours
- No pedestrian or cycling facilities

Nassau Mills Road

- 2-lane arterial road with roadside ditches and 50 km/h speed limit
- Carries approximately 11,500 vehicles per day
- Connects east and west sides of Trent University. Links Water St. with Armour Rd., University Rd., Pioneer Rd.
- Extensive queuing due to short distance between Water St. and West Bank Dr. intersections
- Bridge crossing over the Otonabee River often congested
- Currently traffic between Water St. and University Rd., operates at a poor Level of Service during peak hours
- Narrow concrete sidewalk on bridges, gravel pathways, and asphalt path between West Bank Dr. and Water St. for pedestrians, connection to Rotary Greenway Trail

Water Street

- Major arterial road with 2-lane cross-section north of Nassau Mills Rd., and 4-lane cross-section south of Nassau Mills Rd. Speed limit 60 km/h
- Carries approximately 12,000 to 18,000 vehicles per day
- Connects to Lakefield and other communities to the north
- Queuing along Water St. at intersection with Nassau Mills Rd. during Trent University's peak hours
- Currently traffic operates at an acceptable LOS in peak hours on the road in the study area other than at intersections and north of Woodland Dr.
- Sidewalks south of Nassau Mills Rd.
- No cycling facilities

Existing Transportation Conditions

Pioneer Road

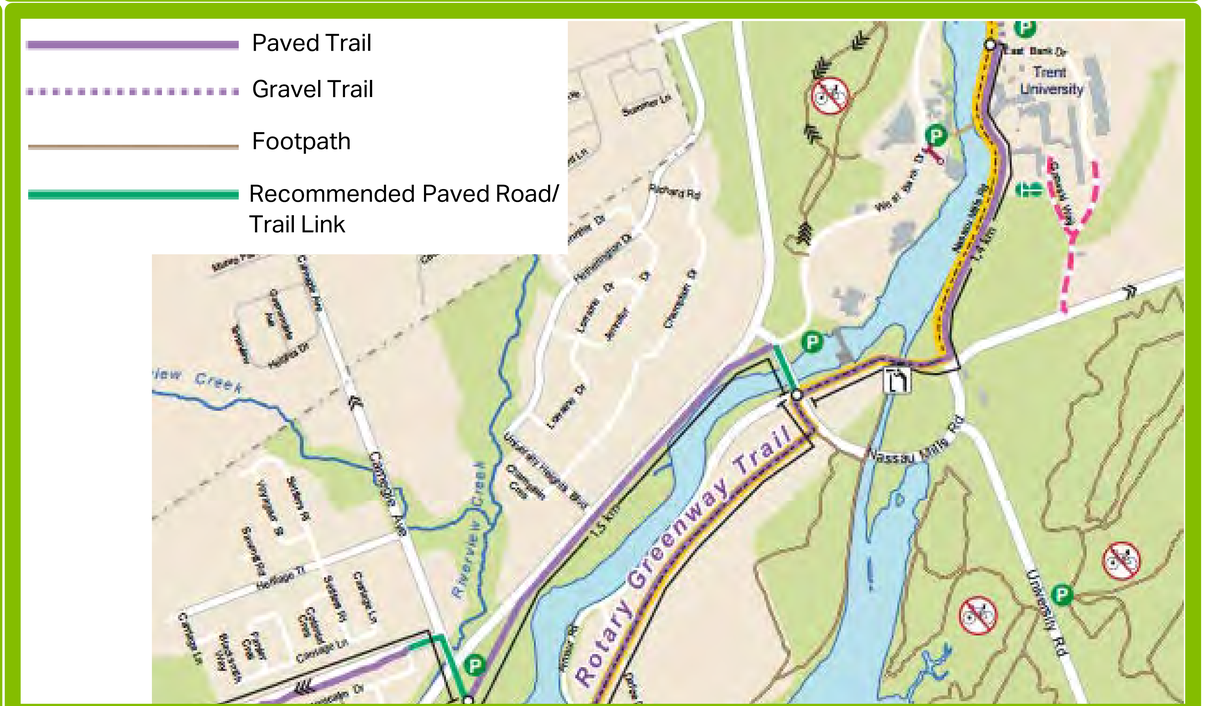
- 2-lane medium capacity arterial road with a rural cross-section
- Speed limit - 50km/h
- Several planned developments including Trent Research Innovation Park, Arena Complex are located on this road
- Road reconstruction scheduled for 2017 for a portion of Pioneer Road
- Traffic currently operates at a good LOS in peak hours

University Road

- 2-lane high-capacity arterial road with a rural cross section
- Speed limit - 50km/h
- Traffic on this road operates at a good LOS in peak hours

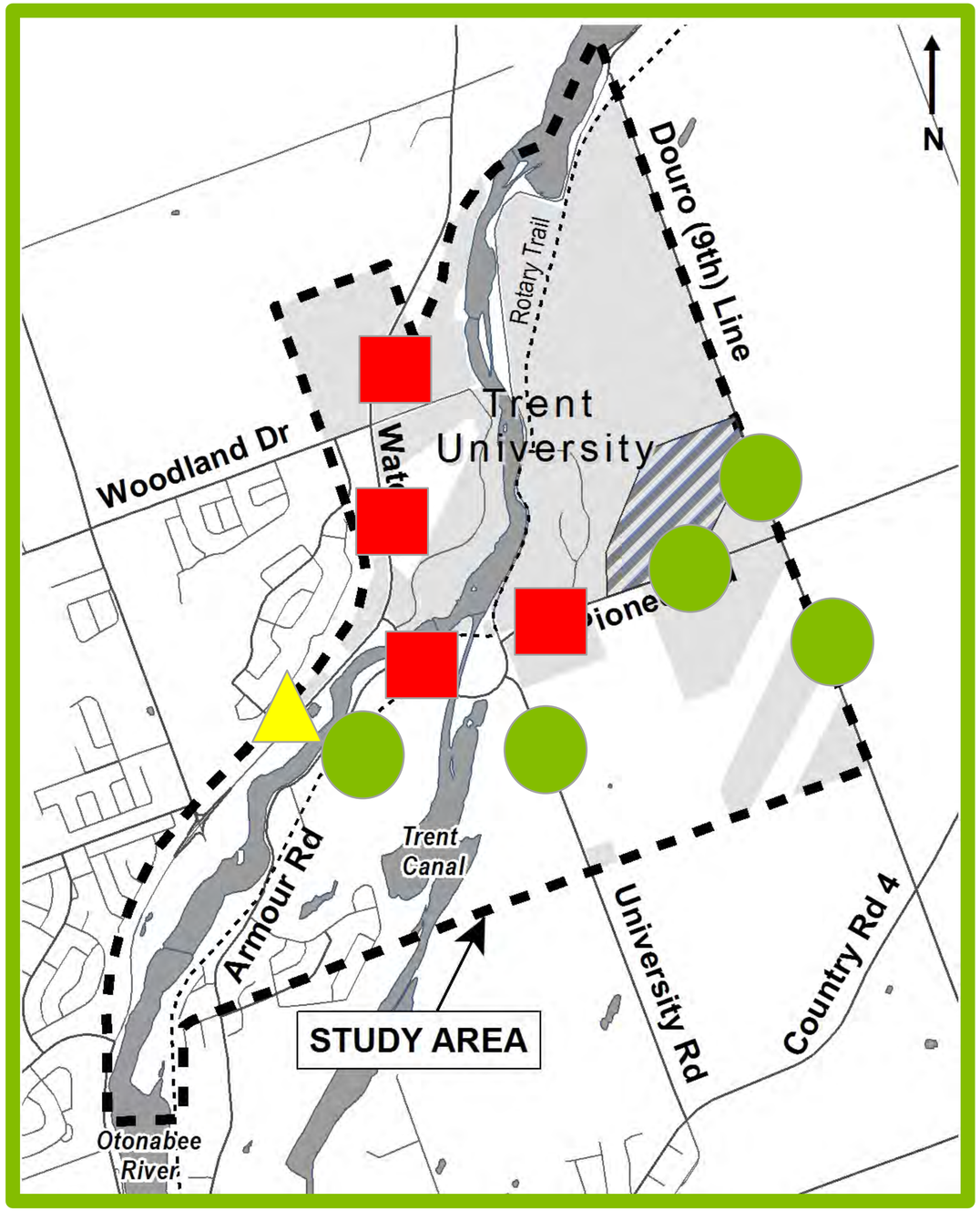
Trails

- Study area includes part of a 20 km long trail (Rotary Greenway Trail) that runs from Ashburnham Dr. through the Ecology Park and ends at Trent University
- Currently trails in the study area have the following issues:
    - Undesirable crossing at Armour Rd. north of Cunningham Blvd.
    - Shared use of trail and driveway north of Nassau Mills Rd. / Pioneer Rd. intersection
    - Un-controlled crossing of trail close to Nassau Mills Rd. and Pioneer Rd. intersection
    - Un-controlled crossing at West Bank Dr. and Nassau Mills Rd. intersection



Source: City of Peterborough Bikeways and Trails Map

Predicted Short-term Traffic Problem Areas



	Level of Service	What it Means?
●	A	• Free Flowing Traffic • Minimal Delays
●	B	• Free Flowing Traffic • Minimal Delays
●	C	• Uniform Traffic Flow • Moderate Delays
▲	D	• Congestion noticeable • Poor progression with frequent stops and increased delay
■	E	• Poor traffic flow with frequent stops and high delays • Roadway is over capacity
■	F	• Forced Flow conditions with severe congestion • Roadway is over capacity

City of Peterborough

Problem and Opportunity Statement

Why is this important?

The Problem/Opportunity Statement is the foundation of the Class EA study. The statement developed in Phase 1 of the Class EA process establishes the key problems that the project is trying to solve and will assist in the development and evaluation of alternatives.

The performance of the alternatives will be evaluated against the Problem/Opportunity Statement, as one of a number of criteria that will be used to develop the study recommendations.

Transportation:

- 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 will result in more congestion on Water Street and Nassau Mills Road.
- Safety concerns related to distance between intersections, sightlines and road curvature.

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.

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.

Alternative Transportation Solutions

1. Do Nothing

- No improvements or changes to the transportation system beyond those already committed to by the City
- Provides a benchmark for comparing the alternative solutions in accordance with Class EA process

2. Transportation Demand Management (TDM)

- No physical improvements or changes to the transportation system beyond those already committed to by the City except additional infrastructure improvements for transit, cycling and walking modes of travel
- Implement other policies and programs to manage or limit the growth in the number of vehicles on the road in peak hours such as flexible work hours, work-at-home and encouraging development that supports transit or reduces the length of commuter trips

3. Roadway Improvements

- Implement modifications to better manage the flow of traffic, enhance safety, or add capacity to critical movements . Examples may include:
  - Water Street (intersection improvements, widening)
  - Armour Road (widening, realignment)
  - Nassau Mills Road (intersection improvements, widening, realignment)
  - West Bank Drive (close road at Nassau Mills Road and realign to Water Street)

4. Combination of Solutions

- Include a combination of various TDM and roadway improvements within the Study Area

Proposed Evaluation Criteria

Category	Proposed Evaluation Criteria
Technical	**Transportation, Stormwater and Wastewater Alternatives** • Does it address the problem? **Transportation Alternatives only** • Effect on Transportation Network Performance • Effect on intersection delay / congestion • Effect on safety • Effect on overall network delay • Effect on future roadway capacity beyond 2031 **Stormwater Alternatives only** • Effect on water quantity • Effect on water quality **Wastewater Alternatives only** • Effect on wastewater flows • Effect on future wastewater system capacity beyond 2031
Natural Environment	**Transportation and Stormwater Alternatives only** • Effect on groundwater • Effect on surface water • Effect on drainage patterns **Transportation, Stormwater and Wastewater Alternatives** • Effect on aquatic habitat or functions • Effect on aquatic species including species at risk • Effect on terrestrial habitat or functions • Effect on terrestrial species including species at risk
Built Environment	**Transportation, Stormwater and Wastewater Alternatives** • Effect on existing residences, businesses, and/or community, institutional, and recreational facilities • Effect on property • Effect on existing utility infrastructure
Social Environment	**Transportation, Stormwater and Wastewater Alternatives** • Effect on open space areas • Effect on pedestrians and cyclist facilities **Transportation Alternatives only** • Effect of noise at sensitive locations (receptors) • Effect on air quality from vehicle emissions
Cultural Environment	**Transportation, Stormwater and Wastewater Alternatives** • Effect on known or potential significant archaeological resources • Effect on built heritage resources and cultural landscape features
Economic Environment	**Transportation, Stormwater and Wastewater Alternatives** • Effect on approved / planned land uses • Capital Costs • Operational / Maintenance Costs **Transportation Alternatives only** • Effect on overall travel time

Assessment of Alternative Transportation Solutions

Most Preferred  Least Preferred

Effects can be positive or negative

Category	Criteria/Impacts To	Alternative 1 Do Nothing	Alternative 2 Travel Demand Management	Alternative 3 Roadway Improvements	Alternative 4 Combination of Solutions	Rationale for Preference
Technical	• Does it address the problem? • Transportation Network Performance • Intersection Delay / Congestion • Safety • Overall Network Delay • Future Roadway Capacity Beyond 2031					"Combination" can best address capacity and connectivity problems at intersections and throughout the network.
Natural Environment	• Groundwater • Surface Water • Aquatic Habitat or Functions • Aquatic Species Including Species At Risk • Terrestrial Habitat Or Functions • Terrestrial Species including Species At Risk • Drainage Patterns					Do nothing has no additional footprint effects. No new crossings or increase in pavement. TDM has minor impacts. New infrastructure has the greatest potential for adverse effects.
Built Environment	• Existing Residences, Businesses, and/or Community, Institutional, And Recreational Facilities • Property • Existing Utility Infrastructure					Do Nothing and TDM have no property or building impacts. New infrastructure has the greatest potential for adverse effects.
Social Environment	• Open Space Areas • Pedestrians And Cyclist Facilities • Noise at Sensitive Locations • Air Quality From Vehicle Emissions					A combination of solutions provides an opportunity to add Open Space areas along the river as well as provide opportunity for new improvements for transit users, pedestrians and cyclists as stand alone projects or in combination with new road infrastructure.
Cultural Environment	• Known or Potential Significant Archaeological Resources • Built Heritage Resources And Cultural Landscape Features					Do Nothing has no additional footprint effects. Adverse effects on archaeological resources, built heritage or cultural landscape features can be avoided/ mitigated
Economic Environment	• Planned Development • Overall Travel Time • Capital Costs • Operational / Maintenance Costs					TDM and roadway improvements together can support development and the achievement of targets for transit use, cycling and walking while reducing travel delays.

A combination of the alternatives is the preferred transportation solution. It can address the capacity and network problems. Adverse effects can be avoided or mitigated.

Alternative Stormwater Management (SWM) Solutions

1. Do Nothing

- No improvements or changes to the stormwater management system beyond those already committed to by the City
- Provides a benchmark for comparing the alternative solutions in accordance with Class EA process

2. Manage Demand for Stormwater Management

Limit growth and land development

Allow only Low-Impact Development (LID)

- Provide systems for infiltration, linear swales, reduce impervious surfaces (such as pervious concrete), allow for roof top storage, rain gardens to minimize runoff quantity

3. New Infrastructure

Require permanent Private Stormwater Management (SWM) Measures

Incorporate "End-of-pipe" solutions

- Private or public ownership and operation of SWM measures including SWM ponds and oil-grit separators

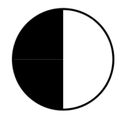
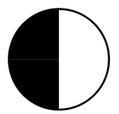
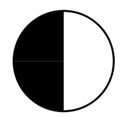
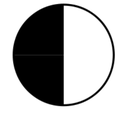
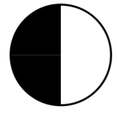
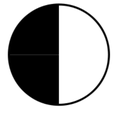
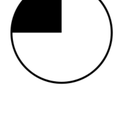
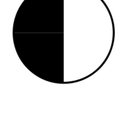
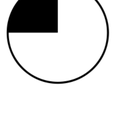
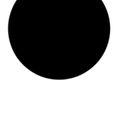
4. Combination of Solutions

Include a combination of the above alternative solutions in the Study Area. Manage demand to the extent practical and provide new infrastructure where needed.

Assessment of Alternative SWM Solutions

Most Preferred  Least Preferred

Effects can be positive or negative

Category	Criteria/Impacts To	Alternative 1 Do Nothing	Alternative 2 Manage SWM Demand	Alternative 3 New Infrastructure	Alternative 4 Combination of Solutions	Rationale for Preference
Technical	• Does it address the problem? • Effect on water quantity • Effect on water quality					"New infrastructure" and a "Combination of solutions" can best address stormwater quality and quantity for planned transportation projects and land developments.
Natural Environment	• Groundwater • Surface Water • Aquatic Habitat or Functions • Aquatic Species Including Species At Risk • Terrestrial Habitat Or Functions • Terrestrial Species including Species At Risk • Drainage Patterns					A Combination of Alternatives allows the opportunity to plan protections for natural areas.
Built Environment	• Existing Residences, Businesses, and/or Community, Institutional, And Recreational Facilities • Property • Existing Utility Infrastructure					"Do nothing" would cause no adverse effects to the Built Environment. Property required for physical measures may largely be incorporated into development plans.
Social Environment	• Open Space Areas • Pedestrians And Cyclist Facilities					Both"New infrastructure" or a "Combination of solutions" provide an opportunity to enhance recreation, pedestrian and cycling facilities .
Cultural Environment	• Known or Potential Significant Archaeological Resources • Built Heritage Resources And Cultural Landscape Features					No adverse effects anticipated. Built heritage can be avoided. Archaeological assessments will be conducted prior to construction in undisturbed areas.
Economic Environment	• Approved / Planned Land Uses • Capital Costs • Operational / Maintenance Costs					"New infrastructure" and "Combination of solutions" would support planned transportation and land development. Capital cost would be highest for "New infrastructure"

A combination of the alternatives is the preferred SWM solution. It can support development. Adverse effects can be avoided or mitigated

Alternative Wastewater Collection Solutions

1. **Do Nothing**
   - No improvements or changes to the wastewater collection system beyond those already committed to by the City
   - Provides a benchmark for comparing the alternative solutions in accordance with Class EA process

2. **Manage Wastewater Demand**

   Limit Growth
   - Limit growth to optimize allocation of capacity in existing sanitary collection system
   - Phase or schedule proposed growth with respect to both location and implementation schedule

   Reduce inflow/infiltration
   - Improve existing system capacity efficiency with implementation of flow reduction strategies

3. **New infrastructure**

   New sanitary sewers
   - Provide new sanitary sewers to service new development areas
   - Eliminate need for existing siphons in IPZ's by providing new sanitary connections to adjacent existing / future sanitary sewers

   Provide Online Storage on existing sanitary sewers
   - Manage peak flows by providing on-line storage on existing conveyance system

   Rehabilitate existing sanitary sewers
   - Reconstruct existing sanitary sewers
   - Reline / seal existing sanitary sewers and install adjacent twin pipes to provide additional capacity where needed

4. **Combination of Solutions**
   - Include a combination of the above alternative solutions in the Study Area. Manage wastewater demand to the extent practical and provide new infrastructure where needed.

Assessment of Alternative Wastewater Management Solutions

Most Preferred ● ◔ ◑ ◕ Least Preferred

Effects can be positive or negative

Category	Criteria/Impacts To	Alternative 1 Do Nothing	Alternative 2 Manage Wastewater Demand	Alternative 3 New Infrastructure	Alternative 4 Combination of Alternatives	Rationale for Preference
Technical	• Does it address the problem? • Effect on wastewater flows • Effect on future wastewater system capacity beyond 2031	◔	◑	●	●	A combination of solutions is best able to manage the collection of wastewater
Natural Environment	• Aquatic Habitat or Functions • Aquatic Species Including Species At Risk • Terrestrial Habitat Or Functions • Terrestrial Species including Species At Risk	◔	●	◑	●	Impacts during construction can be mitigated through best practices. Trenchless installation technologies can minimize impacts
Built Environment	• Existing Residences, Businesses, and/or Community, Institutional, And Recreational Facilities • Property • Existing Utility Infrastructure	◔	◑	◕	◕	Planning for wastewater collection is done in conjunction with development and impacts to property and utilities should be minimal
Social Environment	• Open Space Areas • Pedestrians And Cyclist Facilities	●	●	◑	◕	Any impacts during construction can be mitigated through best practices and traffic management
Cultural Environment	• Known or Potential Significant Archaeological Resources • Built Heritage Resources And Cultural Landscape Features	●	●	◕	◕	Assessments during the design process can mitigate any impacts on cultural resources
Economic Environment	• Approved / Planned Land Uses • Capital Costs • Operational / Maintenance Costs	◑	◔	◔	◕	A combination of solutions will allow planned development to advance while maintaining reasonable capital, maintenance and operating costs

A combination of the alternatives is the preferred Wastewater Management solution. It can support development most effectively. Adverse effects can be avoided or mitigated.

Preferred Solutions

Transportation

A combination of improvements for transit, pedestrians, cyclists and vehicles is recommended to carry forward. This will allow the City to address the transportation problems and opportunities in the study area as growth and development occurs, while reducing the traffic demand to the extent practical.

Stormwater Management

A combination of SWM improvements is recommended to support planned growth while controlling water quantity and quality. These will include development controls and public/private stormwater management facilities.

Wastewater Management

A combination of improvements to the City's gravity operated sanitary sewage collection system is the preferred means of adding capacity to the City's collection network. This will allow the City to address the sanitary sewer capacity needs for the study area and mitigate the risks the existing / future sanitary collection system may have on the natural / social / economic environments.

Next Steps

How can you provide comments?

- Fill in a comment sheet this evening and drop it in the Comment Box or provide to any staff member here today.
- Visit the Project website:

http://www.peterborough.ca/Business/Studies/North_End_-_Trent_University_Area_Transportation_and_Wastewater_Management_Class_EA.htm

- Send comments by email to: NorthEndEA@Peterborough.ca

Questions?

If you have any additional questions, please contact:

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