

Appendix A

Consultation Report



TRANSPORTATION



ACTIVE TRANSPORTATION



WATER / WASTEWATER



Norfolk County Integrated Sustainable Master Plan (ISMP)

CONSULTATION SUMMARY | September 2016



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1.0 INTRODUCTION

The following is a more detailed summary of key aspects of the consultation and engagement strategy which was used to inform the development of the Norfolk Integrated Sustainable Master Plan (ISMP).

1.1 Who did we Consult with?

As noted in the main body of the ISMP report, there were three target audiences that the project team aimed to engage through the development of the ISMP. A more detailed description of the different groups / agencies that were engaged in each of the target audience categories is presented in **Table 1**.

Table 1 – Target Audiences & Groups Consulted with as part of the Norfolk ISMP

Internal Staff	Public Representatives	Political / Agency Stakeholders
▶ County Manager	▶ Norfolk Pathways for People	▶ Trails Advisory Committee
▶ Community Services	▶ Student Transportation Services	▶ Provincial Parks
▶ Employee & Business Services	▶ Silver Spokes Cycling Club	▶ Long Point Region Conservation Authority
▶ Financial Services	▶ North Shore Runners / Runners Den	▶ Ontario Provincial Police
▶ Health & Social Services	▶ Rotary Club of Norfolk Sunrise	▶ Sustainable Tourism
▶ Development & Cultural Services	▶ Lynn Valley Trail Association	▶ Crossing Guard Company
▶ Public Works & Environmental Services	▶ Waterford Heritage Trail	▶ Norfolk & Haldimand Health & Social Services
	▶ Tour de Norfolk	▶ Local Councillors & the Mayor
	▶ RIDE Norfolk	▶ Ministry of Aboriginal Affairs
	▶ CLASS	▶ Ministry of Citizenship & Immigration
	▶ Simcoe & District Real Estate Board	▶ Ministry of Tourism, Culture & Sport
	▶ F.A.R.M.S	▶ Ministry of Community Safety & Correctional Services
	▶ Simcoe & Delhi BIA	▶ Ministry of Transportation
	▶ Chamber of Commerce	▶ Ministry of Northern Development and Mines
	▶ Norfolk Federation of Agriculture	▶ Ontario Power Generation
		▶ Hydro One Networks Inc.
		▶ Infrastructure Ontario
		▶ Ministry of the Environment and Climate Change

As per the municipal class EA requirements, the study team also actively engaged with members of the First Nations and Métis communities. In total, 7 first nations and Métis groups were identified and contacted at key points in the study. They were invited to attend the public and stakeholder events and were also invited to engage in discussions with the study team one-on-one.



1.2 Addressing the Challenges

Consultation and communication for a master planning assignment of this scope and scale had its challenges. As part of the preparation of the consultation strategy the study team identified a number of key challenges based on the three aspects of integration – as noted in the body of the ISMP report. **Table 2** provides an overview of these challenges and the communication and consultation solutions that were used to address each.

As the study progressed additional challenges were identified and the solutions were adapted as necessary to address them. These have also been outlined in **Table 2**.

Table 2 – Consultation & Communication Challenges & Approach

Challenge	Approach to Address Challenge
Internal	
<p>Conflicting approaches to outreach and engagement</p> <p>Equal Involvement and Level of Effort</p>	<ul style="list-style-type: none"> ▶ A detailed consultation strategy and communication plan was developed which promotes a collaborative approach between the consultant team and County staff. ▶ Through the Technical Review Committee, the study team worked with County staff engaged in the Official Plan review to coordinate consultation efforts where possible. ▶ A consultation coordinator was identified who was the primary source of information for all consultation and communication related inquiries. ▶ As additional consultation opportunities arose, the study team worked to accommodate requests e.g. meeting with the Accessibility Advisory Committee and Ontario Provincial Police. ▶ Maintained ongoing communication between the study team members and the consultation coordinator. ▶ As issues arose, the consultant team worked with the County and other staff to address the issue and determine the appropriate course of action.
Public	
<p>Consulting with people of all ages and abilities</p> <p>Ongoing study momentum and interest</p>	<ul style="list-style-type: none"> ▶ The study team identified the groups that required more targeted communication and actively sought opportunities to engage with them. ▶ A range of in-person and online activities were used to expand the level of engagement and provide other opportunities to provide input. ▶ Consistent messaging and materials were presented to different groups but the presentations and engagement sessions were tailored to meet their needs. ▶ A promotional strategy was developed and used over the course of the study including the use of study business cards and mobile display boards. The tools were used County-wide to raise awareness on the intent of study outcomes. ▶ The study team worked with other stakeholders and interest groups to distribute key project information and to promote public and stakeholder events.
Political	
<p>Engaging Councillors</p>	<ul style="list-style-type: none"> ▶ The Councillors were engaged by sending them formal letters of invitation to public events. Prior to the public information centres the study team was available to Councillors for a drop-in session where



Challenge	Approach to Address Challenge
Establishing Political Support	<p>they could engage in one-on-one discussions with the team.</p> <ul style="list-style-type: none"> ▶ Ongoing communication through the project website, Council updates and newsletters were used to ensure that Councillors were aware of how the study was progressing and the issues / opportunities that were being addressed.

2.0 OVERVIEW OF CONSULTATION ACTIVITIES

The following is a summary of the different consultation activities that were undertaken between the months of April and December 2015. The consultation activities were originally confirmed through the consultation strategy prepared by the consultant team (see **Appendix B**). However, over the course of the study, additional consultation activities and events emerged as a result of collaboration with County staff.

2.1 Achieving the Principles

The study team used three key consultation principles as the cornerstones of building the consultation program. **Table 3** outlines the different ways in which the study team addressed each of these principles when developing the consultation and communication tools.

Table 3 – Achieving the Consultation Principles

Accessibility	Clarity	Innovation
<ul style="list-style-type: none"> ▶ Information that was presented at public and stakeholder events was also posted on the project webpage. ▶ For each of the public and stakeholder events those notified were provided with contact information for an individual who could provide them with information about accessible options. ▶ Venues for public and stakeholder events were selected because of their location in the County and the opportunity to reach out to more individuals. 	<ul style="list-style-type: none"> ▶ A study webpage was prepared that clearly defined the different components of the study. ▶ A study brand was prepared that provided the public with a visual identity for the project. The brand was used on all materials prepared. ▶ For all materials and deliverables prepared technical language was avoided and replaced with plain language – where possible. 	<ul style="list-style-type: none"> ▶ The study team used an interactive online mapping tool to gather input about key opportunities and challenges. ▶ An online questionnaire was prepared and input was gathered over the course of the study. ▶ A study business card and other promotional materials were prepared and used for project outreach.



2.2 The Consultation Activities

The consultation and engagement activities that were undertaken to inform the development of the Norfolk ISMP can be organized into three categories: **informal**, **formal** and **ongoing**.

- ▶ **Informal** activities are considered those that provide people with information about the study at key points throughout the study process.
- ▶ **Formal** activities include planning and organized consultation activities geared towards both the public and stakeholder groups identified.
- ▶ **Ongoing** initiatives include the promotion and outreach tools that were used and updated on an ongoing basis to increase awareness.

Table 4 outlines the different consultation and communication activities undertaken over the course of the study based on these three categories.

Table 4 – Overview of Consultation Activities

Informal	Formal	Ongoing
<ul style="list-style-type: none"> ▶ Study Notices & Updates ▶ Letters to Stakeholders ▶ First Nations & Metis Letters 	<ul style="list-style-type: none"> ▶ Technical Review Committee Meetings ▶ Stakeholder Focus Groups (e.g. Pathways for People) ▶ Public Information Centres ▶ Online Engagement Sessions 	<ul style="list-style-type: none"> ▶ Study Contact List ▶ Study Promotion & Outreach (e.g. study business card, mobile display board) ▶ Study Webpage

Through the consultation strategy, the study team identified the overall objectives / intents and purposes of each of the consultation activities. Defining the objectives prior to undertaking the activities was important for mitigating conflicting opinions and interests and also helped to shape the materials that were prepared. An overview of the consultation objectives is presented in Table 5.

Table 5 – Objectives for Consultation Activities

Activity	Objectives
Informal	
Study notices	To provide residents with information about public information centres and other consultation and engagement opportunities.
Letters to stakeholders	To provide stakeholders on the study contact list with key information about the study including how to get involved.
Letters to First Nations & Métis	To provide First Nations and Métis representatives with key study information and to invite them to engage with the study team through public and stakeholder events as well as on an individual basis.
Formal	
Technical Review Committee Meetings	To provide key staff members with an opportunity to review technical results and information prior to distribution to the public and stakeholders.



Activity	Objectives
Stakeholder Focus Groups	To provide stakeholder groups with the opportunity to provide input on specific aspects of the study at key points where deliverables are available for review.
Public Information Centre	To provide the public with a forum to ask questions of the study team, review draft materials, provide input on materials and recommendations for additions or revisions.
Online Engagement Sessions	To provide the public with another avenue to provide their input at specific points throughout the study.
Ongoing	
Study Contact List	To document the stakeholders and public representatives interested and involved in the project and to distribute key information to a wider range of individuals.
Study Promotion & Outreach	To use branded materials to distribute key information about the study and to generate interest.
Study Webpage	To provide the public and stakeholders with a hub of study information including background information and project materials.

3.0 WHAT WE HEARD


3.1 Online Questionnaire

The online questionnaire for the Norfolk ISMP was prepared and launched in May 2015. The questionnaire was prepared in an effort to gather input from residents and stakeholders on the current state of transportation, active transportation and water / wastewater in the County as well as their thoughts, opinions and interests for future improvements. There were a total of 21 questions asked; respondents had the opportunity to answer all questions or only those related to the topic they were interested in.

There were a total of 6 responses provided to the questionnaire. Though the responses to the online engagement tools were not as populous as previously anticipated, the in-person engagement activities e.g. workshops, public open houses, etc. proved to be the more effective tool. The results of these engagement activities are summarized in the sections below.

3.2 Technical Review Committee Meetings

Screen capture of Norfolk ISMP Online Questionnaire



Norfolk Integrated Sustainable Master Plan (ISMP)

Norfolk ISMP - Public Survey

How do you get around the County? What about the County's water is important to you? Do you want to enhance walking and cycling in your Community?

Norfolk County is preparing an Integrated Sustainable Master Plan also known as the ISMP. The master plan will be a strategic document that identifies long-term recommendations on infrastructure improvements County-wide. The ISMP will cover three key topics: water and waste water, transportation and active transportation (on and off-road facilities).

The project will be undertaken between May 2015 and December 2015 and will be completed by the County in collaboration with stakeholders, the public and local agencies. As part of the study we will be asking, you, the public to participate in a number of consultation sessions. This short survey (10 - 15 minutes) is your initial opportunity to provide input on key project topics.

Thank you very much for taking the time to complete this survey. The study team looks forward to meeting you at future public events!

1. Are you a resident of Norfolk County?

2. Do you work within Norfolk County?

3. Which of the two topics are you interested in providing your input on? If you would like to answer questions about both topics please click "next"

Transportation & Active Transportation

Water & Waste Water

Next

3.2.1 Technical Review Committee Meeting #1

The first Technical Review Committee meeting was used to present some of the initial results of the three study components. The meeting was held on May 22nd, 2015 between 10:00 a.m. and 12:00 p.m. at the County's offices in Simcoe. Materials were prepared by the consultants for each of the three components of the study.

The information that was presented is listed below.

Transportation	Active Transportation	Water / Wastewater
<ul style="list-style-type: none"> ▶ Mapping of existing conditions ▶ Draft TMP Vision: Memo ▶ Draft table of contents for Transportation Master Plan 	<ul style="list-style-type: none"> ▶ Mapping of existing conditions ▶ Mapping of candidate routes (on and off-road) ▶ Draft table of contents for Active Transportation Strategy ▶ Draft active transportation vision: Memo ▶ Draft route selection criteria: Memo 	<ul style="list-style-type: none"> ▶ Mapping of existing conditions ▶ Draft table of contents for Water / Wastewater Master Plan

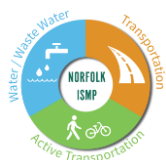
The study team asked those in attendance to provide their initial input on the draft materials as well as some of the challenges and opportunities that the study team should consider addressing through the master plan. The following is a summary of some of the key highlights from the discussion. A more detailed set of meeting minutes is provided in **Appendix C**.

Transportation

- ▶ **Employment.** Key information to be considered includes the number of people working at local businesses within the County. To understand how the traffic will work this information is needed. It could be made available through the tourism department.
- ▶ **Transportation Model.** Initial results of the model are anticipated to be ready for the first public information centre.
- ▶ **Design Alternatives.** The ISMP will include high level design alternatives for roads and sidewalks based on the road classification and the different land uses. This information could be incorporated into the update to the OP. The study team will prepare design solutions that address complete streets in the context of the County.

Water/Wastewater

- ▶ **Reserve Capacity.** Discussions occurred about addressing capacity for the future. Existing policies and / or development charges are contributing to the reserve right now. The consultant team should review and use the development charges by-law to confirm whether updates need to be made to address future developments so money can be collected accordingly. Reserve capacity is also an issue for the wastewater components of the study
- ▶ **Unit demands.** The study will provide a recommendation in the ISMP which addresses unit demands based on anticipated growth. In the current report the County only addresses residential demand and does not account for industry contributions
- ▶ **Improvements.** The study team has reviewed potential improvements to Nanicoke. The initial costs are high, so other options are also being reviewed, such as a raw water distribution system, hybrid system with better intake at Dover, and expanding Dover treatment and distributing to 3 other treatment locations.
- ▶ **Raw water.** There is minimal interest from the County to consider raw water options – water is distributed to various locations for treatment. The benefit of raw water is that it could take advantage of existing reservoirs.
- ▶ **Level of Service.** For the wastewater component, the County is not looking to accommodate back-ups. The County needs to determine what the system will be



designed for and the need to allow for an infiltration allowance. They need to put a value on the different levels of service and what should be provided.

- ▶ **Funding Models.** A number of best practices were discussed including the “tax” model from the City of Mississauga to address stormwater. This approach has also been applied in Kitchener, London and Stratford where the tax provides a rate structure for stormwater infrastructure that is based on impervious surface or is a generic flat rate.

Active Transportation

- ▶ **Candidate Routes.** Not all of the routes presented as part of the candidate route network would become part of the active transportation network. The study team will work through the network development process to assess the candidate routes to confirm which of the routes make sense in the context of a County-wide system of on and off-road facilities.
- ▶ **Existing Routes.** Information was presented from the County’s database and confirmed based on the Explore Trails Norfolk webpage. Information from the webpage only includes recommended cycling touring routes which currently do not include cycling facilities (with the exception of some paved shoulder). If they do not form part of the AT network they will still be highlighted for reference purposes.
- ▶ **Conservation Areas.** Conservation areas have been highlighted on the mapping but routes within these areas are not identified as they are developed and maintained by the conservation authority. The study team will work with staff from the conservation authorities to understand how linkages can be connected and coordinated.
- ▶ **Crossings.** The AT strategy will address transition points between different facilities and crossings of major roadways with a safety lens. Design alternatives will be proposed based on OTM book 18: Bicycle Facilities design guidelines.

3.2.2 Technical Review Committee Meeting #2

The second technical review committee meeting was held on Friday September 18th, 2015 between 10:00 a.m. and 12:00 p.m. at the County’s offices in Simcoe. The materials presented were prepared by the consultant team in advance of the meeting and reviewed in detail at the meeting. The following is a summary of the specific materials that were reviewed for the different components of the ISMP.

Transportation	Active Transportation	Water / Wastewater
<ul style="list-style-type: none"> ▶ Draft PIC #2 Materials ▶ Update on the development of the TMP 	<ul style="list-style-type: none"> ▶ Draft PIC #2 Materials ▶ Draft AT Network and facility types ▶ Update on the development of the AT Strategy 	<ul style="list-style-type: none"> ▶ Draft PIC #2 Materials ▶ Technical Memo submitted in August 2015



The consultant team engaged in a discussion with the committee on the draft materials as well as various components of the ISMP. The following is a summary of the discussion.

Transportation

- ▶ The model was developed up to 2026 to predict future implications. The horizon was chosen based on available data and secondary source data. There are some localized capacity issues – particularly around Simcoe. Though 2026 has been identified for the model the TMP will project beyond this to 2041.
- ▶ Policy and guidelines are being developed as part of the TMP – updates to the existing guidelines will be identified for consideration by the County.
- ▶ A cycling specific tourism assessment is being developed but there will also be complementary recommendations in the TMP and the information will be used as part of the transportation analysis.
- ▶ Intersection data from MTO was recently received which will be sent to MMM to be incorporated into the TMP findings. 13 intersections are being reviewed in more detail (by IBI) – the findings should be incorporated into the TMP findings.

Water/Wastewater

- ▶ Additional review of how to deal with wet weather flows will be undertaken as a next step in the process. There are some plants that are wet and others that are dry. The 2041 flows account for wet weather flows.
- ▶ All water facilities were visited and the demands were assessed. A difference between the official numbers and confidence numbers was documented. Two key needs include Port Dover where volume can be provided but it doesn't meet the quality regulations; and Port Rowan where the intake is susceptible to weather / water levels which could be an issue – potential solutions were identified on the PIC display boards and discussed.
- ▶ Wastewater component of the study – a model is being developed for each system. There are data gaps (e.g. pipe slope) which mean that adjustments had to be made. Existing rates will be used for existing areas and higher more conservative rates will be used for new development areas. The next step will be to address areas where the model has identified issues to ground truth what is being presented.

Active Transportation

- ▶ The draft AT network and proposed facility types and the process used to identify these improvements was reviewed. The committee asked whether provincial highways had been considered as part of the AT network. The team aimed to avoid major provincial highways, however, in some locations they prove to be the most direct connection within the rural areas of a major connection within the community areas.
- ▶ The AT network was developed to focus on proposed on-road cycling facilities, pedestrian linkages and some high-level off-road routes. For off-road connections, the focus was primarily new rail trail connections. For additional off-road routes the County should defer to the trails master plan (2009) and future updates.
- ▶ The group identified the need to increase references / recommendations for pedestrian e.g. new sidewalks within the community areas. In addition, consideration for end-of-trip facilities should be explored as part of the AT network.
- ▶ As part of the study deliverables, the project team will prepare a KMZ file – including GPS waypoints and graphics from the field investigation. The KMZ can be used as a communication tool for members of the public, stakeholders and Councillors.



3.2.3 Technical Review Committee Meeting #3

The third technical review committee meeting was held on January 20th, 2016 between 2:00 p.m. and 4:00 p.m. at the Robinson Administration Building in Simcoe. The materials presented were prepared by the consultant team in advance of the meeting and reviewed in detail at the meeting.

The consultant team engaged in a discussion with the committee on the various components of the ISMP. The following is a summary of the discussion.

Transportation

- ▶ Comment that where roundabouts are warranted, looking at all alternatives (including all way stops, and signalized intersections) and the design of roundabouts.
- ▶ Comment that for bridges / structures that are closed, there is the potential for remove or conversion to pedestrian facilities.
- ▶ Comment that the scale of development is an important consideration.
- ▶ Discussion about cul de sacs and design of these roads.
- ▶ The County indicated that they have a special events protocol and would follow-up with providing a copy of the protocol.

Water/Wastewater

- ▶ Discussion about language used to describe the water capacity.
- ▶ Discussion about water intake in Port Rowan.
- ▶ Discussion about the interconnectivity of the system.
- ▶ Comment that stormwater input should be added to the ISMP.
- ▶ Discussion about sump pumps and specific issues in Port Dover.

Active Transportation

- ▶ Discussion approach for phasing, prioritizing and costing of the network. It was mentioned that the Capital Works Plan is used to prioritize projects.
- ▶ Inquiry about whether signage is included in the costing of the projects. (Response: Yes costing is included in the unit costs).
- ▶ A greater level of importance should be placed on the radius around schools.
- ▶ The amount of funds allocated for outreach and promotion was discussed and is outlined in the AT Strategy.

3.3 Stakeholder Focus Group Sessions

3.3.1 Pathways for People Workshop #1

On May 22nd, 2015 between 1:00 p.m. and 2:00 p.m. the study team held a focus group session with representatives from the County's Pathways for People group. Pathways for People is a community coalition that advocates for the development and improvement of the connected pathways in Norfolk County. The group requested a meeting through the County's Health Unit representative and was asked to meet with the study team for a one-on-one discussion focused on the active transportation strategy. During the meeting, the project team provided attendees with an overview of the information that had been prepared to date including the draft route

selection criteria and a map of existing conditions. The group engaged in a roundtable discussion about the opportunities and challenges associated with the development of an active transportation network in Norfolk County.

The group undertook a mapping exercise to highlight routes that could potentially form part of the active transportation network. The graphics illustrate the input that was received on the network mapping. Specific routes that were highlighted for consideration as part of the AT network included Windham East Quarter Line Road, Windham Road 9, 1st Concession Road, VilleNova Road, Lynn Valley Road, Fischer's Road, Charlotteville Easter Quarter Line Road and East Quarter Line Road.

The following are highlights from the discussion about some of the key opportunities and generators for active transportation in the County:

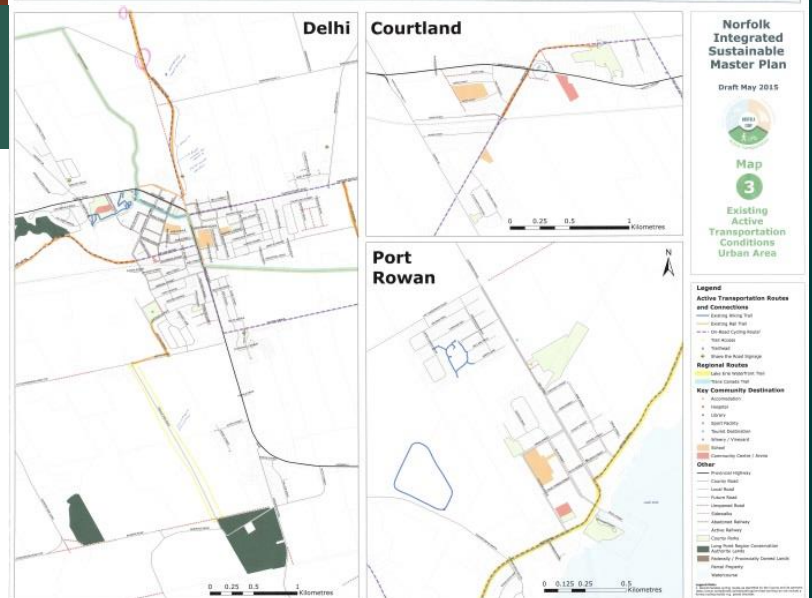
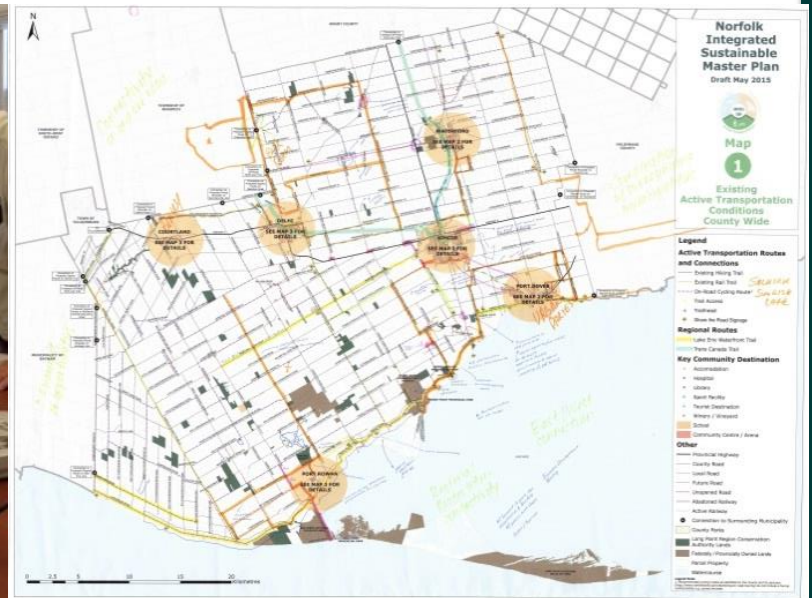
- ▶ **Connectivity.** The cyclists and pedestrians are looking for connectivity through the County and to surrounding areas. Key destinations are Port Rowan, Delhi, Simcoe and Waterford.
- ▶ **Promotion.** The Pathways for People representatives are happy to help promote the project. There is a newsletter that goes out two times a year where information could be included about the project and future engagement opportunities.
- ▶ **Destinations.** There are a number of destinations throughout the County that riders want to get to including bakeries, wineries, conservation areas, restaurants, etc. There should be a connected system of facilities that provides access to these areas for residents and tourists.
- ▶ **Share the Road.** The signs that have been implemented are considered useful for cyclists but are not considered a formal facility type. Most motorists are aware of cyclists on the road and there are usually minimal conflicts.
- ▶ **Crossings & Intersections.** There are a number of "more tricky" locations throughout the County where additional design may be needed to make cycling more "safe" e.g. Fischer's Glen croquet point.
- ▶ **School Access.** Within the built up areas, more sidewalk connectivity is needed. There are missing links in the sidewalk network that need to be completed to gain access to schools for both youth and parents.

More detailed meeting minutes can be found in [Appendix C](#).





Photo & Mapping comments from Pathways for People Meeting #1



3.3.2 Ontario Provincial Policy Roundtable

On June 25th, 2015 at 9:00 a.m. select members of the study team met with the County's local Ontario Provincial Police detachment to discuss local traffic issues. Though the meeting focused on traffic, the study team also prepared a couple of questions related to active transportation. The following is a summary of some of the key highlights from the discussion:

- ▶ **Addressing speeding complaints.** OPP has "Speedspy" cameras that they set up in locations where they receive local complaints about speeding. If speeding is identified as an issue, then they usually do an enforcement blitz. Their issue is when the blitz has no noticeable impact, which was the case on Prospect Street in Port Dover.
- ▶ **Investigating high collision areas.** The OPP noted that their current system is to investigate the 10 highest collision rate intersections every year and, working with officers trained for this task, identify improvements that will mitigate collisions.



- ▶ **Guidelines and policies.** Guidelines and policies will be developed and incorporated into the ISMP to "enshrine" the actions to take when complaints about speeding or safety come up. For speeding, providing additional guidance on traffic calming beyond just increased enforcement will be needed. For safety, the guideline may just be to continue what they are doing.
- ▶ **User interaction.** There are low incidences of collisions between vehicles and cyclists and pedestrians, and that they have not heard many complaints about the lack of perceived safety from cyclists or motorists.
- ▶ **Maintenance.** The OPP is responsible for enforcement on trails and on-road in the County for cyclists and pedestrian issues.

3.3.3 Pathways for People Workshop #2

On September 18th, 2015 between 1:00 p.m. and 3:00 p.m. the study team met with Pathways for People for a second workshop session. Due to the success and interest generated from the first workshop session held in May 2015, the group requested that MMM attend another meeting to provide them with an update on the progress of the study.

The workshop was held to walk the group through the process used to undertake and document the field investigation and facility selection for the AT network. The proposed AT network and facility types were mapped and presented to the group in advance of the public information centre to give attendees a chance to review the proposed AT network as well as the draft facility types. The following is a summary of some of the key highlights of the discussion that occurred at the workshop session:

- ▶ **Clarification on the Network Development Process.** A number of new attendees were presented at the meeting. As such, the project team went through the details of the network development process in some more detail, highlighting the various development steps. The team was asked specifically about the field investigation that was completed including taking photos and GPS waypoints of unique, site specific considerations. MMM noted that in addition to the work that was completed by the consultant team that additional investigation including cycling the candidate routes was completed by the tourism specialist which helped to refine the candidate routes and select preferred routes within the community areas.
- ▶ **Support for Paved Shoulders in Rural Areas.** Pathways for people noted that a recent petition had been signed to convince Council to consider the implementation of paved shoulders along the Longpoint Causeway and Erie Boulevard. In addition to this specific location, there is growing support for the implementation of paved shoulders along major rural connections within the County areas linking major community areas. MMM noted that as a separate assignment the team would be looking into the identification of AT facilities along Longpoint Causeway and Erie Boulevard. There are significant environmental constraints within the area which may limit what is possible within the short-term. Additional investigation would be needed to confirm the preferred facility types and the next steps associated with implementation.
- ▶ **Confirmation of Touring Route Support.** The group asked about the presentation of various touring routes e.g. the South Shore Cycling Route as part of the AT strategy mapping. MMM noted that information had been provided as part of the County's GIS database with additional information considered based on mapping provided on the norfolktrails.ca webpage, [trans Canada](http://transcanada.ca) trail website and [waterfront trails](http://waterfronttrails.ca) website. MMM confirmed that following the meeting the mapping would be revised to clearly illustrate



the major touring cycling routes e.g. South Shore Cycling route, however, based on direction from the health unit the winery route would not be promoted but connections to these destinations (not illustrated on the map) would be identified.

- ▶ **Consideration of recommended routes.** In the earlier stages of the network development process the pathways for people representatives provided some suggestions for preferred routes as well as more complex connections. It was confirmed that these were considered as part of the network development process; however, it is important to note that some may not be considered as part of the network because no improvements are needed at this time to provide more formal AT facilities based on the OTM Book 18 facility selection process.

3.3.4 Trails Advisory Committee Meeting

The Trails Advisory Committee was engaged by Mark Boerkamp as part of the Trails Advisory Committee Meeting on September 29th, 2015. They were encouraged to attend the upcoming public information centres being held in October 2015 and were also provided with copies of the PIC #2 display materials (including the proposed AT network and facility types) via email. Comments were provided via email by committee members and used to refine the AT network and proposed facility types. Of specific interest was the proposed off-road trail connection between Waterford and LaSalette as well as the connections within downtown Simcoe between downtown and Lynn Valley Road. The consultation team clarified the ownership of these lands and revised the notes on the mapping to specify ownership and availability.

3.3.5 Pathways for People Workshop #3

On April 26th, 2016 between 1:30 p.m. and 3:30 p.m. the study team met with Pathways for People for a third workshop session. The purpose of the workshop was to provide a status update for the project.

The workshop was held provide an overview of the process used to undertake the field investigation, and facility selection for the AT network. Both facility and phasing maps were available for review and discussion. Comments were received about the proposed connections shown on the AT maps and there were discussions about phasing. Following the meeting a detailed set of comments was received from the participants, and the comments were used to update the AT Strategy.

3.4 Public Information Centres

3.4.1 PIC #1

The first public information centre was held at two venues in the County with the goal of increasing geographic exposure. A notice was prepared which was published in the Simcoe Reformer on May 27th & 28th as well as June 3rd & 4th. The notice was also uploaded onto the County's webpage. The study team used the list of study contacts to send the notice out via email to interested participants and also mailed the letters to Councillors and First Nations and Métis contacts. The following are the dates, times and locations of the sessions:

Talbot Gardens
10 Talbot Street North
Simcoe, ON N3Y 3W4
Tuesday, June 9, 2015
4:00 p.m. to 8:00 p.m.

Langton Community Centre
28 Albert Street
Langton, ON N0E 1G0
Thursday, June 11, 2015
4:00 p.m. to 8:00 p.m.

Between the two sessions, a total of 14 people attended the public information centres. At each of the sessions the same information was presented. It was an open house style session, which allowed attendees to have one-on-one discussions with the study team.

For each of the key topic areas there was a "booth" of information which included mapping of existing conditions, background information as well as interactive displays which asked people to provide their input on key project topics. The following were the questions / activities that were prompted through the display materials. The questions / activities were also reiterated on comment forms which could be completed and submitted at the PIC or two weeks following.

Transportation	Active Transportation	Water / Wastewater
<ul style="list-style-type: none"> ▶ Please review the draft transportation vision. Is there anything that we have missed? What is your vision for transportation in Norfolk? ▶ Please review the opportunities and challenges for transportation. Are there any we have missed that you think should be addressed? 	<ul style="list-style-type: none"> ▶ Please review the draft route selection criteria and identify whether you agree or disagree with each. ▶ Are there any criteria that we have not considered that you think we should incorporate? ▶ Please review the draft candidate routes. Are there any that we have missed or any that you think should be removed? 	<ul style="list-style-type: none"> ▶ Please review the water / wastewater vision. Is there anything that we have missed?

The input received was documented on the display boards. Images of the results are illustrated in the following graphics.

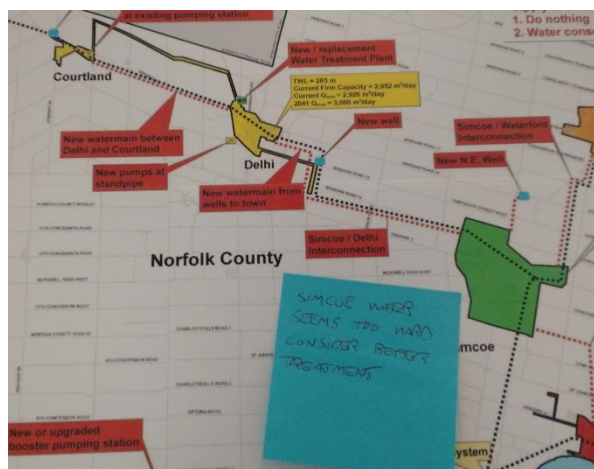
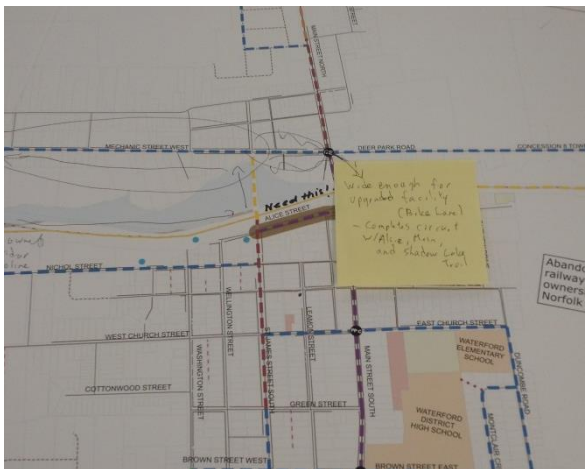


Highlights of the input provided are summarized below:

- ▶ Pedestrian routes, such as sidewalks and pathways, require more lighting.
- ▶ The County should undertake an inventory of sidewalks to better understand where new sidewalks / linkages are needed.
- ▶ The existing rail trails are well used and are key connections within the community.
- ▶ Park space and pathways should be provided for children.
- ▶ Updates to the rail trail mapping should be made to better reflect existing conditions.
- ▶ Additional share the road signs are being implemented around Courtland.
- ▶ Existing paved shoulders along Lakeshore Road should be illustrated.
- ▶ Consider implemented a grade separated pedestrian walkway over Highway 24 in Simcoe.
- ▶ More wayfinding signage is needed throughout the County.
- ▶ The existing trails in Waterford and other areas should be paved.
- ▶ Should consider the design of trail heads to accommodate parking.



Photo & Mapping comments from Public Information Centre #1 & #2



3.4.2 PIC #2

The second public information centre was held on two dates at the Simcoe Farmer's Market. The first date was Thursday October 1st, 2015 followed by a second PIC venue in the same location on Thursday October 15th, 2015. Both public events were held between 11:00 a.m. and 3:00 p.m. which captured the greatest number of attendees.

A notice of PIC #2 was prepared and published in the local newsletter and was also posted on the study's webpage. Key stakeholders were made aware of the PIC via email and a letter of invitation was also sent to the First Nation and Metis contacts. Councillors were encouraged to attend and were provided with the PIC materials following the first event for their review and commentary.

By attending the Farmer's Market the study team was able to speak with a much larger number of public representatives. Over the two days the team spoke with / engaged with approximately 75 people. As there was minimal space to work with the team was limited to only the most engaging and informative display boards. The following is the information that was presented for each of the components of the study.

Transportation	Active Transportation	Water / Wastewater
▶ Proposed transportation improvements and traffic volumes for various roads throughout the County	▶ The proposed AT network including confirmed routes and proposed facility types	▶ Proposed improvements for the wastewater distribution system as a result of the model

The team focused on the use of map boards which those in attendance were encouraged to mark-up and comment on. Comment forms were made available; however, the majority of the attendees were able to provide their questions / comments on the day of the event. The following is a summary of the comments that were provided:

- ▶ Simcoe Water seems to be too hard. Consideration should be made for better treatment.
- ▶ The County should be cognizant of the cost of water / wastewater related to the servicing that is provided.
- ▶ The proposed off-road trail connection from the existing Lynn Valley Trail to Lynn Valley Road in Simcoe should be confirmed – verify whether this linkage is owned by the County.
- ▶ If improvements are identified on Highway 24, there should be consideration for widening to accommodate wider passing lanes.
- ▶ Within Waterford there should be consideration for an upgraded facility on Mechanic Street West to accommodate a bike lane as opposed to a signed route.



Consultation Summary Appendix A
Stakeholder Contact List

Stakeholder Group	Contact Name
Internal Staff	
Norfolk County	Khalid Rahman
Norfolk County	Jeff Demeulemeester
Norfolk County	Tricia Givens
Norfolk County	Bill Cridland
Norfolk County	Bob Fields
Norfolk County	Mark Boerkamp
Active Transportation Representatives	
Norfolk Pathways for People	Gord Mason (Chair)
Norfolk Pathways for People	Dave Challen
Trails Advisory Committee	Al Freeman
Tourism Ec Dev Advisory Board	Shelby Berkindt
Accessibility Advisory Committee	Debbie Pike
Provincial Parks	Julie Foster
LPRCA	Cliff Evanitski
Student Transportation Services	Phil Kuckyt
Silver Spokes Cycling Club	Robert Johnstone
North Shore Runners / Runners Den	Scot Brockbank
Rotary Club of Norfolk Sunrise	Jim Dawson
Lynn Valley Trail Association	Paul Beischlag
Waterford Heritage Trail	Terry Bonnett
OPP	Sergeant Larry Renton
Tour de Norfolk	Yvette Mahieu
RIDE Norfolk	Brad Smith
CLASS	Bruce Robinson
H&N Social Housing	Heidy VanDyk
Sustainable Tourism	Andrea Kilian
Ec Dev and Cultural Services	Pam Duesling
Crossing guard company	Laura Dougherty
	Heather Keam
	Karin Marks
	Michelle Lyne
	Nicole Stone
Political / Agency Representatives	
Haldimand-Norfolk Health Unit	Michele Crowley
Councillors	
Norfolk County Council	Charlie Luke (Mayor)
Norfolk County Council	Noel Haydt, Ward 1
Norfolk County Council	Roger Geysens, Ward 2
Norfolk County Council	Jim Oliver, Ward 4
Norfolk County Council	Peter Black, Ward 5

Norfolk County Council	Doug Brunton, Ward 5
Norfolk County Council	John Wells, Ward 6
Norfolk County Council	Harold Sonnenberm, Ward 7
Norfolk County Council	Michael J. Columbus, Ward 3

Provincial Agencies

Long Point Region Conservation Authority	Bonnie Bravener, Resource Technician
Long Point Region Conservation Authority	Justin Miller, Resource Planning Assistant & Reg Consultation Unit
Ministry of Aboriginal Affairs	
Ministry of Agriculture, Food and Rural Affairs	Drew Crinklaw, Rural Planner
Ministry of Tourism, Culture and Sport	Laura Hatcher, Team Lead (A)
Ministries of Citizenship and Immigration, Tourism Culture and Sport	Chris Stack, Manager
Ministry of Tourism, Culture and Sport: Sport, Recreation and Community Programs Division	Carol Oitment, Policy Advisor
Ministry of Community Safety and Correctional Services	Ali Veshkini, Director (A)
Ontario Provincial Police	Joy Fishpool, Manager OPP Facilities Section
Ontario Provincial Police	Paula Brown, Operational Policy and Strategic P
Ontario Provincial Police - Norfolk Detachment	Detachment Commander
Ministry of Health and Long-Term Care	Tony Amalfa, Manager
Ontario Growth Secretariat, Ministry of Municipal Affairs and Housing	Charles O'Hara, Manager
Ministry of Municipal Affairs and Housing	Bruce Curtis, Manager
Ministry of Natural Resources and Forestry, Aylmer District	Andrea Fleischhauer, District Planner
Ministry of Northern Development and Mines	Grace Lo, Policy Advisor
Ministry of Transportation, West Region	Jennifer Graham Harkness, Manager, Engineeri
Ministry of the Environment and Climate Change, West Central Regional Office	Barb Slattery, Regional EA & P Coordinator
Ontario Power Generation	Susan A. Rapin, Director
Hydro One Networks Inc.	Walter Kloostra
Infrastructure Ontario	Lisa Myslicki, Environmental Advisor

Infrastructure Ontario Peter Reed, Manager, Land Use Planning

Infrastructure Ontario Tate Kelly, Planning Coordinator

School Boards

Grand Erie District School Board Michelle O'Reilly, Planning Officer

Grand Erie District School Board Philip Kuckyt, Transportation Manager

Brant Haldimand Norfolk Catholic District School Board Don Zelem, Manager, Facilities & Construction

Brant Haldimand Norfolk Catholic District School Board

Philip Kuckyt, Manager, Transportation Service

Conseil scolaire Viamonde

Miguel Ladouceur, Director of Assets, Maintenance

Conseil scolaire du district catholique

Centre-Sud

Mario Nantel, Director of Transportation Services

Emergency Services

Norfolk County Emergency Medical Services

Russ Power, Manager EMS and Land Ambulance

Norfolk County Fire and Rescue Services Terry Dicks, Fire Chief

First Nations

Six Nations of the Grand River

Chief Ava Hill

Six Nations Lands and Resources

Jo-Ann Thomas

Six Nations of the Grand River

Lonny Bomberry

Mississaugas of the New Credit

Chief Bryan LaForme

Hohahes Leroy Hill

Haudenosaunee Confederacy Chiefs Council

Secretary of Haudenosaunee Confederacy Chiefs Council

Chippewas of the Thames First Nation

Chief R.K. (Joe) Miskokomon

Métis Nation of Ontario

Stakeholders Identified from Norfolk OP Review

Agricultural Advisory Board

Linda D'hondt Crandon

Agricultural Advisory Board

Brett Schuyler, Chair

Tourism & Economic Development Advisory Board	Clark Hoskin
Tourism & Economic Development Advisory Board	Steve Irwin, Chair
Heritage Committee	Chris Baird
Heritage Committee	Ross Bateman, Chair
	Mary Elder
Environmental Advisory Committee	Jim Greenwood, Chair
Trails Advisory Committee	Catherine Dougherty
Simcoe BIA	Larry Dawson, Executive Director
	Brenda Lee, Chair
Delhi BIA	Andy Putoczki, Executive Director
Delhi Chamber of Commerce	Robert Brush
South Coast Business Coalition	Yvonne DePetro
Norfolk Homebuilders Association	Sam Bunting
Vallee Engineering	Michael Higgins
Civic Planning Solutions Inc.	David F. Roe
Rick Dixon	Rick Dixon
Long Point Biosphere Reserve	Nick Wilson, President
	Melodie Janulis
Norfolk Federation of Agriculture	Vic Janulis, President
	Lorne Small, President
Christian Farmers Federations of Ontario	Ted Van Den Erk, Vice President
Haldimand Norfolk Housing Corporation	Christine Brutin, CEO
Bird Studies Canada	
Nature Conservancy of Canada	James Duncan, Regional Vice President
Tax Ratepayers Associations of Long Point / Turkey Point	Eric Gunnell, President
Silver Spokes Cycling Group	Christine Meyer, Vice President
Norfolk Field Naturalists	Megan Vankerrebroeck
Long Point Basin Land Trust	
South Coast Wines	Mike McArthur
Asparagus Farmers of Ontario	
Ontario Ginseng Growers Association	
Grain Farmers of Ontario	Barry Senfit
Grain Farmers of Ontario	
Dairy Farmers of Ontario	Peter Gould, President
Dairy Farmers of Ontario	
Beef Farmers of Ontario	Silvia Schaerer
Ontario Tender Fruit	Sarah Marshall
Ontario Pork Producers	Mary Jane Quinn
	Ray Duc, Chair
Ontario Fruit and Vegetable Growers	Jason Verkait, Vice Chair
Chicken Farmers of Ontario	Chris Horbász
Chicken Farmers of Ontario	

Turkey Producers of Ontario	Louise Minty
Ontario Federation of Anglers and Hunters	Galen Eagle
Simcoe and District Real Estate Board	George Araujo
Norfolk County Fair Board	Heather Heagle
Ontario Camps Association	Drew Cherry
Grand River Conservation Authority	Mark Pomponi, GM
County of Brant	Heather Boyd, Clerk
County of Brant	Evelyn Eichenbaum, Clerk
Haldimand County	Craig Manley, GM
Haldimand County	Mark McDonald, COA
Elgin County	Scott Oliver
Ministry of Municipal Affairs and Housing	Sue Williams
F.A.R.M.S.	Elizabeth Schell, Manager
Farm Credit Canada	
Alternate Land Use Services (ALUS)	Sarah Bakker
National Farmers Union	Steve Scgeers, Forestry Division
Norfolk Woodlot Association	
Port Dover Farmers Market	
Simcoe Farmers Market	
Univeristy of Guelph Researcher	Mahala Wagner
Labreche Patterson & Associates	John Vos
	Bonnie Sutton
	Laurie Jerome
	George Butty
	Lynne Massel
	Jean Body
Ontario Real Estate Board	Ron Vandenbussche

Consu tation Summary Appendix B

Consu tation & Communication Strategy

To:	Gary Houghton, Norfolk County	Date:	March 2015
From:	Claire Basinski, MMM Group	Job No.:	3315003
Subject:	<i>Integrated Sustainability Master Plan: Public & Stakeholder Consultation Strategy</i>	CC:	Sandy Nairn, MMM Group Andrea Bourrie, MMM Group Dave McLaughlin, MMM Group Chris Tam, MMM Group David Evans, RV Anderson

1.0 INTRODUCTION

To inform the development of the Norfolk County's Integration Sustainability Master Plan (ISMP) a rigorous and well-coordinated consultation strategy / approach will need to be undertaken. As part of the original proposal submission, MMM Group identified a number of public and stakeholder consultation opportunities and activities that could be undertaken to inform the development of the Water and Wastewater Master Plan (WWMP), Transportation Master Plan (TMP) and Active Transportation Master Plan (ATMP).

The consultation program for the ISMP will not only meet the master planning requirements of Phases 1 and 2 of the Municipal Class EA Act, but will be used as the vehicle to integrate the findings of the WWMP, TMP and ATMP into the Integrated Sustainability Master Plan (ISMP).

Consultation and communication is intended to facilitate integration in three forms over the course of the assignment:

Internal Integration:

Ongoing communication and consultation with County staff, the consulting team, Official Plan study team members, Steering Committee members and Technical Review Committee Members.

Public Integration:

Engagement and consultation involving members of the public at key stages as well as ongoing promotion, outreach and education of specific community groups.

Political Integration:

Communication with members of Council and local interest groups / stakeholders involved in day to day decision making about the future of the County.

The strategy outlines additional details regarding the preferred consultation activities / opportunities including a detailed approach to communication between the team and key individuals, the groups that will be targeted as part of the consultation process, the approach to address more challenging consultation issues for this assignment and roles and responsibilities for the different project team members.

2.0 CHALLENGES & SOLUTIONS

As part of the proposal submission, MMM Group identified a number of potential communication and consultation challenges that could occur over the course of the assignment. **Table 1** reiterates these challenges and outlines the solutions that have been identified to address them based on the different areas of integration that the master plan is intended to achieve.

Table 1 – Summary of Potential Challenges & Proposed Solutions

Challenge	Solution
Internal:	
Conflicting approaches to outreach and engagement	A detailed communication plan and consultation strategy will be developed for the ISMP which will promote a collaborative approach. The plan will be informed by the Communication Strategy Workshop to identify opportunities for coordination with the Official Plan Update. There will be one lead consultation coordinator for the ISMP who will be responsible for communicating expectations, dates, requirements and outcomes to each of the team members. This individual will also be responsible for coordinating with other study representatives to ensure ongoing communication should issues or opportunities arise.
Equal Involvement and Level of Effort	Maintaining ongoing communication will be the focus of the lead consultation coordinator. The expectations regarding specific roles and responsibilities will be communicated through internal study team meetings. Open lines of communication will be encouraged to ensure that team members understand how they will be involved in consultation. If issues do arise, an updated approach to coordination will be identified and communicated to study team members.
Public:	
Consulting with people of all ages and abilities	As part of the consultation strategy the team will try to identify the groups that will require more targeted communication. We have identified a range of in-person and online activities that will be used. Many of the materials and activities will overlap in their intent. This is intentional to ensure that people have a number of accessible opportunities to provide their input.
Ongoing study momentum and interest	In addition to in-person and online engagement, our consultation and communication strategy includes a promotional strategy as well as a County-wide educational campaign. These tools are intended to be used County-wide to raise awareness of the intent of outcomes of the study as well as how members of the public can become involved and provide their input. It is important to have involvement from staff and members of the study team to ensure that these tools are effectively distributed and used. Multiple iterations of materials will be developed based on the outreach opportunities that arise.
Political:	
Engaging Councillors	The study team will strive to engage Councillors through the development of a Councillor-specific online questionnaire where they will be asked to provide their insights on issues related to the ISMP in their ward. We suggest that a Councillor / staff workshop be held in advance of the first PIC to follow-up the online questionnaire and gather additional insights about opportunities and challenges associated with the study. They will also be encouraged to attend the public sessions to support local planning initiatives and provide updates to their constituents.

Challenge	Solution
Establishing Political Support	The goal of the study will be to provide the public and stakeholders with opportunities to engage at key stages of the study. This will be no different for local Councillors and staff. Ongoing communication through the project website, Council updates and newsletters will be used to ensure that Councillors are aware of how the study is progressing and the issues / opportunities that are being addressed. The consultation activities have been identified to enhance the outcomes of each stage of the study and input received will be documented to demonstrate how comments are gathered, addressed and responded to.

Though it is impossible to predict all of the potential challenges that could occur; it is important to set-up a communication approach and process to address them as they arise. The communication approach is documented in further detail in **section 3.0**.

3.0 COMMUNICATION APPROACH

3.1 Internal Communication

Day to day coordination and communication is needed to ensure that the study is efficiently and effectively undertaken. Should communication challenges or opportunities for additional consultation activities arise over the course of the assignment there should be an internal communication process between County staff and consultant team members to determine the most appropriate approach. The table below outlines an approach to guide the flow of information that is intended to be used over the course of the assignment based on the different communication needs that will arise.

In the table we have identified the primary and secondary point of contact for each of the potential consultation milestones. Please note that for consultation deliverables we have assumed that the consultation coordinator will initiate discussions regarding their development. We've also indicated who would be responsible for documenting the input received and those who would be responsible for completing the action required. It has been assumed that all finalization will go through Sandy Nairn and Gary Houghton.

	Communication Process				
	Primary	Secondary	Document	Action	Finalize
1. Public / Stakeholder Issue Raised	GH / SN	CB	CB	MMM / RVA	SN / GH
2. Councillor Issue Raised	GH / SN	CB	CB	MMM / RVA	SN / GH
3. Internal Issue Raised	GH / SN	CB	CB	MMM / RVA	SN / GH
4. Public / Stakeholder Comment	GH / SN	CB	CB	MMM / RVA	SN / GH
5. Website Design & Development	CB	GH / SN	CB	MMM	SN / GH
6. Notice Publications	CB	GH / SN	CB	MMM / RVA	SN / GH
7. Public / Stakeholder Events	CB	GH / SN	CB	MMM / RVA	SN / GH
8. Project Updates / Meetings	CB	GH / SN	CB	MMM / RVA	SN / GH
9. Project Promotion & Outreach	CB	GH	CB	MMM	SN / GH

GH – Gary Houghton

SN – Sandy Nairn

CB – Claire Basinski

MMM – MMM Team & RVA – RV Anderson Team

For the roles and responsibilities noted above it is important to highlight the fact that Gary Houghton and Sandy Nairn will be considered the “spokes people” for the assignment and will be included on project notices and on the project website as the formal contacts for the study. For day to day communications related to public and stakeholder consultation Claire Basinski from MMM Group with support from Andrea Bourrie will take the lead. Additional details about the assumed roles and responsibilities of members of the project team are outlined in **Section 6.0** of the strategy.

3.2 Public & Political Communication

Effective and efficient communication will be the key to a successful consultation program for the ISMP. The keys to successful consultation are the achievement of broad community involvement as well as consensus when forming study goals, undertaking an assessment of proposed alternatives and ultimately the endorsement of the Master Plan’s network, recommendations, policies, and strategies. Public and stakeholder involvement should be encouraged to generate interest throughout the study process and build momentum for the implementation of a ISMP which reflects the urban and rural roots of the County. As there are a number of different initiatives being undertaken throughout the study process which require consultation with a range of different stakeholder and groups it is important to set-out a clear set of principles that consultation and communication will be founded upon including:

- **Accessibility:** People of all ages and abilities should be considered. The strategy aims to provide the public, stakeholders, staff and members of Council with a menu of consultation and communication options, from which they can select their preferred method of engagement. Our team has been closely following the development of the Accessibility for Ontarians with Disabilities Act (AODA). Ontario Regulation 413/12 came into effect in January 2013 and municipalities are expected to be in compliance by 2016. A sound consultation and engagement plan requires a good understanding and action plan regarding accessibility. We will endeavor to understand the County’s current and planned approach to accessibility and will use this as the starting point to develop a range of accessible consultation and engagement activities.
- **Clarity:** Consultation and communication should not be confusing and for a project of this scope and scale it must be clear. Residents and stakeholders tend to be more willing and able to continuously provide input to a study if the messaging and information is easy to access and clearly documents or illustrates what is being asked of the public and the materials that are being reviewed. For this assignment there will need to be clear messaging developed which explains to the public the intent and purpose of each master plan and how together, they will form the integrated sustainability master plan. This can be done through the development of a cohesive study brand and a strategy for promotion and outreach making the projects easily identifiable and easy to track over the course of the assignment.
- **Innovation:** Though consultation should be founded on best practices and lessons learned there must also be elements of innovation and creativity. There are a number of interactive methods of consultation, both on-line and in-person, which have emerged over the few past years. Many of these tools have been developed to mitigate some of the typical engagement challenges, increase involvement and maximize input received. We have incorporated some of these initiatives, where possible, feasible and practical, into the consultation strategy to help increase the number of residents, stakeholders and Council members engaged and the amount of input generated. The strategy identifies both traditional consultation activities and innovative engagement tools.

It has been MMM’s experience on similar studies that “actively engaging and partnering” with staff, political representatives, members of the public and stakeholders is an effective approach to developing successful solutions to the key issues facing decision makers and those responsible for the implementation of municipal infrastructure. It can also build local support, expertise and knowledge. Consultation and outreach should be meaningful for both the study team members as well as those who are participating. MMM Group will seek to understand what “meaningful” consultation means for the County.

4.0 WHO WILL BE CONSULTED?

4.1 Developing a Project Contact List

The most realistic and feasible solutions will stem from input provided by those responsible for the day to day implementation of County infrastructure e.g. staff and members of Council. They will also be further shaped by those who will ultimately use the infrastructure implemented e.g. residents and stakeholders. The intent is to engage individuals from each of the three target areas noted in **section 2.0**.

Consistent with the Municipal Class EA Act consultation requirements, the study team will develop an study contact list at the beginning of the assignment. The list will include internal, public and political representatives who will be engaged throughout the study. The following groups have been identified to inform the development of the study contact list.

Internal:

- Norfolk County Staff
- Community Representatives
- Surrounding Municipalities
- Steering Committee Members
- Technical Review Committee Members
- Transit Providers

Public:

- Local residents
- BIA representatives
- Interest Groups
- Service Clubs
- First Nations Representatives
- Local Rate Payers

Political / Agency:

- Tourism & Health Unit Representatives
- BIA representatives
- Long-Point Region Conservation Authority
- Grand River Conservation Authority
- County Council
- School Boards
- Ministry of Transportation Ontario (MTO)
- Ministry of the Environment & Climate Change (MOECC)
- Ministry of Natural Resources (MNR)

The study contact list is intended to build on previously completed projects and should be flexible. Contacts gathered from past planning and engineering assignments should be used as a base with additional contacts added over the course of the assignment based on interest expressed through public and stakeholder events. The preferred method of outreach and engagement will be confirmed in **section 5.0** of the strategy.

4.2 Engaging Hard to Reach Audiences

The consultation and communication strategy has been developed to provide consultation and engagement opportunities for people of all ages and abilities. In order to do so, one must understand some of the unique characteristics associated with populations that are typically harder to reach. The following is a summary of some of these groups as well as some key considerations which are intended to be used to help establish different methods of outreach and engagement.

The Elderly

Considerations: These individuals may have mobility issues and may require a more central location for face-to-face meetings that can be accessed by modes of transportation other than a single occupant vehicle. They may have limited understanding of online resources and electronic information and may be more comfortable / used to a traditional public consultation approach e.g. presentation and Q & A. When developing the consultation activities additional education / information may need to be provided to elderly individuals as to why “traditional” consultation activities are not being undertaken. Some may prefer online engagement opportunities that allow them to be involved from the comfort of their own home. There may also be visibility issues which may hinder their ability to comprehend the information being presented. They are typically enthusiastic about getting involved in community issues.

Youth

Considerations: These individuals have varying levels of enthusiasm and are typically not as engaged regarding municipal initiatives and studies. Their engagement and focus is primarily driven by reward-based activities, online engagement and resources and school based learning / requirements. They have varying modes of transportation but are more likely to use alternate modes of transportation such as public transit and / or walking / cycling to get to their destination. For older teens their primary mode of transportation may be driving, however, access to a personal vehicle may not be possible. Emerging social media such as twitter and Instagram are a significant draw / database of information if appealing and interesting.

Mobility Challenged

Considerations: These individuals have varying levels of mobility and in most cases require some assistance when getting from point a to point b. They are interested in venues and locations that have higher levels of accessibility and may in some cases need additional assistance understanding the information which is being presented. They may request that documents be provided in an alternate format based on their needs which could include a meeting / discussion with study representatives from the County to highlight the content of the materials and / or the intent of the study. It will be important to provide an online hub that is considered AODA compliant i.e. readable by e-readers with sufficient colour contrast.

Residents in Rural Areas

Considerations: These individuals will either have longer commutes or may feel as though the consultation events that are held may not be relevant to their geographic area or day to day life. They may be more inclined to participate online or at an event that is closer to their residence. They may also feel as though the issues that are being discussed are not relevant to their wants and needs but acknowledge that solutions are required to connect the rural areas with other key destinations throughout the County. The education strategy including promotional materials and travelling road shows (see description in upcoming sections of the strategy) will be an way to disseminate information to these groups in an ongoing and consistent manner.

Multi-generational Families

Considerations: These families will likely have a number of commitments that would hinder their ability to come to traditional public engagement sessions. They would likely have to have their children participate in the engagement activities or find an alternative means of supervision. They are enthusiastic about alternative transportation options to accommodate their need to get to different commitments / destinations and their children's transportation future / options.

As the team moves through the study process they are encouraged to consider and discuss these groups and identify whether the appropriate consultation activities have been identified or if alternative engagement opportunities should be explored.

5.0 CONSULTATION ACTIVITIES

Over the course of the assignment three types of consultation activities will be undertaken: **informal**, **formal** and **ongoing promotion and outreach**. The activities undertaken in each of these categories are noted below:

Informal:

- Study Notices & Updates

Formal:

- Stakeholder Focus Group Sessions
- Public Information Sessions
- Technical Review Committee Meetings
- Monthly Project Status Updates
- Online Engagement Sessions

Ongoing:

- Study Brand & Promotional Materials
- Dynamic Study Webpage
- Study Contact List
- Education Campaign

The anticipated timeline for the public and stakeholder consultation activities have been documented in the project schedule. A summary of the proposed consultation activities and the phase in which they will occur is provided in the table below.

Types of Consultation Activities			
Timeline	Informal	Formal	Ongoing
Start-up February 2015 – April 2015	<ul style="list-style-type: none"> • Notice of Study Commencement • Notice of Online Engagement Session #2 	<ul style="list-style-type: none"> • Communication Strategy Workshop • Online Engagement Session #1 	<ul style="list-style-type: none"> • Study Brand & Promotional Materials • Project Webpage • Stakeholder Contact List • Education Campaign
Stage 1 February – May 2015	<ul style="list-style-type: none"> • Notice of Stakeholder Workshop • Notice of PIC #1 	<ul style="list-style-type: none"> • Stakeholder Workshop • PIC #1 	<ul style="list-style-type: none"> • See above - continued
Stage 2 June 2015	N/A	N/A	<ul style="list-style-type: none"> • See above - continued
Stage 3 June 2015 – August 2015	<ul style="list-style-type: none"> • Notice of Online Engagement Session #2 • Notice of PIC #2 	<ul style="list-style-type: none"> • Online Engagement Session #2 • PIC #2 	<ul style="list-style-type: none"> • See above – continued
Finalization September 2015 – November 2015	<ul style="list-style-type: none"> • Notice of Study Completion 	<ul style="list-style-type: none"> • Presentation to Council 	<ul style="list-style-type: none"> • See above – continued

Additional details regarding each of the consultation activities are provided in the following sections. They've been broken out by project stage.

5.1 Project Meetings

Throughout the study, MMM Group will work with representatives from the County and local stakeholder groups that form the Technical Review Committee. In total there will be **three technical review committee meetings** held. They are scheduled to occur in April, June and September 2015. The meetings will be used as a means of providing the Technical Review Committee with an update on the project and opportunities to provide their input on key study issues as well as deliverables.

In addition to the technical review committee meetings the study team will also participate in **monthly project status meetings** to discuss and document the progression of the study. The project status meetings will be in the format of conference calls and / or email exchanges. At two points towards the end of the study MMM will also develop and present to the **Senior Leadership Team**.

These presentations will give the study team and the senior leadership team an opportunity to discuss the directions and initial findings of the master plans as well as the final master plans before a formal presentation is made to Council. The presentations are anticipated to held in August and October 2015.

5.2 Start-up

Study Contact List

Objective: Consistent with the requirement set-out for Stages 1 and 2 of the Municipal Class Environmental Assessment Process the consultant team will work with County staff and study team representatives to identify a list of study contacts. The list will form the study contact list and will be updated over the course of the assignment to track involvement and interest. The study contact list should build on previously developed stakeholder lists from past planning and engineering assignments completed by the County.

Target Audience: Stakeholders and interest groups

Study Webpage / Online Engagement Session #1

Objective: An online hub of relevant project information will be developed by MMM Group at the beginning of the study. To ensure that it is up to date and dynamic it will be updated at key points over the course of the assignment with relevant materials or when there are public / stakeholder events to be promoted. The study webpage will be hosted and maintained by MMM Group, however, content and updates to the page will be vetted by County staff. The webpage will be designed around the study brand and will include relevant information for all aspects of the ISMP. The webpage is intended to be a dynamic tool that can be used by members of the public and stakeholders in addition to or in place of attending formal consultation events. As materials are uploaded to the site members of the public will be encouraged to provide their comments and / or questions to members of the study team. As part of the study webpage an interactive online activity will be embedded onto the project website. This activity will be used to gather input on the existing transportation, active transportation and water/waste-water conditions found throughout the County. More detailed questions regarding potential opportunities and challenges associated with future improvements, planning and design will be developed and used to gather input on potential master plan recommendations.

Target Audience: Members of the public and stakeholders

Study Brand & Promotional Materials

Objective: A study brand will be developed to establish a visual identity for the ISMP. The study brand – including a project logo and potential tag line – will be used over the course of the assignment to increase awareness regarding the study and to clearly identify potential consultation and engagement opportunities. The study brand will be confirmed based on discussion at the communications strategy workshop. Once the study brand has been developed a set of materials e.g. a post card, business card, posters and mobile display boards will be developed to help promote the study not only at formal public and stakeholder consultation events but at key locations throughout the County and at other local events where members of the public can be accessed.

Target Audience: Members of the public and stakeholders

Notice of Study Commencement

Objective: The notice of study commencement will be developed as an introduction to the study for members of the public and stakeholder representatives. Content of the notice will include a study overview and a description of the anticipated project timeline and suggested methods of engagement and consultation. In addition, it will reference the upcoming online engagement sessions that will occur over the course of the study.

More specifically, we will note the anticipated timeline of the second engagement session – July / August 2015 to ensure that the public is aware of the anticipated timeline and the reason for the non-traditional timing of the activities. The notice will be developed consistent with the confirmed study brand. The notice will be published in local newsletters and / or newspapers. It will also be published on the project website and adapted as a poster which can be used throughout the County to generate awareness. Using the study contact list, key stakeholders will be emailed the notice of study commencement and asked for their involvement over the course of the assignment.

Target Audience: All anticipated audiences

Education Campaign

Objective: Taking into considering all of the aspects of the ISMP, there will need to be a more aggressive education campaign about the key concepts / elements of each piece of the project. An education campaign that builds on the study brand but focuses on project specific highlights of the water/waste-water, transportation and active transportation plans will need to be established. Based on discussions with County staff the study team will explore the development of newsletter / project updates that highlight specific information related to each of these assignments e.g. “What is the Transportation Master Plan”, “Why does the County need a Water / Waste-water Master Plan?”

Target Audience: Members of the public, stakeholders and Council

5.3 Stage 1

Notice of Stakeholder Workshop #1

Objective: A notice will be developed and sent to select stakeholders and interest groups to inform them of the first stakeholder workshops. The notice will be developed in the same format as previous notices and be emailed to select stakeholders including those identified as part of the study contact list and local Councillors.

Target Audience: Select stakeholders and interest groups – sent via email

Stakeholder Workshop #1

Objective: The first stakeholder engagement session will be undertaken in advance of the first PIC and will be held over the course of one day. The day will consist of workshops and focus group sessions and will be used to gather input from local stakeholders, political representatives and community groups. The first session (in the morning) will engage County staff and Councillors to discuss political / process issues and opportunities. Community representatives will be invited to participate in a second focus group session (in the afternoon) where they will be asked to break into groups and provide input on future opportunities, challenges and considerations related to the communities which they represent. Stakeholders will be asked to provide their input using other formal consultation activities (e.g. PICs) or informal consultation activities (e.g. online engagement sessions).

Target Audience: Local stakeholders, political representatives and community groups

Notice of Public Information Centre #1

Objective: A notice will be developed and published online and in local newspapers notifying the public of the first public information centre. The notice will be developed in the same format as previous notices and will be made available two weeks in advance of the PIC. The notice will also be emailed to those identified as part of the study contact list.

Target Audience: Members of the public and stakeholders

Public Information Centre #1

Objective: The first public information centre will be used to gather input from the public on opportunities, challenges and planning, design and policy considerations that should be addressed through the different master plans prepared for this assignment. Similar materials as were developed for the stakeholder session will be used for the PIC and adapted as necessary. The intent will be to make the displays as interactive as possible through different activities and exercises e.g. mark-up map boards, Google Earth with KML file, ranking alternatives.

Target Audience: Members of the public and stakeholders

5.4 Stage 2

For stage 2 the consulting team will focus on the technical analysis in preparation for the consultation undertaken in Stage 3 of the assignment. However, as part of Stage 2 the study team will continue to promote and education the public through the study webpage, education campaign and study promotional materials.

5.5 Stage 3

Notice of Online Engagement Session #2

Objective: A notice will be prepared notifying members of the public of the second online engagement session. The notice will be developed using the study brand, will be posted on the project website and published in local newspapers. The notice will also be emailed to those identified as part of the study contact list.

Target Audience: Members of the public

Online Engagement Session #2

Objective: This online engagement activity will be embedded onto the project website and will include questions and interactive online activities that gather input on some of the initial recommendations and improvements generated through the technical work completed in Stage 2 and the initial tasks of stage 3. The online engagement sessions will be the precursor to the public information centre and will help to inform the development of the implementation plan.

Target Audience: Members of the public and stakeholders as well as those more hard to reach audiences

Notice of Public Information Centre #2

Objective: A notice will be prepared notifying the public of the second public information centre and final formal consultation activities for the ISMP. The notice will be developed using the study brand, will be posted on the project website and published in local newspapers. The notice will also be emailed to those identified as part of the study contact list.

Target Audience: Members of the public and local stakeholders and interest groups

Public Information Centre #2

Objective: The second public information centre will be used to present information about the proposed implementation strategy developed for each of the component of the ISMP. In addition, the public will be provided with updates regarding any revisions that were made based on input gathered from the online engagement session. The information presented will be organized based on the master plan to which it applies and will be as interactive as possible.

The study team may select to use a station based approach – one station for each master plan – so people can focus their questions, comments and input on the appropriate study.

Target Audience: Members of the public and stakeholders

5.6 Finalization

Presentation to Council

Objective: The findings from the different master plan components of the ISMP will be presented to members of Council. The presentation will include three components specific to the water / waste water, transportation and active transportation master plan. It will outline the key findings, implementation strategies and phasing recommendations. The presentations will also highlight key elements of the master planning process including responses gathered from the public and stakeholder consultation and communication strategy.

Target Audience: Members of Council

Notice of Study Completion

Objective: Once the ISMP has been presented to Council and accepted for adoption the master plan the study team will prepare a final notice to note the study's completion. The notice will be developed in the project template, will be uploaded to the project website, published in local newspapers and emails to those identified as part of the study contact list.

Target Audience: Members of the public and stakeholders

6.0 TRACKING THE CONSULTATION PROCESS

There are numerous public and stakeholder activities that have been identified to inform the development of the ISMP. In order to maintain an efficient and effective project timeline it is important to set-out an anticipated schedule in the form of a “consultation calendar” (**see attached**) which can be used by County and consultant staff to track key deadlines over the next 10 months.

When developing the schedule the following assumptions have been made:

- Technical Review Committee members and stakeholders will be contacted 4 weeks in advance of the consultation activities / meetings to discuss potential dates / times. Committee members will be provided materials on the date of the meeting.
- Notices will be prepared and provided to County staff 4 weeks in advance of the consultation events including the public information centres, stakeholder workshop and online engagement sessions. Comments to Notices should be submitted a week following the submission of the draft.
- Notices will be emailed to stakeholders 2 weeks in advance of the scheduled workshop. For public event notices will be posted on the website and published in local publications 2 weeks in advance of the public information centre and online engagement sessions.
- Draft materials for consultation events will be submitted to the County for review 3 weeks in advance of the public and stakeholder event. The County will be required to provide comments to the materials a week following the submission of the draft.

- Materials presented at the public and stakeholder events will be posted on the website a day after the event has occurred.
- The study team, where possible, will avoid planned holidays and aim to hold in-person public events outside of the summer months.

6.1 ROLES & RESPONSIBILITIES

In addition to the communication structure outlined in **section 2.0** and the consultation calendar noted above it is also important to understand who will be responsible for what elements of the public and stakeholder consultation program. The public and stakeholder consultation will be undertaken primarily by MMM Group in partnership with RV Anderson, County staff and stakeholders.

The following are some assumptions about the roles and responsibilities related to public and stakeholder consultation tasks and deliverables.

Communication with Public & Stakeholders:

- The project manager from the **County** and **MMM** will be the primary contact for the public, stakeholders, the technical review committee and members of Council. All consultation related communication should be forwarded to the **MMM's** consultation coordinator.
- **MMM** will be responsible for communicating with the study contact list and technical review committee when planning workshops and meetings.
- **MMM** project manager will be responsible for forwarding technical information and comments to the necessary members of the study team.

Promotion & Outreach:

- **MMM** will be responsible for the online promotion and outreach associated with the project including updates to the study website.
- **MMM** will be responsible for developing content for social media updates as well as any other background information needed to inform other media promotion e.g. radio, etc.
- **County staff** will be responsible for the social media outreach associated with the study. Using existing social media profiles developed by the County or local organizations, study updates will be provided to the public.
- **County staff** will be responsible for the coordination of all other media promotion and outreach e.g. radio ads, etc.
- **County staff** will help to promote the study over the course of the assignment using materials prepared for the education campaign.

Development of Materials:

- **MMM** will be responsible for developing the project website and providing regular updates with relevant study materials and notices of upcoming consultation activities.
- **MMM** will be responsible for developing study promotional materials such as business cards, posters and “travelling road shows” e.g. engagement materials moved throughout the County and placed at key locations to increase awareness.

- **MMM** will be responsible for developing the draft and final materials needed for the education campaign.
- **MMM** will be responsible for developing draft and final copies of the notices for online engagement sessions, the stakeholder workshop and two public information centres.
- **MMM** will also be responsible for developing the two online engagement sessions which will be embedded onto the webpage and used to consult with harder to reach populations in advance for formal public information centres.
- **MMM** will be responsible for developing draft and final materials for the stakeholder workshop / visioning session as well as both public information centres.
- **MMM** will be responsible for developing summaries of relevant input for the stakeholder and public consultation sessions.
- **MMM** will be responsible for developing meeting minutes and materials for all monthly project status updates and technical review committee meetings.
- **MMM** will be responsible for developing draft and final presentations for the senior leadership team as well as Council

Coordination of Events (Online & In-person):

- **MMM** and the **County** will work together to determine the preferred date and time for the stakeholder workshop, technical review committee meetings, senior leadership meetings and public information centres. They will also discuss the preferred launch date for the online engagement sessions.
- **County staff** will be responsible for identifying potential additional events where the study can be promoted. They will also be asked to identify key locations throughout the County where the pop-up consultation / travelling road-show can be hosted e.g. arenas, community centres, libraries, etc.

Event Attendance:

- **MMM** will be responsible for attending and facilitating the in-person public and stakeholder consultation activities including workshops, public information centres and technical review committee meetings.
- **County staff** will attend and participate in the in-person consultation activities including the workshop, technical review committee meetings and public information centres.

Documentation of Outcomes

- **MMM** will be responsible for the documentation of all study input including meeting minutes for the technical review meetings and summaries of input received at the stakeholder workshop and public information centres.
- **MMM** will coordinate the summary of input received through the online engagement sessions and will incorporate them into a summary of consultation activities which will form part of the ISMP report.

Review of Materials

- **County Staff** will be responsible for the review of all draft consultation materials and will provide MMM with comments and revisions as necessary to finalize the documents.

6.2 Public & Stakeholder Event Coordination

The success of a public and / or stakeholder event will be driven by the roles and responsibilities outlined in **section 6.0** but will also require a coordinated and consistent logistical approach. Thorough preparation and smooth execution will be one of the primary goals when undertaking consultation activities. If engagement activities or meetings are not well executed, it could leave the team open to criticism and may be distracting for participants thus impacting the quality and quantity of input provided.

To streamline this approach and mitigate any potential logistical issues arising the following checklist has been developed as a guideline in advance of each public information centre, workshop or meeting. As the team works through this process the list should be used and where something is not “checked” an explanation should be provided.

A. Meeting Date Selection (4 weeks in advance)

- Does the proposed meeting date conflict with a religious holiday? Does the date conflict with a break period (e.g., March break)?
- Are Councillors/Mayor available to attend?

B. Meeting Invitations (3 weeks in advance)

- Have Councillors and the Mayor been invited? If so, list the confirmed attendees:

-
- Facebook/Twitter updates completed
 - Project webpage update completed
 - Direct invitations completed. Generally list the recipients of direct invitations:

-
- Email circulation completed
 - Invitations to agencies/government completed
 - Newspaper and newsletter circulations completed
 - Notice contains accessibility disclaimer (i.e., contacting the County to obtain accessible or alternate formats of documents or if there are special needs to enable meeting attendance and participation)

C. Venue Checklist (two weeks prior – minimum)

- Review AODA requirements with confirming venue
- Venue has been booked
- Payment for venue has been arranged by the County
- Adequate capacity for the venue is confirmed. Indicate the capacity here:

-
- Tables and chairs will be arranged appropriately for workshop purposes.
 - Refreshments will be provided
 - Audio equipment is available
 - Visual equipment is available (projector, screen)
 - Internet access not required. If Internet access is required for the meeting, indicate how access will be obtained:
-

D. Meeting Materials (draft three weeks prior)

- Sign in sheets
- Nametags for all staff
- General consultation supplies (pens, markers, stickers, post-its, tape, clips)
- Extension cord
- Projector and screen (back-up projector if a projector is supplied at the venue)
- Workshop-specific print materials (maps, questionnaires, workbooks, etc.)
- Flip charts
- Display boards
- PowerPoint presentation on a USB key
- Laptop
- Laptops as work stations (e.g., for participants to interact with Project Webpage)
- Easels
- Directional signage
- Camera
- Table cards

E. Accessibility Review (conduct an inspection of these elements and indicate any foreseen issues with the following)

- Directional signage is placed in the appropriate location for way finding purposes
-
- Sufficient parking and designated accessible parking spaces are available
-
- Sidewalks and paths of travel to the building are free of any barriers and contain depressed curb areas where needed
-
- Main entrance doors are barrier free with a power door operator or automatic sliding door
-
- Accessible washrooms available and in close proximity to meeting space
-

- Hallways and corridors are free of any physical barriers (such as garbage receptacles, etc.)

- Main Room – doors are either propped open or accessible; display equipment and tables are not blocking any path of travel

- Audio equipment (if requested, ASL interpreters are set up and assistive listening devices are on hand)

- PowerPoint presentation and display boards (fonts and printing – County’s graphic design standards, such as minimum font size of 10, use of Arial, high contrasting colours and print)

Consultation Summary Appendix C

Detailed Meeting Minutes

Date:	February 18, 2015	Project:	Norfolk Integrated Sustainable Master Plan
Location:	Norfolk County, 568 Queensway West, County Works Garage Training Room	Assignment #:	PW-E-14-85
Time:	9:00 am to 11:40 am	MMM Project #:	3315300-00
		Author:	Catherine Gentile, MMM Group

Attendees:	Firm / Agency
Gary Houghton	Norfolk County
Khalid Rahman	Norfolk County
Jeff Demeulemeester	Norfolk County
Mark Boerkamp	Norfolk County
Tricia Givens	Norfolk County
Bill Cridland	Norfolk County
Bob Fields	Norfolk County
Jackie Wood	Haldimand-Norfolk Health Unit
Sandy Nairn	MMM Group
Catherine Gentile	MMM Group
Dave McLaughlin	MMM Group
Claire Basinski	MMM Group
David Evans	RVA
Wayne Wood	UEM
Christine Hill	XCG

Distribution: Project Team

Purpose: To introduce the project and discuss the project scope and requirements, as per the issued agenda.

Item	Details	Action By
1.0	INTRODUCTIONS	
1.1	S. Nairn, the MMM Project Manager, introduced himself and welcomed the meeting attendees. The meeting attendees introduced themselves, noting their role on the project.	
1.2	S. Nairn outlined the purpose of the meeting.	
2.0	PROJECT OVERVIEW	
2.1	S. Nairn provided an overview of the project to provide attendees with a better understanding of the project, present key issues, and review how the consultant team is structured. <i>See attached for a copy of the project overview presentation.</i>	
2.2	During the presentation, S. Nairn noted the following: <ul style="list-style-type: none"> The project will be following the Municipal Class EA process for Master Plans, Approach #1. Phases 1 and 2 of the Municipal Class EA process will be completed. The planning horizon for the project is 2041. The ISMP will be a tool for the County to prioritize projects and implement them in an integrated fashion. Further studies will be required for some elements. 	
2.3	The Consultant Team were asked how environmental issues will be considered during the development of the ISMP. S. Nairn noted that natural features will be considered during the review of alternatives. Secondary source / available natural environment information from the County will be used to assess the alternatives; no environmental field work is being	

Any omissions or errors in these notes should be forwarded to the author immediately.

Item	Details	Action By
	completed as a part of the project.	
2.4	The County noted that they are in the process of completing an RFP for a Natural Heritage Study and a County-wide Stage 1 Archaeological Assessment as part of the upcoming Official Plan review. A Trails Master Plan (2009) is available for reference, and will be updated in 2017.	
2.5	The County noted that the Hemson Report is the accepted growth document for the County. The growth numbers from the Hemson Report will feed into the upcoming Official Plan review and should be used for the ISMP.	
2.6	W. Wood to circulate the MMM proposal for County staff reference.	W. Wood
3.0	DATA REQUIREMENTS / DISCUSSION	
a.	Transportation	
3.1	D. McLaughlin distributed and reviewed a transportation information request memo outlining the transportation data requirements for the project. The memo also identifies proposed intersections for new traffic counts. County staff to provide MMM with the requested data and any comments they have on the identified intersections for new traffic counts.	Norfolk County
3.2	D. McLaughlin noted that as part of the Transportation work, a long-term strategy for roads / bridges / transportation will be developed.	
3.3	MMM will use Google Earth for the sharing of information. Active Transportation (AT) will not be modelled.	
3.4	D. McLaughlin requested that the County circulate any infrastructure information to MMM. The information will be collected and mapped for discussion.	Norfolk County
3.5	A detailed scope of work for the Transportation Master Plan (TMP) and AT components will be developed for the County to review, prior to the start of work.	MMM
b.	Active Transportation	
3.6	The AT component will have a trail component, which will help to inform the update to the Trails Master Plan planned for 2017. Key links will be identified and prioritized, and costs for the work generated.	
3.7	Promotion, education and outreach will be a key component of the AT plan. Best practices for implementation and maintenance, and policy recommendations will also be incorporated. An AT system / network and action plans will be developed, for both short and long-term AT goals.	
3.8	W. Wood asked if policy development regarding pedestrian safety around schools will be addressed in the AT plan. C. Basinski acknowledged that the AT plan will incorporate pedestrian safety around schools into the analysis and recommendations, including policy recommendations. These can be finalized with the help of the Planning Department and Health Unit. MMM has worked recently with Safe Walks to School and are familiar with these issues.	
3.9	There was discussion about cross-walks in the County and how they will be addressed. All textured cross-walks in the County have been removed. MMM noted that the preferred method of dealing with cross-walks will be identified. All broad issues will be dealt with via policy.	
3.10	MMM requested information on the current AT programs and initiatives by the County.	Norfolk County
3.11	OTM Book 18 will be used for the cycling design guidelines and OTM Book 15 for the pedestrian guidelines. AODA will also play a part in both the TMP and AT plans.	
3.12	The County asked if the Trans-Canada trail standards were consistent with the OTM. MMM noted that the standards for Trans-Canada trails are not consistent with provincial standards for trail design. There is a lot of variation in design standards, except as they relate to AODA guidelines.	
3.13	There was discussion about if roundabouts will be considered as part of the ISMP. The County would like to see roundabouts considered, where appropriate. While they are difficult from an AODA perspective, they can be successful, particularly on the edge of urban areas. MMM noted that the benefits of the various intersection types will be presented in the ISMP. The ISMP can also identify where roundabouts could be used.	

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Item	Details	Action By
	These areas would then need to be further studied by the County, prior to implementation.	
3.14	Rich Roberts is the County contact for all GIS requests. While the GIS department is very busy right now, priority requests could be accommodated.	
3.15	MMM asked the County to share information on any cycling issues or initiatives underway. County staff noted that their rural roads are very popular with local and tourist cyclists, and farm workers. Many cycling events have been held in the area recently. Better linkages (ex. paved shoulders) between the urban and rural areas are needed to better facilitate use of the rural cycling routes by cyclists, and should be identified in the ISMP.	
3.16	MMM noted that a provincial cycling strategy has been developed called CycleON, which includes the availability of funding (\$25M) for select municipal cycling infrastructure projects. Some of the projects identified in the ISMP could be submitted for funding via the CycleON program.	
3.17	MMM noted that a specialist on trails and cycling tourism is a part of the Consultant Team. They will conduct a review of the County's trails and the economic benefits of linkages / new systems, all of which will be built into the AT plan.	
3.18	County staff noted that they are currently updating their urban design guidelines, which includes the consideration of bike racks. The placement of bike racks should be linked to the cycling network identified.	
3.19	County staff noted that there is a large Amish Community moving into the west side of the County. Given their reliance on horse and buggy, this element of transportation will also need to be reflected in the ISMP. MMM noted that paved shoulders and education campaigns could help with this and could be built into the ISMP.	
c.	Water / Wastewater	
3.20	There was discussion about the County's water supply issues, particularly with regards to capacity and resilience. The County is struggling to find sustainable water sources; Ministry of the Environment and Climate Change (MOECC) regulations encourage no longer relying on groundwater. The water supply issues are significant and will be included in the ISMP.	
3.21	Developers coming to the County are critical of the current unit rates, given they are higher than other municipalities. The County Finance Department is currently reviewing the unit rates; given this is a major revenue source for the County. There are many private water wells in the urban boundary as a result of the high water rates. The County can't control these activities, given a PTTW is only required when water takes are greater than 50,000L per day. A review of what others in the industry are doing needs to be included in the ISMP in order for the County to formulate a short and long-term strategy for addressing these issues. The case for a central option should also be built.	
3.22	Water conservation needs to be better promoted and discussed in the ISMP.	
3.23	There was discussion regarding the County's position on P3 (public private partnership) projects. County staff noted that they are open to considering P3 projects, particularly if it is a way to spread costs and move certain projects along more quickly. MMM noted the availability of funding for select P3 projects through P3 Canada. It was noted that the County's largest union is against P3 projects, due to operating concerns.	
3.24	There was discussion about the wastewater data collection requirements. The wastewater team will need similar information as provided on the list distributed by the transportation team. All system information for the County is needed in order to being early modelling. Flow data through Port Dover would be helpful. The County provided C. Hill with a copy of the Waterford Design Report.	Norfolk County
3.25	County staff noted that there are many illegal wastewater connections / sump pumps in the area. This will be an issue that will need to be dealt with via consultation.	
3.26	The County does not have an urban drainage plan.	
3.27	As part of the wastewater work, a review of the County's unit rate will be completed and policy recommendations will be made to help reduce them.	
3.28	Other projects underway will be reviewed. The wastewater team will look into integrating wastewater improvements with proposed transportation or asset management improvements, in order to save costs.	
3.29	There was discussion about conflicts between trees and sewers. The County is finding that most sewer blockages are a result of tree roots. MMM suggested that a commentary on complete streets be included in the ISMP, with an image depicting the preferred approach.	

Any omissions or errors in these notes should be forwarded to the author immediately.

Item	Details	Action By
	This will allow these issues be looked at in an integrated fashion.	
3.30	County staff noted that urban design guidelines, including illustrations, are available for Lakeshore but not County-wide.	
d.	Stormwater	
3.31	MMM asked the status of the stormwater management pond inventory project, currently underway by the County. County staff noted that the project is being finished and the results will be available soon. The final report will include recommendations for ongoing maintenance and program development.	
3.32	County staff noted that climate change / extreme weather event discussions should be included in the ISMP.	
3.33	County staff advised that a dam assessment review is currently underway. The local Conservation Authority is also reviewing their dams. The County owns a 3-4 dams, including the Quance and Waterford Dams, while the local Conservation Authority is responsible for the rest.	
4.0	PUBLIC & STAKEHOLDER CONSULTATION	
4.1	A draft consultation strategy and calendar were distributed for review and comment. Once finalized, the consultation strategy will act as a guide as the project progresses.	Norfolk County
4.2	C. Basinski reviewed key sections of the draft consultation strategy, noting the following: <ul style="list-style-type: none"> • G. Houghton and S. Nairn will be the primary study representatives. • The consultation strategy provides multiple avenues for public input, and exceeds the requirements of the Municipal Class EA. • The study contact list is being developed. • The preferred method of communication with the study contact list will be email. • MMM will not be developing new social media for the project, but will use all that is existing. MMM will draft tweets / Facebook posting for the County's use. The Project Team wants to use any available / existing networks for this project. 	
4.3	The draft consultation calendar does not include other County / study events, such as the OP review consultation milestones. The overlap in schedules between the OP review and ISMP will be a challenge; the public will be confused about the two studies and how they are different, so there will need to be good coordination between the two projects to make the scope as clear and understandable as possible. T. Givens noted that the OP review consultation schedule will be available following the approval of the Terms of Reference (anticipated March 10). Once the OP review consultation schedule is available, it will be forwarded to MMM. The OP review project will take 18-24 months to complete.	Norfolk County
4.4	T. Givens noted that the County AODA Committee will need to be engaged in the review of materials. For example, there are only a few AODA accessible locations for meetings in the County.	
4.5	County staff advised that the South Coast Business Coalition, the Chamber of Commerce in Norfolk, should be contacted as part of the study. The group can be vocal about issues and should be engage. County staff advised MMM to contact John Ford, the County GM for Financial Services, in order to acquire a copy of their comments on the Development Charges study.	MMM
4.6	County staff advised that the local Homebuilders Association and Pathways for People, a passionate AT community members, be added to the study contact list. Pathways for People meet on a monthly basis and operate a website (www.norfolkpathways.ca). They would love to be involved and could promote our events via their website.	
4.7	The Recreation Master Plan is close to completion and their final public meeting will be held in the near future.	
4.8	Per the draft consultation calendar, the study is looking to launch publicly in mid-March.	
4.9	The storyboard for the project website is being developed and will be available for County review shortly.	MMM
4.10	County staff noted that the draft OP review logo includes the wording "Grow Norfolk", which could be shared with this project. Each study could have a sub-line specific to each study's work / goals. County staff will send MMM the initial logo concepts for review.	Norfolk County

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Item	Details	Action By
4.11	C. Basinski noted that MMM has an eReader program to test AODA compliance. This will be used on materials and to ensure that the website is AODA compliant.	
4.12	There was discussion about AODA compliance and agreeing to an overall project approach. Given the challenges in presenting past reference / technical information clearly, it was suggested that the team offer to meet with people in person to review the information rather than reformatting old reports. County staff were asked to think about their preferred approach and to advise at the next meeting. County staff noted that they have an AODA compliance officer whom they can discuss this with.	Norfolk County
5.0	SCHEDULE	
5.1	<p>The project schedule was distributed for review and comment. S. Nairn highlighted key dates / milestones, including:</p> <ul style="list-style-type: none"> • Stage 1 – Baseline conditions developed from now to late-May. • Public Information Centres (PICs) in mid-May to introduce the study and present alternatives. • Stage 2 – Growth option review from late-May to late-July. • Stage 3 – Servicing alternatives and evaluation from June to late-September. • PICs in mid-September to present the evaluation and selection of the preferred alternatives. • Master Plan finalization and submission from September to November. • Notice of Completion published in early-November. <p><i>See attached for a copy of the project schedule.</i></p>	All
6.0	OTHER BUSINESS	
6.1	S. Nairn and G. Houghton should be cc'd on all project communication.	
6.2	The next project team meeting will be held in March. S. Nairn and G. Houghton to advise of the date and required attendees.	
Meeting adjourned at 11:40 am		

Norfolk County ISMP Stakeholder Workshop Pathways for People Draft Meeting Minutes

To:	Gary Houghton	Date and Time:	May 22nd, 2015
From:	Claire Basinski, MMM Group	Job No.:	16-15001
Subject:	Norfolk County Integrated Sustainable Master Plan (ISMP) Pathways for People Workshop	CC:	

Meeting Attendees:

Norfolk County

Michele Crowley
Rob Luke
Dave Challen
Gord Mason
Rob Martin

MMM Group:

Claire Basinski (CB)
Sandy Nairn (SN)
Catherine Gentile (CG)

On May 22nd, 2015, select members of the MMM Group team meet with select members from the Norfolk County Pathways for People to discuss the active transportation component of the integrated sustainable master plan.

The meeting was held in an informal “workshop” style where mapping of existing and previously proposed conditions was presented and discussed. Attendees were encouraged to mark-up the mapping to provide their input on route and infrastructure opportunities and challenges throughout the County.

Attendees were also provided with a copy of the route selection criteria prepared by the study team to assess potential candidate routes as well as an overview of the facility selection process identified in Ontario Traffic Manual Book 18: Cycling Facilities. As this was an initial discussion

The following is a summary of the meeting approach and highlights of the discussion that took place. In addition, attached is the scanned map of the comments that were received.

- Connectivity and the interconnection of facilities is important
- There is a walking club in the County that meets every Wednesday – additional outreach to this group may be effective
- The County is a great place for cycling; little improvements can help make the existing routes even better

Norfolk County ISMP Stakeholder Workshop Pathways for People Draft Meeting Minutes

- There are a number of recommended routes throughout the County, however, they do not have existing facilities on them. Future improvements may be needed to include them as part of the County's AT network.
- PFP releases a newsletter two times a year; the May 2015 issue was distributed. The next issue will be in October
 - Claire noted that the October newsletter could be a nice way to promote the projects Fall PIC and the AT materials available for comment
 - Michele noted that the newsletter could be released earlier, to better coordinate with the PIC dates, if needed
- Will local road riders be consulted with through the study? Yes – via these meetings and the PICs. If there are additional PFP representatives or other interested stakeholders they could be engaged at a future point in the study.
- PFP representative Rob Martin provided a summary document with comments on County-wide cycling improvements and problem areas as well as a map detailing these locations. MMM will use the information to identify potential candidate routes that will be investigated in detail in the field.
- Dedicated left turn lanes help cyclists have more comfort. There are a number of intersections where additional design treatments may be required to help guide cyclists. Some conflict points were identified on the mapping.
- The causeway is very narrow and dangerous to cycle on; in general, older and narrower roads are dangerous for cycling. Where possible these should be avoided or should be improved to accommodate cycling
- Fischers Glen croquet point is another dangerous spot for cyclists and pedestrians
- Cyclists don't always use the most direct routes to a destinations; meandering routes are often taken depending on the amount of time available for the ride, the scenery one would like to experience, and the days weather. This should also be used as a criterion to assess routes.
- Many cyclists use a combination of trails and road routes to get to their destinations. Providing on-road connections to off-road trails is a key focus of the assignment
- Wineries, bakeries and restaurants are common cycling stops or destinations. Black Bridge is also a common destination.
- Are share the road signs successful? Yes – most motorists are aware of cyclists and accommodate them. Share the road signs have been implemented throughout the County. New share the road signs have been proposed for implementation in 2015.

Norfolk County ISMP Stakeholder Workshop Pathways for People Draft Meeting Minutes

- Some drivers are scared to venture past the centre-line when passing cyclists; these routes would be prime candidates for paved shoulders or a wider shoulder
- Sidewalks in the areas surrounding schools are needed, not just in front of schools. There are a number of missing links in the sidewalk system in the downtown core. This should be a focus for more urban areas
- The Elgin Public School and its surrounding area need more sidewalks
- Trails are being used primarily by pedestrians, runners and recreational cyclists; avid cyclists / high speed cyclists are mostly on the road
- Public washrooms along the rail trail are lacking
- There could be many economic benefits to incorporating cycling routes with popular businesses
- Michele to provide Claire with data from trail markets and list of other interested stakeholders
- Claire reviewed the project schedule: the first PIC will be on June 9 and 11, PIC 2 in September and the final MP available in November
- The next meeting with the PFP will be held in September
- Rob Martin requested a hard copy of the map provided at the meeting

Pathways for People Meeting #2

Friday September 18th, 2015

1:00 p.m. – 3:00 p.m.

Attendance: Claire Basinski, Gary Houghton, Dave McLaughlin, Sandy Nairn, Catherine Gentile, Michele Crowley and members of the pathways for people committee.

The following is a summary of the conversations that occurred at the Pathways for People meeting on Friday September 18th, 2015 regarding the Norfolk Integrated Sustainable Master Plan development and status. A meeting agenda and draft display materials were prepared in advance of the meeting and provided to those in attendance for their review and consideration.

- Paved shoulders allow for fewer altercations with motorists. Pathways for People have put together a petition for paved shoulders on Longpoint Causeway and Erie Boulevard. A bike ride was held (with huge success) – some issues related to conflicts between cyclists and motorists arose. Additional support for paved shoulders in key locations throughout the County is needed
- The consultant team provided an overview of the network development process including but not limited to:
 - How candidate routes were developed
 - Documentation of the field investigation completed
 - Preparation of the KMZ including photos and GPS waypoints
 - The application of the OTM Book 18 facility selection process
 - Identification of routes within both the urban and rural areas that provide connections to key community destinations
 - Consideration for touring routes e.g. winery routes, south coast cycling route and other regionally significant connections e.g. trails Canada trail, waterfront trail, etc.
- An assessment of cycling tourism is also currently underway. The results will be incorporated into the AT Strategy along with future recommendations and next steps
- The AT Strategy will be a stand-alone document with key pieces of the report to be incorporated into the ISMP Report. The AT strategy focuses on the identification, design and implementation of on-road facilities. Off-road routes will be identified based on the recommendations highlighted in the 2009 Trails Master Plan. The AT Strategy will identify facilities for both pedestrians and cyclists. As part of the AT Strategy, the team will identify sidewalk gaps and improvements.
- Erie Blvd. and Longpoint Causeway – discussion related to the potential for future improvements. There is a very constricted right of way that also has environmental constraints on either side. An off-road facility may not be possible because of these considerations but some level of separation is needed because of the volume on the roadway and the operating speed that exists. The route is identified as a key connection of the AT network but likely will be a long-term priority because of the reconstruction

that is required. Understand it is a stranded row but has up volume. A separate assignment to review this connection and potential improvements in more detail is being undertaken.

- Additional consideration for the presentation of key recommendation in the master plan report is important. The way recommendations are presented in the Trails Master Plan is an effective tool for those implementing them.
- Consultation with the pathways for people committee and trails advisory committee has been very informative and the input generated has helped to inform the development of key network and policy recommendations.
- The report will be completed by the end of the year and will go to Council in the New Year. There will be additional opportunities for the committee to review the report before it is finalized and adopted.

TRC Meeting, May 22 at 10am (15 people)

- Welcome by Sandy; Introductions by all
- Water – Project Update (Dave)
 - Existing conditions/data collection is underway
 - Capacity is an issue that will need to be worked out; County sees capacity as a priority, over supply
 - Reserve capacity; what to do re: capacity for the future?
 - Existing policy or development charges going into reserve right now? County did DC work last year; DC work has a planning horizon – Consultant team should review that work and see if anything is missing
 - Was someone from finance invited to participate in the TRC? Yes. Finance controls DC's; Gary is not sure of the logistics as to where DC's are kept, how much is available and how it can be used
 - Major trunk reinforcements haven't been incorporated into DC's to date; it isn't fair to make only new developments pay for this work
 - Consultant team will produce recommendations for improvements to the collection and supply systems for the major trunk system; County will then need to incorporate that information into their DCs for future developments so that the money can begin to be collected
 - Urban boundary changes have been historically related to encompassing new employment lands; the County has sufficient residential lands to support future growth
 - The service level expectation in the County, within the current urban boundary, needs to be determined; trunk reinforcements will be needed to support the system
 - There is a servicing report available with a committed list of levels
 - The Consultant Team will be making recommendations on unit demands via the master plan process
 - Does the County have current standards for unit demands? Design of the system and planning of the system are important; in the recent servicing report, we only looked at residential demands, haven't accounted for industry contributions
 - The Consultant Team needs to generate numbers for the planning level and system level
 - Dave noted that he has started to think about supply possibilities
 - Dave has reviewed options and costing for improvements at Nanicoke. The initial costs are high, so he has begun looking at other options too, such as a raw water distribution system, hybrid system with better intake at Dover, and expanding Dover treatment and distributing to 3 other treatment locations
 - A number of supply alternatives will be generated.
 - Does the County have any other ideas for supply? Nanicoke intake is key; needs to be improved; another intake would be great – keep options open
 - Gary noted that he does not like raw water options (Definition of raw water: water is distributed to various locations for treatment)
 - One benefit to a raw water system is that it could take advantage of existing reservoirs

- County is anxious to get results of Water/Wastewater MP; they have lots of issues to deal with and need a plan ASAP
- Need redundancy in the trunk system and plants; also need to take advantage of existing real estate
- Wastewater – Project Update (Christine)
 - Data collection underway; capacity memo underway
 - Key issues: regulatory changes, reserve capacity, and per capita flows to be reviewed
 - Christine distributed maps and ToC
 - To review data and identify gaps; all info will feed into the model
 - Unit rates
 - Reviewing historical data. To look at flow meters and future development
 - Looking to develop 2 different rates
 - The County appears to be generating a lot more wastewater than they are providing a supply of water; will identify further issues once data is reviewed in detail
 - Has the County thought about the level of service they desire? During a rainfall / storm event, what is the reasonable level of service going to be? Gary noted that the County doesn't want back-ups; that is their level of service need
 - Need to determine what the system will be designed for; need to allow for an infiltration allowance
 - Need to put a value to the different levels of service, and decide what you want to provide
 - An important discussion to have as a group; particularly important with wet weather issues
 - Christine will develop a memo summary re: level of service for discussion; and then we can review further as a group
 - Sump pumps as alternative? Could be open to this
 - The City of Mississauga stormwater “tax” model was reviewed. Christine noted that Kitchener, London and Stratford have also done this. The “tax” provides a rate structure for stormwater infrastructure, and is typically based on impervious surface or is a generic flat rate.
 - The Consultant team can look into implementing something similar, as part of the MP
- Transportation – Project Update (Chris)
 - Currently going through background data, collecting and reviewing traffic counts, and are reviewing census data. All of this info will feed into the traffic model
 - Still need to review the reports and policies provided to date
 - Is data on signal timing at existing intersections available? County staff noted that this was provided
 - How many people are working at each County business; this is important for the traffic work; Khalid to review, find and forward – this information could be available through the County's tourism department
 - Aiming to have the existing conditions model ready for the PIC #1

- Trisha asked if Chris will be providing road/sidewalk designs for incorporation into the OP? Chris clarified that the Consultant Team won't be producing cross sections for specific areas, but that suggested urban and rural conceptual cross sections (the complete streets idea) will be generated
- Active Transportation – Project Update (Claire)
 - Distributed AT table of contents; prefaced this by saying that the Consultant Team has started thinking about what will be in the ISMP – each of the pieces (AT, T and W/WW) will have their own section, and then there will be a high level introduction and summary of recommendations
 - To date for AT, existing and previously proposed info has been compiled and mapped
 - AT to use a 6 step network development approach – mapping existing, identify candidate routes, network concept (primary network, local connections), review facility types (using OTM 18), phasing and implementation
 - 5 types of maps to be developed; and a compilation database
 - Claire reviewed the roll out map
 - Some existing routes may not make sense as part of future network; respect touring routes, but want to use MP to identify improvements
 - Candidate routes; would like County to comment on these
 - Meeting with PFP today
 - Who is maintaining the trail mapping site? County isn't sure. Website is a compilation of all trail mapping in the county, but isn't being maintained
 - Links have been provided to all schools and park systems via the candidate routes
 - County staff were asked to take away the maps and provide comments on the candidate routes; the candidate routes will form the base of the system
 - From the County's point of view, is anything missing? Are there any you don't like, and why?
 - Claire distributed two memos for County review: vision for AT network and route selection criteria
 - Share the road signs? What do they mean? Need messaging around the rules of the road – what does it mean to share the road with cyclists. Claire noted that as part of the MP we will be identifying ways to reach out to the community and best practices
 - Have conservation area trails been incorporated into the mapping? CA users are different from County users; happy to work with them but won't incorporate their trails into our network
 - Off road connections could be recommended, but focusing on on-road connections; the County has a great trail network already, which will be updated shortly
 - Transition points and crossings with the trail network will be reviewed, and will be thought through via a safety lens
 - Need to identify key routes for future capital projects
 - County wants to maintain a couple routes well for cycling
 - Make sure Wayne is provided the mapping/memo materials as well, for comment
- Review Draft Technical Materials (Sandy)

- Covered in items above.
- SN noted that the Consultant Team has started thinking about the final MP; will come up with a way to consolidate all of the improvement timelines so that it is easy to determine what is needed in area; looking at a spreadsheet format for this
- Consultation Update (Claire)
 - Claire reviewed the PIC dates and locations and website (on screen). All AODA requirements have been complied with.
 - Claire to print and provide hardcopies and PDFs of all of the promotional materials; the PDFs will be useful for County twitter accounts
 - Trish will use these at the May 30 OP review meeting
 - Claire to develop and add a QR code to all consultation materials
 - Council conflicts with one of the PIC dates (June 9); Claire suggested having a preview session for them on that date, prior to the council meeting. Claire to generate letter invitations for them which details this.
- Other Business (Sandy)
 - Update on OP work from Tricia? Tricia noted that at the end of april the first targeted stakeholder workshops were held; they were well attended and the County received a lot of positive feedback. Open workshops are being held shortly. There will be no public engagement over the summer. Tricia will be generating their reporting shortly.
 - AA scope recently distributed via RFP; industrial/commercial piece to come
 - Chris – handed out the TMP vision memo, for County review
 - Expecting comments from County on all materials distributed ASAP – by next meeting
 - It was noted that the data requests were received late, and just in advance of this meeting – this should be better coordinated; SN noted that an updated table is to be distributed shortly
 - Next TRC meeting to be held post PIC #1
- Meeting finished at 12pm

Date: January 20, 2016
Location: Norfolk County – Robinson Administration Building (185 Robinson St, Simcoe), Training Room A
Time: 2:00 pm to 4:00 pm

Project: Norfolk Integrated Sustainable Master Plan
Assignment #: PW-E-14-85
MMM Project #: 3315300-00
Author: Catherine Gentile, MMM Group

Attendees:	Firm / Agency
Gary Houghton	Norfolk County
Lee Robinson	Norfolk County
Khalid Rahman	Norfolk County
Mark Boerkamp	Norfolk County
Mary Elder	Norfolk County
Bill Cridland	Norfolk County
Jason Godby	Norfolk County
Bob Fields	Norfolk County
Michele Crowley	Haldimand-Norfolk Health Unit
Sandy Nairn	MMM Group
Catherine Gentile	MMM Group
Christopher Tam	MMM Group
Claire Basinski	MMM Group
David Evans	RVA
Wayne Wood	UEM
Christine Hill	XCG

Distribution: Project Team

Purpose: To review Norfolk County comments on the Draft ISMP Report circulated in December 2015.

Item	Details	Action By
1.0	INTRODUCTIONS	
1.1	S. Nairn, the MMM Project Manager, introduced himself and welcomed the meeting attendees. The meeting attendees introduced themselves.	
1.2	S. Nairn outlined the purpose of the meeting. The Draft ISMP Report was circulated for County review on December 15, 2015. Attendees were encouraged to bring up any general comments on the Draft ISMP that should be discussed by the group, and to provide any specific comments in writing by Wednesday January 27.	
2.0	REVIEW OF COMMENTS ON THE DRAFT ISMP	
a.	Water	
2.1	RVA has reviewed the County comments submitted to date. RVA to plan a teleconference with key County water staff to review the comments in detail.	RVA
2.2	There was discussion about firm capacity. RVA to revise the text in the ISMP per the reference report provided and will strengthen the statements around firm capacity.	RVA
2.3	County staff noted that the water supply issue is very important; we should be doing as much as possible to avoid the need to use back-up systems.	
2.4	The interconnectivity of the water system was discussed. County staff asked if the need for interconnectivity vs. the cost of its installation was examined. RVA noted that this was reviewed and considered; centralization will be the backbone of the future water system. If	

Any omissions or errors in these notes should be forwarded to the author immediately.

Item	Details	Action By
	a new sole water source is found, the interconnectivity of the system will help it to be distributed.	
2.5	The Port Rowan intake was discussed. County staff noted that the intake will often go out of service due to clogs and freezing. RVA would appreciate getting any further detail on out of service / quality issues, so this information can be reviewed and considered in the ISMP.	County Water Staff
2.6	County staff asked that a clearer acknowledgement should be made in the ISMP that a new water supply needs to be found.	RVA
2.7	County staff are concerned with some of the recommendations in the report that can be known to fail, ex. pressure systems. RVA to review.	RVA
2.8	RVA to offer a tutorial to County staff on how to use the Inloads tool.	RVA
2.9	County staff asked what the potential implications of fire pumps on Towers could be, particularly the need to place fire pumps at the standpipes in Delhi and Waterford to access the full water vstorage at those facilities. RVA to provide the model used.	RVA
b.	Wastewater	
2.10	XCG has reviewed the County comments submitted to date. XCG to plan a teleconference with key County staff to review the wastewater comments in detail.	XCG
2.11	XCG noted that they are still missing some data, which once received would help to enhance the ISMP. XCG to discuss data gaps further at planned teleconference.	XCG
2.12	County staff noted that some segments should be reviewed. More commentary should be added on sump pumps, disconnects and the ongoing issues in Port Dover.	XCG
2.13	County staff requested that stormwater content be incorporated. There was an expectation that stormwater needs, in relation to others recommendations (like roads), would be provided as required under the project scope.	MMM
2.14	The service monitoring report needs to be revised to incorporate all work completed to date.	XCG
c.	Active Transportation	
2.15	MMM has reviewed the County comments submitted to date. MMM to plan a teleconference with key County staff to review the AT comments in detail.	MMM
2.16	MMM noted that the County capital works plan was used to help prioritize AT projects.	
2.17	MMM welcomes input from the County on the current costing of the AT strategy. The estimated cost for the County of achieving full build-out of the AT network over the next 25 years is \$30 M.	
2.18	County staff noted that the \$30 M cost is high – and hard to achieve while juggling other priorities, like safe drinking water. County staff asked that MMM look at how the identified projects could be covered in the current capital plan. These projects should be the priority, and then the others can follow. XCG and RVA were asked to undertake a similar exercise.	MMM / XCG / RVA
2.19	County staff asked if signage was considered in the costing. MMM noted that regulated signage was included in the unit costs, and further details on this can be found in ISMP Appendix M.	
2.20	County staff to provide comments on current promotion and outreach costs to MMM.	County AT Staff
2.21	County staff noted that Ride Norfolk was not mentioned. MMM clarified that the existing Ride Norfolk bus stops were taken into consideration in the AT review. MMM to include further text regarding Ride Norfolk and AT connectivity.	MMM
2.22	MMM to improve the current language surrounding sidewalks in school communities. The assumed radius around schools will also be made more prominent.	MMM
2.23	The AT Strategy will be designed to be a stand-alone document. References to be updated accordingly.	MMM
2.24	County staff to review and see if more text can be added to the section on “Integrating with the Development Community.”	County AT Staff
2.25	MMM to review and revisit text on Emergency and Service Vehicle access.	MMM
d.	Transportation	
2.26	MMM has reviewed the County comments submitted to date.	
2.27	When roundabouts are warranted and how they should be designed will be added as an alternative to all-way stops / signalization.	MMM

Any omissions or errors in these notes should be forwarded to the author immediately.

Item	Details	Action By
2.28	MMM noted that MTO guidelines were recommended to be followed by the County given they are the province-wide standard and many of the County's future development areas will be subject to MTO review. While the MTO guidelines don't cover some topics, like AT and local access considerations, MMM can provide information on these components that the County could append to the MTO Ontario Traffic Manual guidelines.	MMM
2.29	County staff asked if the population and employment data used is in line with the Hemson Report. MMM noted that the population data matches the Hemson Report, while the employment data was altered to take into account employed labour force.	
2.30	Further to Page 156 of the ISMP, County staff noted that they already have a Special Events Protocol. This will be provided to MMM for their information.	County Transportation Staff
2.31	MMM to include information on "Likely Bridges for Closure" in Figure 5-26.	MMM
2.32	There was discussion around the use of hammer heads / cul-de-sacs, as the County would like to remove them / not encourage their future use. MMM to address via the design guidelines, as this isn't an ISMP related item.	MMM
e.	General	
2.33	G. Houghton requested that more discussion around legislative context (like the Safe Drinking Water, AODA, etc.) be brought into all sections. How is the County impacted by this legislation?	MMM / XCG / RVA
2.34	County staff asked that the consultant team differentiate between best practices and sound engineering.	MMM / XCG / RVA
2.35	W. Wood asked that readability be reviewed and improved upon. The current draft reads as if it has been written by a variety of authors.	MMM / XCG / RVA
2.36	W. Wood asked that a financial plan section be added, with immediate County needs identified. A discussion on development charges should also be added to the financial plan. There needs to be more of a co-relation between the ISMP priorities and a financial plan.	MMM
2.37	The ISMP format is based on AODA standards, but will be further reviewed and checked. Sections of the ISMP can be made AODA compliant and made available on the project website, if needed.	MMM
2.38	County staff suggested that each section end with an overall summary.	MMM / XCG / RVA
2.39	County staff noted that the current ISMP mapping doesn't include all of the approved development areas. M. Elder provided a copy of a document with some of these areas identified. MMM noted that mapping / data incorporated into the ISMP was limited to the source data provided by the County at the beginning of the project. County staff were encouraged to provide any further digital information they may have.	MMM / XCG / RVA County
2.40	M. Elder noted that the County planning department will be extracting some of the ISMP recommendations and implementing them via the Official Plan update, which is currently underway.	
2.41	MMM to develop design guidelines for the County. A separate meeting will be set-up to review and discuss this scope. The design guidelines can be worked on in parallel with the ISMP.	MMM
3.0	PROJECT SCHEDULE UPDATE	
3.1	G. Houghton asked that the next draft of the ISMP be provided in February.	
3.2	County staff would like to hold an educational session with Council on the draft ISMP in early March.	
3.3	County staff would like an additional Public Information Centre held to present the draft ISMP. The PIC should occur after the Council education session, but prior to the draft ISMP's formal presentation to Council for approval.	
3.4	Letters of support from AT stakeholders are welcome at anytime.	
3.5	It was suggested that AODA compliant summaries / select sections of the draft ISMP be posted on the project website in advance of a PIC. CDs of the draft ISMP can then be made available at the PIC.	
4.0	OTHER BUSINESS / NEXT STEPS	

Any omissions or errors in these notes should be forwarded to the author immediately.

Item	Details	Action By
4.1	The timing of the next TRC meeting will be determined with G. Houghton.	
Meeting adjourned at 4:00 pm		

Appendix B

Water Systems Site Visit Notes

Simcoe Water System Master Plan (Part of ISMP)

Site Visit: July 2 and 3, 2015

In attendance: Gary Houghton, Bob Fields, Harvey Stright, Ed ? (County of Norfolk)

Ken Campbell, Darrell Cheng (R.V. Anderson Associates Ltd.)

Norfolk Water System Operations:

1. Central Operations offices at historic Cedar Street Pumping Station
2. Operators working 7:30 am – 4:00 pm 5 days per week. On each weekend day and holiday, two operators are on duty – one for 5 hours, and one for 6 hours. At all other times, an operator is on call.
3. The County has a lengthy roster of contractors to perform routine and emergency maintenance works.
4. It was noted that there are a number of private, year-round, residential water systems within Norfolk County: one at a Turkey Point Marina, one north of Simcoe)
5. A photograph was taken of an electronic notice board reminding passers by of the County Outdoor water use by-law (odd/even lawn watering).
6. It was noted that the Best Western Hotel in Simcoe did not have low-flow toilets.

Simcoe Water System:

7. General System:
 - a. demand averages 6000 m³/d (Note: all figures in these notes are from the operator's memory, and should be confirmed.)
 - b. Order of preferred supply: Chapel Well, North West Well Field, Cedar Street wells (last duty)
 - c. Total PTTW and DWWP capacities are much higher than actual
 - d. Actual, reliable capacity is expected to be around 7000 m³/d
 - e. Any major failure, such as the failure of the Chapel Well, could result in serious challenges to water supply.
 - f. It was noted that RVA prepared the original network model for Simcoe, and Muhannad Bagajati of the RVA London office has completed some updates to the network model
8. Cedar Street Infiltration Gallery:
 - a. 10 caissons, draining to one PS, constructed in 1906
 - b. a brown trout creek has been dammed to provide recharge
 - c. concern re: upstream nutrients in water
 - d. deemed GUDI with effective in-situ filtration, based on extensive particle count and particle analysis
 - e. Capacity is about 2000 m³/d (We will need County staff to confirm all operating capacities)

9. Cedar Street Well #1:

- a. high iron, run it as little as possible
- b. County considered a filtration plant for iron removal, but placed this concept on hold, pending review of a central water system.
- c. if this well is run, the UV units need to be cleaned at least every 7 days
- d. Nitrates at all Cedar St. wells are 5.5 – 6 mg/L (more than 50% MAC)
- e. Wellhead protection area runs through some partially developed industrial subdivisions (Bob said he could send us the well-head mapping)
- f. Wellhead protection area has a number of significant threats within it.
- g. Well Capacity is 12-15 L/s, but generally keep to 12 L/s to avoid drawing water level down to screen level (i.e. quantity is stressed)
- h. In summary, this is a relatively poor source from a quality and quantity viewpoint

10. Cedar Street Well #2:

- a. rating may be similar to #1, but only get about 4-6 L/s. Any higher, and water level drops below screen.
- b. same issue with iron.
- c. well is manually throttled.

11. Cedar Street Well #3:

- a. well was running during our site visit at 11.4 L/s
- b. generally runs well
- c. whole roof needs to be removed for well service. Some damage to the walls has occurred as a result.

12. Cedar Street Well #4:

- a. Same roof problem as Well #3
- b. There is currently a leaking water main on the discharge of the pumping station that needs to be repaired before the well is placed back into service.

13. Cedar Street Well #5:

- a. currently removed for maintenance
- b. well generally works OK
- c. same concern with roof

14. Cedar Street Wells in General:

- a. each year about 2 wells need to be rehabilitated, due to iron fouling
- b. All of the wells are of similar construction. The well building was added after the wells were installed

15. Cedar Street Reservoir and Booster Pumping Station:

- a. all raw water from wells passes through central UV treatment, then receives chlorine, sodium silicate, and fluoride
- b. target chlorine residual of 1.2 – 1.3 mg/L
- c. turbidity entering the reservoir is about 1.0 NTU
- d. 4500 m³ reservoir, in 2 cells
- e. roof has some cracking, and needs repair work (used to be a tennis court, but has not been maintained)
- f. some cracking has been noted inside the reservoir with some infiltration leaks
- g. reservoir is cleaned every 2-3 years, and about 25 mm of iron sludge is removed.
- h. in the pumping station there was a large diesel pump that has been out of service for more than 14 years.
- i. P#1 is a small pump, that provides primary service (currently removed for service)
- j. P#2 and P#3 are the same size
- k. one large generator provides standby power for everything at the Cedar St. Site
- l. (IBI doing Norfolk Water SCADA upgrades in Simcoe)

16. Simcoe Elevated Tank:

- a. multi-leg tower, about 5400 m³
- b. painted about 3 years ago
- c. no water quality problems, single in and out pipe, but exercised reasonably
- d. right next to a house

17. Chapel Street Well:

- a. 1940's vintage
- b. 2100 m³/d
- c. pumps directly into the system
- d. not GUDI, low iron, good quality and quantity
- e. pumps 365 days/year, 24 hours/day – lead well
- f. had new well drilled right beside, but no flow
- g. many other test wells around, but no luck
- h. has 5.5-6.0 mg/L nitrates, therefore a concern
- i. source of nitrates has been traced to agricultural impact
- j. concern about aging casing, and fact that it can't really be replaced.

18. North West Well #1:

- a. being decommissioned, due to high ammonia – levels are so high, impossible to obtain a free chlorine residual
- b. well is right next to a creek and an old gravel pit pond (pond is at much lower elevation)
- c. aquifers are somewhat protected – surprised that flowing creek so much higher than ponds.

19. North West Well #2

- a. Well is similar to Well #1

- b. running at 15 L/s during site visit
- c. well needs to be rehabilitated each year

20. North West Well #3

- a. first one visited
- b. adjacent to very large hog farming operation. County fought this in court all the way to the supreme court and lost.
- c. 18.4 L/s operating rate at this visit, but rated at 2300 m³/d
- d. the well experiences a lot of iron fouling, so reduced rate tends to be about maximum possible
- e. this well is newest of 3, constructed in about 1997
- f. all north west wells located around old gravel pits. Also an asphalt plant located nearby
- g. iron precipitation is a big problem – wells need to be rehabilitated each year
- h.

21. North West Treatment Plant:

- a. all three North West wells pump to the treatment plant
- b. the plant uses macrolite pressure filter media. A small amount of coagulant is used so the filters can be treated as “chemically enhanced filtration”

22. Future North West Well:

- a. Bill Banks is looking at a new well 5 km away

23. North West Treatment Plant:

- a. constructed around 1997, and in good condition
- b. treatment is chemical precipitation with sodium permanganate (liquid chemical), and a low dose of coagulant – so source is considered to be “chemically treated filtration” – kinetic media in pressure filtration, following a pressure reaction tank.
- c. Plant has had challenges with pipe corrosion – has added portable dehumidifiers (consider study to evaluate actual dehumidification loading rate, and install larger build-in dehumidification unit?)

24. North West Reservoir and Pumping Station:

- a. 2-cell reservoir (4500 m³)
- b. 3 vertical turbine high lift pumps – 1 was out of service for maintenance
- c. Reservoir has a central dividing wall that is not strong enough to allow dewatering of one side at a time.
- d. Reservoir has concrete baffle walls to assist with CT and avoid stagnant locations.

Delhi Water System:

25. General System:

- a. Wells 3a and 3b on east side of system, are currently in service, and provide majority of supply. Both have UV, good quality water, and pump directly into the system.
- b. A new well is planned for 2016 in the vicinity of Well 3a, and 3b. A Class EA has been completed for this well. A 7-day pump test will be required before a PTTW can be issued. "Tons" of monitoring wells have been installed for testing of the impacts of the new well.
- c. older wells (1 & 2?) were decommissioned due to water quality problems (TCE contamination?)
- d. There is a fairly long water main from the active wells into town. The MP should consider redundancy for this water main.
- e. Delhi water demands: Low 500 m³/d. High 2000 m³/d.

26. Well 3a:

- a. Vintage late 1990's – 1997?
- b. Flow – 2300 m³/d rating.
- c. GUDI with effective in-situ filtration
- d. Good quality, low nitrates.
- e. Has been quite reliable.

27. Well 3b:

- a. Vintage 2003
- b. Primary source for Delhi
- c. Pumps directly into the system
- d. Good source, good quality.
- e. Flow – 2300 m³/d rating.

28. Delhi Water Treatment Plant

- a. Plant is currently operated 2 hours/day
- b. when one well is out of service, it can be operated for 5 hours/day
- c. Manual backwash of pressure filters.
- d. Nominal capacity is 4500 m³/d
- e. Source has multiple problems:
 - i. numerous chemicals contaminate raw water from agricultural runoff, septic leaching, potential spills from road.
 - ii. reservoir acts like a giant settling lagoon, resulting in the reservoir being very shallow (it was previously dredged out in 1988/89)
 - iii. turbidity is typically 4-5 mg/L
 - iv. high coliform and e-coli in raw water
 - v. organics and algae
 - vi. concern re: microcystin release from algae

- vii. taste and odour concern.
- f. Plant CT in not fully adequate.
- g. Plant is very old, and in relatively poor condition.
- h. Consider complete, state-of-the art replacement as one option.

29. Courtland:

- a. Courtland used to have 3 wells rated at a total of 1000 m³/d, but had very low UVT due to high iron
- b. Private wells in Courtland area typically have had high nitrates.
- c. Wells were decommissioned, and a new transmission main from Delhi to an in-ground reservoir in Courtland was constructed.
- d. Reservoir included 2 – 500 m³ cells
- e. Pumping station has series of high lift pumps, but has a problem – slow response to fire department draw (2 minutes?) has fire department requesting improvements.
- f. A Class EA has been completed for a new elevated tank, that would remove the existing reservoir from operation ? (to be checked)
- g. Consider alternative of adding a large hydropneumatic tank to get across power failures, provide immediate response to fire department. Also consider forcing fast start for pumps due to low pressure, but controlled shut-down based on water meter flow, etc. – i.e. improved flow control
- h. Design fire flow is 83 L/s (Fire Department has an 83 L/s pumper) Based on FUS – typical 2000 s.f., 2 – story house, with 3 m separation on both sides. (to be checked)

30. Port Rowan:

- a. about 1000 people
- b. typical raw water turbidity 2-3 NTU, but can get up to 200-300 NTU
- c. intake is 400' long, but only 3-5 ft deep (1-1.5 m), due to very shallow bay. Under adverse wind conditions, intake can occasionally (once every 2 years or so for a couple of hours) go completely dry – heavy turbidity when water returns
- d. concern that sediment in the bay is heavily contaminated, and dredging or any work in bay could be difficult from an environmental viewpoint.
- e. intake screen/basket is cleaned once per year. Zebra mussels have declined in recent year or so.
- f. Low lift pumping station has 2 horizontal, end suction pumps, and 10' deep well. Manual Priming from system water? (Consider small automatic priming system)
- g. Extensive past studies have been undertaken to look at new routes for a new water intake – but nothing satisfactory has been selected (costs in the order of \$8M were identified). One location was almost selected, but local boat captain stated that ice scour could wipe out intake – proposal was put on hold. (Wieb Engineering Report?)
- h. about 25 test wells have been drilled looking for groundwater in the area, but all have failure due to high nitrates, or low production
- i. Treatment consists of CO₂ injection at the LLPS, 2 Graver Monoplants

- j. Filter run time is typically only 6-7 hours. Air scour has been added to filters
- k. Plant capacity is 3000 m³/d, max day demand is about 2000 m³/d, average day is about 600-700 m³/d
- l. Plant is about 1994 vintage
- m. High lift pumps pump through pressure GAC contactors. They expect 6-7 year life.
- n. Overall plant works well, THMs have been a major concern, but have been under control with new GAC media (now THMs are 50-60 ug/L)
- o. Cost of replacing GAC is about \$80K.
- p. Port Rowan has standard composite elevated tank – with nothing special. (Size needs to be confirmed – was not visited.)

31. Saint Williams

- a. Supplied by pipe from Port Rowan – essentially an extension of the Port Rowan System
- b. 6-8 km transmission pipe – 200 mm dia. (to be confirmed)
- c. A Class EA to provide a booster PS Has been completed. However it is not certain that an additional PS is required.
- d. There is an existing PS that already supplies a portion of Saint Williams. It is vintage late 1990's and appears to be in good condition. It has 2 new in-line pumps (158.5 gpm @ 67.3' TDH). (Suction of station was reading 44 psi, discharge 68-70 psi).
- e. Property has already been obtained for the proposed BPS.
- f. There is no fire flow for Saint Williams. There is a cistern available to re-fill tanker.
- g. Transients have not been considered in work completed to date.
- h. Existing PS includes re-chlorination facility.
- i. It was suggested that consideration be given to providing a new 50 mm dia. w/m on Dancy Side Road, and a new boosted pressure loop from the existing PS be constructed (this is already considered in capital plan)
- j. County will provide RVA with a copy of the Class EA.
- k. Note: RVA to do network model of Port Rowan, and include Saint Williams system.
- l. County suggest that additional storage in Saint Williams be considered as a way to avoid new PS.
- m. It was noted that some parts of the Saint Williams serviced area are at low elevation (towards the shore of Lake Erie), and could experience excessive pressures. This needs to be reviewed.
- n. County can provide billing records for Port Rowan to assist with the development of the model.

Port Dover

32. Port Dover WTP

- a. It was noted that the County does not have any lake-shore access, except at the existing plants, and a couple of road right-of-ways that run to the lake's edge
- b. Intake for Port Dover plant is about 450 m out from shore, and is much deeper than Port Rowan. It is 15-18' (4.5 – 5.5 m)

- c. This intake has experience frazile ice plugging typically 3-4 times/year. Usually it clears overnight. Sometimes the County has to manually run a backflush line from a chamber to try to clear the plug (Recommend some easier way to back-flush?)
- d. Vertical Turbine LLPS
- e. CO₂ injection at LLPS to lower pH
- f. plant building has been subject to a lot of vandalism. County Council does not want to fence in area – and to allow access to a small beach area (there was a tent set up on the beech during our site visit).
- g. Original plant had small upflow clarifier, and gravity filters (circa 1950's)
- h. In 1970's a single, large new upflow clarifier was added along with pressure filters.
- i. Around 2006, the pressure filters were removed and new deep-bed GAC gravity filters were installed (bed depth about 1.0 m). At this time a large concrete pad was installed, and temporary Zenon package treatment units were operated to provide treatment. (Note: County owns a small parkette to north of existing plant)
- j. Treated water quality is usually quite good.
- k. Max flow through plant is 75 L/s
- l. raw water turbidity is 1-40, with up to 80 very occasionally. Normally 5-6.
- m. Need to review Composite Performance Evaluation report
- n. Plant problems:
 - i. frazil ice (as noted above) – considered serious risk of loosing water supply, although this has not happened
 - ii. public access/vandalism as noted above
 - iii. single, old clarifier is experiencing some aging issues. there is no bypass for the clarifier, so cannot be taken out of service, without expensive temporary system – considered serious risk
 - iv. clarifier does not work well in winter – the sludge blanket can easily be upset
 - v. because of the layout of the clearwell, only 2 high lift pumps can be used to achieve adequate CT (need to check about what time of year, etc.) Note – there is no UV on filtered water – looks like it would be quite difficult to add.
 - vi. if the previous statement is true, there are only 2 functional high lift pumps (2@2600 m³/d, therefore total capacity is 5200 m³/d, firm capacity = 2600 m³/d, Max Day Demand is around 6000 m³/d! Elevated tank actually drops during max days, and does not recover within the day – therefore existing capacity is severely limited, average day is around 3000 m³)
 - vii. old plant is out of service, and cannot be operated
 - viii. County has \$3M budgeted for immediate upgrades to address this problem
 - ix. Suggestions to consider – additional membrane plant?

33. Port Dover Elevated Tank:

- a. adjacent to WWTP, constructed in 1988
- b. scheduled for painting, but on hold due to WTP problems

- c. something like 1.5 MIGD (6800 m³) – which is more than 2 days of storage at average day – and a very excellent asset given plant problems noted above.
- d. There is a truck loading system located at the base of the elevated tank

34. Port Dover Distribution System

- a. Has a pressure problem near (north of) the plant, where there is some higher elevation land
- b. A booster pumping station has already been design for this area – RVA should request additional information.
- c. 4000 houses planned for Port Dover!
- d. (Note: the original water supply to Port Dover was a surface water impoundment in this area – some houses were given permanent free municipal water services at that time. The County is now working to convert some of these to private well connections.
- e. County needs to re-route pipe in this area to be away from middle of farm field where ginseng is being grown (very expensive crop, chlorinated water leak could cause expensive damage)
- f. The system has a 50 mm bleeder that is run year-round to maintain water quality in this long dead-end main.

Waterford

35. Waterford Wells:

- a. 2 wells, #3 and #4, both GUDI with effective in-situ filtration
- b. poor soil in the vicinity of the wells – led to some structural problems during construction
- c. manganese in wells
- d. there are 2 water main connections from well field – one is AC pipe and runs under a swamp
- e. Well #3 – running at 20.9 L/s (34 L/s capacity)
- f. Good aquifer – no quantity problems
- g. wells are right next to old gravel pit ponds (one where there have been multiple drownings over the years)
- h. Well #4 has 34 L/s capacity - not running during visit – usually runs around 20 L/s
- i. Noted that PTTW has different capacities than DWWP? PTTW 2946 m³/d, 6216 m³/d total??)
- j. typical average day flows 1200 - 1550 m³/d (14 – 18 L/s)
- k. overall system has plenty of spare capacity

36. Waterford Treatment Plant:

- a. Plant built in 2004
- b. Same design as Simcoe North West Treatment Plant (macrolite, etc.)
- c. big clearwell – chlorine used for CT (since some coagulant used in filters)
- d. plant designed with space to allow a 4th filter
- e. set up to run with one well – one filter

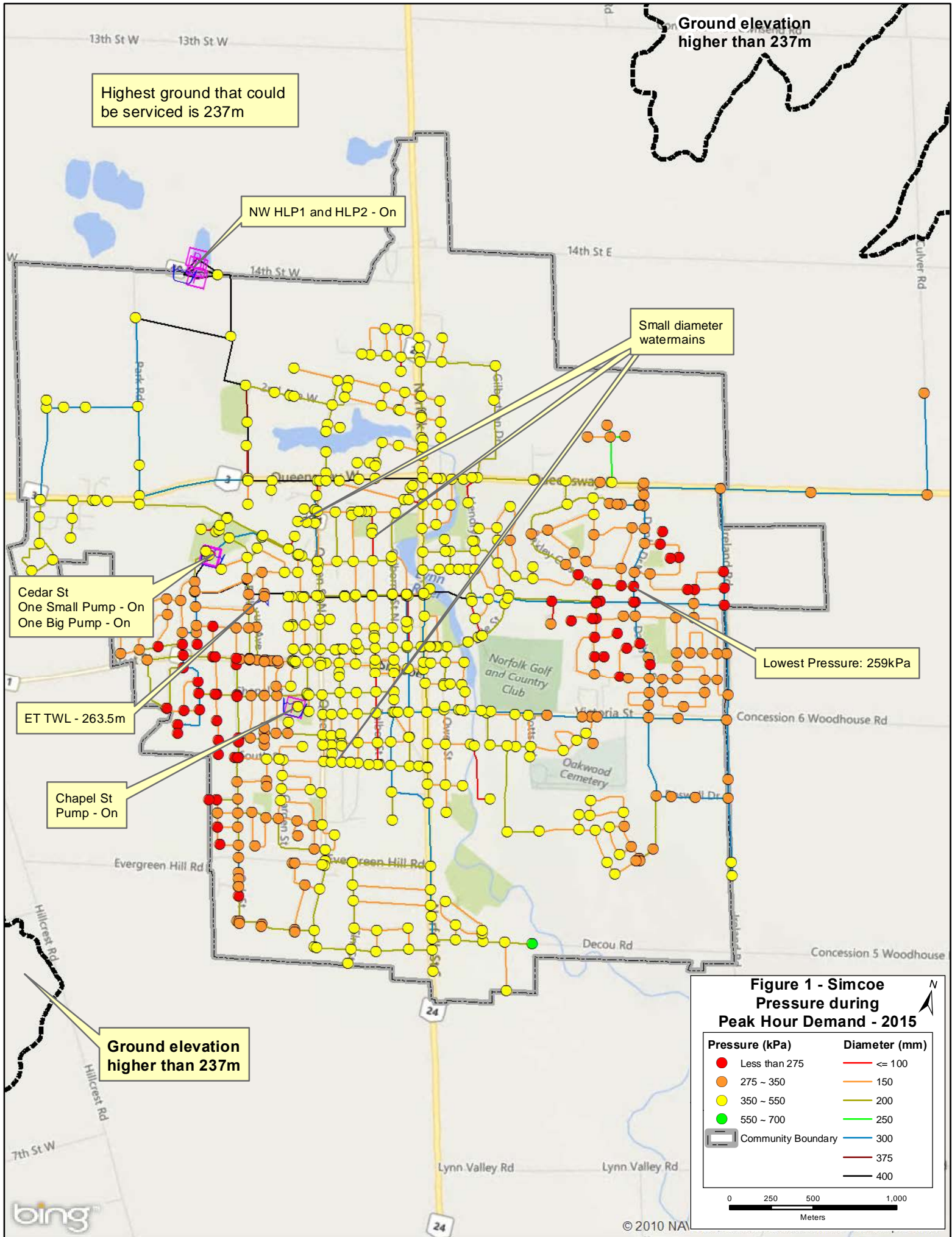
- f. there is a wastewater settling tank, which is pumped out occasionally (not a concern)
- g. overall water supply is good – either well could meet max day capacity
- h. concern is the loss, due to contamination of the well field, which would take out the whole system.
- i. Tim Lotimer’s report refers to 10 State Standards re: well field redundancy, etc.

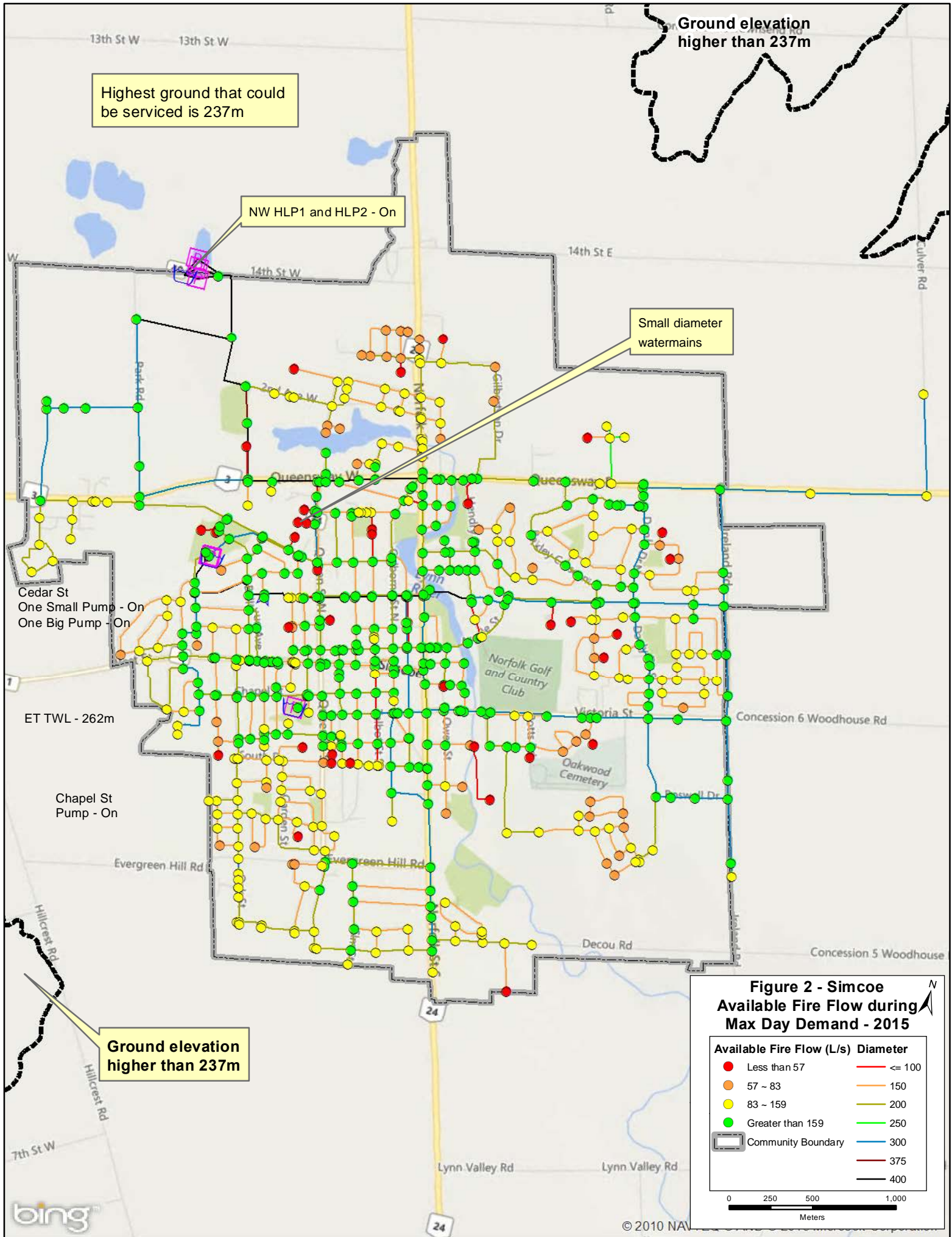
37. Waterford Standpipe:

- a. were not able to visit, due to local road construction
- b. at top of hill from old, spring water collection system – no longer in service.

Appendix C

Water Distribution System Model Outputs





Highest ground that could be serviced is 237m

NW HLP1 and HLP2 - On

Small diameter watermains

Cedar St One Small Pump - On One Big Pump - On

ET TWL - 262m

Chapel St Pump - On

Ground elevation higher than 237m

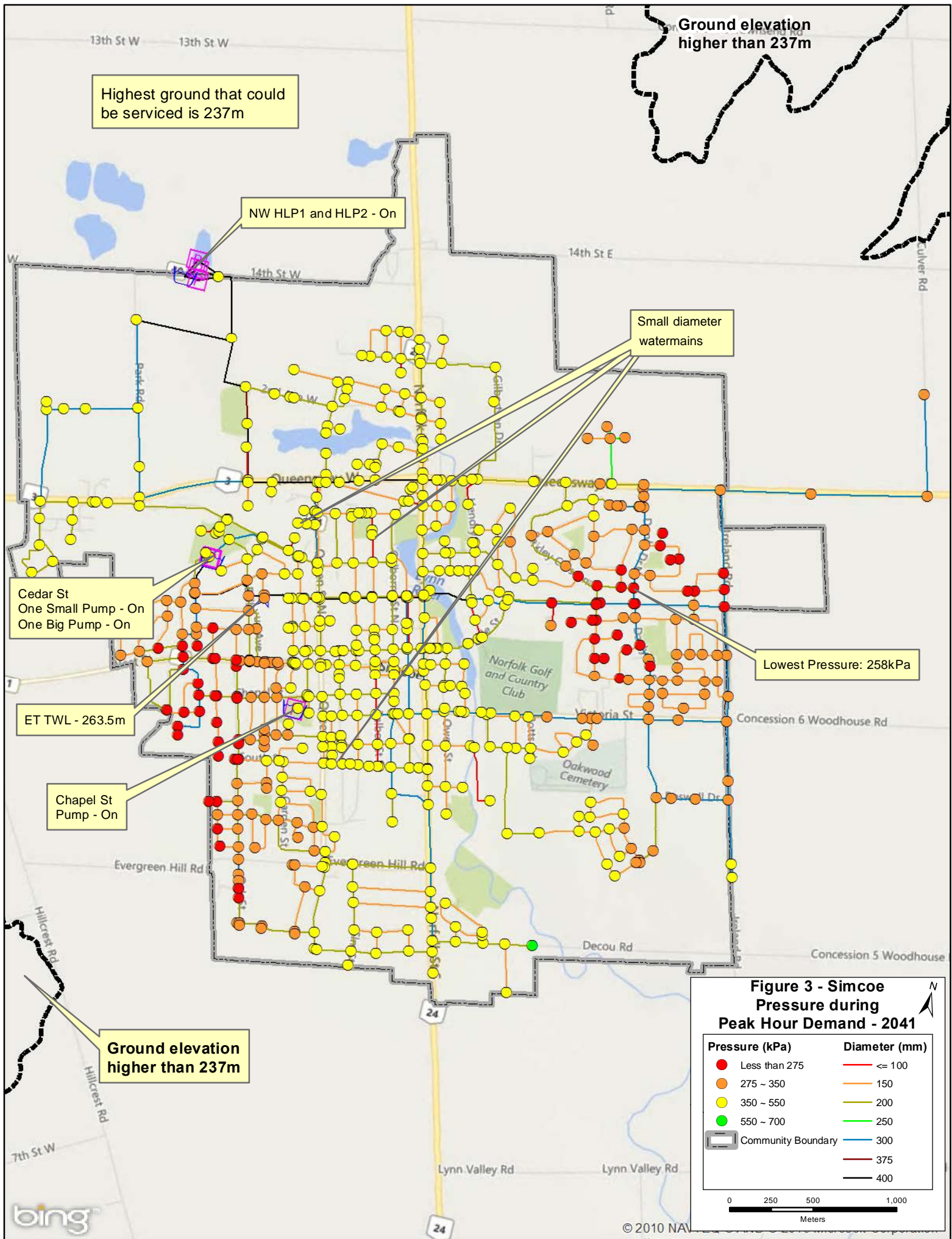
Ground elevation higher than 237m

Figure 2 - Simcoe Available Fire Flow during Max Day Demand - 2015

Available Fire Flow (L/s)	Diameter
● Less than 57	— ≤ 100
● 57 ~ 83	— 150
● 83 ~ 159	— 200
● Greater than 159	— 250
▭ Community Boundary	— 300
	— 375
	— 400

0 250 500 1,000
Meters

© 2010 NAV



Highest ground that could be serviced is 237m

Ground elevation higher than 237m

NW HLP1 and HLP2 - On

Small diameter watermains

Cedar St
One Small Pump - On
One Big Pump - On

Lowest Pressure: 258kPa

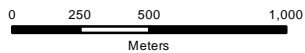
ET TWL - 263.5m

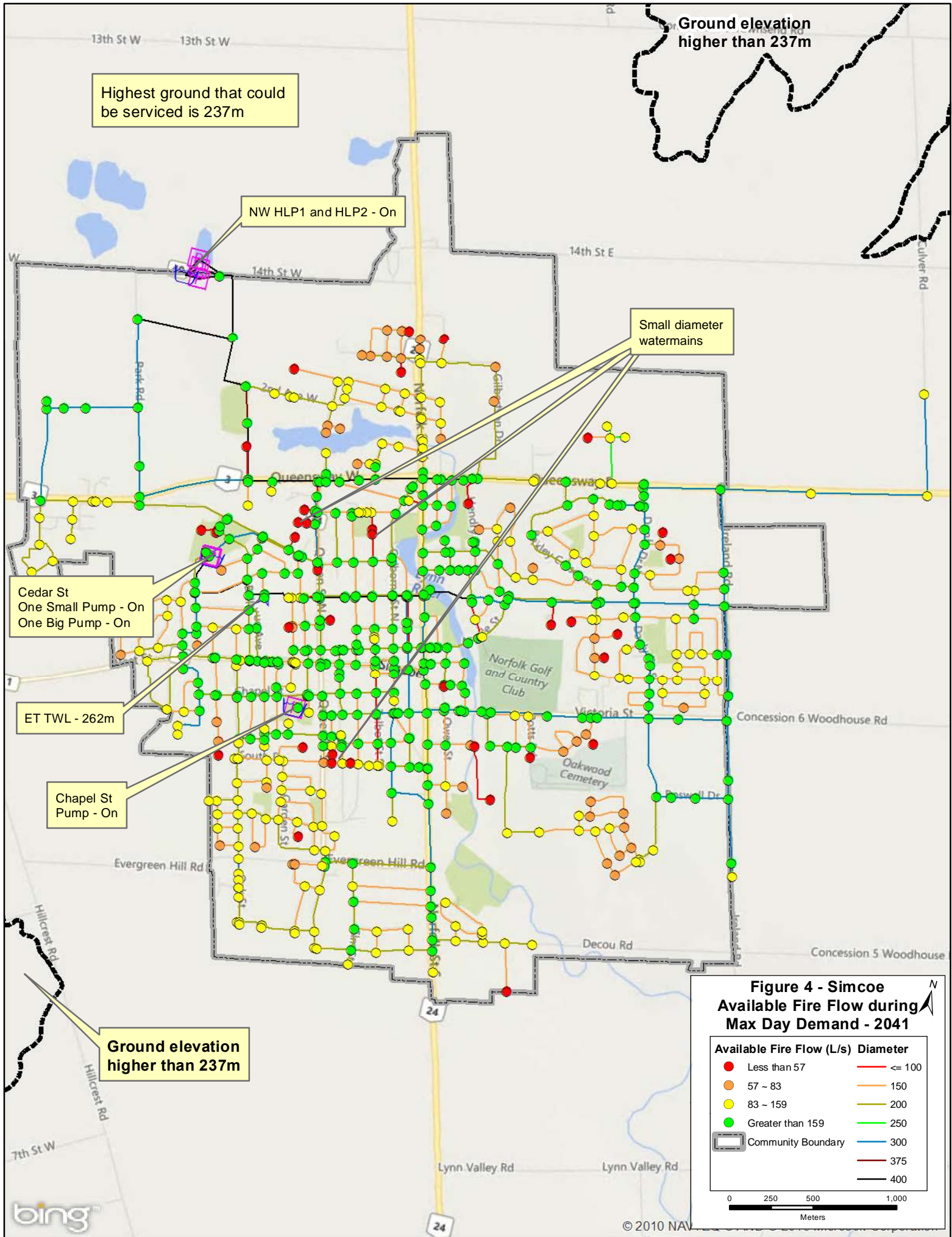
Chapel St
Pump - On

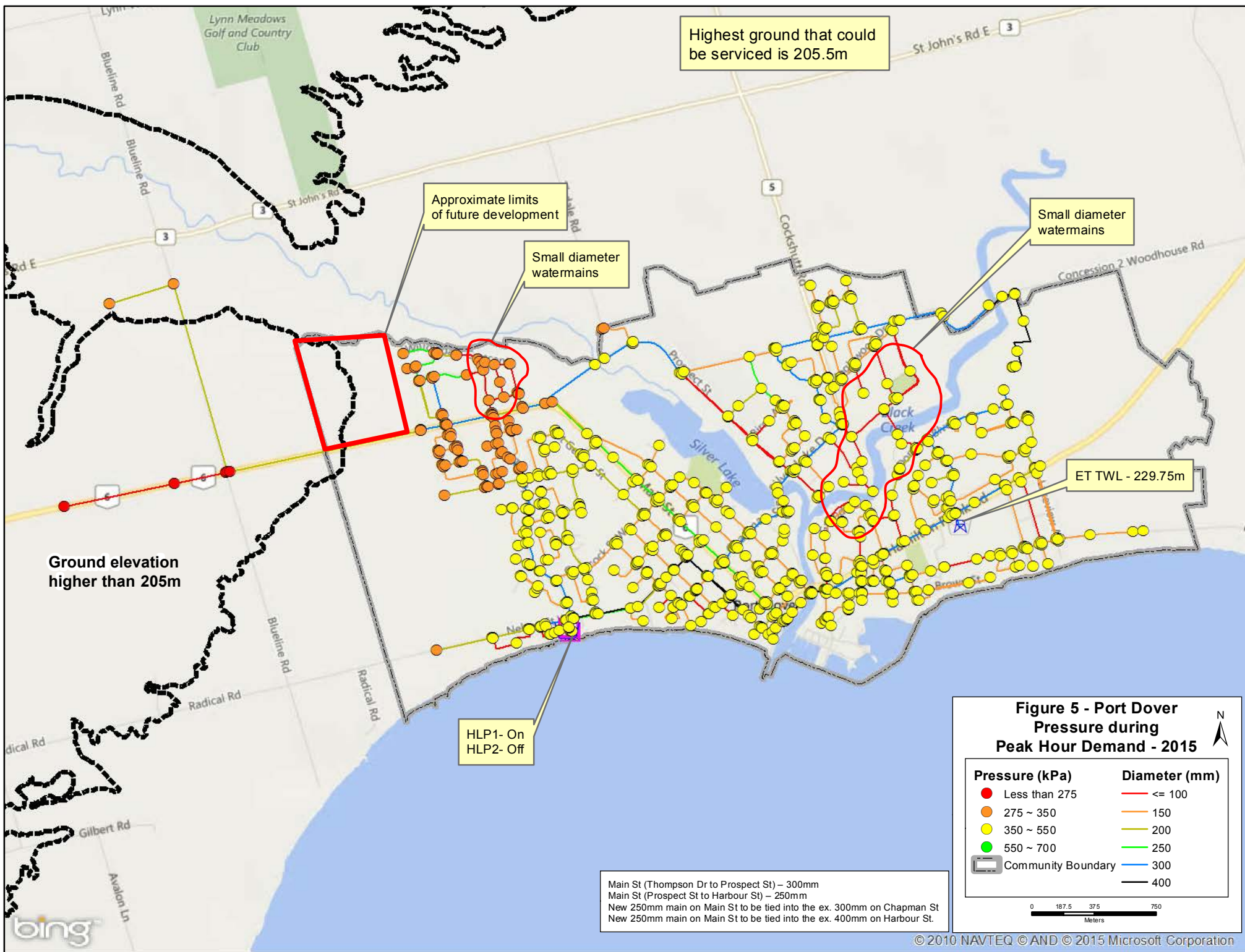
Ground elevation higher than 237m

Figure 3 - Simcoe Pressure during Peak Hour Demand - 2041

Pressure (kPa)	Diameter (mm)
● Less than 275	— < 100
● 275 ~ 350	— 150
● 350 ~ 550	— 200
● 550 ~ 700	— 250
▭ Community Boundary	— 300
	— 375
	— 400







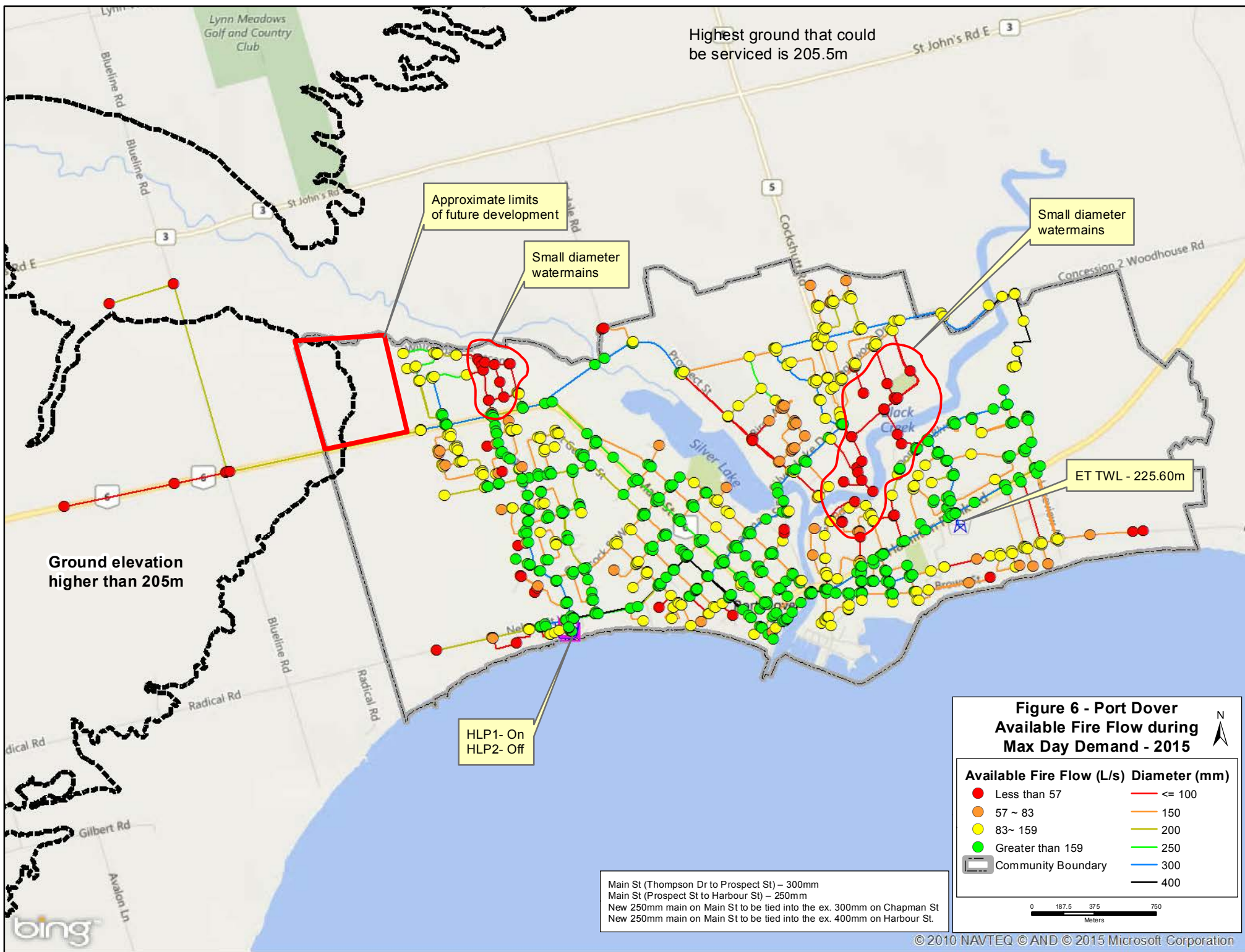
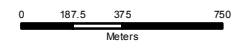
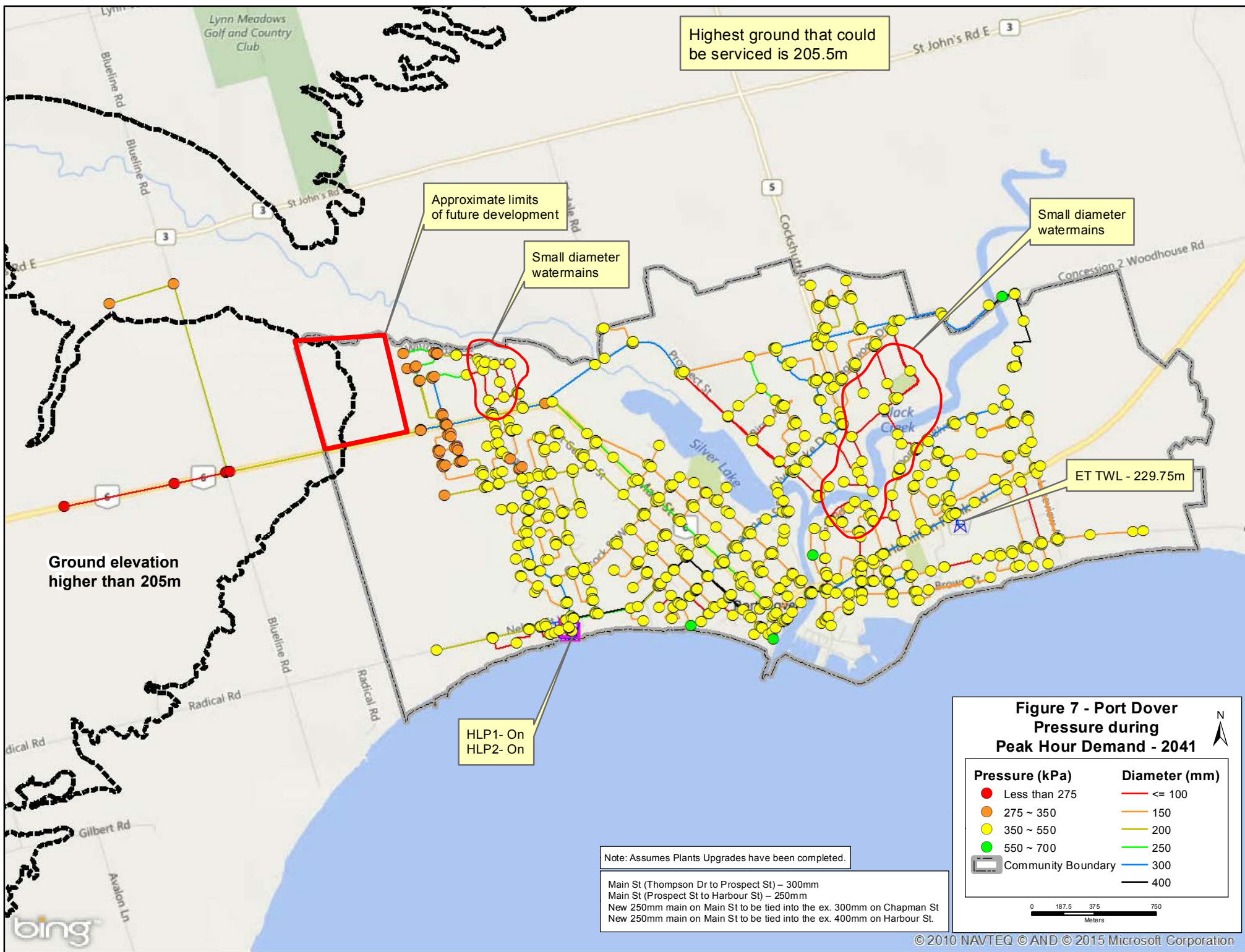


Figure 6 - Port Dover Available Fire Flow during Max Day Demand - 2015

Available Fire Flow (L/s) Diameter (mm)	
● Less than 57	— ≤ 100
● 57 ~ 83	— 150
● 83~ 159	— 200
● Greater than 159	— 250
▭ Community Boundary	— 300
	— 400





Highest ground that could be serviced is 205.5m

Approximate limits of future development

Small diameter watermains

Small diameter watermains

ET TWL - 229.75m

Ground elevation higher than 205m

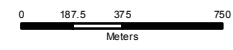
HLP1- On
HLP2- On

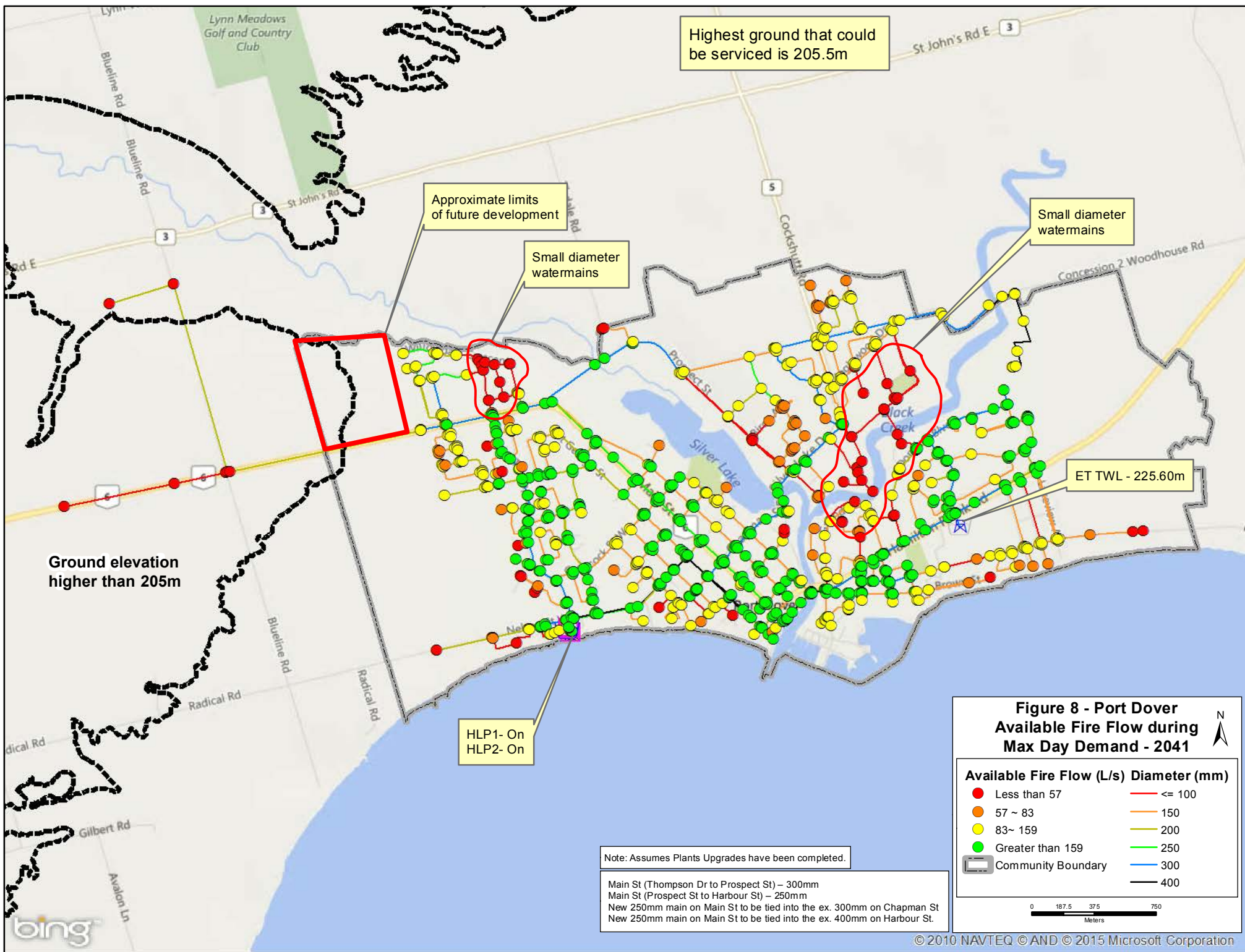
Figure 7 - Port Dover Pressure during Peak Hour Demand - 2041

Pressure (kPa)	Diameter (mm)
● Less than 275	— ≤ 100
● 275 ~ 350	— 150
● 350 ~ 550	— 200
● 550 ~ 700	— 250
▭ Community Boundary	— 300
	— 400

Note: Assumes Plants Upgrades have been completed.

Main St (Thompson Dr to Prospect St) – 300mm
 Main St (Prospect St to Harbour St) – 250mm
 New 250mm main on Main St to be tied into the ex. 300mm on Chapman St
 New 250mm main on Main St to be tied into the ex. 400mm on Harbour St.





Highest ground that could be serviced is 205.5m

Approximate limits of future development

Small diameter watermains

Small diameter watermains

ET TWL - 225.60m

Ground elevation higher than 205m

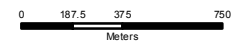
HLP1- On
HLP2- On

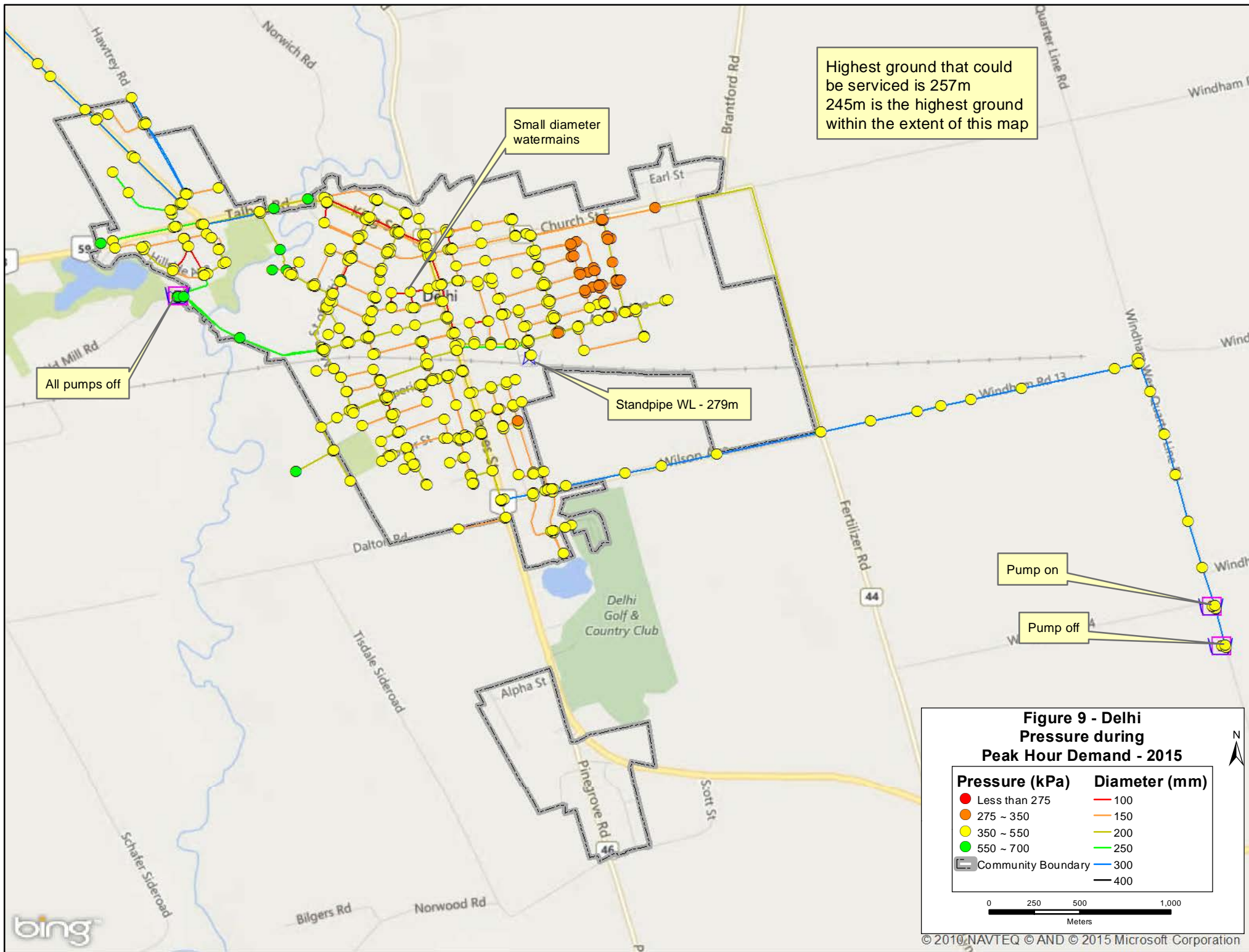
Figure 8 - Port Dover Available Fire Flow during Max Day Demand - 2041

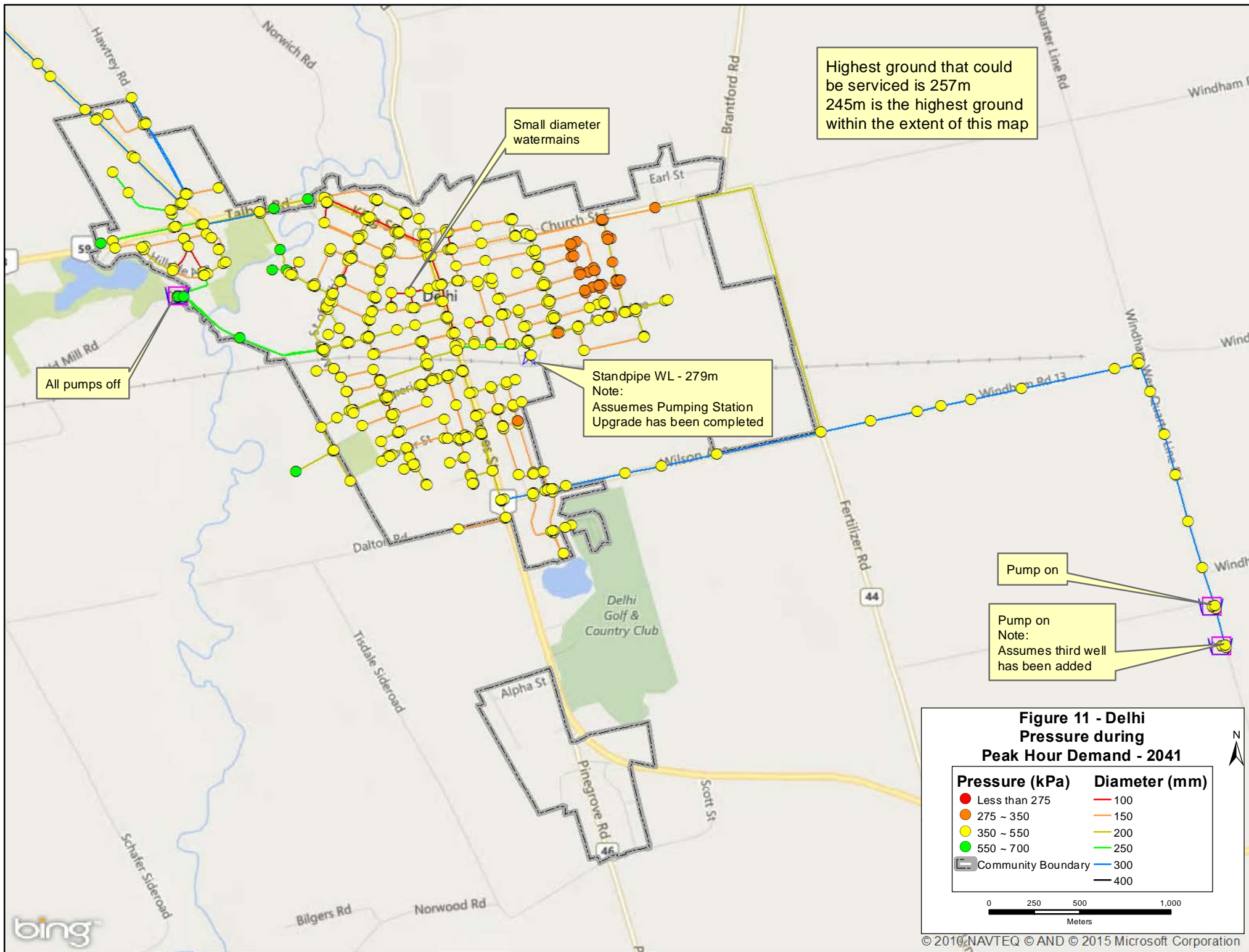
Available Fire Flow (L/s) Diameter (mm)	
● Less than 57	— ≤ 100
● 57 ~ 83	— 150
● 83~ 159	— 200
● Greater than 159	— 250
▭ Community Boundary	— 300
	— 400

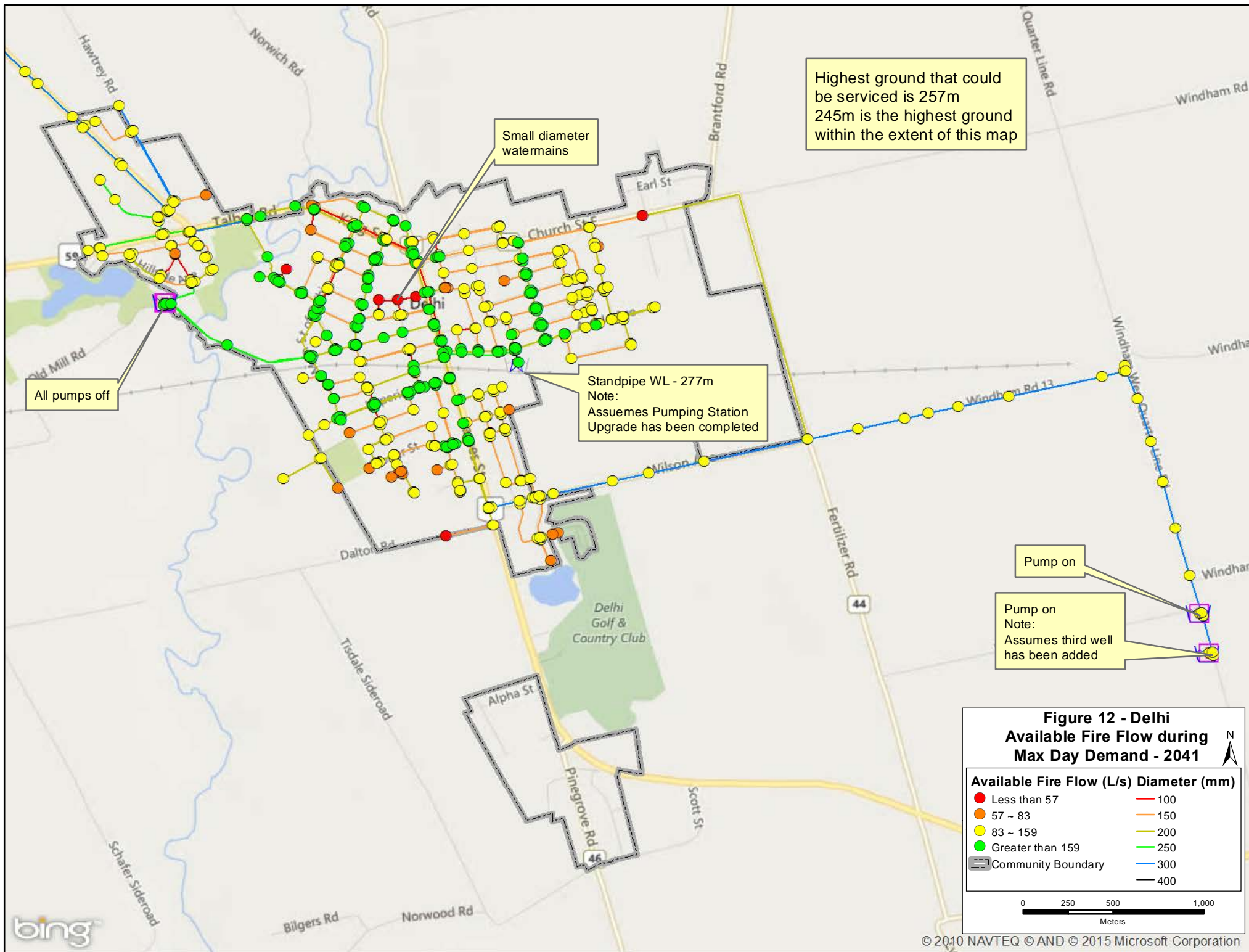
Note: Assumes Plants Upgrades have been completed.

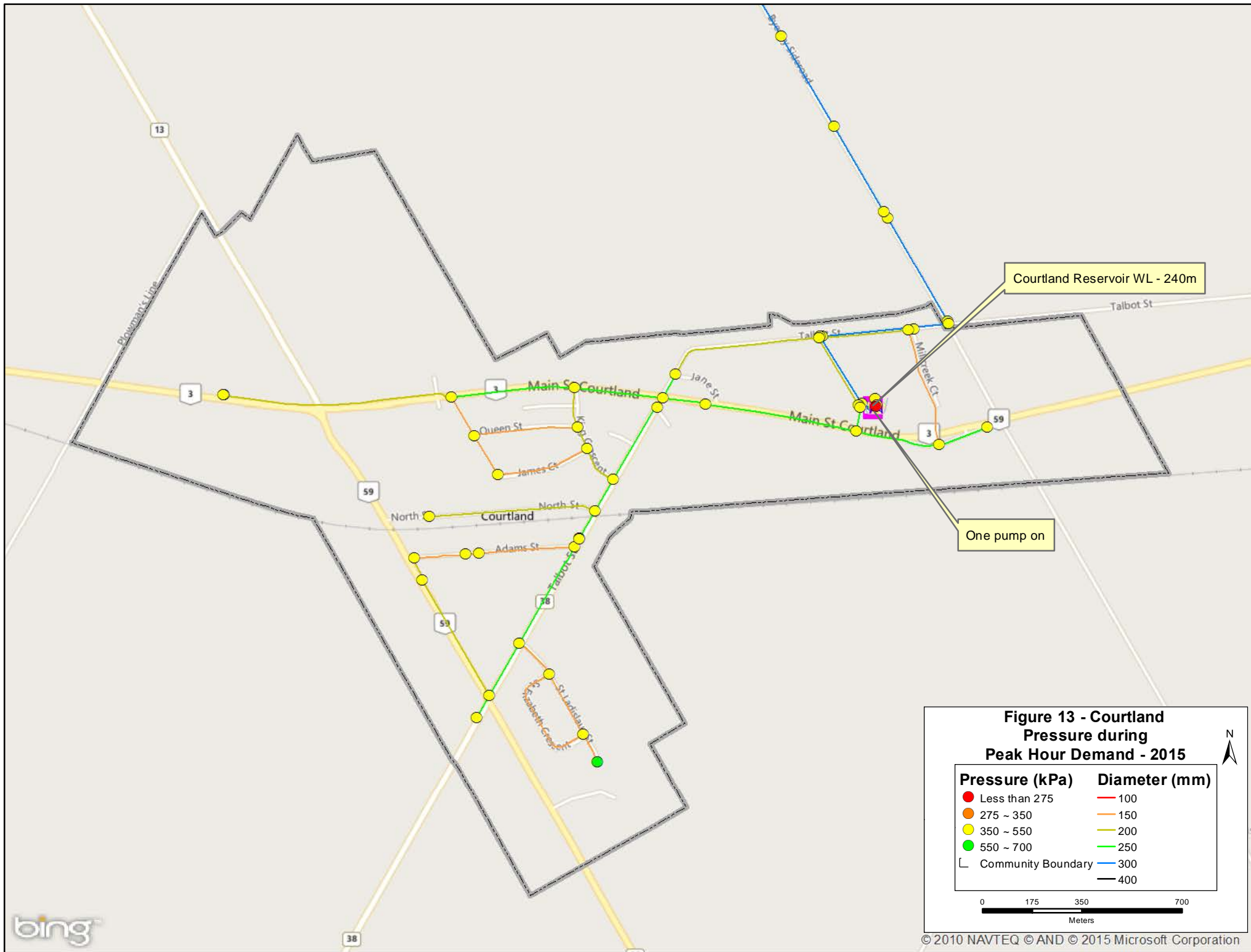
Main St (Thompson Dr to Prospect St) – 300mm
 Main St (Prospect St to Harbour St) – 250mm
 New 250mm main on Main St to be tied into the ex. 300mm on Chapman St
 New 250mm main on Main St to be tied into the ex. 400mm on Harbour St.











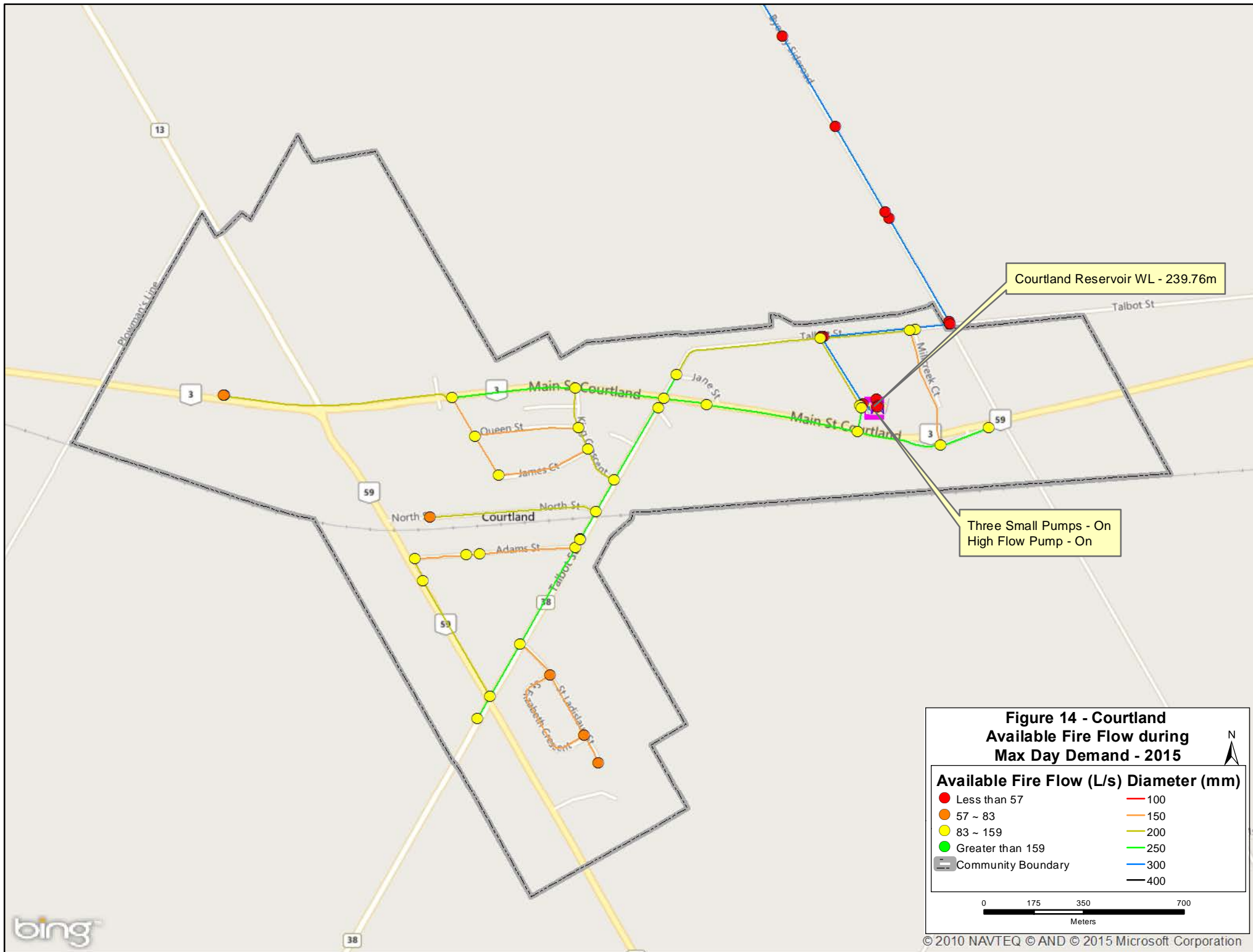
Courtland Reservoir WL - 240m

One pump on

Figure 13 - Courtland Pressure during Peak Hour Demand - 2015

Pressure (kPa)	Diameter (mm)
Less than 275	100
275 ~ 350	150
350 ~ 550	200
550 ~ 700	250
Community Boundary	300
	400





Courtland Reservoir WL - 239.76m

Three Small Pumps - On
High Flow Pump - On

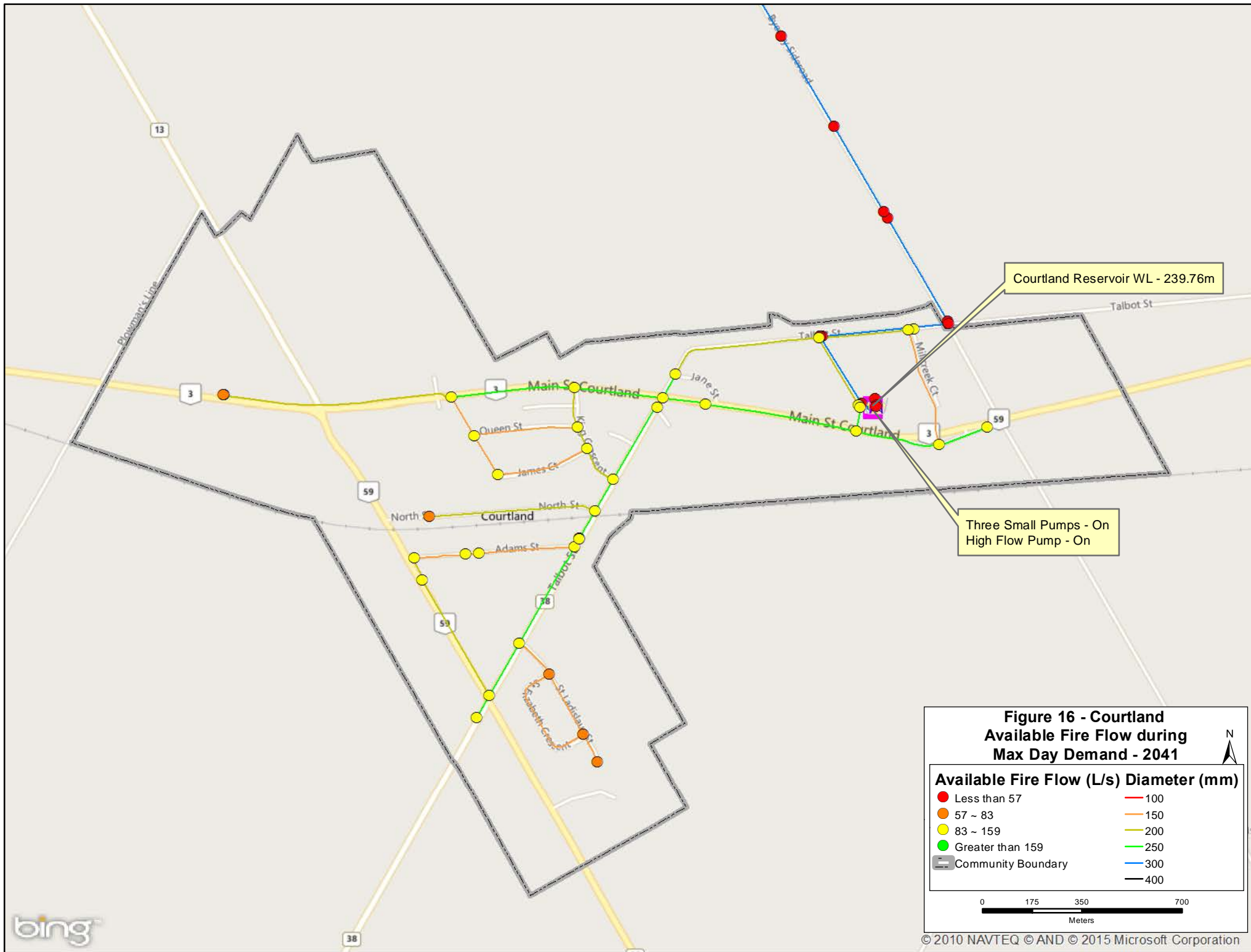
Figure 14 - Courtland Available Fire Flow during Max Day Demand - 2015

Available Fire Flow (L/s) Diameter (mm)

- Less than 57
- 57 ~ 83
- 83 ~ 159
- Greater than 159
- ▭ Community Boundary
- 100
- 150
- 200
- 250
- 300
- 400

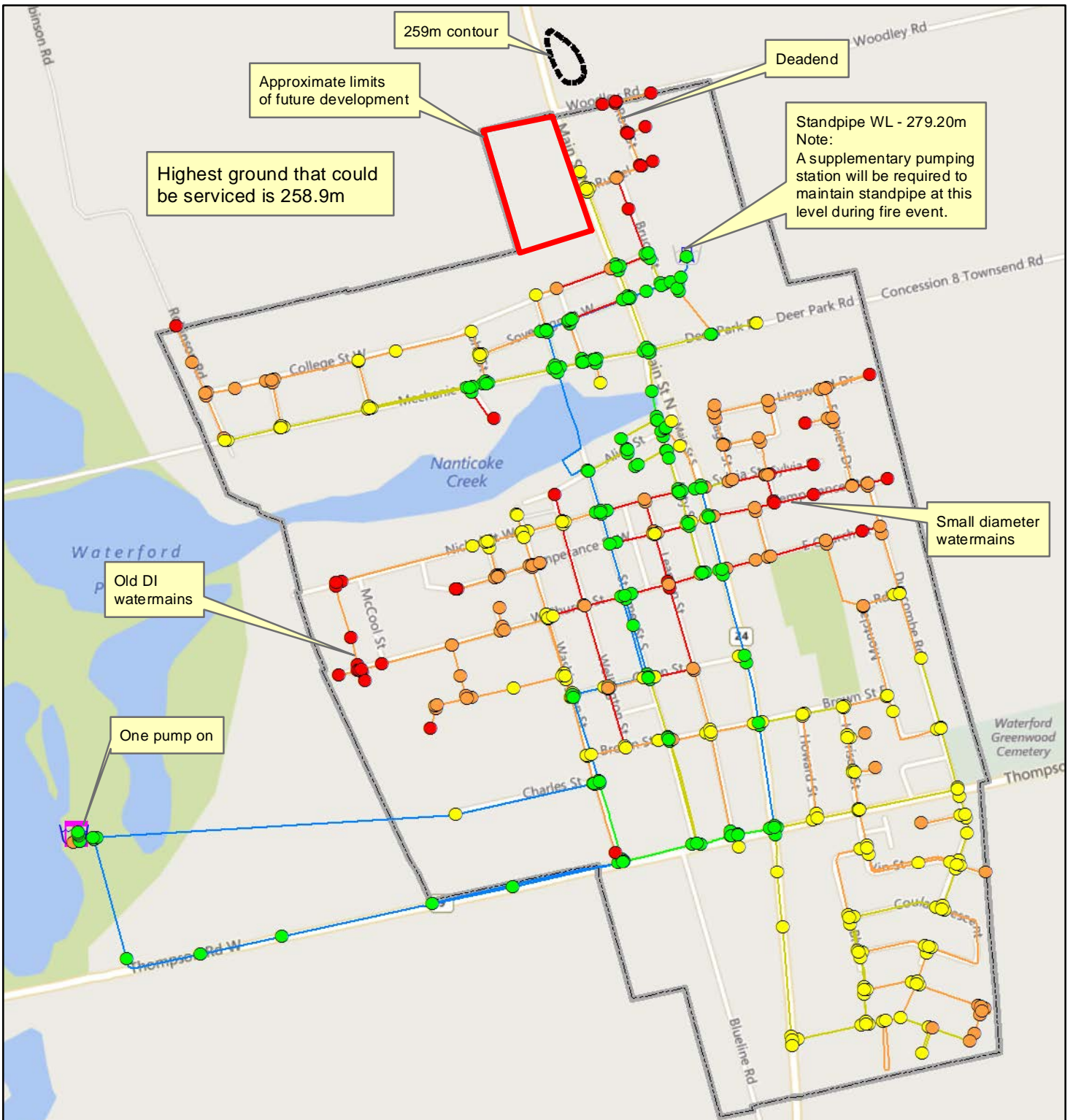
0 175 350 700
Meters

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Courtland Reservoir WL - 239.76m

Three Small Pumps - On
High Flow Pump - On



Highest ground that could be serviced is 258.9m

Approximate limits of future development

259m contour

Deadend

Standpipe WL - 279.20m
 Note:
 A supplementary pumping station will be required to maintain standpipe at this level during fire event.

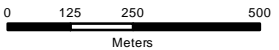
Small diameter water mains

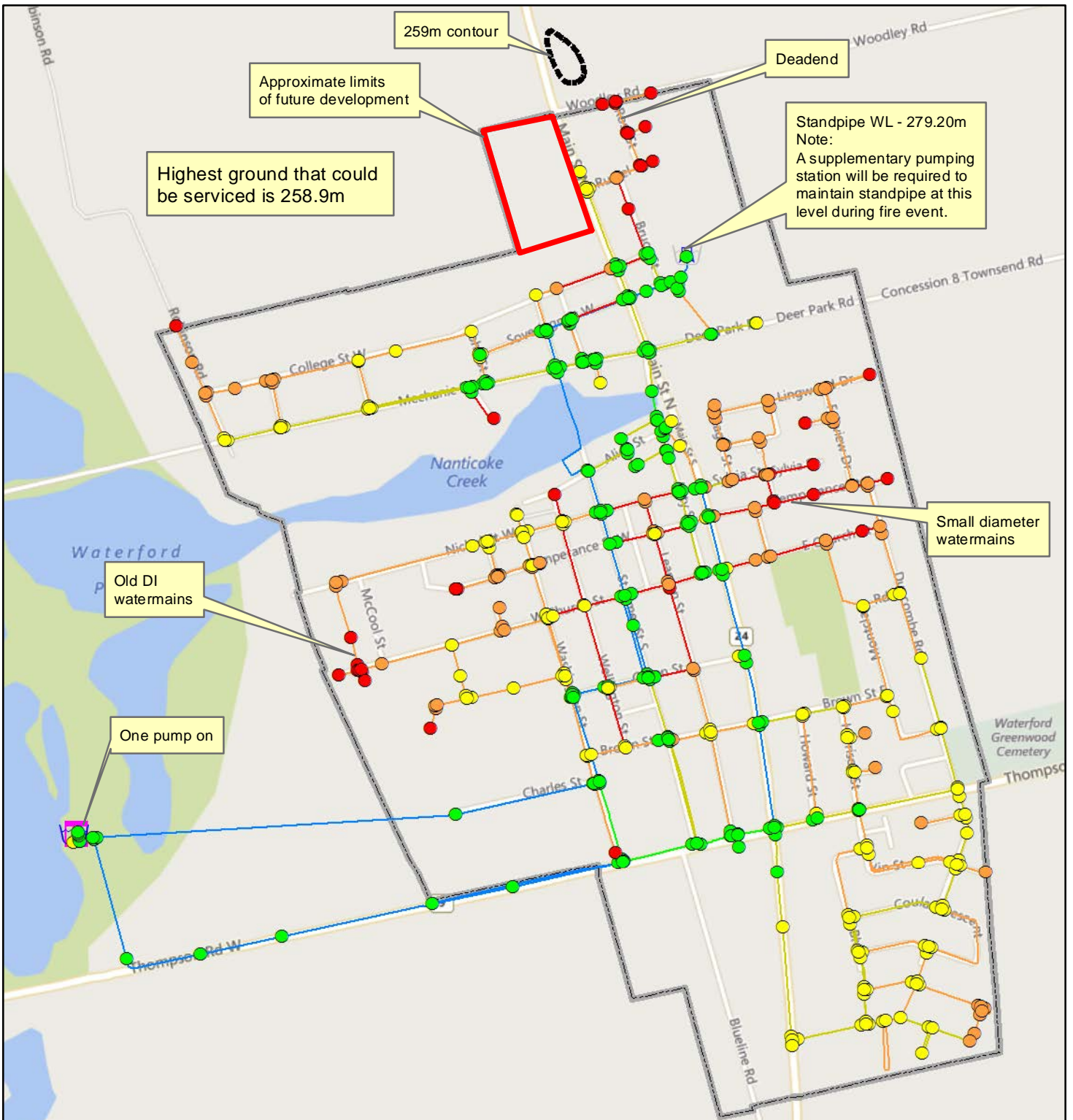
Old DI water mains

One pump on

Figure 18 - Waterford Available Fire Flow during Max Day Demand - 2015

Available Fire Flow (L/s) Diameter (mm)	
Less than 57	100
57~83	150
83~159	200
Greater than 159~	250
Community Boundary	300
	400





Highest ground that could be serviced is 258.9m

Approximate limits of future development

259m contour

Deadend

Standpipe WL - 279.20m
 Note:
 A supplementary pumping station will be required to maintain standpipe at this level during fire event.

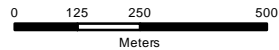
Small diameter watermains

Old DI watermains

One pump on

Figure 20 - Waterford Available Fire Flow during Max Day Demand - 2041

Available Fire Flow (L/s) Diameter (mm)	
● Less than 57	— 100
● 57-83	— 150
● 83-159	— 200
● Greater than 159	— 250
▭ Community Boundary	— 300
	— 400



Highest ground that could be serviced is 213m
199m is the highest ground within the extent of this map

ET TWL - 235m

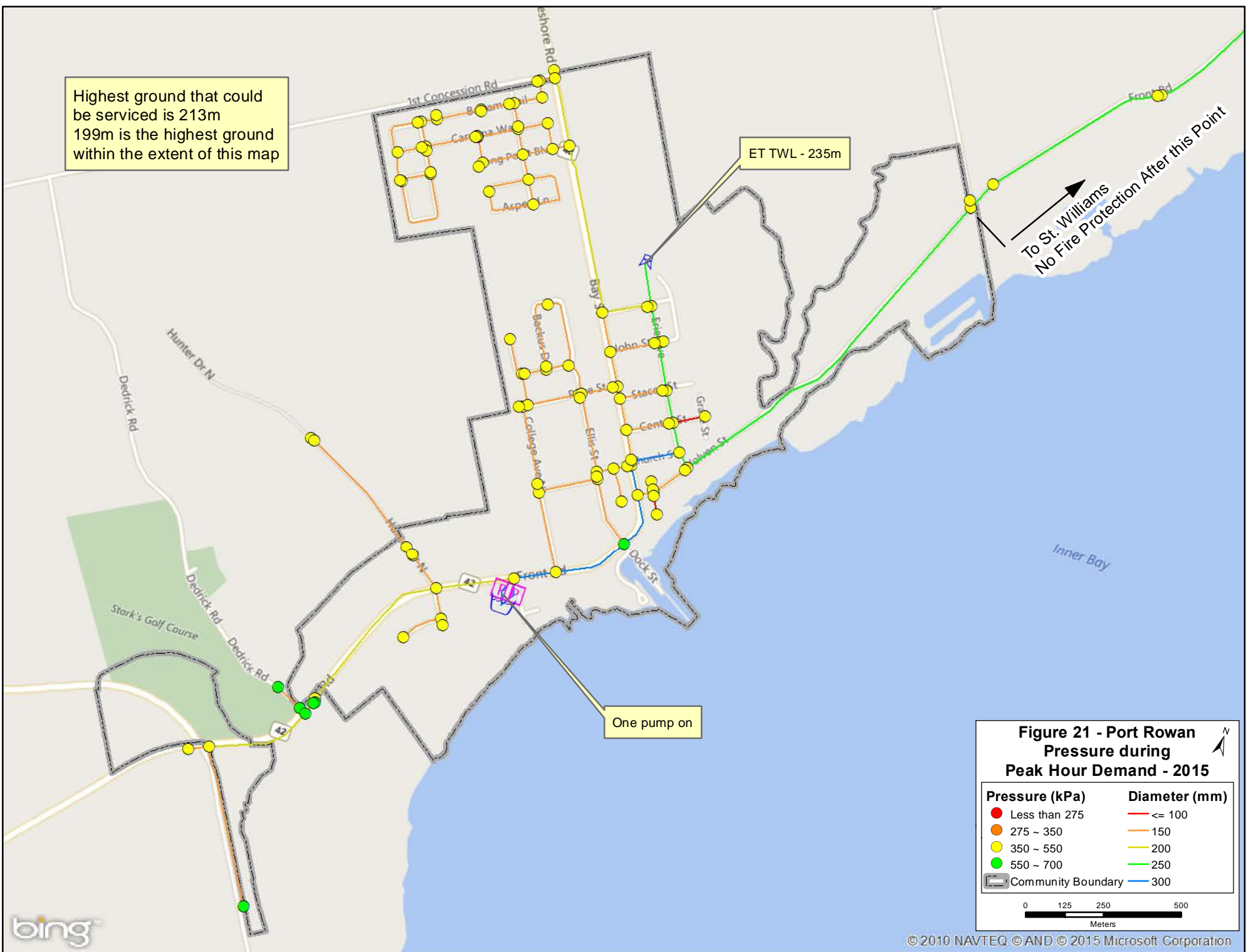
To St. Williams
No Fire Protection After this Point

One pump on

Figure 21 - Port Rowan Pressure during Peak Hour Demand - 2015

Pressure (kPa)	Diameter (mm)
● Less than 275	— ≤ 100
● 275 ~ 350	— 150
● 350 ~ 550	— 200
● 550 ~ 700	— 250
▭ Community Boundary	— 300

0 125 250 500
Meters



Highest ground that could be serviced is 213m
 199m is the highest ground within the extent of this map

ET TWL - 233m

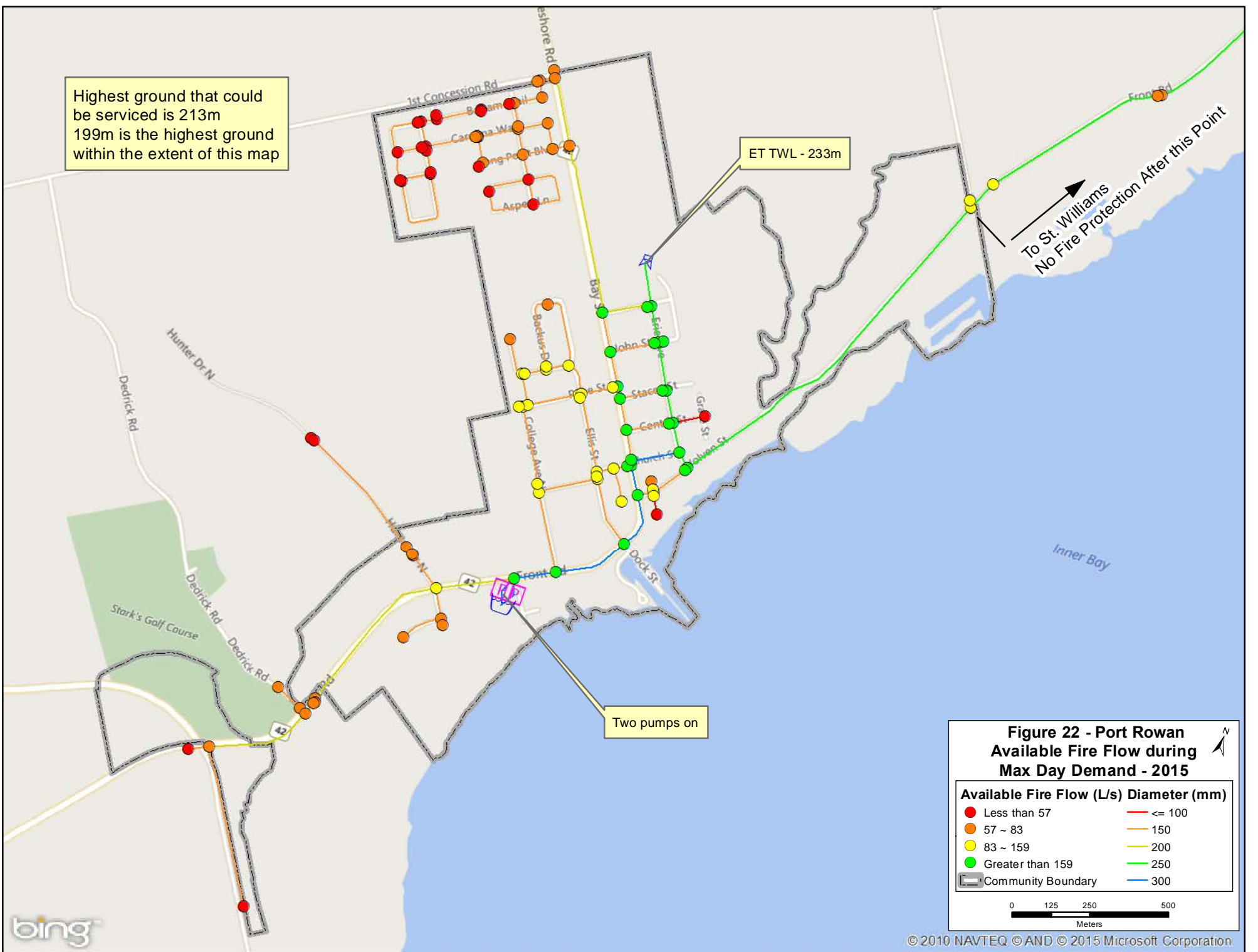
To St. Williams
 No Fire Protection After this Point

Two pumps on

Figure 22 - Port Rowan Available Fire Flow during Max Day Demand - 2015

Available Fire Flow (L/s) Diameter (mm)	
● Less than 57	— ≤ 100
● 57 ~ 83	— 150
● 83 ~ 159	— 200
● Greater than 159	— 250
▭ Community Boundary	— 300

0 125 250 500
Meters



Highest ground that could be serviced is 213m
 199m is the highest ground within the extent of this map

ET TWL - 235m

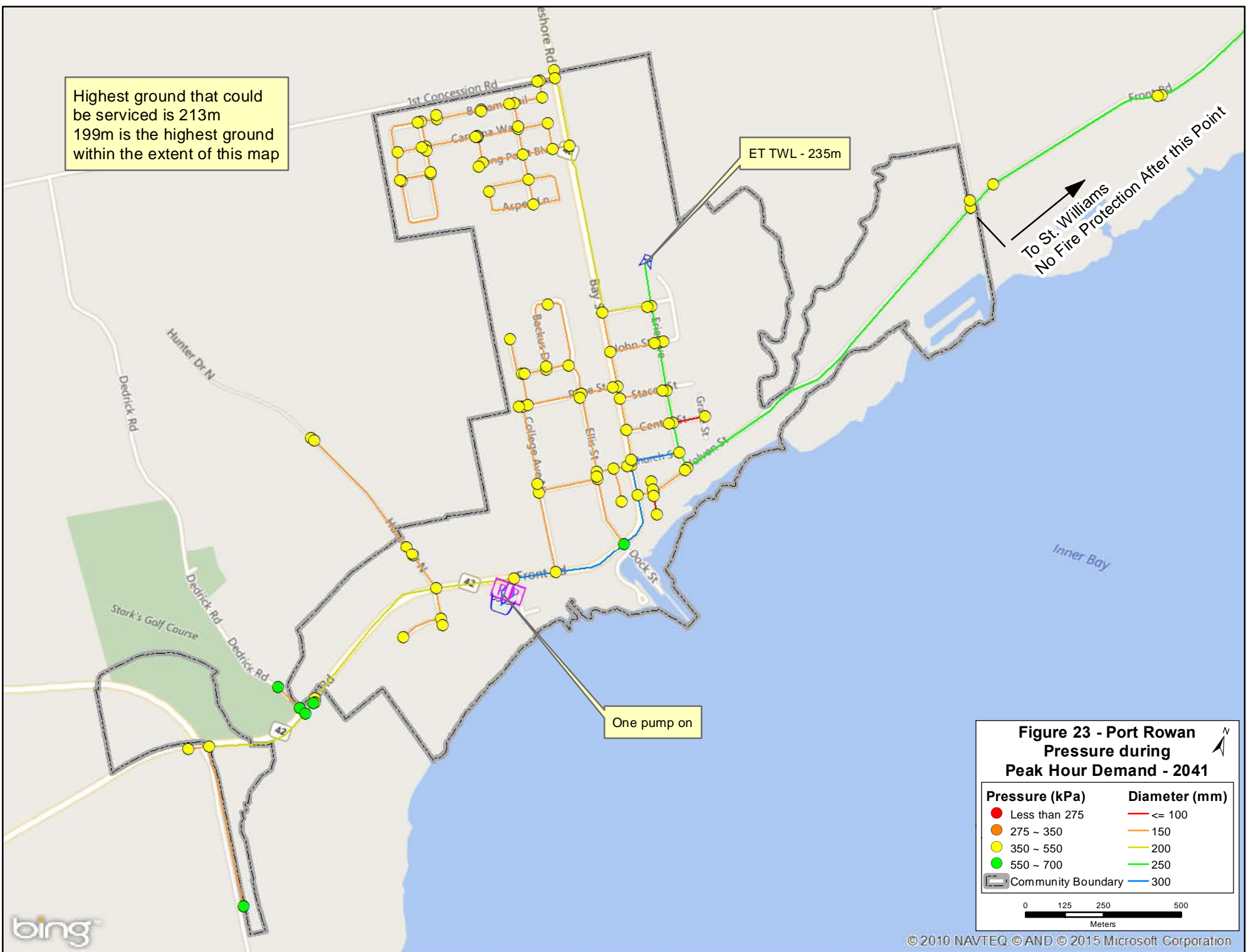
To St. Williams
 No Fire Protection After this Point

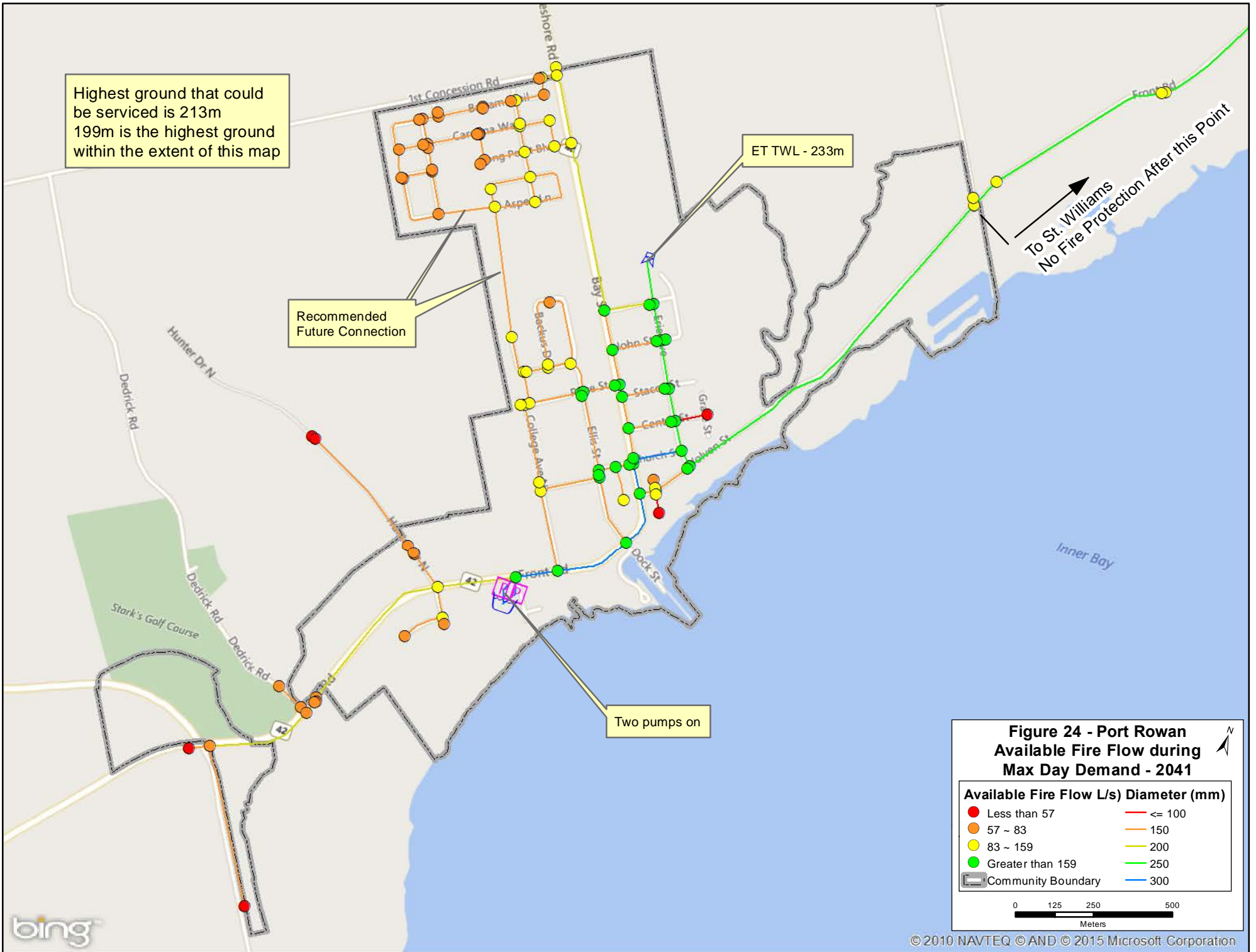
One pump on

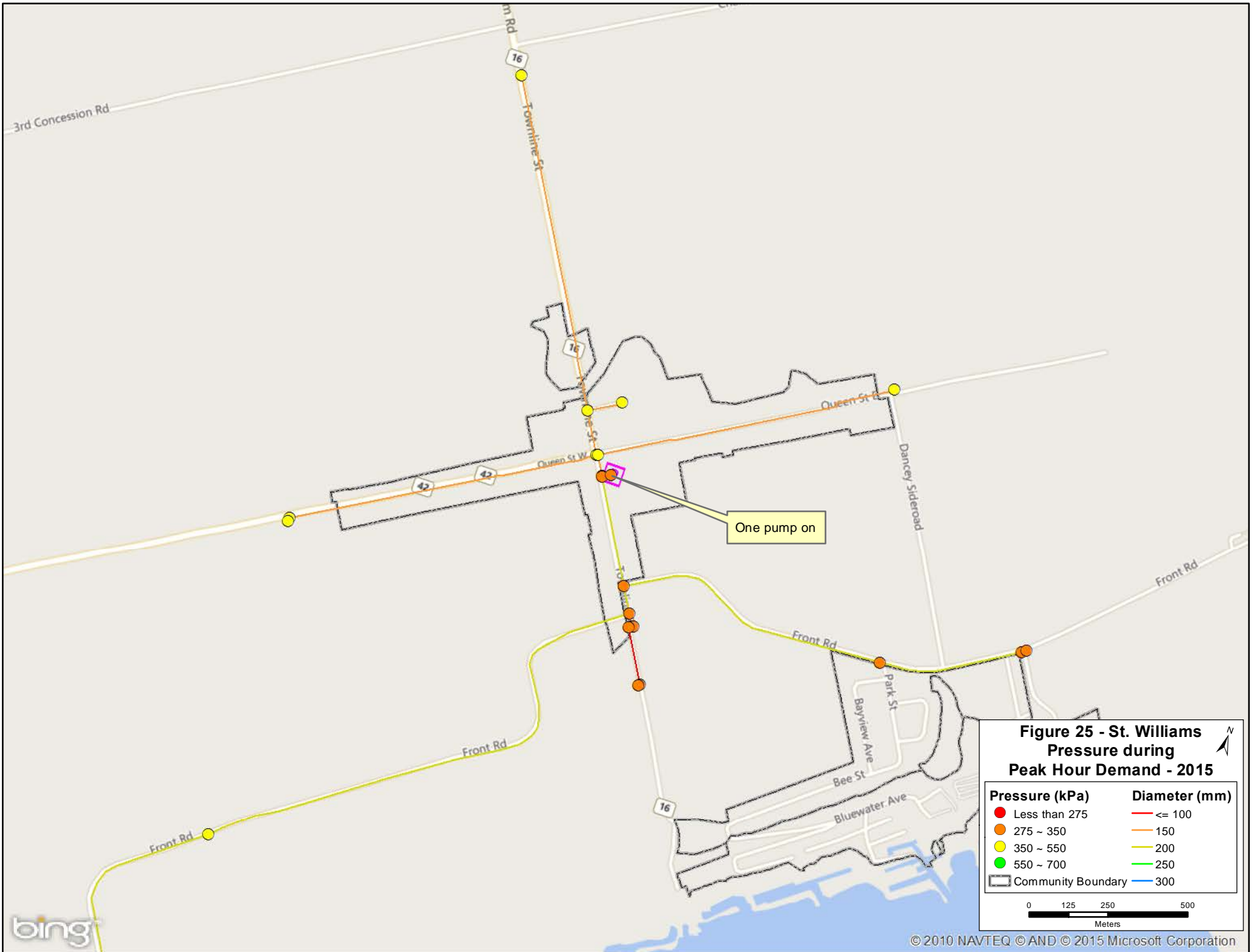
Figure 23 - Port Rowan Pressure during Peak Hour Demand - 2041

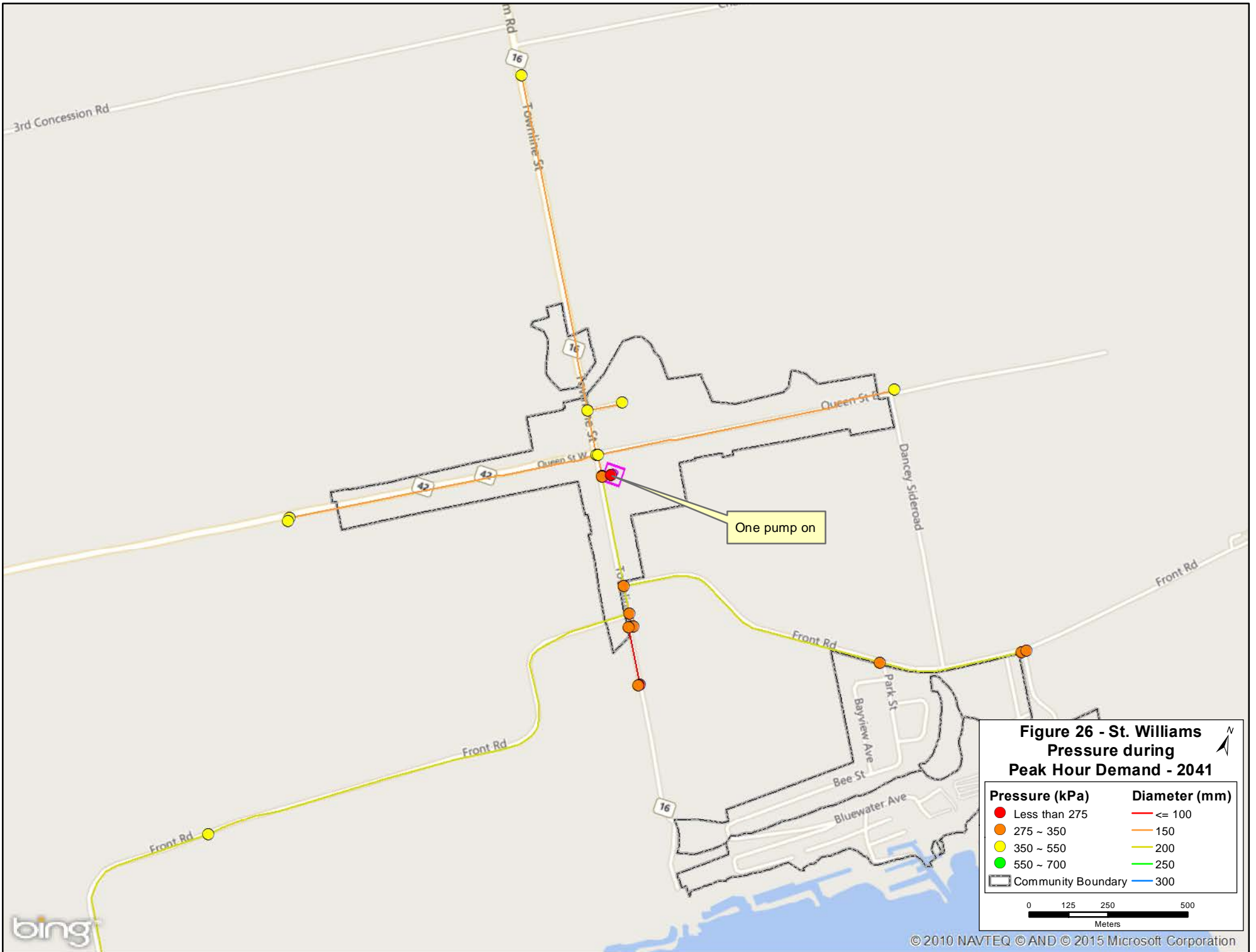
Pressure (kPa)	Diameter (mm)
● Less than 275	— ≤ 100
● 275 ~ 350	— 150
● 350 ~ 550	— 200
● 550 ~ 700	— 250
▭ Community Boundary	— 300

0 125 250 500
Meters









Appendix D

Local Water Main Improvements

A - Simcoe - Watermains to be Replaced - 100mm and less

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Diameter (mm)	Pipe Material	Year of Installation	GIS_Length (m)	Needed to Address Fire Flows
SIM001147		Simcoe	Simcoe	Norfolk	Distribution	3864	SOUTH DR.	QUEEN ST S-1ST EAST	19	CO	N/A	48	Assume Service Connection
SIM001425		Simcoe	Simcoe	Norfolk	Distribution	2542	CEDAR ST WELL FIELD	TREATMENT GARGE	25	CI	1940	93	Assume Service Connection
SIM001436		Simcoe	Simcoe	Norfolk	Distribution	2543	CEDAR ST WELL FIELD	TREATMENT GARGE	25	CI	1940	20	Assume Service Connection
SIM001382		Simcoe	Simcoe	Norfolk	Distribution	4181	WINDHAM ST.	QUEEN - END	25	GALV	1960	66	Assume Service Connection
SIM001148		Simcoe	Simcoe	Norfolk	Distribution	3865	SOUTH DR.	1ST WEST-HEAD ST S	25	CO	2006	49	Assume Service Connection
SIM000499		Simcoe	Simcoe	Norfolk	Distribution	3055	HENDRY ST.	QUEENSWAY - TISDALE	50	GIP		142	Assume Service Connection
SIM001203		Simcoe	Simcoe	Norfolk	Distribution	3940	TALBOT ST.	MAPLE INTERSECTION	50	PVC	1998	159	Assume Service Connection
SIM001200		Simcoe	Simcoe	Norfolk	Distribution	3937	TALBOT ST.		50	PVC	1998	84	Assume Service Connection
SIM000977		Simcoe	Simcoe	Norfolk	Distribution	3665	QUEEN ST.	CEDAR - END	50	GIP	1940	30	Assume Service Connection
SIM000976		Simcoe	Simcoe	Norfolk	Distribution	3664	QUEEN ST.	CEDAR INTERSECTION	50	GIP	1940	18	Assume Service Connection
SIM001725		Simcoe	Simcoe	Norfolk	Distribution	3118	HUNT ST.	QUEENSWAY-1ST NORTH	50	GIP		196	Assume Service Connection
SIM000329		Simcoe	Simcoe	Norfolk	Distribution	2812	EASEMENT	PATTERSON - WPCP	50	GIP	1940	403	Assume Service Connection
SIM000819		Simcoe	Simcoe	Norfolk	Distribution	3463	NORTH CRT.	DAVIS - END	50	PVC	1985	86	Assume Service Connection
SIM000577		Simcoe	Simcoe	Norfolk	Distribution	3169	KARS ST.	QUEEN - METCALFE	50	PVC	1990	62	Assume Service Connection
SIM000501		Simcoe	Simcoe	Norfolk	Distribution	3058	HIAWATHA ST.	CEDAR - END	50	PVC	1990	79	Assume Service Connection
SIM000941		Simcoe	Simcoe	Norfolk	Distribution	3622	PATTERSON ST.	1ST EAST - END	50	CU	1980	44	Assume Service Connection
SIM001201		Simcoe	Simcoe	Norfolk	Distribution	3938	TALBOT ST.	WINDHAM - END	50	PVC	1998	2	Assume Service Connection
SIM001202		Simcoe	Simcoe	Norfolk	Distribution	3939	TALBOT ST.	MAPLE - END	50	PVC	1998	3	Assume Service Connection
SIM001187		Simcoe	Simcoe	Norfolk	Distribution	3922	SUMMIT CIRC.	LYNNDALE - END	75	GIP	1985	130	Assume Service Connection
SIM000589		Simcoe	Simcoe	Norfolk	Distribution	3184	KENT ST. N	UNION - ROBINSON	100	CI	1940	296	YES
SIM001095		Simcoe	Simcoe	Norfolk	Distribution	3803	SHELLBURG AVE.	QUEEN - END	100	CI	1940	101	YES
SIM000965		Simcoe	Simcoe	Norfolk	Distribution	3650	POTTS ROAD	OAKWOOD - END	100	CI	1940	44	YES
SIM001731		Simcoe	Simcoe	Norfolk	Distribution	3323	MASONS LANE	UNOPENED	100	DI	1988	50	YES
SIM000590		Simcoe	Simcoe	Norfolk	Distribution	3185	KENT ST. N	ROBINSON INTERSECTION	100	PVC	2007	9	YES
SIM000696		Simcoe	Simcoe	Norfolk	Distribution	3306	MARSHALL LANE. (FORMERLY GEORGE ST)	ELGIN INTERSECTION	100	CI	1940	26	YES
SIM000588		Simcoe	Simcoe	Norfolk	Distribution	3183	KENT ST. N	UNION INTERSECTION	100	CI	1940	14	YES
											TOTAL LENGTH	540	
										Cost @ \$300/m	\$	162,010	say \$200,000
SIM001408		Simcoe	Simcoe	Norfolk	Distribution	4219	YOUNG ST.	KENT - END	25	CU	1985	31	Assume Service Connection
SIM000056		Simcoe	Simcoe	Norfolk	Distribution	2379	BANK ST. SOUTH	QUEENSWAY - END	25	GIP	1940	77	Assume Service Connection
SIM000055		Simcoe	Simcoe	Norfolk	Distribution	2378	BANK ST. SOUTH		25	GIP	1940	11	Assume Service Connection
SIM000054		Simcoe	Simcoe	Norfolk	Distribution	2377	BANK ST. SOUTH	QUEENSWAY INTERSECTION	25	GIP	1940	25	Assume Service Connection
SIM000496		Simcoe	Simcoe	Norfolk	Distribution	3049	HENDRY ST.	WILSON INTERSECTION	37	GIP	1940	13	Assume Service Connection
SIM000498		Simcoe	Simcoe	Norfolk	Distribution	3054	HENDRY ST.	QUEENSWAY INTERSECTION	50	GIP		22	Assume Service Connection
SIM001199		Simcoe	Simcoe	Norfolk	Distribution	3936	TALBOT ST.	WINDHAM INTERSECTION	50	PVC	1998	18	Assume Service Connection
SIM000576		Simcoe	Simcoe	Norfolk	Distribution	3168	KARS ST.	QUEEN INTERSECTION	50	PVC	1990	4	Assume Service Connection
SIM000256		Simcoe	Simcoe	Norfolk	Distribution	2706	CULVER ST.	WATER - END	50	GIP	1940	5	Assume Service Connection
SIM000254		Simcoe	Simcoe	Norfolk	Distribution	2704	CULVER ST.	WATER INTERSECTION	50	GIP	1940	11	Assume Service Connection
SIM000251		Simcoe	Simcoe	Norfolk	Distribution	2701	CULVER ST.	SYNDENHAM INTERSECTION	50	GIP	1940	10	Assume Service Connection
SIM000186		Simcoe	Simcoe	Norfolk	Distribution	2614	CHARLES ST.	PAYNE INTERSECTION	50	GIP	1940	12	Assume Service Connection
SIM000500		Simcoe	Simcoe	Norfolk	Distribution	3057	HIAWATHA ST.	CEDAR INTERSECTION	50	PVC	1990	7	Assume Service Connection
SIM000320		Simcoe	Simcoe	Norfolk	Distribution	2794	DUFFERIN ST.	CEDAR INTERSECTION	50	PVC	1990	7	Assume Service Connection
SIM000818		Simcoe	Simcoe	Norfolk	Distribution	3462	NORTH CRT.	DAVIS INTERSECTION	50	PVC	1985	3	Assume Service Connection
SIM000058		Simcoe	Simcoe	Norfolk	Distribution	2382	BASIL AVE	ARGYLE - HELEN	50	GIP	1960	101	Assume Service Connection
SIM000057		Simcoe	Simcoe	Norfolk	Distribution	2381	BASIL AVE	ARGYLE INTERSECTION	50	GIP	1960	10	Assume Service Connection
SIM001716		Simcoe	Simcoe	Norfolk	Distribution	2406	BELLEVUE AVE.	FOSTER ST INTERSECTION	50	GIP	1940	15	Assume Service Connection
SIM001186		Simcoe	Simcoe	Norfolk	Distribution	3921	SUMMIT CIRC.	LYNNDALE INTERSECTION	75	GIP	1985	7	Assume Service Connection
SIM001438		Simcoe	Simcoe	Norfolk	Distribution	2561	CEDAR ST WELL FIELD	WELL 4 RAW WATER LINE	100	CI		30	NO
SIM001444		Simcoe	Simcoe	Norfolk	Distribution	2555	CEDAR ST WELL FIELD	WELL 5 RAW WATER LINE	100	CI		49	NO
SIM001445		Simcoe	Simcoe	Norfolk	Distribution	2557	CEDAR ST WELL FIELD	WELL 3 RAW WATER LINE	100	CI		4	NO
SIM001446		Simcoe	Simcoe	Norfolk	Distribution	2556	CEDAR ST WELL FIELD	WELL 3 RAW WATER LINE	100	CI		7	NO
SIM001213		Simcoe	Simcoe	Norfolk	Distribution	3950	TALBOT ST.	ROBINSON INTERSECTION	100	CI	1940	16	NO
SIM001210		Simcoe	Simcoe	Norfolk	Distribution	3947	TALBOT ST.	YOUNG INTERSECTION	100	CI	1940	5	NO

SIM001211		Simcoe	Simcoe	Norfolk	Distribution	3948	TALBOT ST.	YOUNG-ROBINSON	100	CI	1940	112	NO
SIM001756		Simcoe	Simcoe	Norfolk	Distribution	3961	TALBOT ST.	STANLEY INTERSECTION	100	CI	1940	4	NO
SIM001760		Simcoe	Simcoe	Norfolk	Distribution	3965	TALBOT ST.	SOUTH INTERSECTION	100	CI	1940	10	NO
SIM000974		Simcoe	Simcoe	Norfolk	Distribution	3662	QUEEN ST.	WINDHAM - QUEENSWAY	100	CI	1940	136	NO
SIM000975		Simcoe	Simcoe	Norfolk	Distribution	3663	QUEEN ST.	QUEENSWAY INTERSECTION	100	CI	1940	4	NO
SIM001094		Simcoe	Simcoe	Norfolk	Distribution	3802	SCHELLBURG AVE.	QUEEN INTERSECTION	100	CI	1940	2	NO
SIM000829		Simcoe	Simcoe	Norfolk	Distribution	3475	NORTH MAIN ST.	COLBORNE - NORFOLK	100	CI	1940	90	NO
SIM001730		Simcoe	Simcoe	Norfolk	Distribution	3322	MASONS LANE	UNOPENED	100	DI	1988	3	NO
SIM000828		Simcoe	Simcoe	Norfolk	Distribution	3474	NORTH MAIN ST.	COLBORNE INTERSECTION	100	PVC	2003	34	NO
SIM001217		Simcoe	Simcoe	Norfolk	Distribution	3954	TALBOT ST.	COURT-CHAPEL	100	CI	1940	49	NO
SIM001214		Simcoe	Simcoe	Norfolk	Distribution	3951	TALBOT ST.	ROBINSON-LOT	100	CI	1940	57	NO
SIM001271		Simcoe	Simcoe	Norfolk	Distribution	4040	UNION ST.	KING - QUEEN	100	CI	1940	98	NO
SIM001757		Simcoe	Simcoe	Norfolk	Distribution	3962	TALBOT ST.	STANLEY-GROVE	100	CI	1940	160	NO
SIM001759		Simcoe	Simcoe	Norfolk	Distribution	3964	TALBOT ST.	GROVE-SOUTH	100	CI	1940	121	NO
SIM000695		Simcoe	Simcoe	Norfolk	Distribution	3305	MARSHALL LANE. (FORMERLY GEORGE ST)	ELGIN - END	100	CI	1940	4	NO
SIM001751		Simcoe	Simcoe	Norfolk	Distribution	3956	TALBOT ST.	COURT-CHAPEL	100	CI	1940	110	NO
SIM001754		Simcoe	Simcoe	Norfolk	Distribution	3959	TALBOT ST.	CHAPEL-STANLEY	100	CI	1940	105	NO
SIM001753		Simcoe	Simcoe	Norfolk	Distribution	3958	TALBOT ST.	CHAPEL INTERSECTION	100	CI	1940	10	NO
SIM001758		Simcoe	Simcoe	Norfolk	Distribution	3963	TALBOT ST.	GROVE INTERSECTION	100	CI	1940	13	NO
SIM001755		Simcoe	Simcoe	Norfolk	Distribution	3960	TALBOT ST.	STANLEY INTERSECTION	100	CI	1940	9	NO
SIM001752		Simcoe	Simcoe	Norfolk	Distribution	3957	TALBOT ST.	CHAPEL INTERSECTION	100	CI	1940	5	NO
SIM001218		Simcoe	Simcoe	Norfolk	Distribution	3955	TALBOT ST.	COURT INTERSECTION	100	CI	1940	1	NO
SIM001216		Simcoe	Simcoe	Norfolk	Distribution	3953	TALBOT ST.	WEST-COURT	100	CI	1940	30	NO
SIM001215		Simcoe	Simcoe	Norfolk	Distribution	3952	TALBOT ST.	LOT-WEST	100	CI	1940	1	NO
SIM001212		Simcoe	Simcoe	Norfolk	Distribution	3949	TALBOT ST.	ROBINSON INTERSECTION	100	CI	1940	4	NO
SIM001209		Simcoe	Simcoe	Norfolk	Distribution	3946	TALBOT ST.	YOUNG INTERSECTION	100	CI	1940	11	NO
											TOTAL LENGTH	1,296	
											Cost @ \$300/m	\$ 388,928	say \$400,000

GRAND TOTAL 389,468

B - Port Dover - Watermains to be Replaced - 100mm and less

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Length (m)	Pipe Diameter (mm)	Pipe Material	Year of Installation	GIS_Length (m)	Needed to Address Fire Flows
PTD000840	000840	Pt.Dover	Port Dover	Norfolk	Distribution	1098	CRESCENT PARK	KOVAC'S PROPERTY	104	25	Cu		104	Assume Service Connectin
PTD000671	000671	Pt.Dover	Port Dover	Norfolk	Distribution	1709	RYERSE CRES.	GLENDON INTERSECTION	29	50	PL	N/A	29	Assume Service Connectin
PTD000672	000672	Pt.Dover	Port Dover	Norfolk	Distribution	1710	RYERSE CRES.	GLENDON - END	144	50	PL	N/A	145	Assume Service Connectin
PTD000366	000366	Pt.Dover	Port Dover	Norfolk	Distribution	1354	HAZEL ST.	RYERSE - END	131	50	PL	N/A	131	Assume Service Connectin
PTD000152	000152	Pt.Dover	Port Dover	Norfolk	Distribution	1084	COUNTY HIGHWAY #6	1ST WEST - END	681	50	PL	pre 1950	681	Assume Service Connectin
PTD000202	000202	Pt.Dover	Port Dover	Norfolk	Distribution	1142	DOUGLAS ST.	GRAND - END	160	50	PL	pre 1950	205	Assume Service Connectin
PTD000405	000405	Pt.Dover	Port Dover	Norfolk	Distribution	1402	JOHN ST.	HGHWAY #6 - HAMILTON	83	100	CI	1989	18	YES
PTD000562	000562	Pt.Dover	Port Dover	Norfolk	Distribution	1583	NEW LAKE SHORE RD.	ONTARIO - WOODHOUSE AVE	280	100	AC	pre 1950	287	YES
PTD000825	000825	Pt.Dover	Port Dover	Norfolk	Distribution	1890	WILLOWDALE CRES.	LYNN PARK - WESTERLY	140	100	CI	1980	140	YES
PTD000827	000827	Pt.Dover	Port Dover	Norfolk	Distribution	1892	WILLOWDALE CRES.	LYNN PARK INTERSECTION	45	100	CI	1980	49	YES
PTD000828	000828	Pt.Dover	Port Dover	Norfolk	Distribution	1893	WILLOWDALE CRES.	LYNN PARK - JACKSON HEIGHTS	152	100	CI	1980	151	YES
PTD000606	000606	Pt.Dover	Port Dover	Norfolk	Distribution	1633	O'ROURKE AVE.	LYNN PARK - EAST	183	100	CI	1980	183	YES
PTD000349	000349	Pt.Dover	Port Dover	Norfolk	Distribution	1333	HAMPTON COURT	THOMPSON INTERSECTION	17	100	DI	1973	18	YES
PTD000350	000350	Pt.Dover	Port Dover	Norfolk	Distribution	1334	HAMPTON COURT	THOMPSON - END	53	100	DI	1973	50	YES
PTD000849	000849	Pt.Dover	Port Dover	Norfolk	Distribution	1212	EAST ST.		178	100	CI	1980	178	YES
PTD000392	000392	Pt.Dover	Port Dover	Norfolk	Distribution	1388	JACKSON HEIGHTS	1ST NORTH - WILLOWDALE	77	100	CI	1980	111	YES
PTD000391	000391	Pt.Dover	Port Dover	Norfolk	Distribution	1387	JACKSON HEIGHTS	O'ROURKE - 1ST NORTH	111	100	CI	1980	95	YES
PTD000453	000453	Pt.Dover	Port Dover	Norfolk	Distribution	1459	LYNN PARK RD.	WILLOWDALE INTERSECTION	29	100	CI	1980	25	YES
PTD000605	000605	Pt.Dover	Port Dover	Norfolk	Distribution	1632	O'ROURKE AVE.	LYNN PARK INTERSECTION	1	100	CI	1980	2	YES
PTD000452	000452	Pt.Dover	Port Dover	Norfolk	Distribution	1458	LYNN PARK RD.	HIGHWAY #6 - WILLOWDALE	299	100	CI	1980	297	YES
PTD000416	000416	Pt.Dover	Port Dover	Norfolk	Distribution	1417	KELLY DR.	LYNN PARK INTERSECTION	1	100	CI	1980	1	YES
PTD000415	000415	Pt.Dover	Port Dover	Norfolk	Distribution	1416	KELLY DR.	LYNN PARK - END	125	100	CI	1980	107	YES
PTD000851	000851	Pt.Dover	Port Dover	Norfolk	Distribution	1385	JAYLIN CR	EASEMENT	105	100	CI		106	YES
PTD000242	000242	Pt.Dover	Port Dover	Norfolk	Distribution	1185	EASEMENT	SCOTT - DONJON	123	100	CI	pre 1950	123	YES
PTD000244	000244	Pt.Dover	Port Dover	Norfolk	Distribution	1186	EASEMENT	SCOTT - DONJON	7	100	CI	pre 1950	7	YES
PTD000181	000181	Pt.Dover	Port Dover	Norfolk	Distribution	1120	DONJON BLVD.	HIGHWAY #6 - 1ST NORTH	292	100	CI	pre 1950	292	YES
PTD000418	000418	Pt.Dover	Port Dover	Norfolk	Distribution	1420	KIWANIS AVE.	NELSON BEND	155	100	CI	1959	155	YES
PTD000480	000480	Pt.Dover	Port Dover	Norfolk	Distribution	1492	MAPLE BLVD.	BEND - ELM	132	100	CI	1959	191	YES
PTD000666	000666	Pt.Dover	Port Dover	Norfolk	Distribution	1703	ROSELAWN COURT	DIXON INTERSECTION	17	100	DI	1975	15	YES
PTD000667	000667	Pt.Dover	Port Dover	Norfolk	Distribution	1704	ROSELAWN COURT	DIXON - END	28	100	DI	1975	28	YES
PTD000786	000786	Pt.Dover	Port Dover	Norfolk	Distribution	1843	SUNNING HILL DR.	RYERSE - LASALLE	366	100	CI	pre 1950	366	YES
PTD000787	000787	Pt.Dover	Port Dover	Norfolk	Distribution	1844	SUNNING HILL DR.	LASALLE - OAK KNOLL	236	100	CI	pre 1950	233	YES
PTD000788	000788	Pt.Dover	Port Dover	Norfolk	Distribution	1845	SUNNING HILL DR.	OAK KNOLL - INGLEWOOD	270	100	CI	pre 1950	271	YES
PTD000265	000265	Pt.Dover	Port Dover	Norfolk	Distribution	1224	EMILY ST.	INGLEWOOD - END	171	100	CI	pre 1950	167	YES
PTD000264	000264	Pt.Dover	Port Dover	Norfolk	Distribution	1223	EMILY ST.	INGLEWOOD INTERSECTION	6	100	CI	pre 1950	11	YES
PTD000255	000255	Pt.Dover	Port Dover	Norfolk	Distribution	0	EAST ST.	O'RURKE	8	100	CI	1980	8	YES
PTD000406	000406	Pt.Dover	Port Dover	Norfolk	Distribution	1403	JOHN ST.	HAMILTON - OAK RIDGE	143	100	CI	1989	144	YES
PTD000846	000846	Pt.Dover	Port Dover	Norfolk	Distribution	1860	WATER ST	MARKET ST W	97	100	CI		99	YES
PTD000629	000629	Pt.Dover	Port Dover	Norfolk	Distribution	1661	PROSPECT ST.	BIRCH - DOVER MILLS RD	662	100	CI	1980	585	YES
PTD000018	000018	Pt.Dover	Port Dover	Norfolk	Distribution	918	BIRCH AVE	PROSPECT INTERSECTION	6	100	DI	1980	6	YES
PTD000019	000019	Pt.Dover	Port Dover	Norfolk	Distribution	919	BIRCH AVE	PROSPECT - 1ST NORTHEAST	145	100	DI	1980	149	YES
PTD000720	000720	Pt.Dover	Port Dover	Norfolk	Distribution	1770	ST. ANNE ST.	SILVER LAKE DR - BLACK CREEK LN	226	100	CI	1980	203	YES
PTD000628	000628	Pt.Dover	Port Dover	Norfolk	Distribution	1660	PROSPECT ST.	SILVER LAKE DR - BIRCH	306	100	CI	1980	296	YES
PTD000669	000669	Pt.Dover	Port Dover	Norfolk	Distribution	1707	RYERSE CRES.	SILVER LAKE DR - 1ST EAST	254	100	CI	pre 1950	253	YES
PTD000785	000785	Pt.Dover	Port Dover	Norfolk	Distribution	1842	SUNNING HILL DR.	RYERSE INTERSECTION	2	100	CI	pre 1950	2	YES
PTD000454	000454	Pt.Dover	Port Dover	Norfolk	Distribution	1461	LYNN ST.	BRIDGE INTERSECTION	55	100	CI	N/A	56	YES
PTD000437	000437	Pt.Dover	Port Dover	Norfolk	Distribution	1441	LA SALLE	SUNNING HILL INTERSECTION	14	100	CI	pre 1950	14	YES
PTD000436	000436	Pt.Dover	Port Dover	Norfolk	Distribution	1440	LA SALLE	1ST SOUTH - SUNNING HILL	99	100	CI	pre 1950	98	YES
PTD000435	000435	Pt.Dover	Port Dover	Norfolk	Distribution	1439	LA SALLE	INGLEWOOD - 1ST SOUTH	243	100	CI	pre 1950	240	YES
PTD000790	000790	Pt.Dover	Port Dover	Norfolk	Distribution	1848	SWAN ST.	SILVER LAKE DR INTERSECTION	21	100	PL	N/A	21	YES
PTD000791	000791	Pt.Dover	Port Dover	Norfolk	Distribution	1849	SWAN ST.	SILVER LAKE DR - BOWERY	82	100	PL	N/A	247	YES
PTD000843	000843	Pt.Dover	Port Dover	Norfolk	Distribution	1083	COUNTY HIGHWAY #10		318	100	CI	N/A	318	YES
PTD000670	000670	Pt.Dover	Port Dover	Norfolk	Distribution	1708	RYERSE CRES.	1ST EAST - GLENDON	57	100	PL	N/A	52	YES
PTD000455	000455	Pt.Dover	Port Dover	Norfolk	Distribution	1462	LYNN ST.	BRIDGE - END	20	100	CI	N/A	20	YES
PTD000853	000853	Pt.Dover	Port Dover	Norfolk	Distribution	1208	EASEMENT	JAYLIN CRES	61	100	CI		62	YES
PTD000854	000854	Pt.Dover	Port Dover	Norfolk	Distribution	1209	EASEMENT	SUNNINGHILL DR.		100	CI Disconnected	N/A	169	YES

												TOTAL LENGTH	6,717	
												Cost @ \$300/m	\$ 2,015,232	say \$2,000,000
PTD000316	000316	Pt.Dover	Port Dover	Norfolk	Distribution	1296	GLENWOOD ST.	GRACE - CHAPMAN	140	100	CI	pre 1950	153	NO
PTD000678	000678	Pt.Dover	Port Dover	Norfolk	Distribution	1719	SCOTT DR.	HIGHWAY #6 - EASEMENT	260	100	CI	pre 1950	211	NO
PTD000561	000561	Pt.Dover	Port Dover	Norfolk	Distribution	1582	NEW LAKE SHORE RD.	ONTARIO - WOODHOUSE AVE	1	100	AC	pre 1950	0	NO
PTD000830	000830	Pt.Dover	Port Dover	Norfolk	Distribution	1894	WILLOWDALE CRES.	EAST INTERSECTION	3	100	CI	1980	3	NO
PTD000831	000831	Pt.Dover	Port Dover	Norfolk	Distribution	1896	WINSLOW COURT	THOMPSON INTERSECTION	3	100	DI	1975	3	NO
PTD000014	000014	Pt.Dover	Port Dover	Norfolk	Distribution	910	AVON COURT	THOMPSON INTERSECTION	18	100	DI	1973	16	NO
PTD000015	000015	Pt.Dover	Port Dover	Norfolk	Distribution	911	AVON COURT	THOMPSON - END	52	100	DI	1973	52	NO
PTD000834	000834	Pt.Dover	Port Dover	Norfolk	Distribution	1900	WOLFE COURT	CALVERT - END	29	100	DI	1975	23	NO
PTD000833	000833	Pt.Dover	Port Dover	Norfolk	Distribution	1899	WOLFE COURT	CALVERT INTERSECTION	17	100	DI	1975	16	NO
PTD000832	000832	Pt.Dover	Port Dover	Norfolk	Distribution	1897	WINSLOW COURT	THOMPSON - END	23	100	DI	1975	18	NO
PTD000483	000483	Pt.Dover	Port Dover	Norfolk	Distribution	1495	MARDON AVE.	HIGHWAY #6 - NEW LAKE SHORE	385	100	DI	1956	386	NO
PTD000241	000241	Pt.Dover	Port Dover	Norfolk	Distribution	1184	EASEMENT	SCOTT - DONJON	15	100	CI	pre 1950	5	NO
PTD000432	000432	Pt.Dover	Port Dover	Norfolk	Distribution	1435	LAKESIDE LANE	NELSON - NEAR END	90	100	CI	1959	101	NO
PTD000417	000417	Pt.Dover	Port Dover	Norfolk	Distribution	1419	KIWANIS AVE.	NELSON INTERSECTION	5	100	CI	1959	5	NO
PTD000256	000256	Pt.Dover	Port Dover	Norfolk	Distribution	1214	ELM AVE.	NELSON INTERSECTION	3	100	CI	1959	5	NO
PTD000500	000500	Pt.Dover	Port Dover	Norfolk	Distribution	1515	McNAB ST.	REGENT - END	188	100	CI	pre 1950	180	NO
PTD000315	000315	Pt.Dover	Port Dover	Norfolk	Distribution	1295	GLENWOOD ST.	GRACE INTERSECTION	6	100	CI	pre 1950	1	NO
PTD000630	000630	Pt.Dover	Port Dover	Norfolk	Distribution	1662	PROSPECT ST.	DOVER MILLS RD INTERSECTION	8	100	CI	1980	11	NO
PTD000719	000719	Pt.Dover	Port Dover	Norfolk	Distribution	1769	ST. ANNE ST. NORTH	SILVER LAKE DR INTERSECTION	18	100	CI	1980	9	NO
PTD000627	000627	Pt.Dover	Port Dover	Norfolk	Distribution	1659	PROSPECT ST.	SILVER LAKE DR INTERSECTION	1	100	CI	1980	12	NO
PTD000451	000451	Pt.Dover	Port Dover	Norfolk	Distribution	1457	LYNN PARK RD.	HIGHWAY #6 INTERSECTION	12	100	CI	1980	12	NO
PTD000668	000668	Pt.Dover	Port Dover	Norfolk	Distribution	1706	RYERSE CRES.	SILVER LAKE DR INTERSECTION	6	100	CI	pre 1950	6	NO
PTD000721	000721	Pt.Dover	Port Dover	Norfolk	Distribution	1771	ST. ANNE ST. SOUTH	BLACK CREEK LN INTERSECTION	5	100	CI	1980	4	NO
PTD000218	000218	Pt.Dover	Port Dover	Norfolk	Distribution	0	LAKESIDE LANE	NELSON INTERSECTION	5	100	CI	1959	5	NO

9,044

TOTAL LENGTH	1,239	
Cost @ \$300/m	\$ 371,836	say \$400,000
GRAND TOTAL	7,957	

C - Delhi - Watermains to be Replaced - 100mm and less

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Diameter (mm)	Pipe Material	Year of Installation	GIS_Length (m)	Needed to Address Fire Flows
DEL000231	00231	DELHI	Delhi	NORFOLK	Distribution	396	GLENDAL AVE.	CRESCENT AVE	100	CI	1978	50	YES
DEL000334	00334	DELHI	Delhi	NORFOLK	Distribution	522	KING ST.	TABLOT INTERSECTION	100	CI	pre 1950	22	YES
DEL000434	00434	DELHI	Delhi	NORFOLK	Distribution	641	PARK AVE.	ST.GEORGE-EAST	100	CI	pre 1950	103	YES
DEL000196	00196	DELHI	Delhi	NORFOLK	Distribution	349	EAST ST.	PINE - PARK	100	CI	pre 1950	88	YES
DEL000447	00447	DELHI	Delhi	NORFOLK	Distribution	656	QUANCE ST.	WESTERN - END	100	CI	1963	112	YES
DEL000592	00592	DELHI	Delhi	NORFOLK	Distribution	642	PARK AVE.	EAST-END	100	CI	pre 1950	100	YES
DEL000472	00472	DELHI	Delhi	NORFOLK	Distribution	689	ST. GEORGE LANE	PINE - PARK	100	CI	pre 1950	79	YES
DEL000399	00399	DELHI	Delhi	NORFOLK	Distribution	598	MILL ST.	CHURCH - KING	100	CI	pre 1950	5	YES
DEL000333	00333	DELHI	Delhi	NORFOLK	Distribution	521	KING ST.	MAIN - TALBOT	100	CI	pre 1950	235	YES
DEL000400	00400	DELHI	Delhi	NORFOLK	Distribution	599	MILL ST.	KING INTERSECTION	100	CI	pre 1950	110	YES
DEL000232	00232	DELHI	Delhi	NORFOLK	Distribution	397	GLENDAL AVE.	CRESCENT - HILLSIDE	100	CI	1978	168	YES
											TOTAL LENGTH	1,072	
										Cost @ \$300/m	\$	321,672	say \$300,000
CRT000036	WATERMAIN	COURTLAND	Delhi	NORFOLK	Distribution	40	JANE ST.	TALBOT - END	25	PVC	1975	60	Assume Service Connection
CRT000115	000115	COURTLAND	Delhi	NORFOLK	Distribution	0	STEAM ST.	TALBOT ST-1 STEAM ST.	25	N/A	1975	76	Assume Service Connection
DEL000710	000710	DELHI	Delhi	NORFOLK	Distribution	294	CROTON AVE.	2' SOUTH-57 CROTON AVE.	50	POLY	2015	168	Assume Service Connection
DEL000233	00233	DELHI	Delhi	NORFOLK	Distribution	398	GLENDAL AVE.	HILLSIDE - OLD MILL	100	CI	1978	17	NO
DEL000229	00229	DELHI	Delhi	NORFOLK	Distribution	395	GLENDAL AVE.	VANPARY'S INTERSECTION	100	CI	1978	0	NO
DEL000442	00442	DELHI	Delhi	NORFOLK	Distribution	497	JAMES ST.	CHURCH - BELL	100	CI	1981	99	NO
DEL000445	00445	DELHI	Delhi	NORFOLK	Distribution	498	JAMES ST.	BELL INTERSECTION	100	CI	1981	3	NO
DEL000448	00448	DELHI	Delhi	NORFOLK	Distribution	499	JAMES ST.	BELL INTERSECTION	100	CI	1981	13	NO
DEL000435	00435	DELHI	Delhi	NORFOLK	Distribution	496	JAMES ST.	CHURCH INTERSECTION	100	CI	1981	22	NO
DEL000420	00420	DELHI	Delhi	NORFOLK	Distribution	493	JAMES ST.	SOVEREEN-LANSDOWNE	100	CI	1981	272	NO
DEL000433	00433	DELHI	Delhi	NORFOLK	Distribution	495	JAMES ST.	LANSDOWNE - CHURCH	100	CI	1981	167	NO
DEL000395	00395	DELHI	Delhi	NORFOLK	Distribution	579	MAPLE AVE.	FIRST-IMPERIAL ST	100	CI	N/A	86	NO
DEL000389	00389	DELHI	Delhi	NORFOLK	Distribution	490	JAMES ST.	WAVERLY ST	100	CI	pre 1950	1	NO
DEL000411	00411	DELHI	Delhi	NORFOLK	Distribution	491	JAMES ST.	PRIVATE	100	CI	1981	64	NO
DEL000189	00189	DELHI	Delhi	NORFOLK	Distribution	345	EAST ST.	ANN ST INTERSECTION	100	CI	pre 1950	10	NO
DEL000191	00191	DELHI	Delhi	NORFOLK	Distribution	348	EAST ST.	SOVEREEN INTERSECTION	100	CI	pre 1950	10	NO
DEL000446	00446	DELHI	Delhi	NORFOLK	Distribution	655	QUANCE ST.	WESTERN INTERSECTION	100	CI	1963	9	NO
DEL000330	00330	DELHI	Delhi	NORFOLK	Distribution	517	KING ST.	QUEEN INTERSECTION	100	CI	pre 1950	18	NO
DEL000469	00469	DELHI	Delhi	NORFOLK	Distribution	685	ST. ANN ST.	CHURCH - END	100	CI	pre 1950	91	NO
DEL000425	00425	DELHI	Delhi	NORFOLK	Distribution	494	JAMES ST.	LANSDOWNE INTERSECTION	100	CI	1981	1	NO
DEL000120	00120	DELHI	Delhi	NORFOLK	Distribution	269	CONNAUGHT AVE.	CHURCHILL INTERSECTION	100	CI	1951	4	NO
DEL000468	00468	DELHI	Delhi	NORFOLK	Distribution	684	ST. ANN ST.	CHURCH INTERSECTION	100	CI	pre 1950	7	NO
DEL000332	00332	DELHI	Delhi	NORFOLK	Distribution	519	KING ST.	MAIN INTERSECTION	100	CI	pre 1950	9	NO
DEL000331	00331	DELHI	Delhi	NORFOLK	Distribution	518	KING ST.	QUEEN - MAIN	100	CI	pre 1950	156	NO
DEL000329	00329	DELHI	Delhi	NORFOLK	Distribution	516	KING ST.	JAMES - QUEEN	100	CI	pre 1950	155	NO
DEL000328	00328	DELHI	Delhi	NORFOLK	Distribution	515	KING ST.	JAMES INTERSECTION	100	CI	pre 1950	2	NO
DEL000386	00386	DELHI	Delhi	NORFOLK	Distribution	582	MAPLE AVE.	IMPERIAL - ANN	100	CI	pre 1950	76	NO
DEL000387	00387	DELHI	Delhi	NORFOLK	Distribution	583	MAPLE AVE.	ANN INTERSECTION	100	CI	pre 1950	17	NO
DEL000398	00398	DELHI	Delhi	NORFOLK	Distribution	584	MAPLE AVE.	ANN ST INTERSECTION	100	CI	pre 1950	4	NO
DEL000377	00377	DELHI	Delhi	NORFOLK	Distribution	566	MAIN ST. OF DELHI (SOUTH SIDE)	WESTERN-WELLINGTON	100	CI	N/A	85	NO
DEL000528	00528	DELHI	Delhi	NORFOLK	Distribution	759	WELLINGTON AVE.	MAIN INTERSECTION	100	CI	pre 1950	4	NO
DEL000378	00378	DELHI	Delhi	NORFOLK	Distribution	567	MAIN ST. OF DELHI (SOUTH SIDE)	WELLINGTON INTERSECTION	100	CI	PRE 1950	11	NO
DEL000379	00379	DELHI	Delhi	NORFOLK	Distribution	568	MAIN ST. OF DELHI (SOUTH SIDE)	WELLINGTON-EAGLE	100	CI	pre 1950	135	NO
DEL000170	00170	DELHI	Delhi	NORFOLK	Distribution	324	EAGLE ST.	MAIN INTERSECTION	100	CI	pre 1950	4	NO
DEL000380	00380	DELHI	Delhi	NORFOLK	Distribution	569	MAIN ST. OF DELHI (SOUTH SIDE)	EAGLE INTERSECTION	100	CI	pre 1950	14	NO
DEL000119	00119	DELHI	Delhi	NORFOLK	Distribution	268	CONNAUGHT AVE.	JOHNSON - CHURCHILL	100	CI	1951	99	NO
DEL000663	00663	DELHI	Delhi	NORFOLK	Distribution	686	ST. ANN ST.	CHURCH - END	100	CI	pre 1950	13	NO
DEL000388	00388	DELHI	Delhi	NORFOLK	Distribution	585	MAPLE AVE.	ANN - CRYSLER	100	CI	pre 1950	65	NO
DEL000409	00409	DELHI	Delhi	NORFOLK	Distribution	609	NORFOLK AVE.	1ST NORTH - EAGLE	100	CI	pre 1950	11	NO

DELO00175	00175	DELHI	Delhi	NORFOLK	Distribution	346	EAST ST.	ANN ST-ANN ST	100	CI	pre 1950	30	NO
DELO00190	00190	DELHI	Delhi	NORFOLK	Distribution	347	EAST ST.	ANN ST-SOVEREEN ST.	100	CI	pre 1950	85	NO
DELO00416	00416	DELHI	Delhi	NORFOLK	Distribution	492	JAMES ST.	SOVEREEN INTERSECTION	100	CI	1981	6	NO
DELO00473	00473	DELHI	Delhi	NORFOLK	Distribution	520	KING ST.	MAIN INTERSECTION	100	CI	pre 1950	16	NO
											TOTAL LENGTH	1,891	
											Cost @ \$300/m	\$ 567,378	say \$600,000
											GRAND TOTAL	2,963	

D - Courtland - Local Main Improvements

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Diameter (mm)	Pipe Material	Year of Installation	Estimate Length	Needed to Address Fire Flows
							<i>Proposed Mains to Close Loops</i>						
							North Street	West End extension to Hwy 59	150	PVC		170.0	Yes
							Hwy 59	Main St Courtland to 370 S of Talbot St.	150	PVC		1010.0	Yes
							St. Ladislau St	South end Loop to Hwy 59	150	PVC		220	Yes
											TOTAL LENGTH	1400	
										Cost @ \$300/m	\$	420,000	say \$400,000

E - Waterford - Watermains to be Replaced - 100mm and less

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Length (m)	Pipe Diameter (mm)	Pipe Material	Year of Installation	GIS_Length (m)	Needed to Address Fire Flows
WAT000144	000144	Waterford	Waterford	Norfolk	Distribution	4873	WEST CHURCH ST.		106	100	N/A	N/A	99	YES
WAT000428	000428	Waterford	Waterford	Norfolk	Distribution	4855	WELLINGTON ST.	NICHOL - ALICE	75	100	AC	N/A	73	YES
WAT000426	000426	Waterford	Waterford	Norfolk	Distribution	4853	WELLINGTON ST.	NICHOL INTERSECTON	11	100	AC	N/A	7	YES
WAT000425	000425	Waterford	Waterford	Norfolk	Distribution	4852	WELLINGTON ST.	WEST CHURCH - NICHOL	226	100	AC	1927	226	YES
WAT000423	000423	Waterford	Waterford	Norfolk	Distribution	4850	WELLINGTON ST.	GREEN - WEST CHURCH	326	100	AC	1927	231	YES
WAT000421	000421	Waterford	Waterford	Norfolk	Distribution	4848	WELLINGTON ST.	BROWN - GREEN	164	100	AC	1947	161	YES
WAT000204	000204	Waterford	Waterford	Norfolk	Distribution	4772	TEMPERANCE ST. EAST			100	CI	N/A	107	YES
WAT000201	000201	Waterford	Waterford	Norfolk	Distribution	4769	TEMPERANCE ST. EAST	MAIN - 1ST EAST	235	100	CI	N/A	114	YES
WAT000200	000200	Waterford	Waterford	Norfolk	Distribution	4768	TEMPERANCE ST. EAST	MAIN INTERSECTION	13	100	CI	N/A	14	YES
WAT000199	000199	Waterford	Waterford	Norfolk	Distribution	4766	TEMPERANCE ST. WEST	AUTY ST - MAIN ST	7	100	CI	N/A	8	YES
WAT000207	000207	Waterford	Waterford	Norfolk	Distribution	4775	TEMPERANCE ST. EAST			100	CI	N/A	57	YES
WAT000196	000196	Waterford	Waterford	Norfolk	Distribution	4762	TEMPERANCE ST. WEST	LEAMON ST - AUTY STREET	79	100	AC	1964	82	YES
WAT000195	000195	Waterford	Waterford	Norfolk	Distribution	4761	TEMPERANCE ST. WEST	LEAMON ST - AUTY STREET		100	AC	1964	10	YES
WAT000193	000193	Waterford	Waterford	Norfolk	Distribution	4759	TEMPERANCE ST. WEST	ST. JAMES - LEAMON	113	100	AC	1964	104	YES
WAT000323	000323	Waterford	Waterford	Norfolk	Distribution	4360	COLLEGE ST. WEST	COTTAGE - MAIN	159	100	CI	1929	156	YES
WAT000118	000118	Waterford	Waterford	Norfolk	Distribution	4631	NURSERY ST.	TEMPERANCE INTERSECTION	3	100	CI	N/A	5	YES
WAT000181	000181	Waterford	Waterford	Norfolk	Distribution	4739	SYLVIA ST.	NURSERY - END	123	100	CI	1955	120	YES
WAT000180	000180	Waterford	Waterford	Norfolk	Distribution	4738	SYLVIA ST.			100	CI	1955	5	YES
WAT000177	000177	Waterford	Waterford	Norfolk	Distribution	4735	SYLVIA ST.		95	100	CI	1955	95	YES
WAT000169	000169	Waterford	Waterford	Norfolk	Distribution	4616	NICHOL ST.		190	100	CI	1951	108	YES
WAT000443	000443	Waterford	Waterford	Norfolk	Distribution	4514	LEAMON ST.		4	100	AC	1964	6	YES
WAT000444	000444	Waterford	Waterford	Norfolk	Distribution	4513	LEAMON ST.	NICHOL INTERSECTON	84	100	AC	1964	81	YES
WAT000445	000445	Waterford	Waterford	Norfolk	Distribution	4512	LEAMON ST.	TEMPERANCE - NICHOL	9	100	AC	1964	9	YES
WAT000447	000447	Waterford	Waterford	Norfolk	Distribution	4510	LEAMON ST.	TEMPERANCE INTERSECTION	134	100	AC	1964	134	YES
WAT000449	000449	Waterford	Waterford	Norfolk	Distribution	4508	LEAMON ST.	CHURCH INTERSECTION	17	100	AC	1964	13	YES
WAT000450	000450	Waterford	Waterford	Norfolk	Distribution	4507	LEAMON ST.	GREEN-CHURCH	239	100	AC	1964	227	YES
WAT000459	000459	Waterford	Waterford	Norfolk	Distribution	4461	GREEN ST	ST. JAMES - LEAMON	112	100	N/A	N/A	108	YES
WAT000128	000128	Waterford	Waterford	Norfolk	Distribution	4443	EAST CHURCH ST.	1ST EAST - DUNCOMBE	56	100	N/A	N/A	50	YES
WAT000129	000129	Waterford	Waterford	Norfolk	Distribution	4442	EAST CHURCH ST.	EASEMENT - 1ST EAST	152	100	N/A	N/A	101	YES
WAT000135	000135	Waterford	Waterford	Norfolk	Distribution	4436	EAST CHURCH ST.	MAIN - ALBERT	104	100	N/A	N/A	82	YES
WAT000136	000136	Waterford	Waterford	Norfolk	Distribution	4435	EAST CHURCH ST.	MAIN INTERSECTION	16	100	N/A	N/A	14	YES
WAT000141	000141	Waterford	Waterford	Norfolk	Distribution	4876	WEST CHURCH ST.	ST. JAMES - AUTY ST	206	100	N/A	N/A	108	YES
WAT000316	000316	Waterford	Waterford	Norfolk	Distribution	4344	BRUCE ST.	COLLEGE - 1ST NORTH	86	100	CI	1951	132	YES
WAT000317	000317	Waterford	Waterford	Norfolk	Distribution	4345	BRUCE ST.	1ST NORTH - RUSSELL	139	100	CI	1951	89	YES
WAT000117	000117	Waterford	Waterford	Norfolk	Distribution	4632	NURSERY ST.	TEMPERANCE - SYLVIA	72	100	CI	N/A	75	YES
WAT000324	000324	Waterford	Waterford	Norfolk	Distribution	4361	COLLEGE ST. WEST	MAIN INTERSECTION	19	100	CI	1929	17	YES
WAT000203	000203	Waterford	Waterford	Norfolk	Distribution	4771	TEMPERANCE ST. EAST	1ST EAST - DUNCOMBE	117	100	CI	N/A	109	YES
WAT000140	000140	Waterford	Waterford	Norfolk	Distribution	4877	WEST CHURCH ST.			100	N/A	N/A	93	YES
WAT000448	000448	Waterford	Waterford	Norfolk	Distribution	4509	LEAMON ST.	CHURCH - TEMPERANCE	6	100	AC	1964	6	YES
WAT000145	000145	Waterford	Waterford	Norfolk	Distribution	4872	WEST CHURCH ST.	WASHINGTON - ST. JAMES	91	100	N/A	N/A	91	YES
WAT000424	000424	Waterford	Waterford	Norfolk	Distribution	4851	WELLINGTON ST.			100	AC	1927	3	YES
WAT000170	000170	Waterford	Waterford	Norfolk	Distribution	4617	NICHOL ST.	AUTY ST INTERSECTION		100	CI	1951	93	YES
WAT000178	000178	Waterford	Waterford	Norfolk	Distribution	4736	SYLVIA ST.			100	CI	1955	4	YES
WAT000179	000179	Waterford	Waterford	Norfolk	Distribution	4737	SYLVIA ST.			100	CI	1955	5	YES
WAT000194	000194	Waterford	Waterford	Norfolk	Distribution	4760	TEMPERANCE ST. WEST	LEAMON INTERSECTION	17	100	AC	1964	5	YES
WAT000446	000446	Waterford	Waterford	Norfolk	Distribution	4511	LEAMON ST.	TEMPERANCE INTERSECTION	9	100	AC	1964	2	YES
WAT000202	000202	Waterford	Waterford	Norfolk	Distribution	4770	TEMPERANCE ST. EAST			100	CI	N/A	54	YES
WAT000205	000205	Waterford	Waterford	Norfolk	Distribution	4773	TEMPERANCE ST. EAST	DUNCOMBE - END		100	CI	N/A	41	YES
WAT000206	000206	Waterford	Waterford	Norfolk	Distribution	4774	TEMPERANCE ST. EAST		53	100	N/A	1967	2	YES
WAT000422	000422	Waterford	Waterford	Norfolk	Distribution	4849	WELLINGTON ST.			100	AC	1947	4	YES

WAT000427	000427	Waterford	Waterford	Norfolk	Distribution	4854	WELLINGTON ST.	NICHOL INTERSECTION	4	100	AC	N/A	4	YES
							Proposed Mains to Close Loops							
							Woodley/Main	Loop at North End of System					385	YES
												TOTAL LENGTH	3,929	
												Cost @ \$300/m	\$ 1,178,678	say \$1,200,000
WAT000458	000458	Waterford	Waterford	Norfolk	Distribution	4463	GREEN ST	MAIN ST.	20	50	PVC	1995	17	Assume Service Connectin
WAT000373	000373	Waterford	Waterford	Norfolk	Distribution	4688	SOVEREIGN ST. WEST		10	100	CI	1927	3	
WAT000319	000319	Waterford	Waterford	Norfolk	Distribution	4364	COLLEGE ST. EAST		84	100	CI	1926	78	
WAT000315	000315	Waterford	Waterford	Norfolk	Distribution	4343	BRUCE ST.	COLLEGE INTERSECTION	2	100	CI	1951	4	
WAT000255	000255	Waterford	Waterford	Norfolk	Distribution	4314	AUTY ST.	ALICE - EASEMENT	14	100	AC	N/A	16	
WAT000176	000176	Waterford	Waterford	Norfolk	Distribution	4734	SYLVIA ST.	NURSERY INTERSECTION	18	100	CI	1955	10	
WAT000174	000174	Waterford	Waterford	Norfolk	Distribution	4732	SYLVIA ST.	MAIN INTERSECTION	10	100	CI	1955	11	
WAT000420	000420	Waterford	Waterford	Norfolk	Distribution	4847	WELLINGTON ST.	BROWN INTERSECTION	3	100	AC	1947	4	
WAT000461	000461	Waterford	Waterford	Norfolk	Distribution	4459	GREEN ST	ST. JAMES INTERSECTION	27	100	N/A	N/A	11	
WAT000381	000381	Waterford	Waterford	Norfolk	Distribution	4687	SOVEREIGN ST. WEST		1	100	CI	1927	1	
WAT000374	000374	Waterford	Waterford	Norfolk	Distribution	4689	SOVEREIGN ST. WEST		148	100	CI	1927	148	
												TOTAL LENGTH	285	
												Cost @ \$300/m	\$ 85,598	say \$100,000
												GRAND TOTAL	4,214	

F - Port Rowan - Watermains to be Replaced - 100mm and less

GIS_ID	PIPE_ID	TOWN	SYSTEM	OWNER	MAIN_TYPE	OBJECTID	STREET	LOCATION	Pipe Length (m)	Pipe Diameter (mm)	Pipe Material	Year of Installation	GIS_Length (m)	Needed to Address Fire Flows
PTR000336	000336	St.Williams	Port Rowan	Norfolk	Distribution	2232	TOWNLINE ST.	SOUTH OF FRONT RD. S INT (STW)	11	38	POLY	2008	10	Assume Service Connection
PTR000337	000337	St.Williams	Port Rowan	Norfolk	Distribution	2233	TOWNLINE ST.	SOUTH OF FRONT RD. S INT (STW)	1	50	PVC	2008	5	Assume Service Connection
PTR000208	000208	Pt.Rowan	Port Rowan	Norfolk	Distribution	2032	EASEMENT (EAST OF BAY)	WOLVEN - SOUTH OF WOLVEN	90	100	N/A	N/A	58	YES
PTR000210	000210	Pt.Rowan	Port Rowan	Norfolk	Distribution	2034	EASEMENT (EAST OF BAY)	WOLVEN - NORTH OF WOLVEN	25	100	N/A	N/A	25	YES
PTR000155	000155	Pt.Rowan	Port Rowan	Norfolk	Distribution	1987	CENTRE ST.	ERIE - GRAVE	96	100	N/A	N/A	102	YES
							<i>Proposed Mains to Close Loops</i>							
PTR000155	000155	Pt.Rowan					Additional Loops	North End of System	600		N/A	N/A	600	YES
												TOTAL LENGTH	785	
											Cost @ \$300/m	\$	235,571	Say \$250,000

Appendix E

Capital and Maintenance Budget Planning for WWTFs

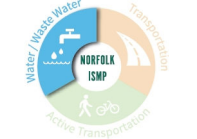
Wastewater Treatment Facility	Planned Upgrades			Recommended Upgrades			Maintenance Upgrades		
	Description	Year	Cost	Description	Year	Cost	Description	Frequency/Year/Period	Cost
SIMCOE	None	-	-	Aerobic Digesters, biosolids thickening and storage	2017	\$ 7.3 M	Equipment replacement and maintenance	As required during projected period	\$ 0.5 M
				New administration building	2018	\$ 2.0 M	Inspection for building and safety code compliance	2020, 2030 and 2040	\$ 0.03
				New Wet Well Building	2018	\$ 1.3 M			
				Filter building	2021	\$ 2.0 M			
		Total		\$ 0.0 M			\$ 12.6 M		
PORT DOVER	WWTF Expansion and Upgrade	2017	\$ 8.5 M	Addition of one aeration tank in the ongoing upgrades and expansion	2017	\$ 0.5 M	Equipment replacement and maintenance	As required during projected period	\$ 0.30 M
							Inspection for building and safety code compliance	2016, 2026 and 2036	\$ 0.03 M
		Total		\$ 8.5 M			\$ 0.5 M		\$ 0.33 M
DELHI	UV Disinfection Facility	2017	\$ 1.5 M	None	-	-	Equipment replacement and maintenance	As required during projected period	\$ 0.3 M
	Tertiary Filtration Facility	2017	\$ 3.0 M				Inspection for building and safety code compliance	2026 and 2036	\$ 0.02 M
		Total		\$ 4.5 M			\$ 0.0 M		\$ 0.32 M
PORT ROWAN	None	-	-	None	-	-	Full replacement of membrane modules	2023 to 2027	\$ 0.50 M
							Replacement of biofilter media in odour control facilities (5 times)	2015 – 2041	\$ 0.25 M
							Aeration tank membrane diffusers (6 times)	2015 – 2041	\$ 0.60 M
							Contingency	2015 – 2041	\$ 0.20 M
		Total		\$ 0.0 M			\$ 0.0 M		\$ 1.55 M
WATERFORD	WWTF Expansion and Upgrade	2017	\$ 6.0 M	None	-	-	Sewage pumps, Mechanical Aerators, Replacement of the new attached growth bioreactor media	As required during projected period	\$ 0.4 M
		Total		\$ 6.0 M					\$ 3.13 M

Appendix F

Wastewater Figures

Norfolk Integrated Sustainable Master Plan

April 2016



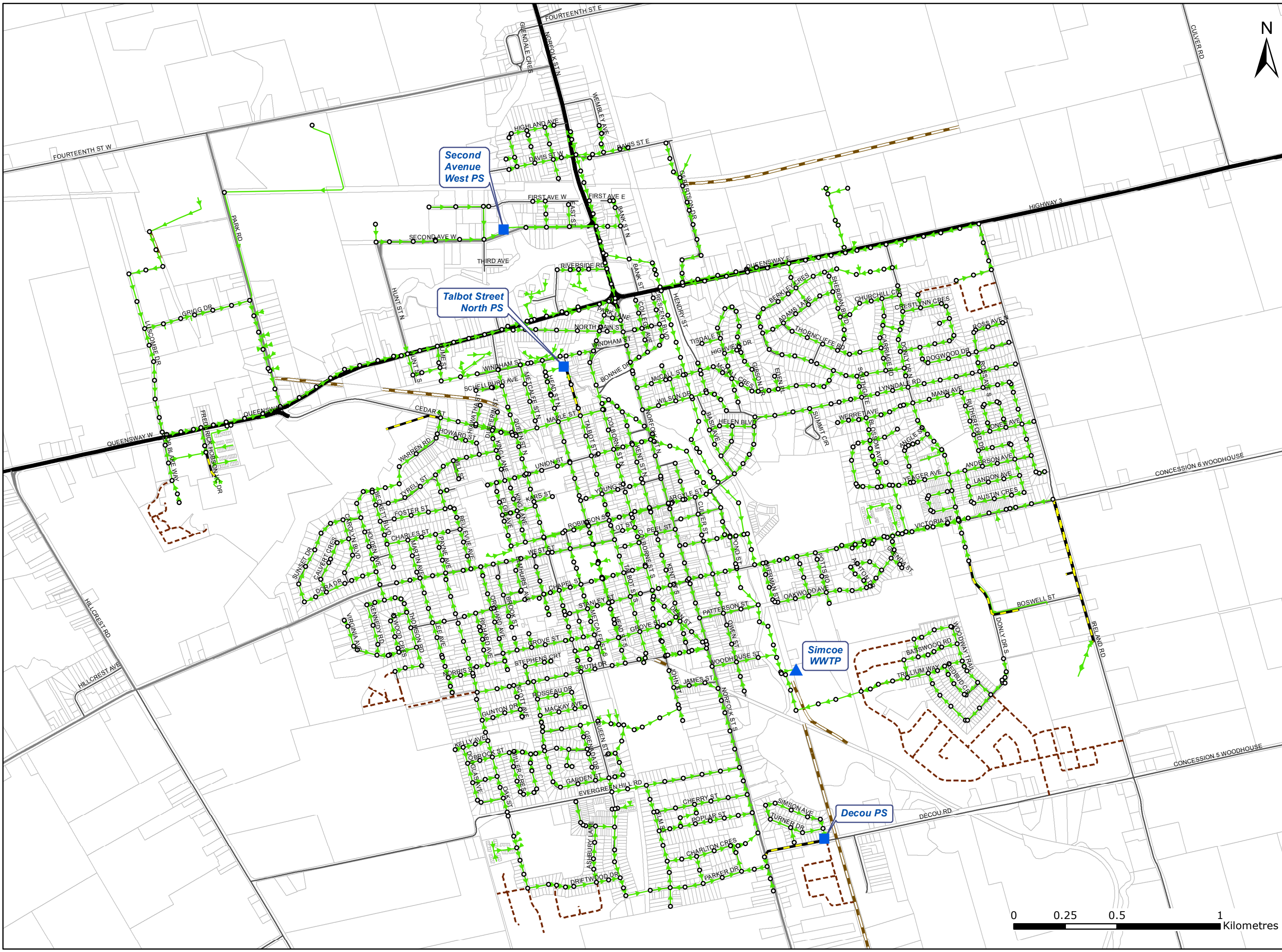
Map

4.45

Simcoe Sanitary Sewer System

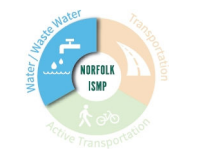
Legend

- Sanitary Manholes
- Sanitary Sewers
- Forcemains
- Provincial Highway
- County Road
- Local Road
- Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- Simcoe WWTP
- Pumping Stations



Norfolk Integrated Sustainable Master Plan

April 2016



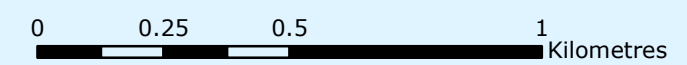
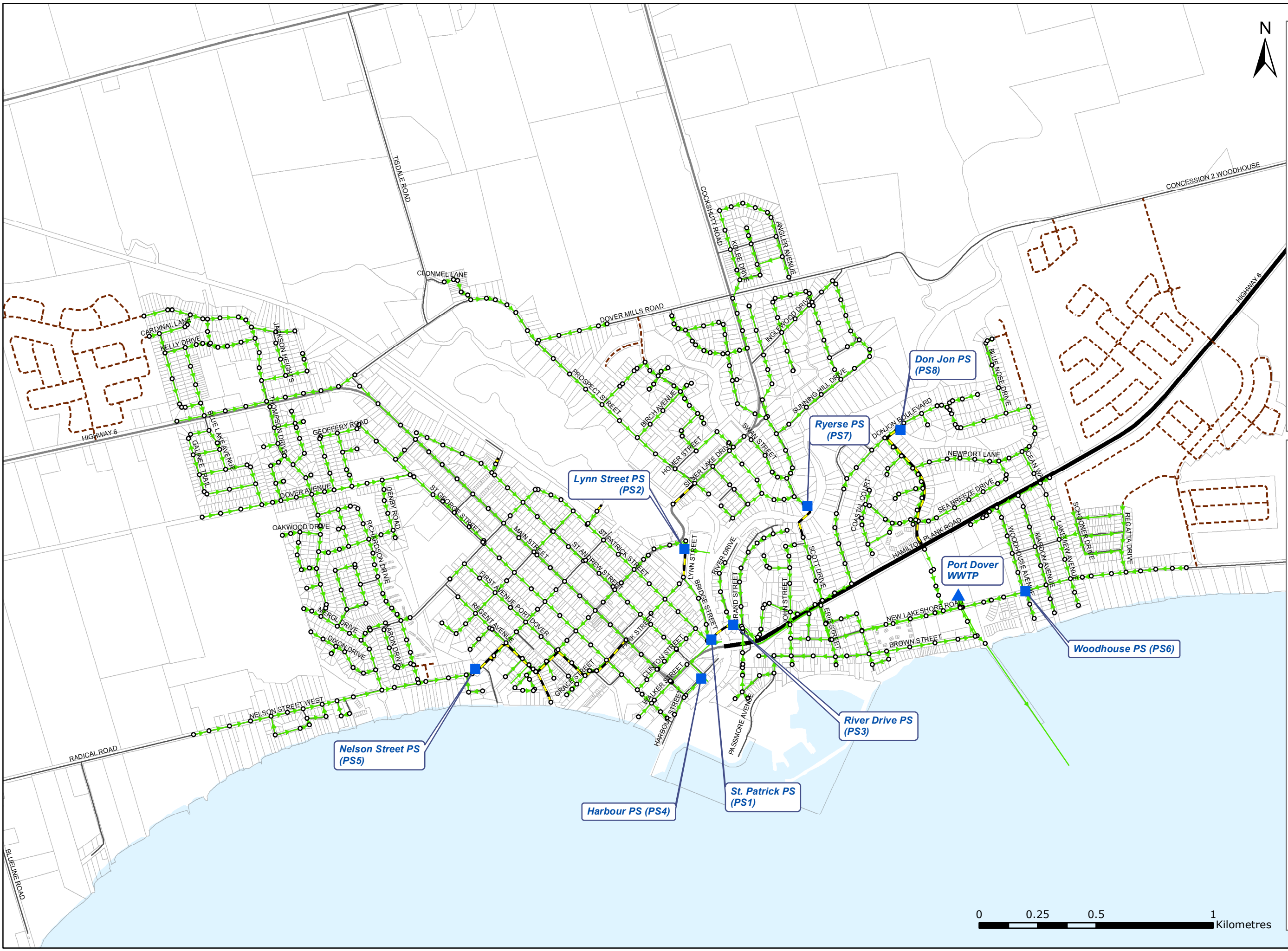
Map

4.47

Port Dover Sanitary Sewer System

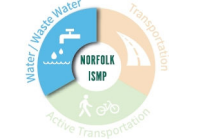
Legend

- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- - - Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Port Dover WWTP
- Pumping Stations



Norfolk Integrated Sustainable Master Plan

April 2016



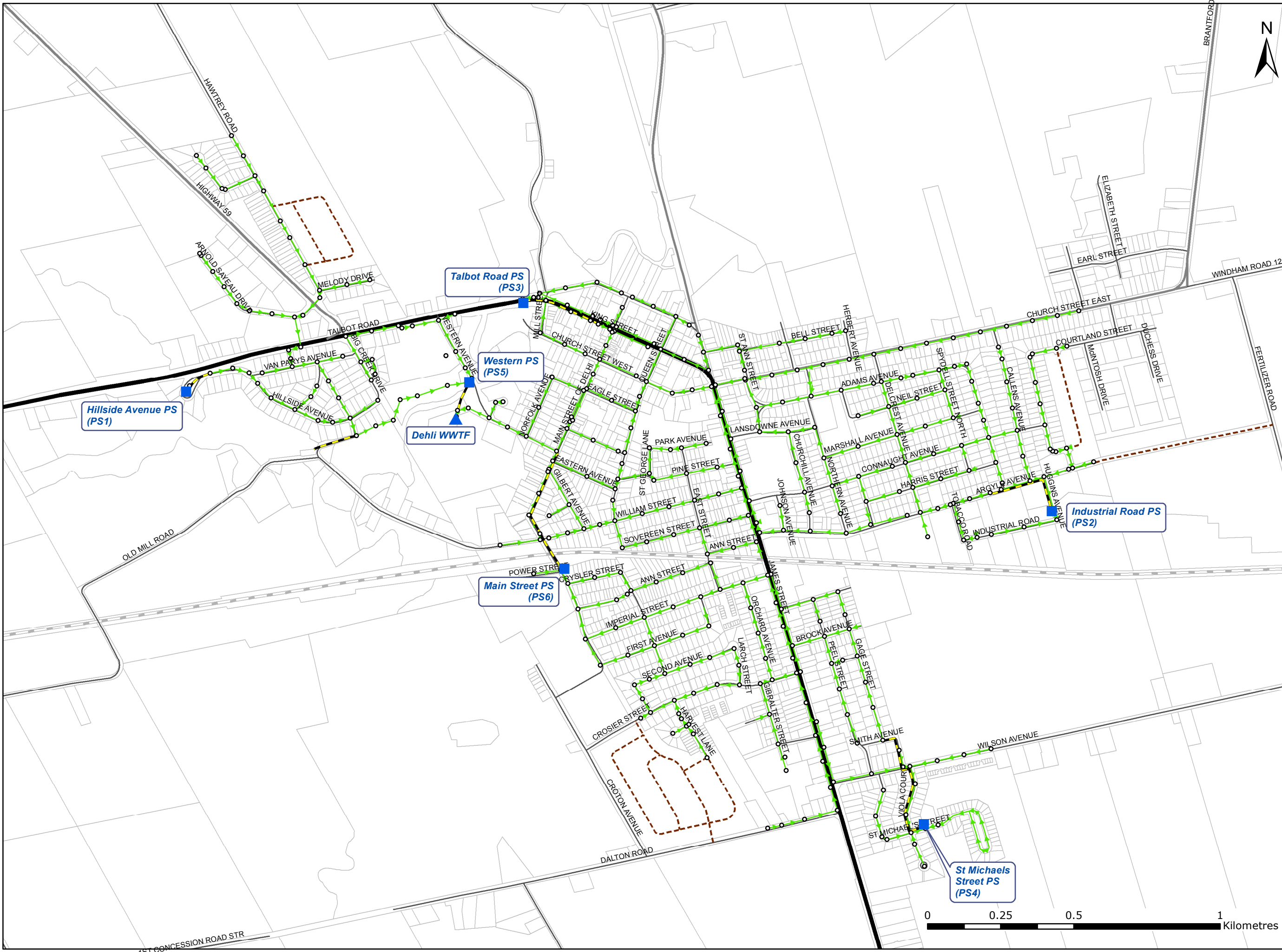
Map

4.49

Delhi Sanitary Sewer System

Legend

- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- Delhi WWTF
- Pumping Stations



1ST CONCESSION ROAD STR

Norfolk Integrated Sustainable Master Plan

April 2016



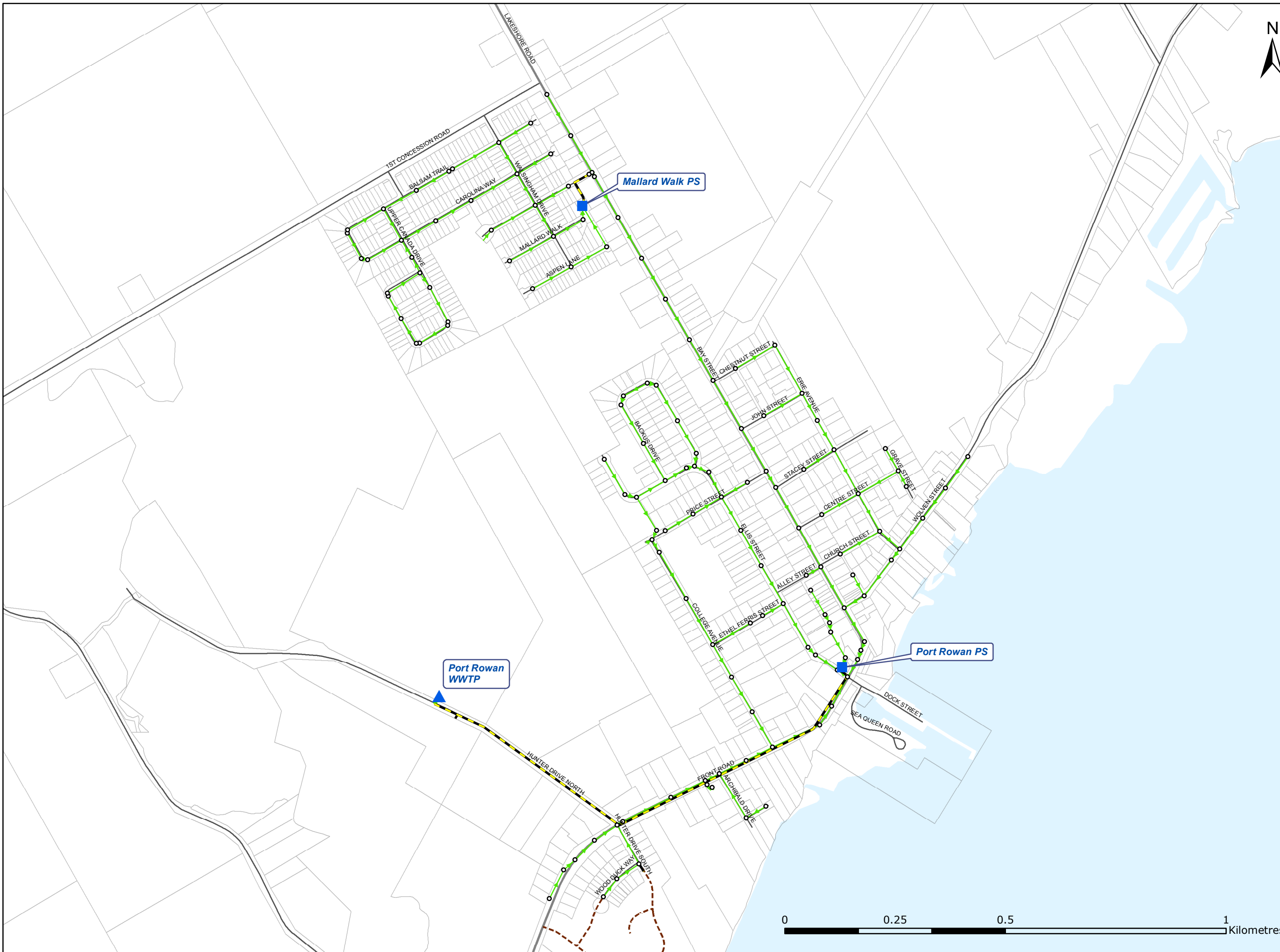
Map

4.51

Port Rowan Sanitary Sewer System

Legend

- Sanitary Manholes
- Sanitary Sewers
- ▬ Force mains
- ▬ Provincial Highway
- ▬ County Road
- ▬ Local Road
- ▬ Future Road
- ▬ Abandoned Railway
- ▬ Active Railway
- ▭ Parcel Property
- ▭ Watercourse
- ▲ Port Rowan WWTP
- Pumping Stations



Norfolk Integrated Sustainable Master Plan

April 2016



Map

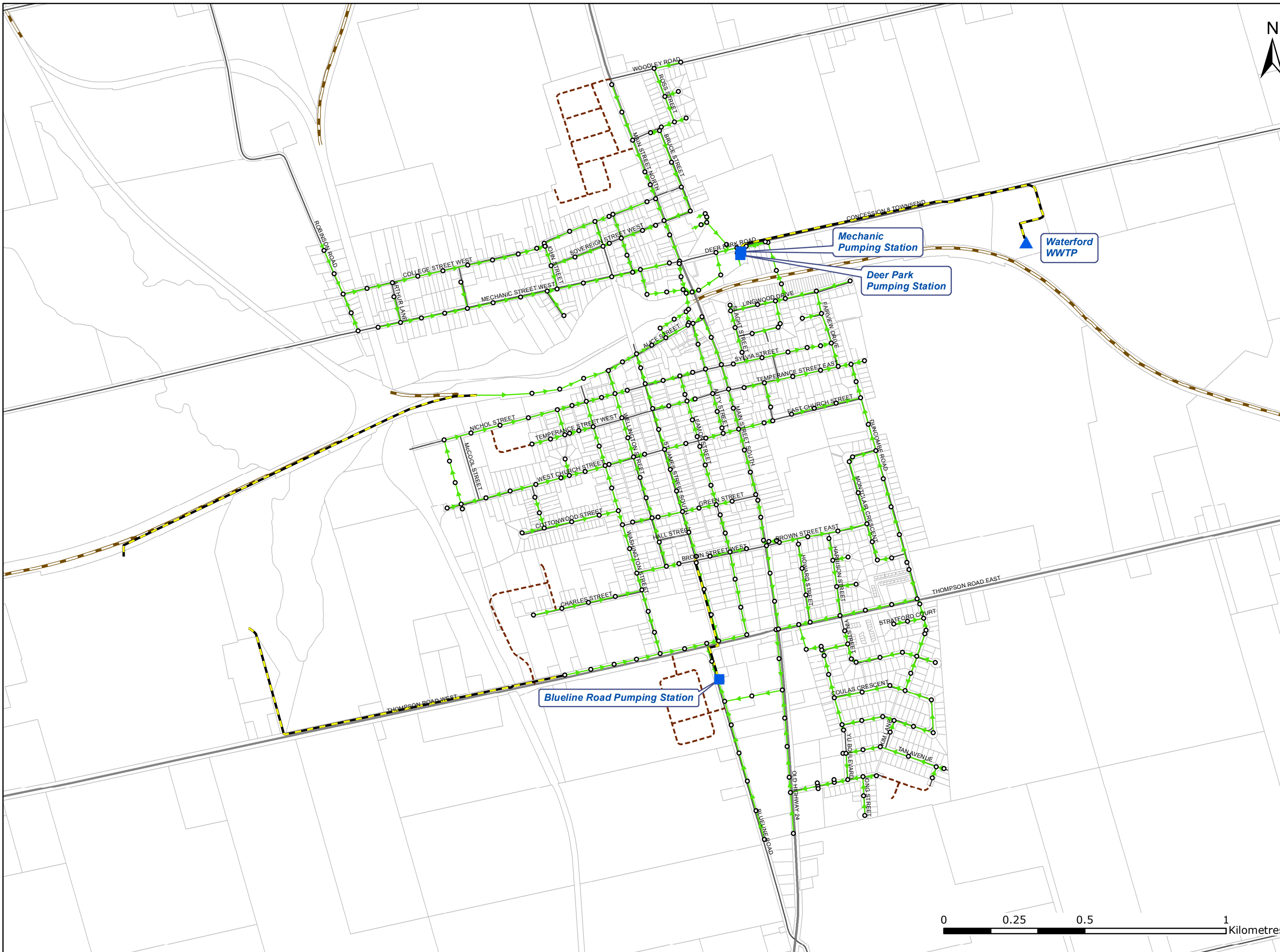
4.53

Waterford Sanitary Sewer System

Legend

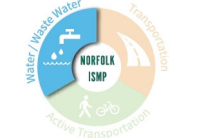
- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- - - Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Waterford WWTP
- Pumping Stations

0 0.25 0.5 1 Kilometres



Norfolk Integrated Sustainable Master Plan

April 2016



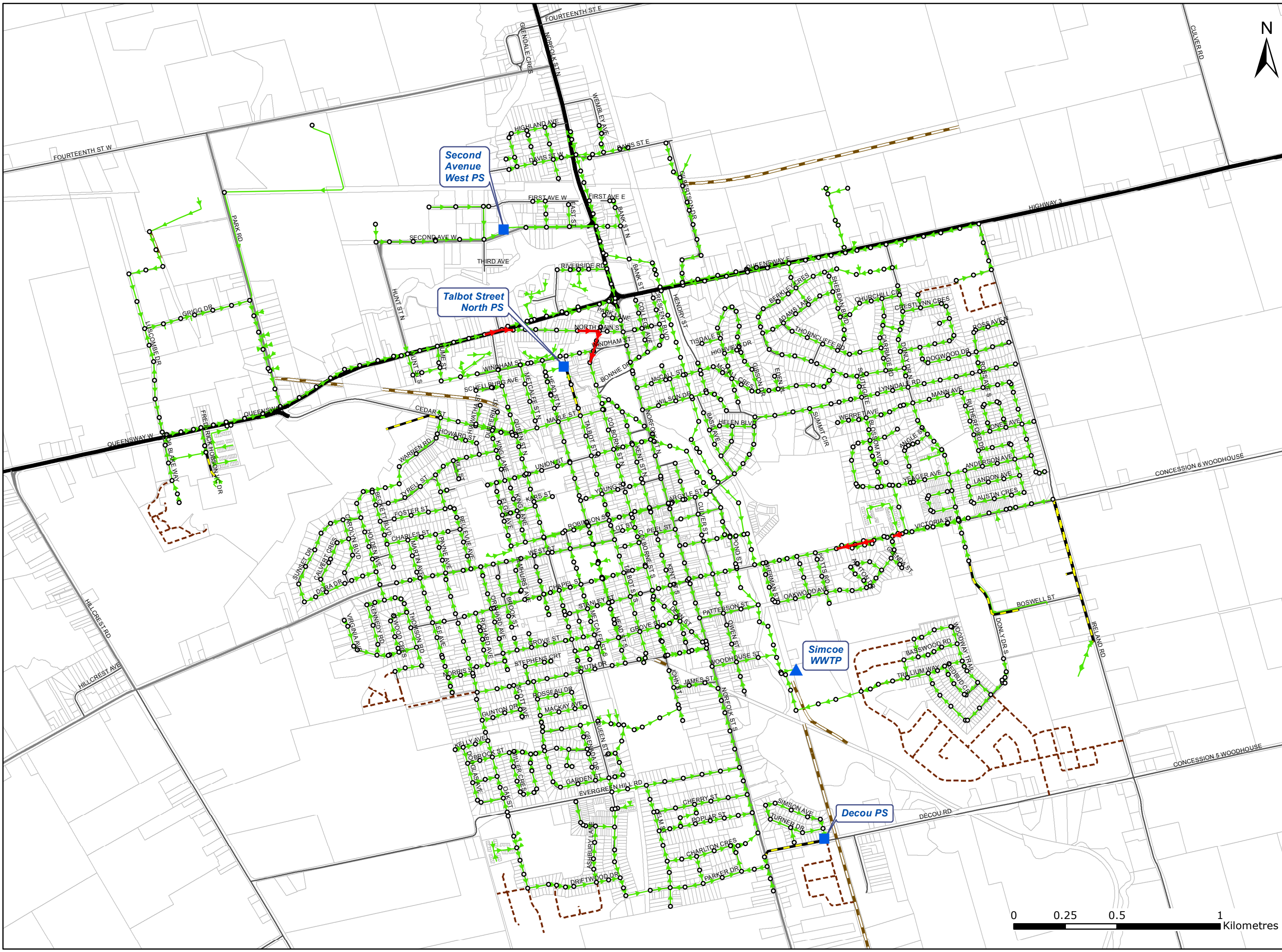
Map

4.55

Simcoe Sanitary Sewer System Existing Capacity Constraints

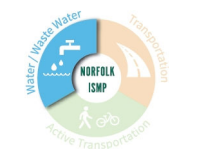
Legend

- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- - - Future Road
- - - Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Simcoe WWTP
- Pumping Stations
- Existing Capacity Restraints



Norfolk Integrated Sustainable Master Plan

April 2016



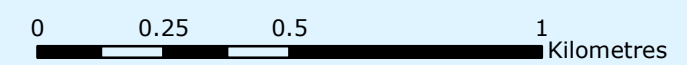
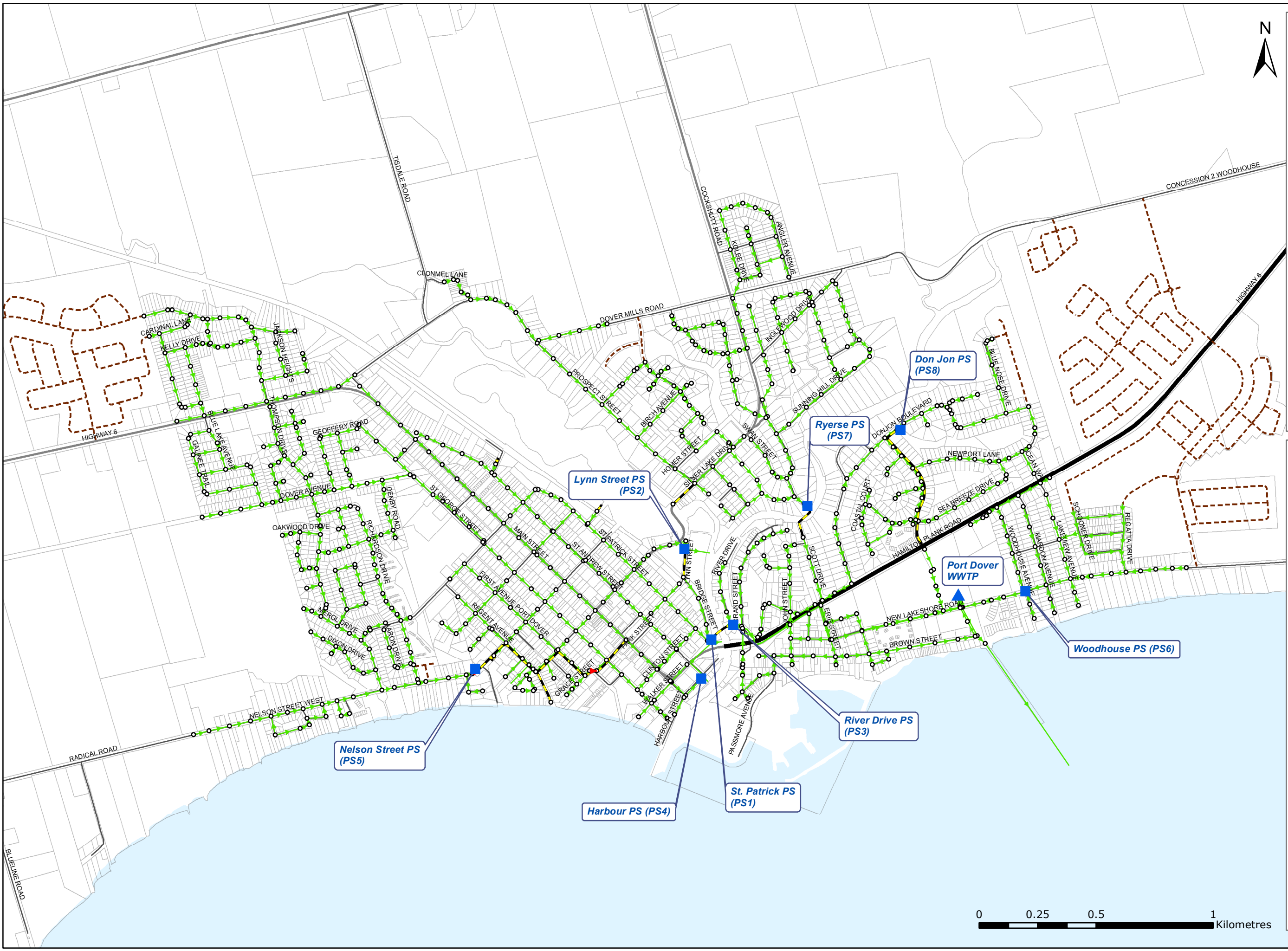
Map

4.57

Port Dover Sanitary Sewer System Existing Capacity Constraints

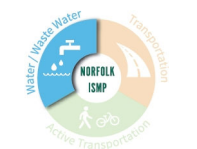
Legend

- Sanitary Manholes
- Sanitary Sewers
- Forcemains
- Provincial Highway
- County Road
- Local Road
- - - Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Port Dover WWTP
- Pumping Stations
- Existing Capacity Restraints



Norfolk Integrated Sustainable Master Plan

April 2016



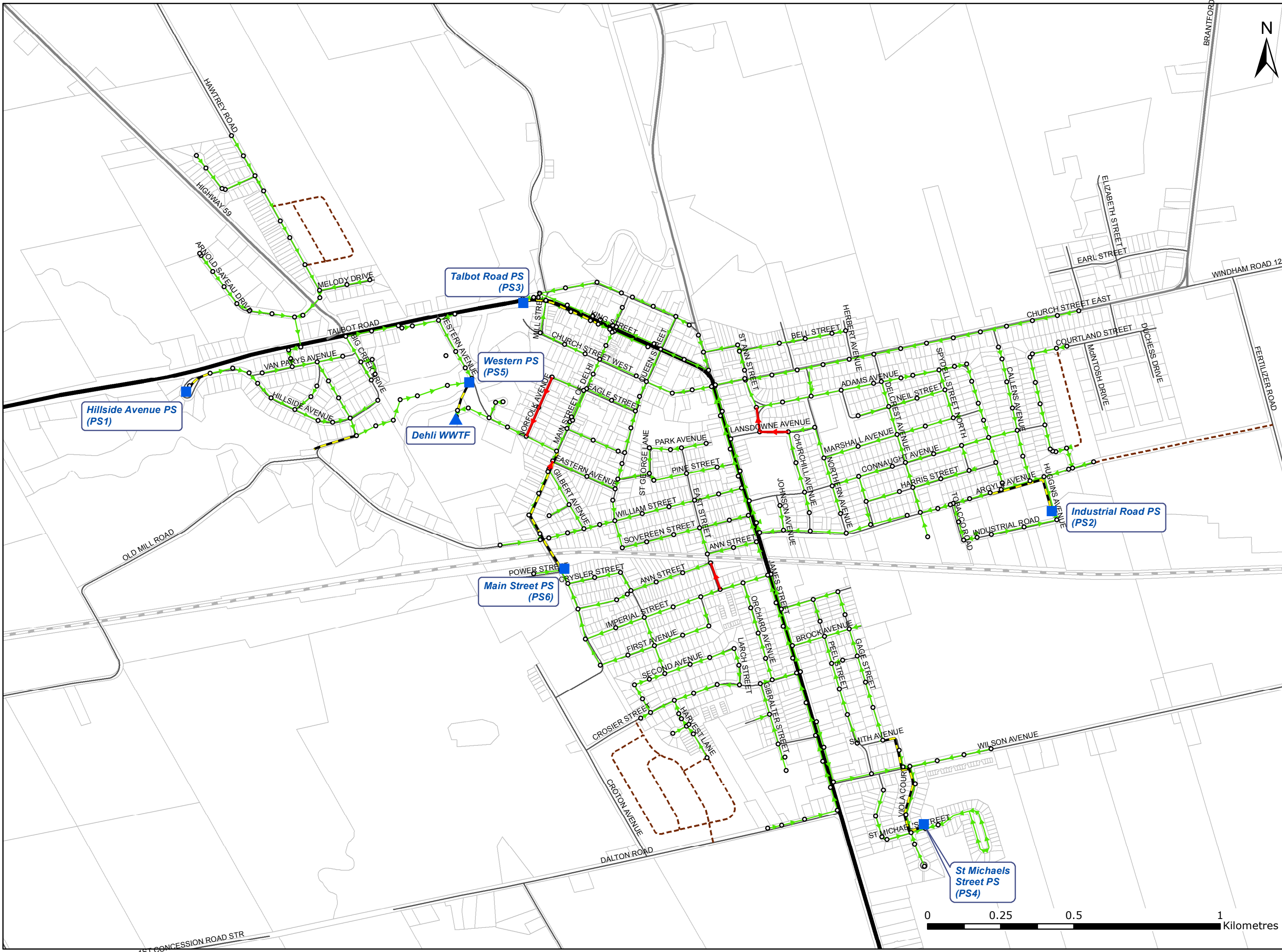
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4.59

Delhi Sanitary Sewer System Existing Capacity Constraints

Legend

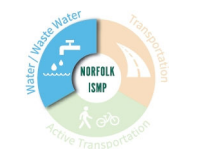
- Sanitary Manholes
- Sanitary Sewers
- ▬ Force mains
- ▬ Provincial Highway
- ▬ County Road
- ▬ Local Road
- ▬ Future Road
- ▬ Abandoned Railway
- ▬ Active Railway
- ▭ Parcel Property
- ▭ Watercourse
- ▲ Delhi WWTF
- Pumping Stations
- Existing Capacity Restraints



1ST CONCESSION ROAD STR

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April 2016



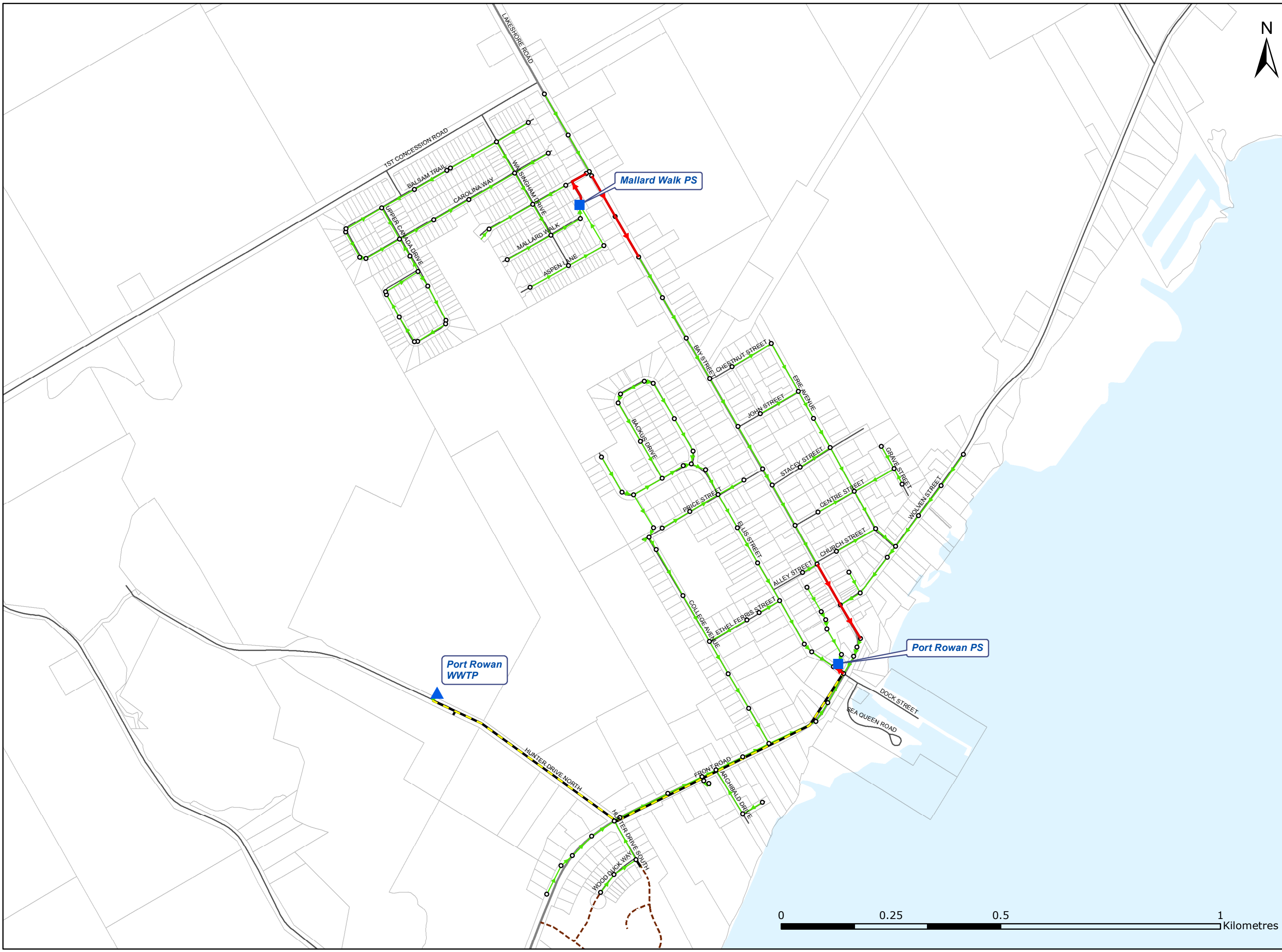
Map

4.62

Port Rowan Sanitary Sewer System Existing Capacity Constraints

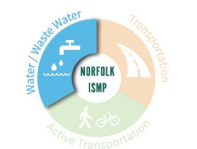
Legend

- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Port Rowan WWTP
- Pumping Stations
- Existing Capacity Restraints



Norfolk Integrated Sustainable Master Plan

April 2016



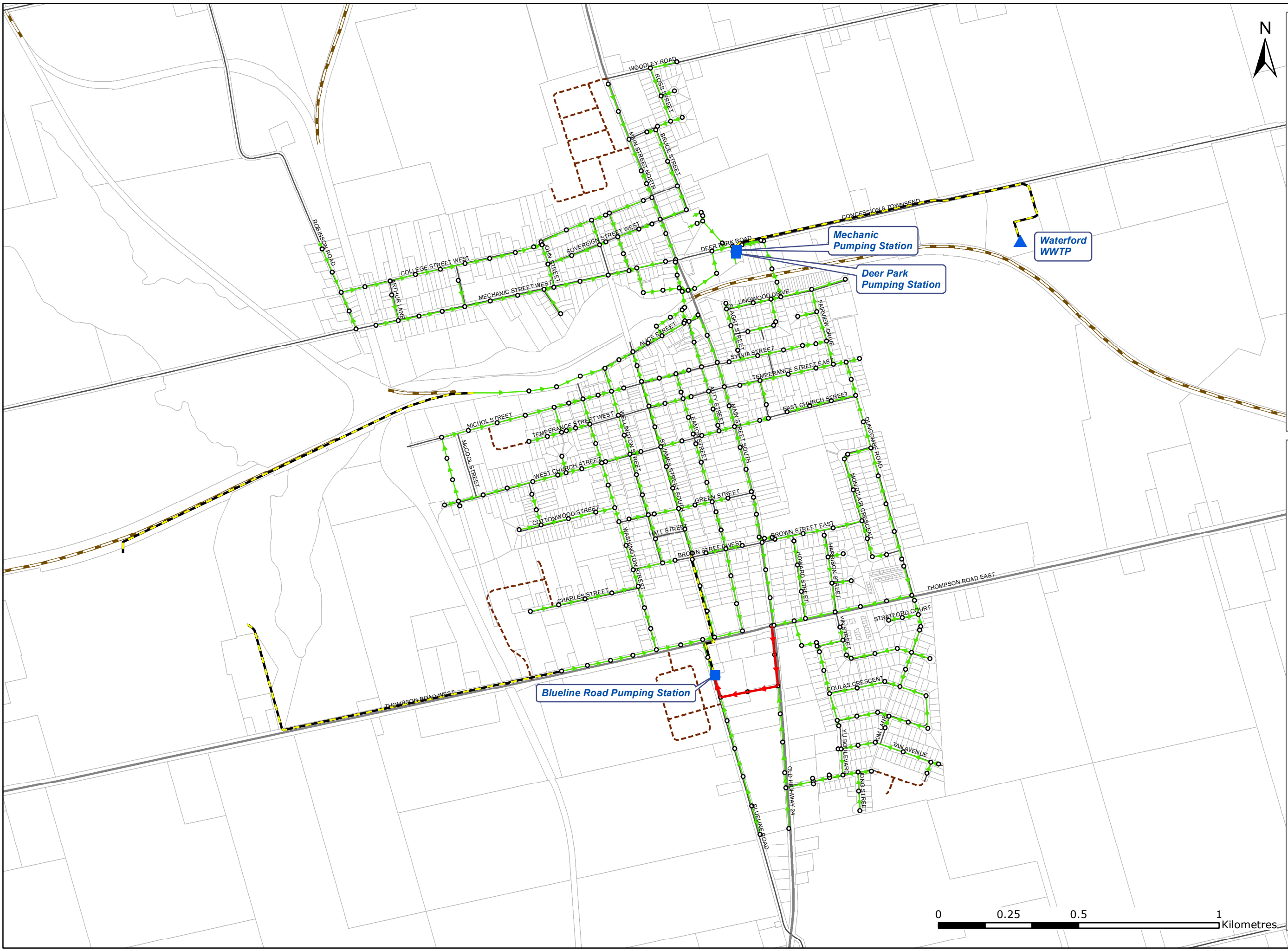
Map

4.63

Waterford Sanitary Sewer System Existing Capacity Constraints

Legend

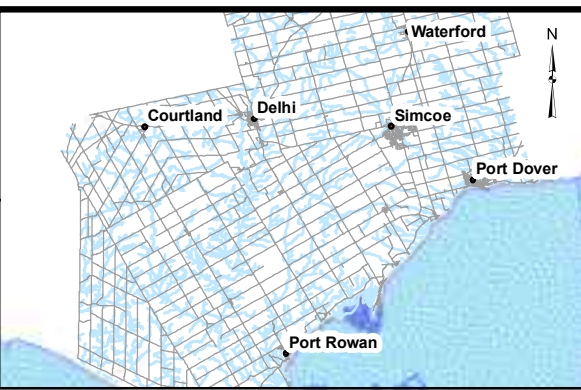
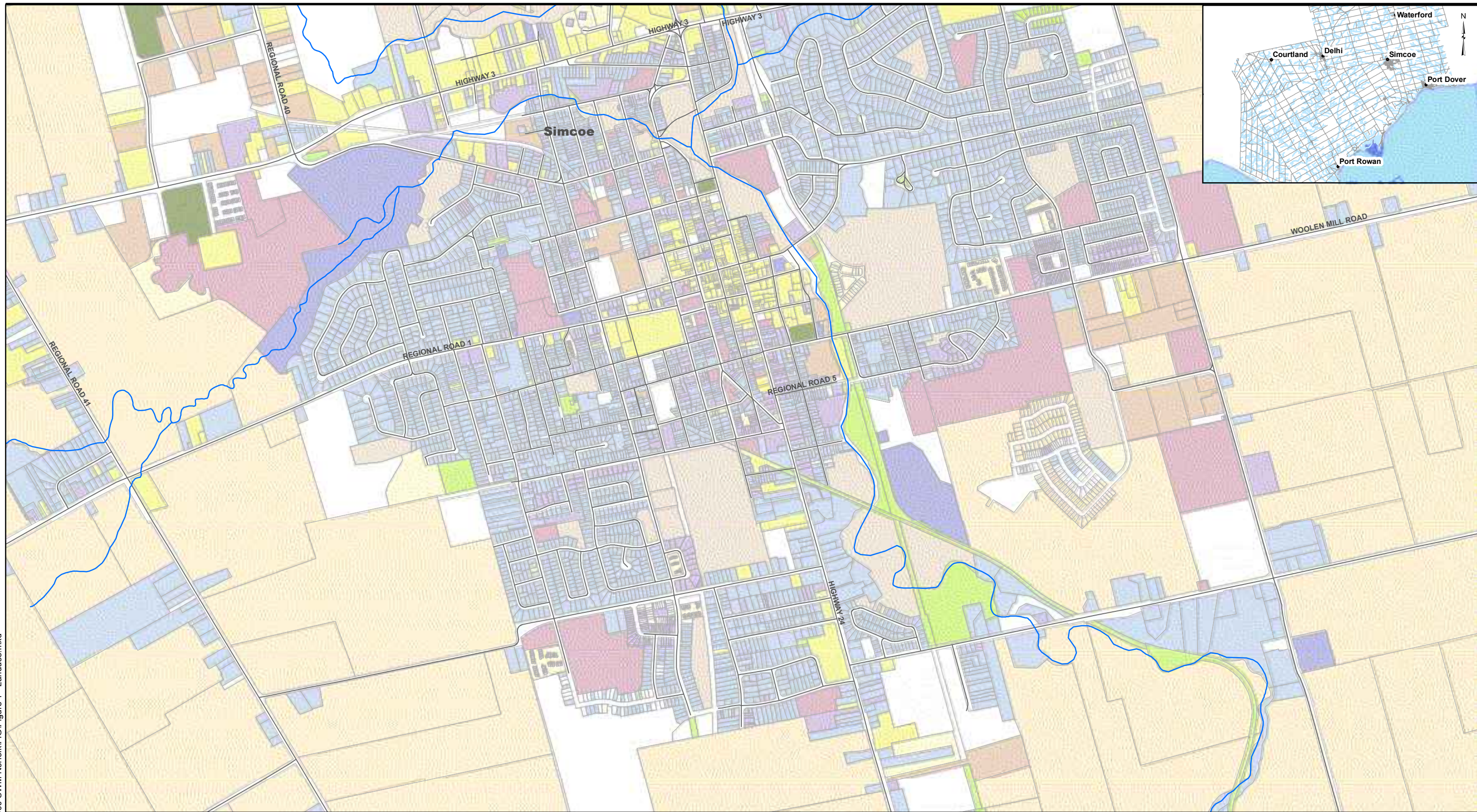
- Sanitary Manholes
- Sanitary Sewers
- Force mains
- Provincial Highway
- County Road
- Local Road
- Future Road
- Abandoned Railway
- Active Railway
- Parcel Property
- Watercourse
- ▲ Waterford WWTP
- Pumping Stations
- Existing Capacity Restraints



0 0.25 0.5 1 Kilometres

Appendix G

Stormwater Management Figures



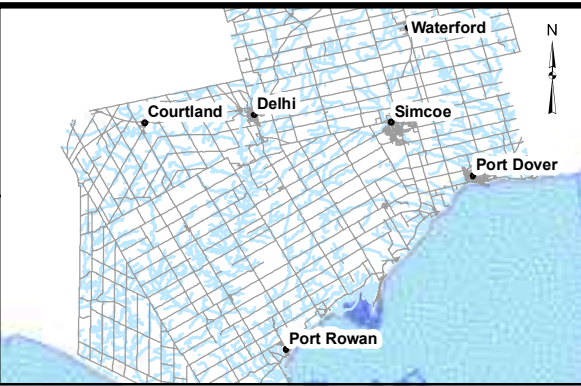
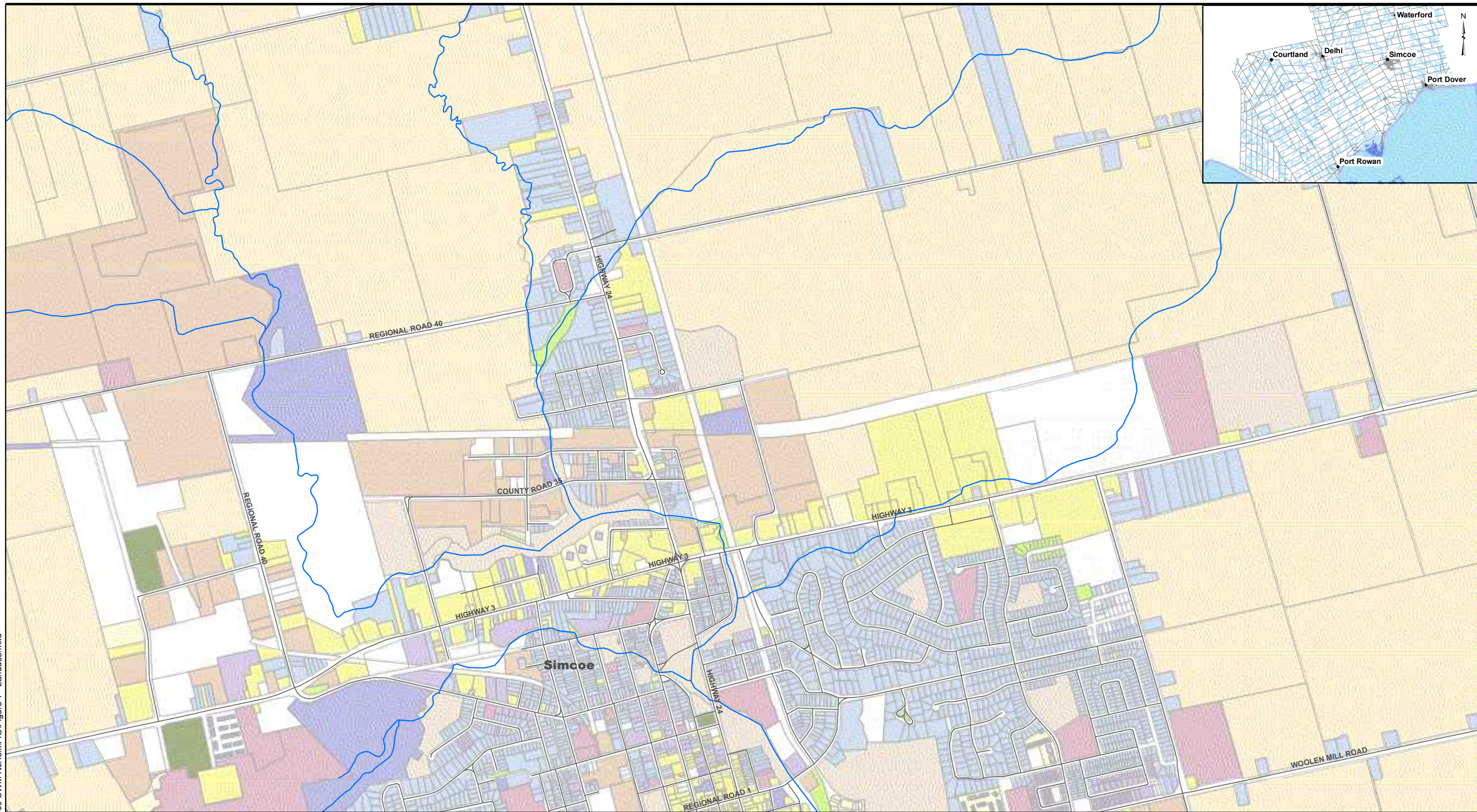
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- WATERCOURSE
- ROADS
- PARCELS

LANDUSE

AGRICULTURAL	OPEN SPACE
COMMERCIAL	RECREATIONAL
GOVERNMENT	RESORT RESIDENTIAL
INDUSTRIAL	SINGLE FAMILY RESIDENTIAL
INSTITUTIONAL	UTILITIES
MULTI FAMILY RESIDENTIAL	VACANT

CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - SIMCOE-I	
Checked	A.Z.	Drawn
Date	June 2016	Proj. No.
Scale	1:15,000	Figure No.
		1Ai

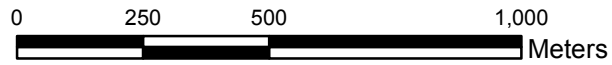
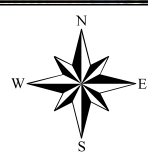


Legend

- WATERCOURSE
- ROADS
- PARCELS

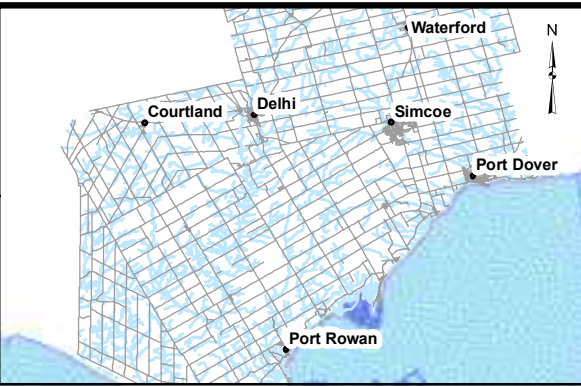
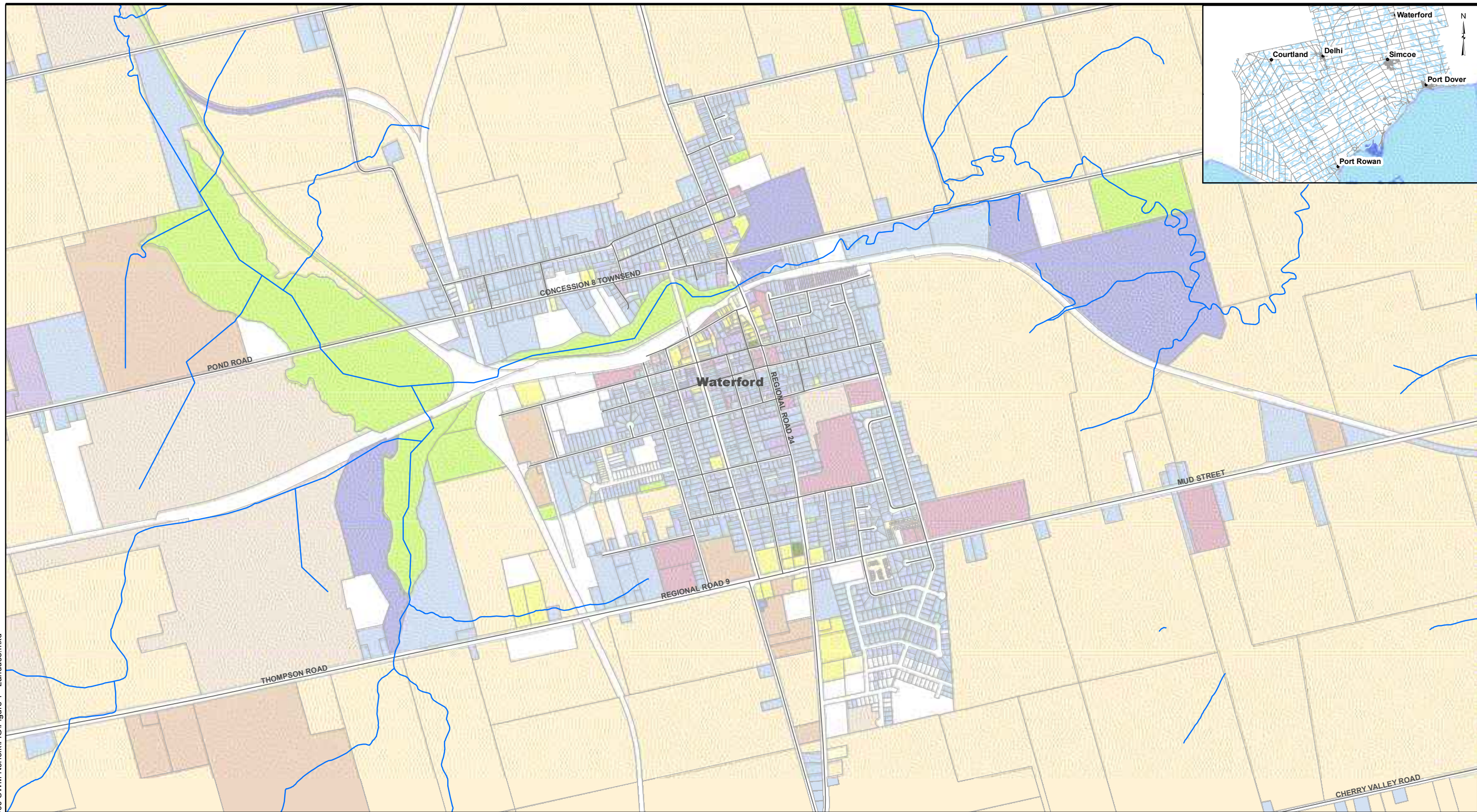
LANDUSE

AGRICULTURAL	OPEN SPACE
COMMERCIAL	RECREATIONAL
GOVERNMENT	RESORT RESIDENTIAL
INDUSTRIAL	SINGLE FAMILY RESIDENTIAL
INSTITUTIONAL	UTILITIES
MULTI FAMILY RESIDENTIAL	VACANT

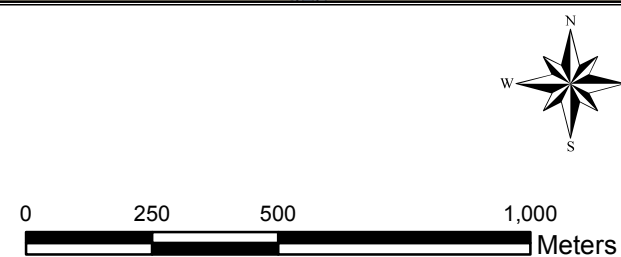


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TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - SIMCOE-II	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 1Aii



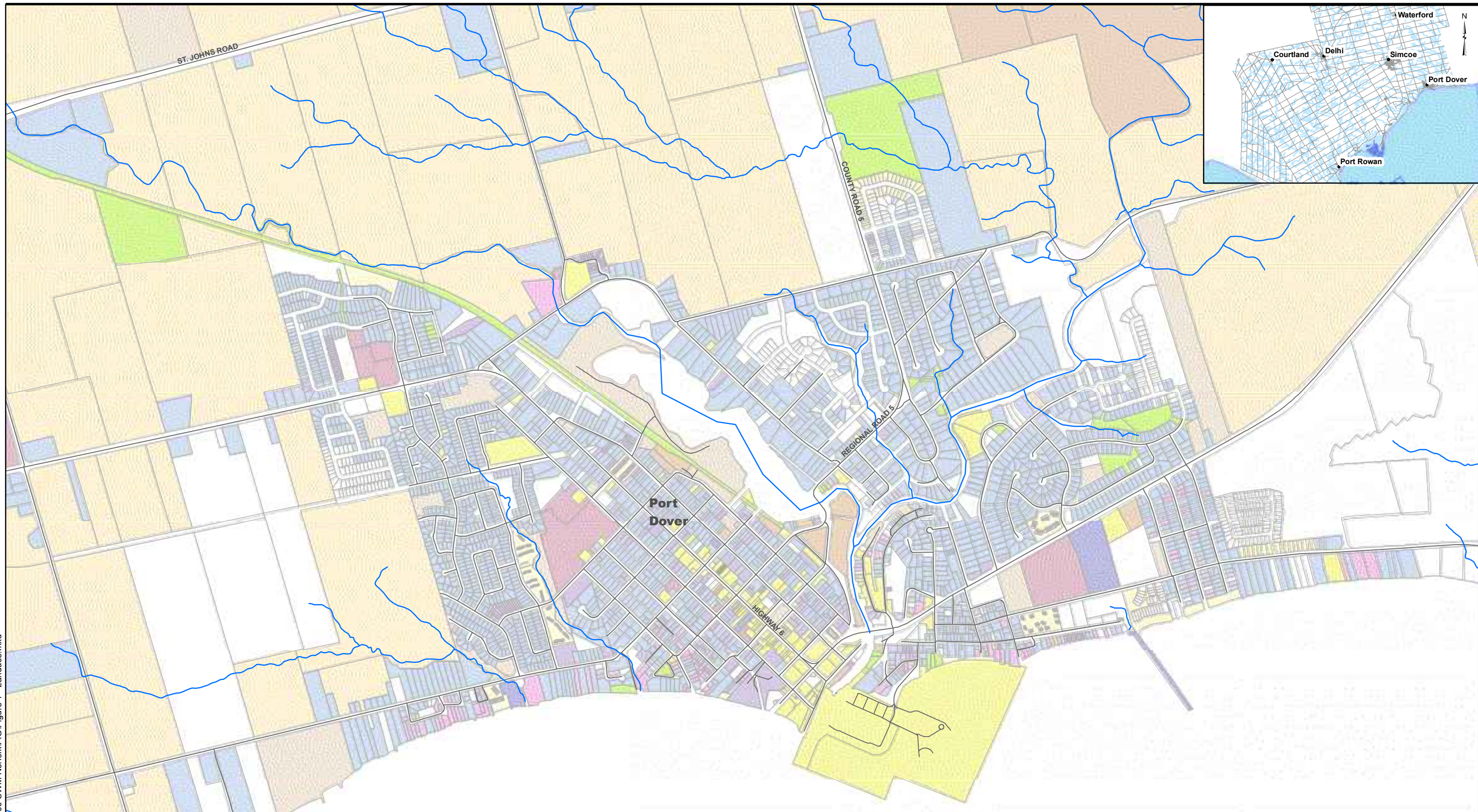


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	ROADS	
	PARCELS	
LANDUSE		
	AGRICULTURAL	
	COMMERCIAL	
	GOVERNMENT	
	INDUSTRIAL	
	INSTITUTIONAL	
	MULTI FAMILY RESIDENTIAL	
	OPEN SPACE	
	RECREATIONAL	
	RESORT RESIDENTIAL	
	SINGLE FAMILY RESIDENTIAL	
	UTILITIES	
	VACANT	



CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - WATERFORD	

Checked	A.Z.	Drawn	S.Y.
Date	June 2016	Proj. No.	33-15300-000-SWM
Scale	1:15,000	Figure No.	1B

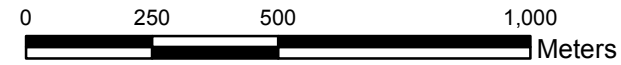


Legend

- WATERCOURSE
- ROADS
- PARCELS

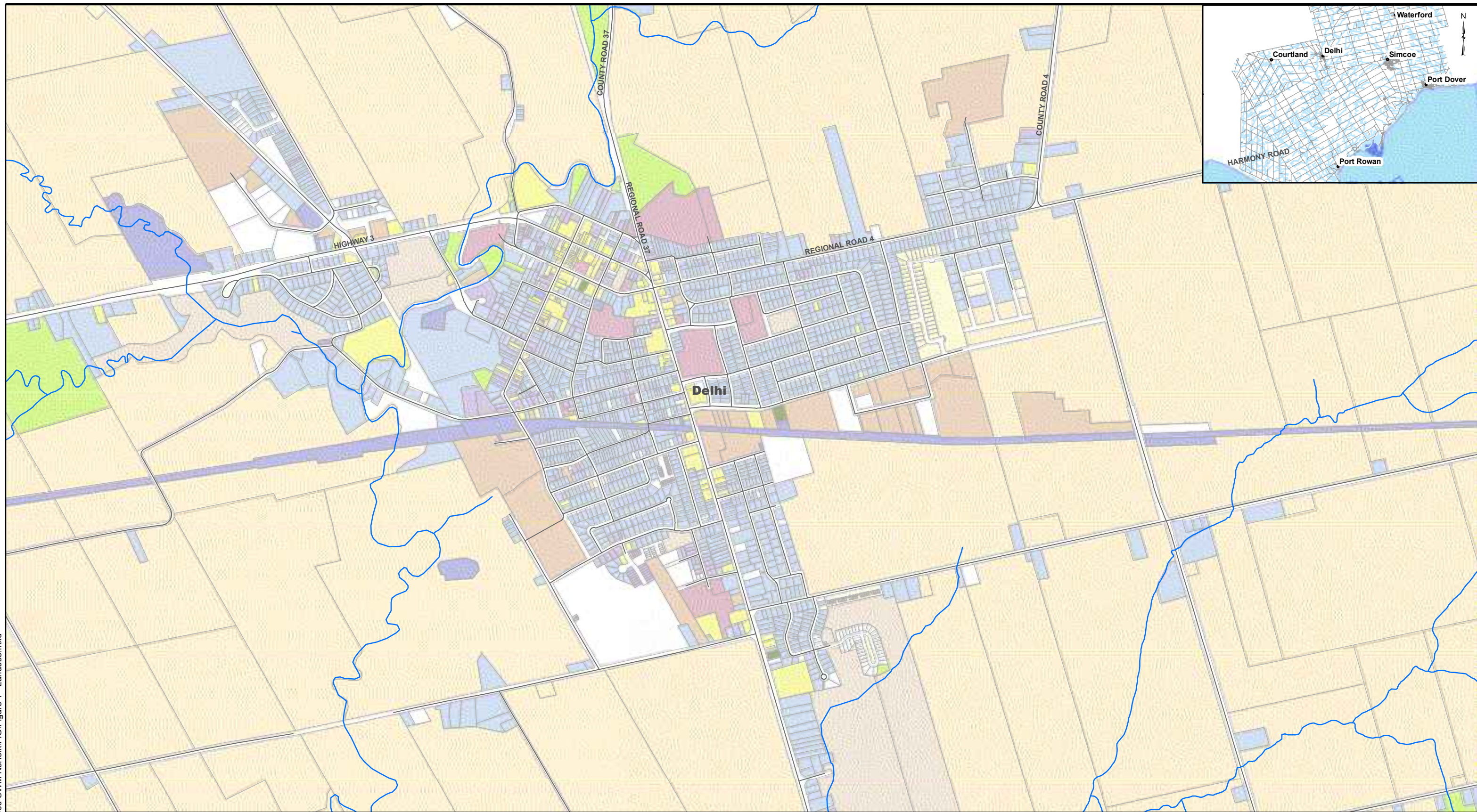
LANDUSE

AGRICULTURAL	OPEN SPACE
COMMERCIAL	RECREATIONAL
GOVERNMENT	RESORT RESIDENTIAL
INDUSTRIAL	SINGLE FAMILY RESIDENTIAL
INSTITUTIONAL	UTILITIES
MULTI FAMILY RESIDENTIAL	VACANT



CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - PORT DOVER	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 1C



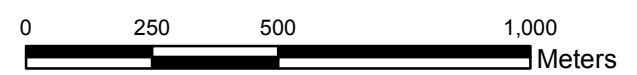
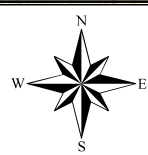


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- WATERCOURSE
- ROADS
- PARCELS

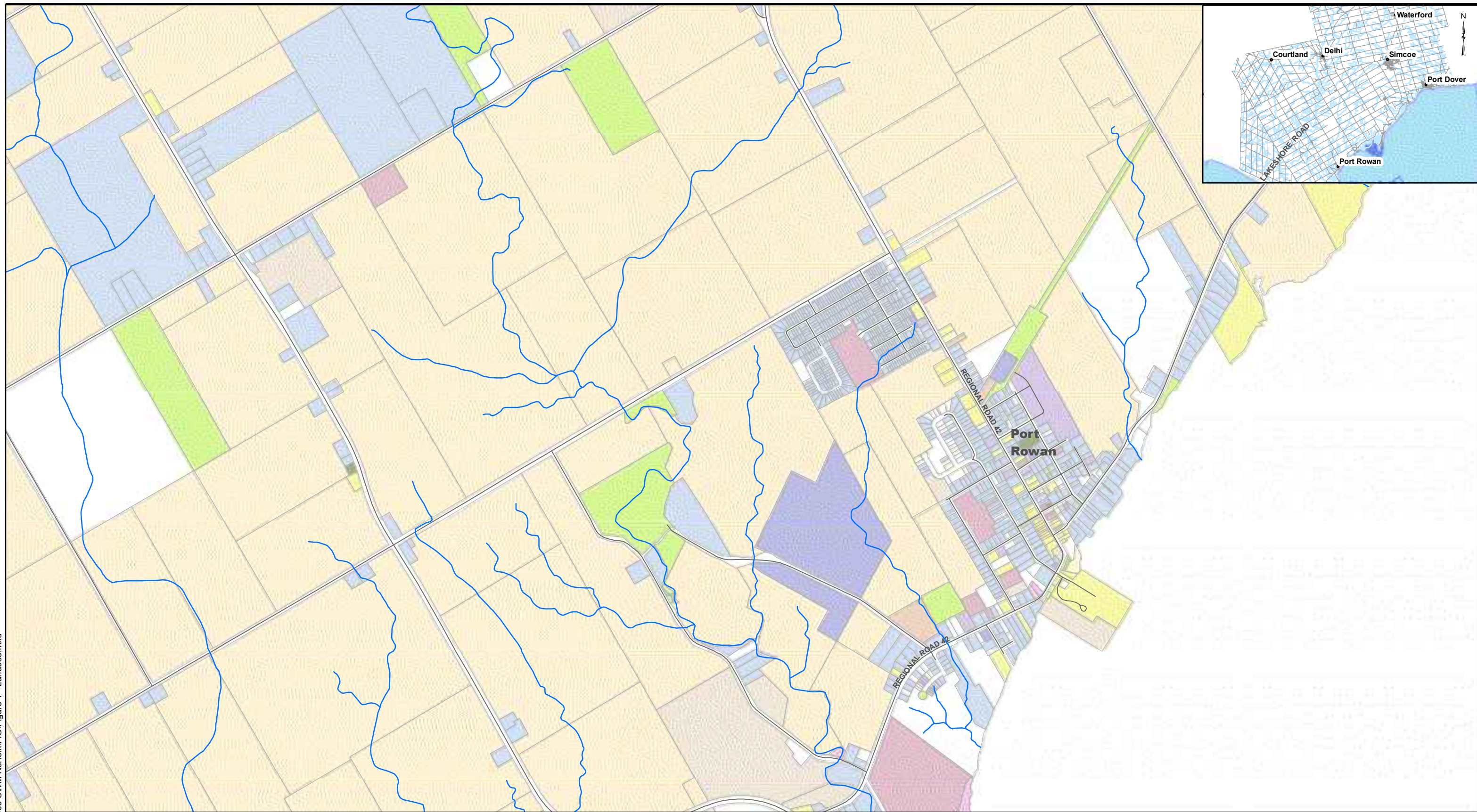
LANDUSE

AGRICULTURAL	OPEN SPACE
COMMERCIAL	RECREATIONAL
GOVERNMENT	RESORT RESIDENTIAL
INDUSTRIAL	SINGLE FAMILY RESIDENTIAL
INSTITUTIONAL	UTILITIES
MULTI FAMILY RESIDENTIAL	VACANT






CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - DELHI	













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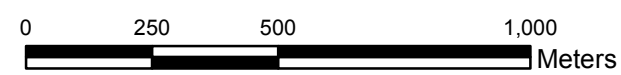
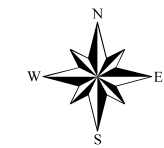


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-  WATERCOURSE
-  ROADS
-  PARCELS

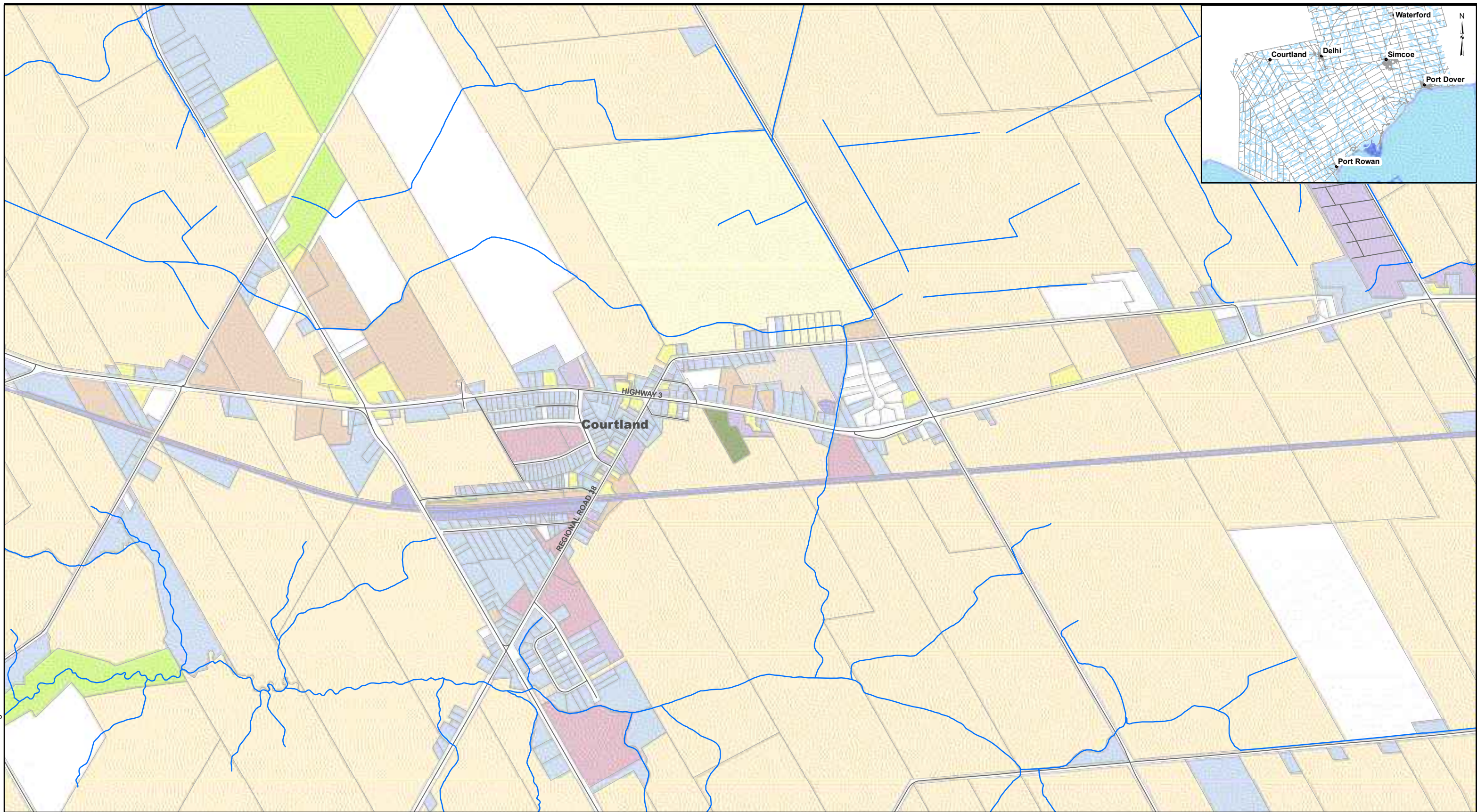
LANDUSE

- | | |
|--|---|
|  AGRICULTURAL |  OPEN SPACE |
|  COMMERCIAL |  RECREATIONAL |
|  GOVERNMENT |  RESORT RESIDENTIAL |
|  INDUSTRIAL |  SINGLE FAMILY RESIDENTIAL |
|  INSTITUTIONAL |  UTILITIES |
|  MULTI FAMILY RESIDENTIAL |  VACANT |

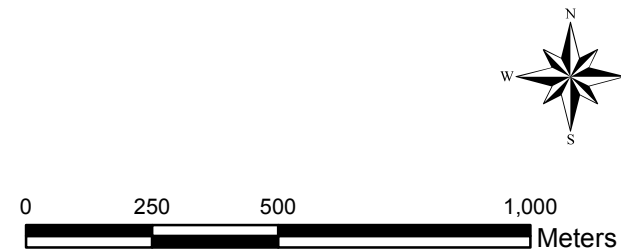


CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - PORT ROWAN	

			
Checked	A.Z.	Drawn	S.Y.
Date	June 2016	Proj. No.	33-15300-000-SWM
Scale	1:15,000	Figure No.	1E



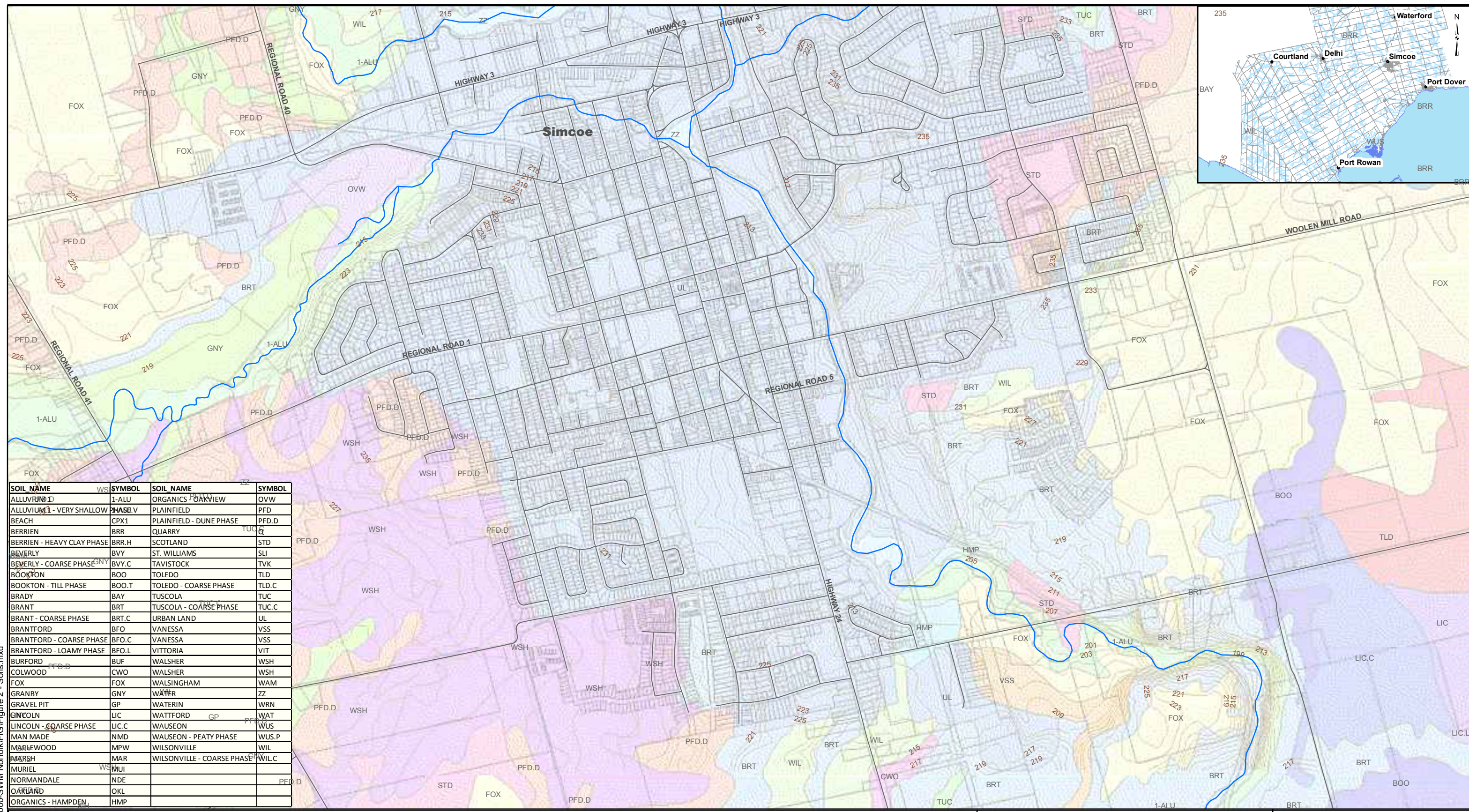
Legend			
	WATERCOURSE		
	ROADS		
	PARCELS		
LANDUSE			
	AGRICULTURAL		OPEN SPACE
	COMMERCIAL		RECREATIONAL
	GOVERNMENT		RESORT RESIDENTIAL
	INDUSTRIAL		SINGLE FAMILY RESIDENTIAL
	INSTITUTIONAL		UTILITIES
	MULTI FAMILY RESIDENTIAL		VACANT



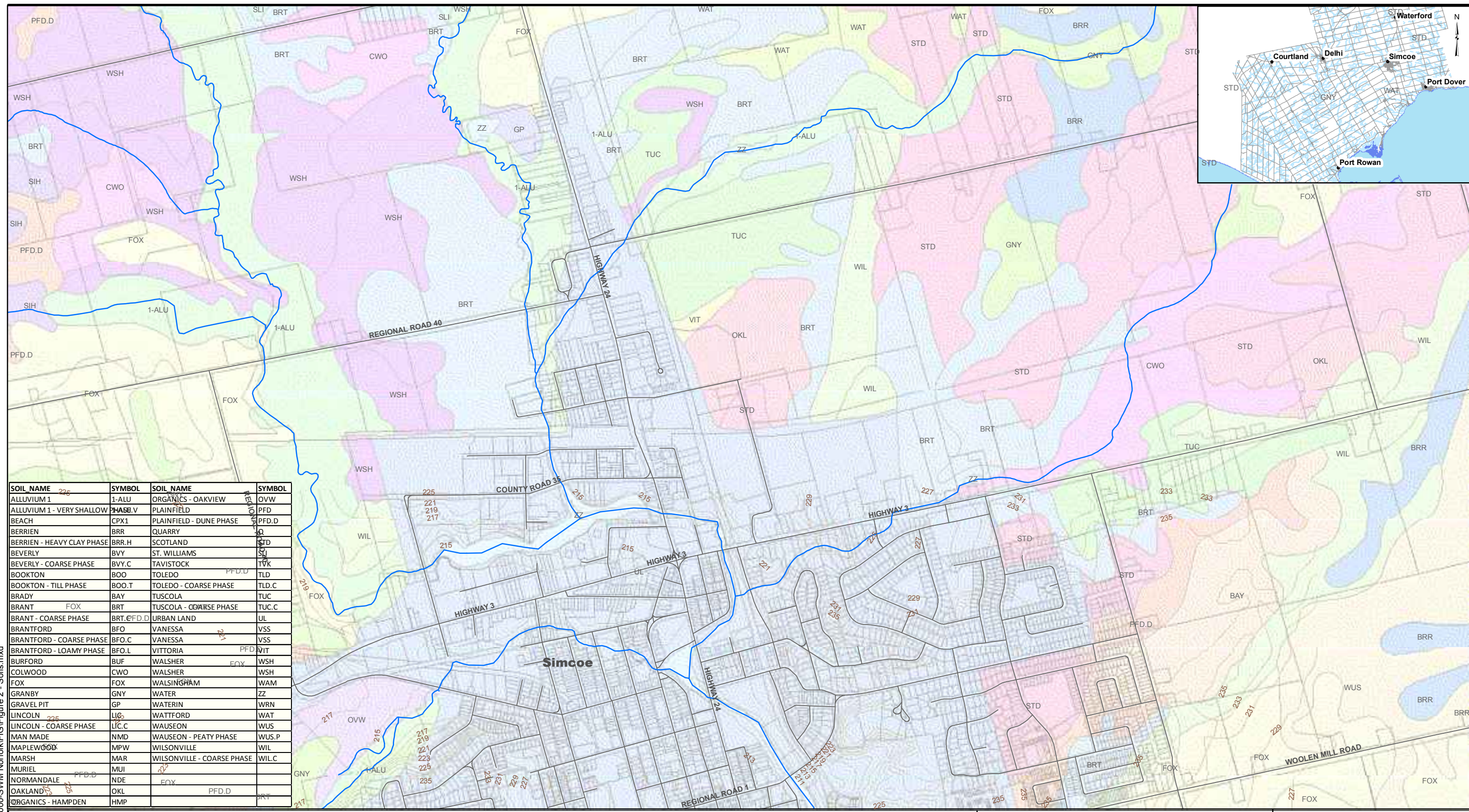
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TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	LANDUSE - COURTLAND	

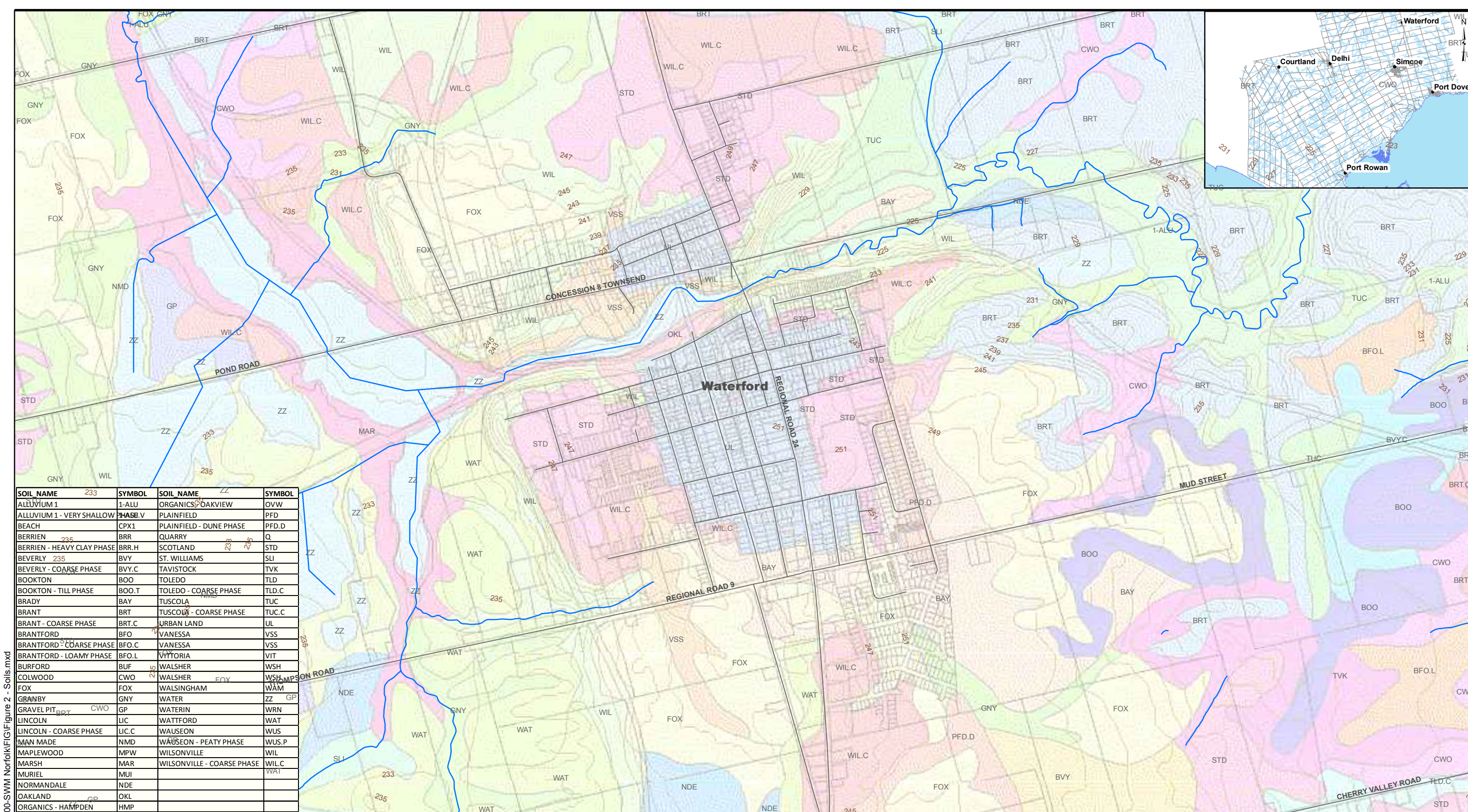
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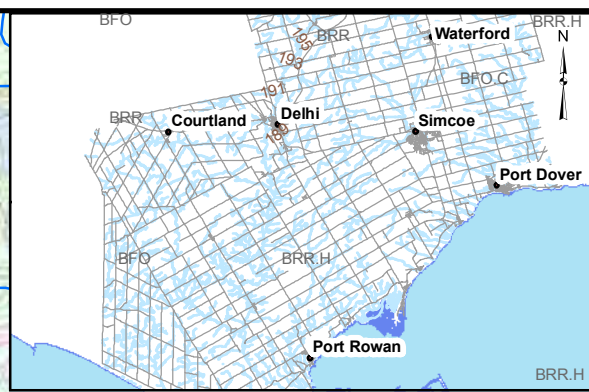
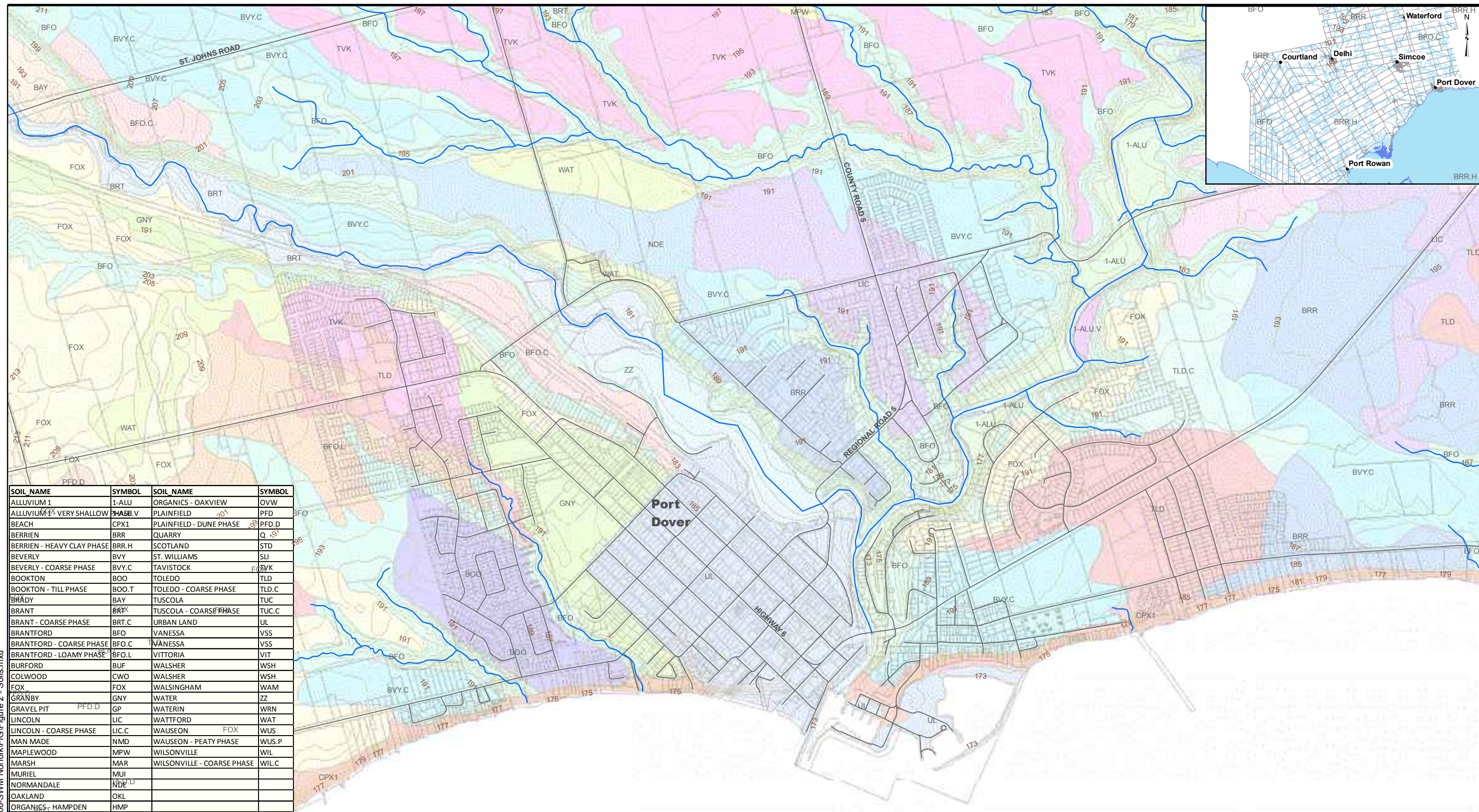


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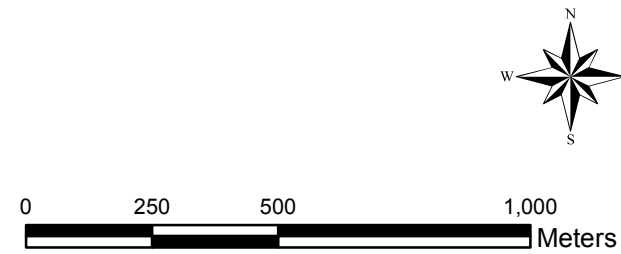
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SOIL NAME	SYMBOL	SOIL NAME	SYMBOL
ALLUVIUM 1	1-ALU	ORGANICS - OAKVIEW	OVW
ALLUVIUM 1 - VERY SHALLOW	1-ALU.V	PLAINFIELD	PFD
BEACH	CPX1	PLAINFIELD - DUNE PHASE	PFD.D
BERRIEN	BRR	QUARRY	Q
BERRIEN - HEAVY CLAY PHASE	BRR.H	SCOTLAND	STD
BEVERLY	BVY	ST. WILLIAMS	SLI
BEVERLY - COARSE PHASE	BVY.C	TAVISTOCK	TVK
BOOKTON	BOO	TOLEDO	TLD
BOOKTON - TILL PHASE	BOO.T	TOLEDO - COARSE PHASE	TLD.C
BRADY	BAY	TUSCOLA	TUC
BRANT	BRT	TUSCOLA - COARSE PHASE	TUC.C
BRANT - COARSE PHASE	BRT.C	URBAN LAND	UL
BRANTFORD	BFO	VANESSA	VSS
BRANTFORD - COARSE PHASE	BFO.C	VANESSA	VSS
BRANTFORD - LOAMY PHASE	BFO.L	VITTORIA	VIT
BURFORD	BUF	WALSHER	WSH
COLWOOD	CWO	WALSHER	WSH
FOX	FOX	WALSINGHAM	WAM
GRANBY	GNY	WATER	ZZ
GRAVEL PIT	GP	WATERIN	WRN
LINCOLN	LIC	WATTFORD	WAT
LINCOLN - COARSE PHASE	LIC.C	WAUSEON	FOX
MAN MADE	NMD	WAUSEON - PEATY PHASE	WUS.P
MAPLEWOOD	MPW	WILSONVILLE	WIL
MARSH	MAR	WILSONVILLE - COARSE PHASE	WIL.C
MURIEL	MUI		
NORMANDALE	NDE		
OAKLAND	OKL		
ORGANICS - HAMPDEN	HMP		

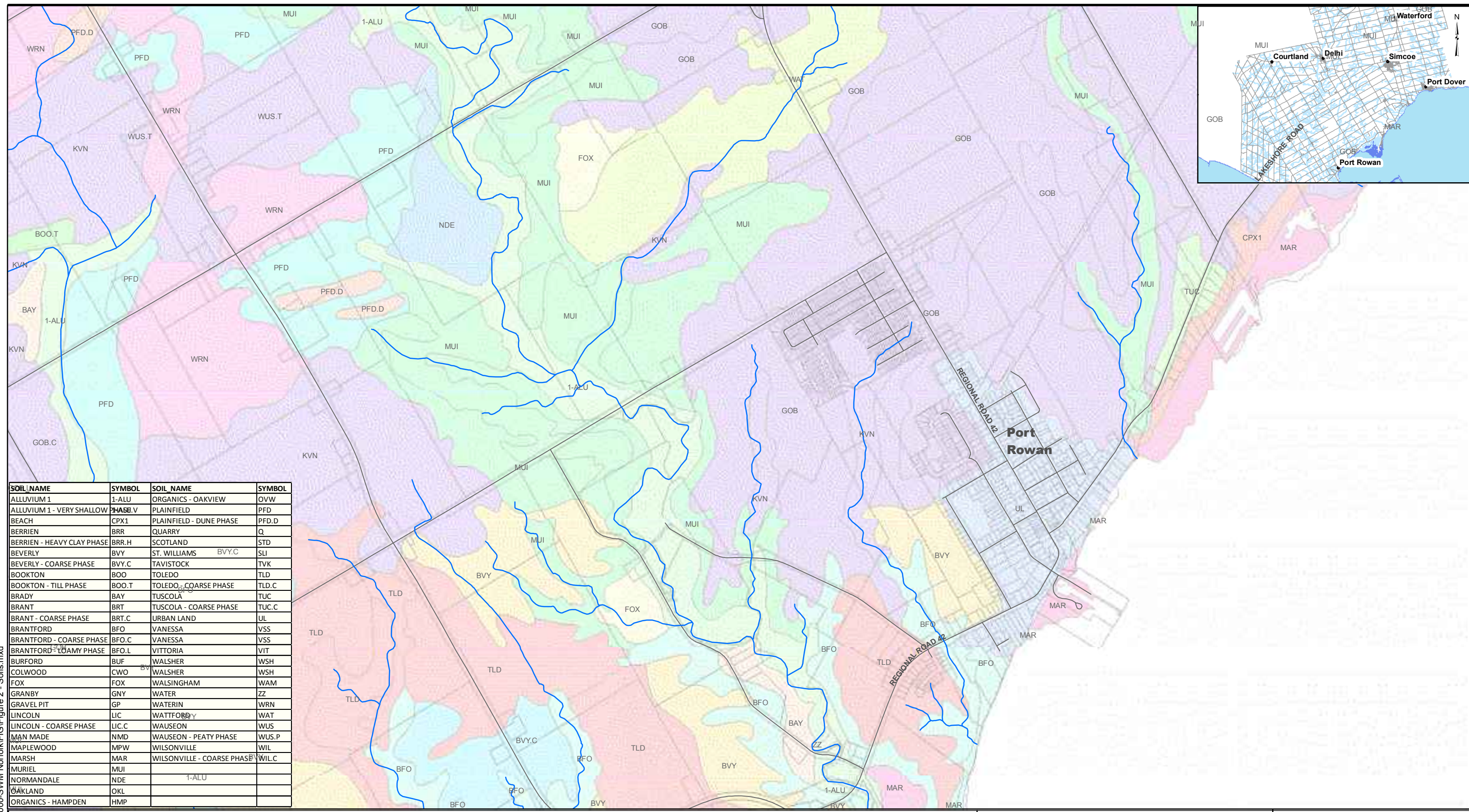
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- WATERCOURSE
- ROADS
- CONTOURS (2m)
- PARCELS



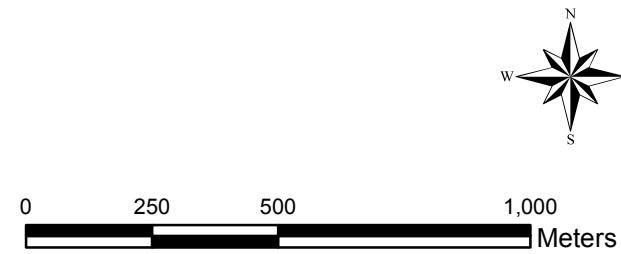
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TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	SOILS AND ENVIRONMENT PORT DOVER	
Checked	A.Z.	Drawn S.Y
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 2C





SOIL NAME	SYMBOL	SOIL NAME	SYMBOL
ALLUVIUM 1	1-ALU	ORGANICS - OAKVIEW	OVW
ALLUVIUM 1 - VERY SHALLOW	1-ALU.V	PLAINFIELD	PFD
BEACH	CPX1	PLAINFIELD - DUNE PHASE	PFD.D
BERRIEN	BRR	QUARRY	Q
BERRIEN - HEAVY CLAY PHASE	BRR.H	SCOTLAND	STD
BEVERLY	BVY	ST. WILLIAMS	BVY.C
BEVERLY - COARSE PHASE	BVY.C	TAVISTOCK	TVK
BOOKTON	BOO	TOLEDO	TLD
BOOKTON - TILL PHASE	BOO.T	TOLEDO - COARSE PHASE	TLD.C
BRADY	BAY	TUSCOLA	TUC
BRANT	BRT	TUSCOLA - COARSE PHASE	TUC.C
BRANT - COARSE PHASE	BRT.C	URBAN LAND	UL
BRANTFORD	BFO	VANESSA	VSS
BRANTFORD - COARSE PHASE	BFO.C	VANESSA	VSS
BRANTFORD - LOAMY PHASE	BFO.L	VITTORIA	VIT
BURFORD	BUF	WALSHER	WSH
COLWOOD	CWO	WALSHER	WSH
FOX	FOX	WALSINGHAM	WAM
GRANBY	GNV	WATER	ZZ
GRAVEL PIT	GP	WATERIN	WRN
LINCOLN	LIC	WATTFORD	WAT
LINCOLN - COARSE PHASE	LIC.C	WAUSEON	WUS
MAN MADE	NMD	WAUSEON - PEATY PHASE	WUS.P
MAPLEWOOD	MPW	WILSONVILLE	WIL
MARSH	MAR	WILSONVILLE - COARSE PHASE	WIL.C
MURIEL	MUI		
NORMANDALE	NDE		
OAKLAND	OKL		
ORGANICS - HAMPDEN	HMP		

- Legend**
- WATERCOURSE
 - ROADS
 - CONTOURS (2m)
 - PARCELS



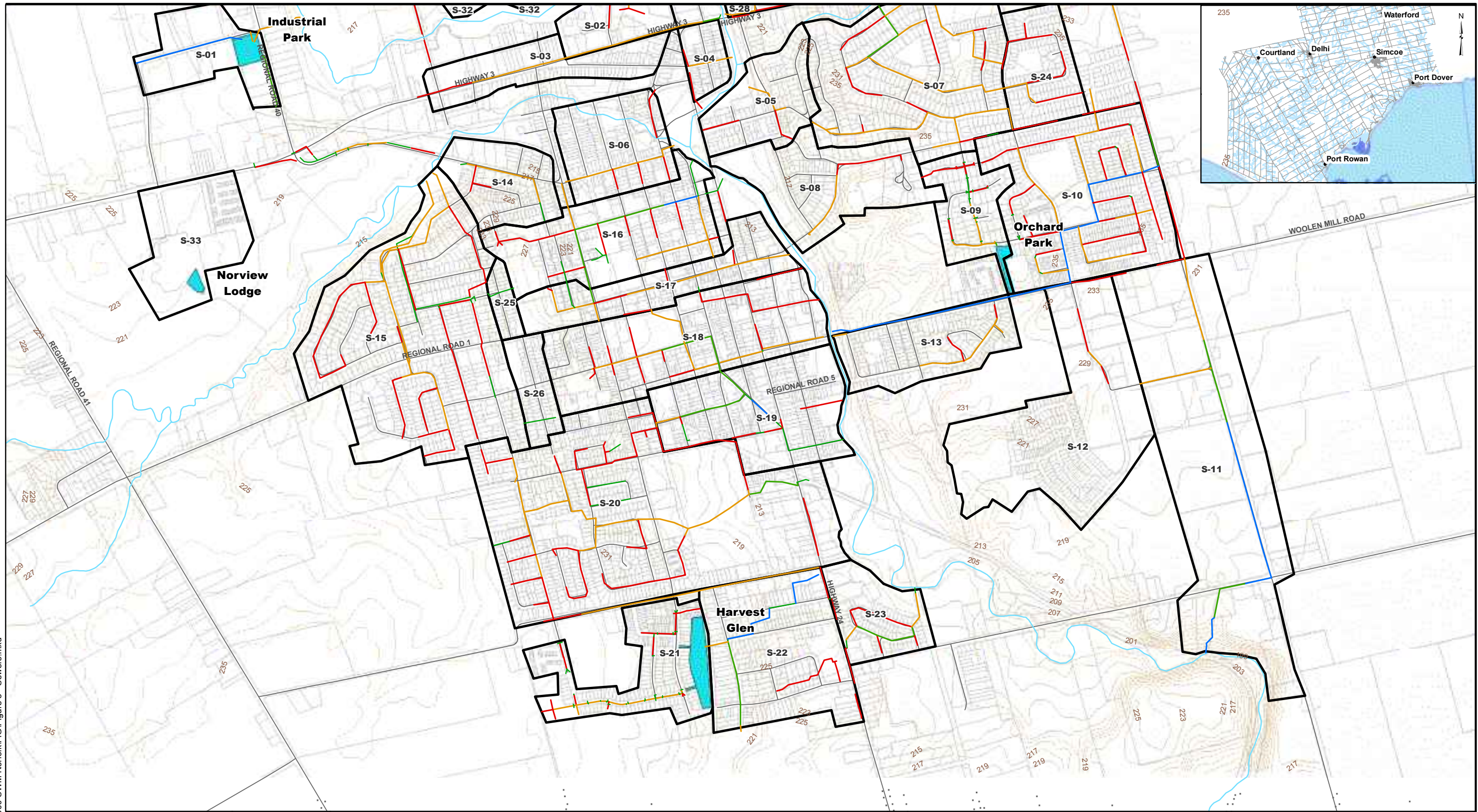
CLIENT
NORFOLK COUNTY

TITLE
INTEGRATED SUSTAINABLE MASTER PLAN

**SOILS AND ENVIRONMENT
PORT ROWAN**

Checked A.Z.	Drawn S.Y.
Date June 2016	Proj. No. 33-15300-000-SWM
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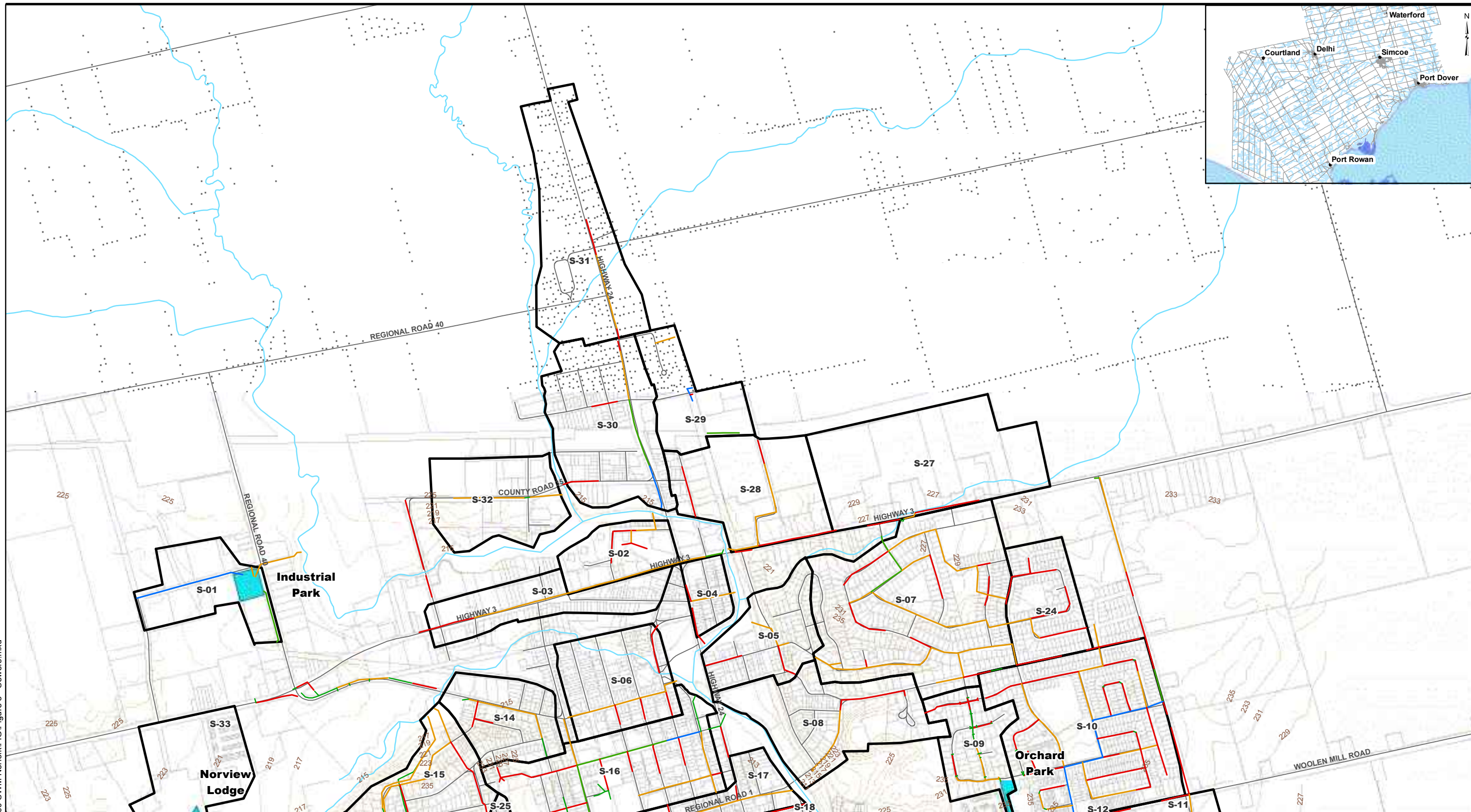
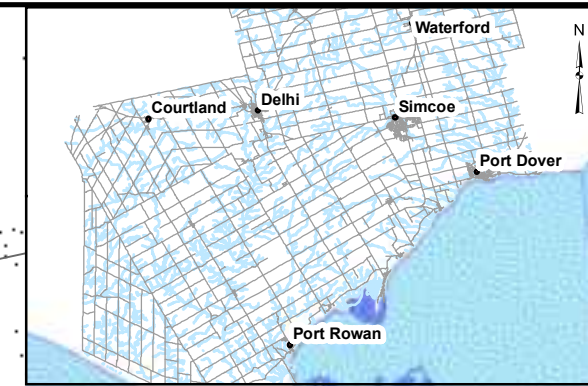
Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
WATERCOURSE	100-400	PARCELS
ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

0 250 500 1,000 Meters

CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS SIMCOE-I	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3Ai





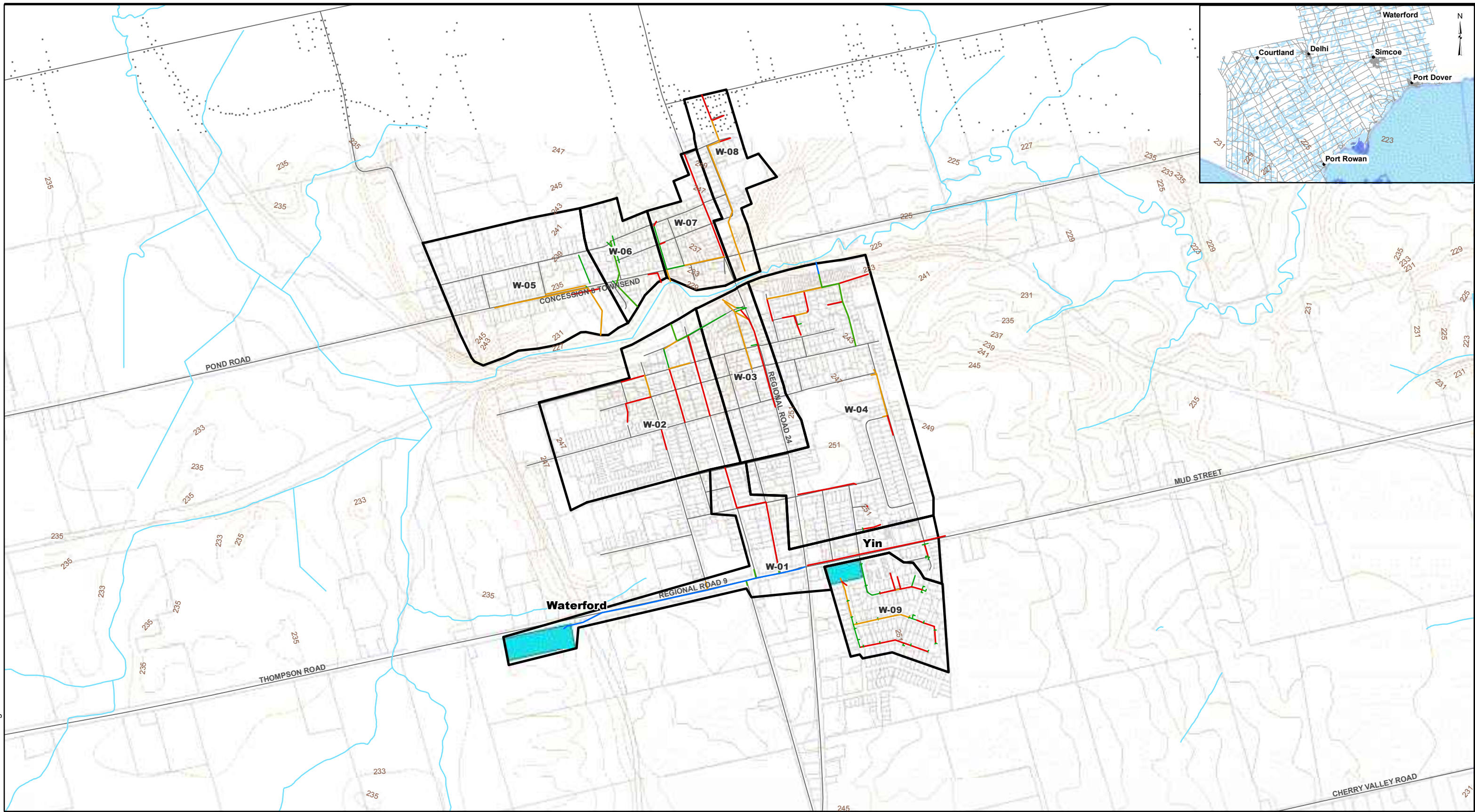
Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
WATERCOURSE	100-400	PARCELS
ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

0 250 500 1,000 Meters

CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS SIMCOE-II	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3Aii





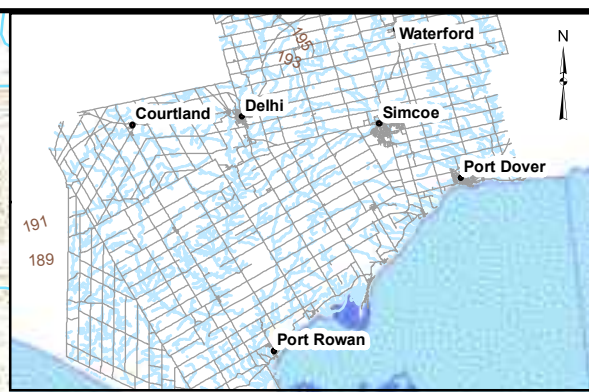
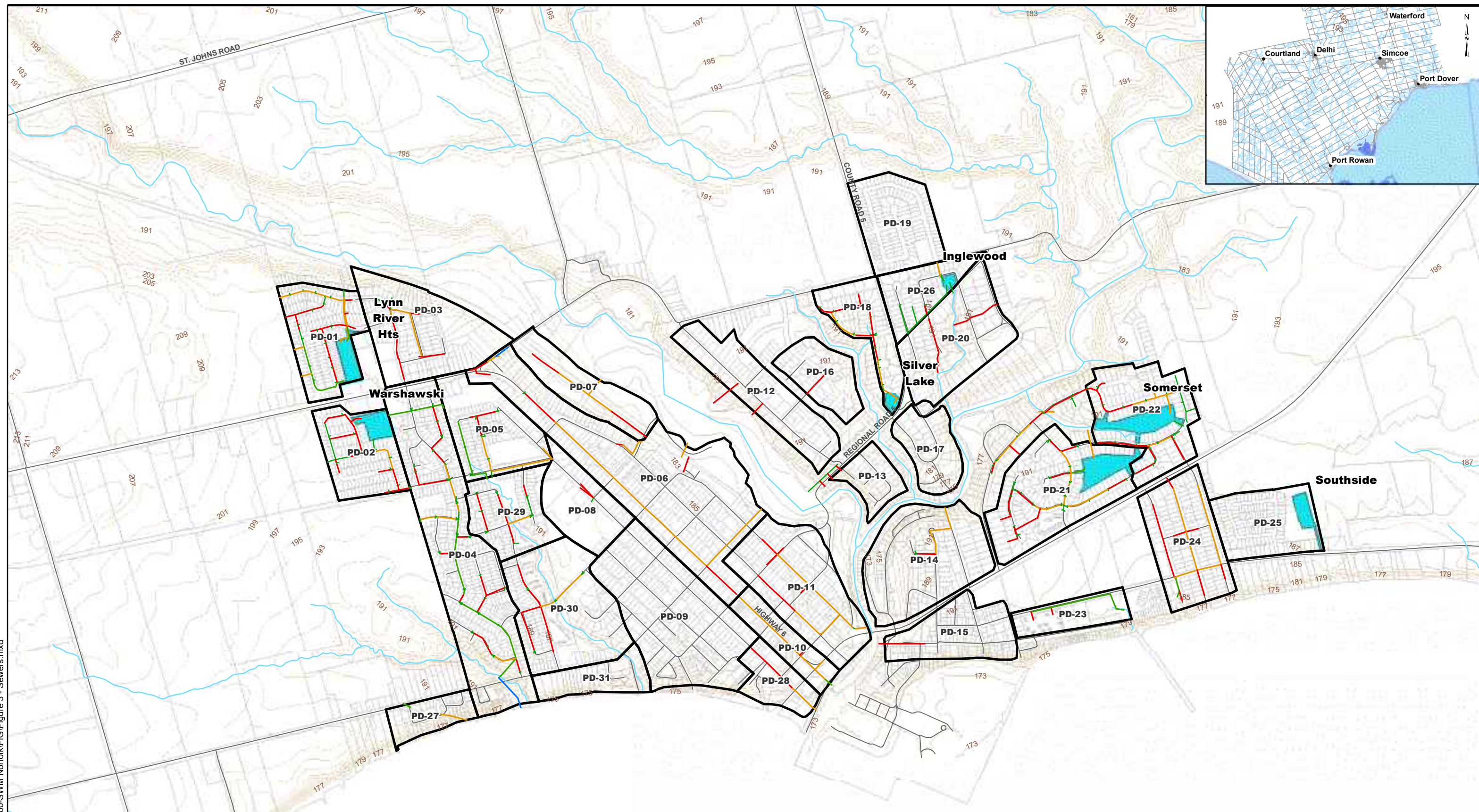
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CATCHMENTS	STORM SEWER (2011) 100-400	STORM PONDS
WATERCOURSE	400-800	PARCELS
ROADS	800-1100	
CONTOURS (2m)	1100-2150	

0 250 500 1,000 Meters

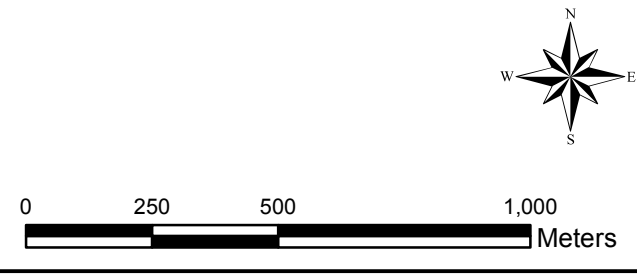
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TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS WATERFORD	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3B



Document Path: R:\33-15300-000-SWM Norfolk\FIG\Figure 3 - Sewers.mxd



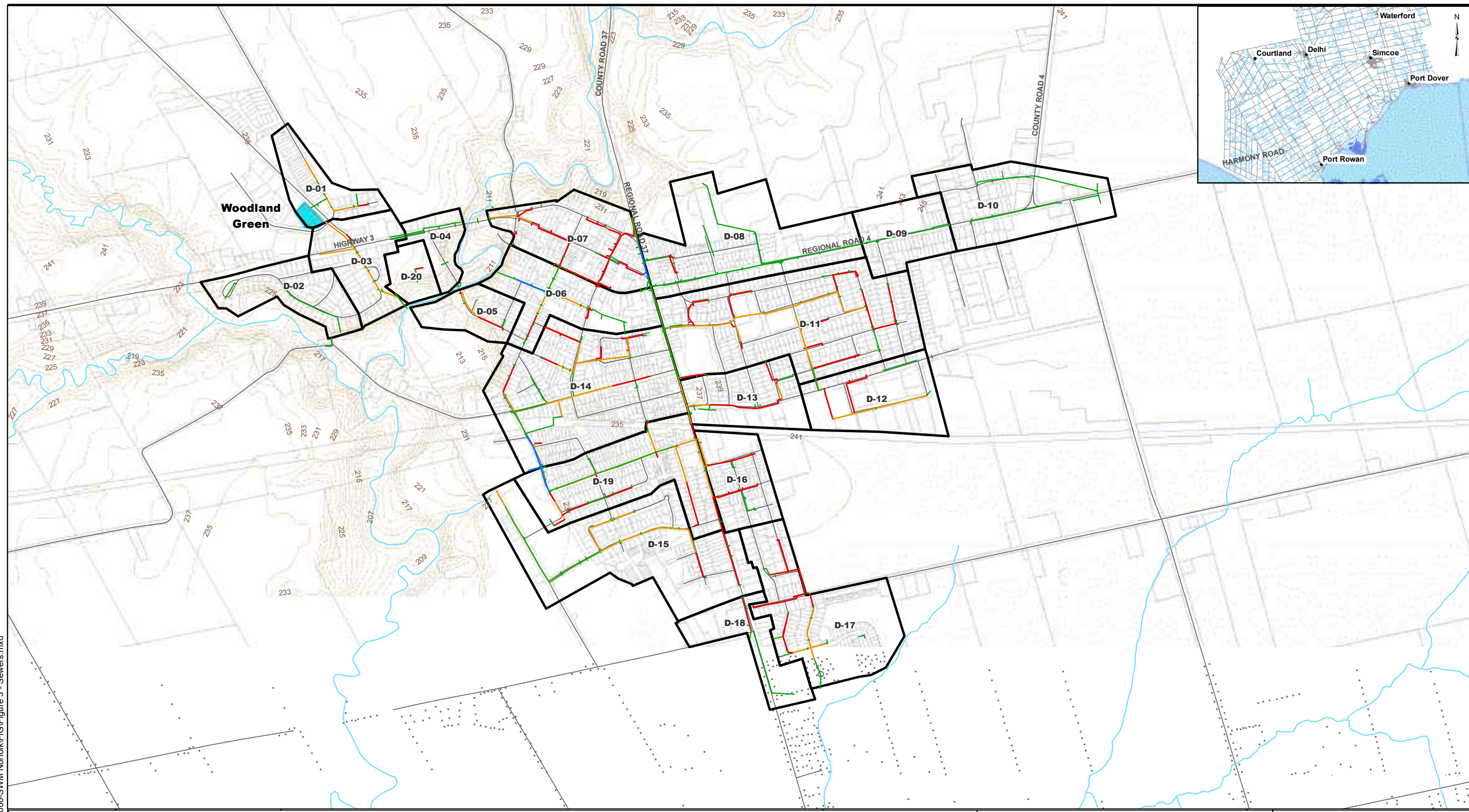
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	WATERCOURSE		PARCELS
	ROADS		
	CONTOURS (2m)		
	STORM SEWER (2011) 100-400		
	400-800		
	800-1100		
	1100-2150		



CLIENT	NORFOLK COUNTY
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN
STORM SEWERS PORT DOVER	

Checked	A.Z.	Drawn	S.Y.
Date	June 2016	Proj. No.	33-15300-000-SWM
Scale	1:15,000	Figure No.	3C

Document Path: R:\33-15300-000-SWM Norfolk\FIG\Figure 3 - Sewers.mxd

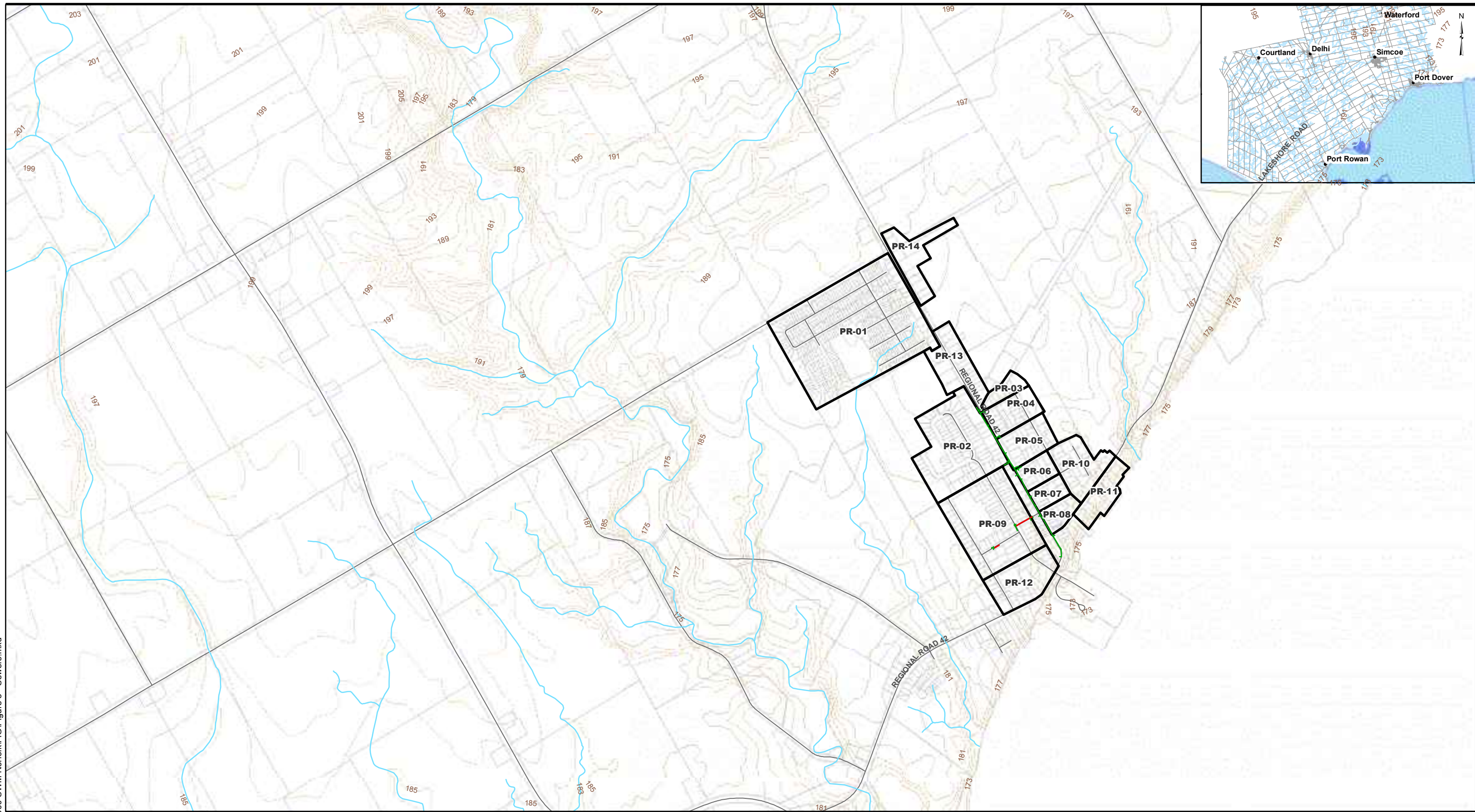


Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
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ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

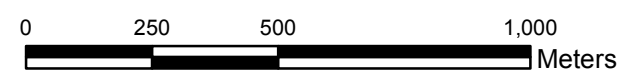
0 250 500 1,000 Meters

CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS DELHI	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3D



Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
WATERCOURSE	100-400	PARCELS
ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

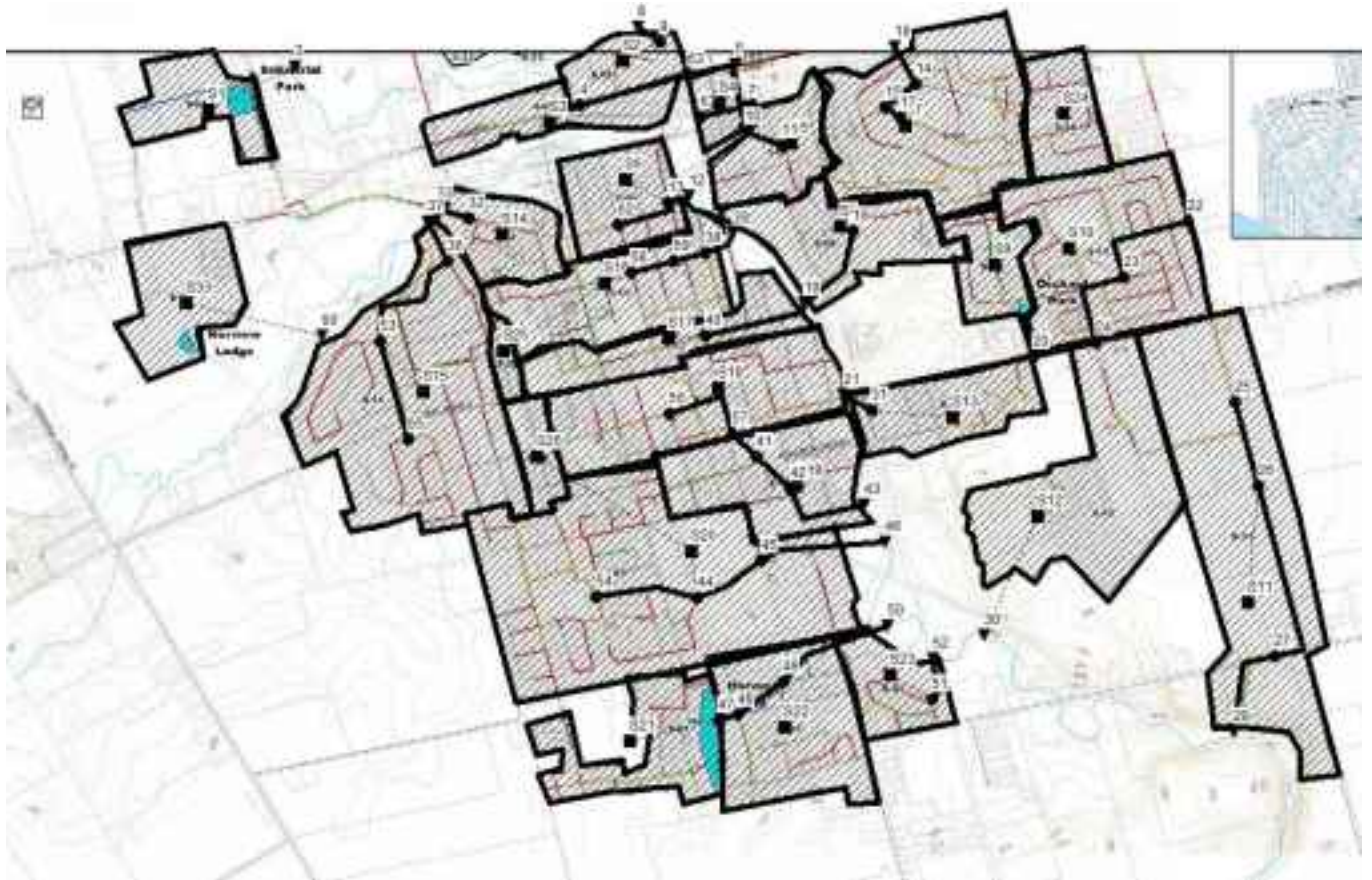


CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS PORT ROWAN	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3E

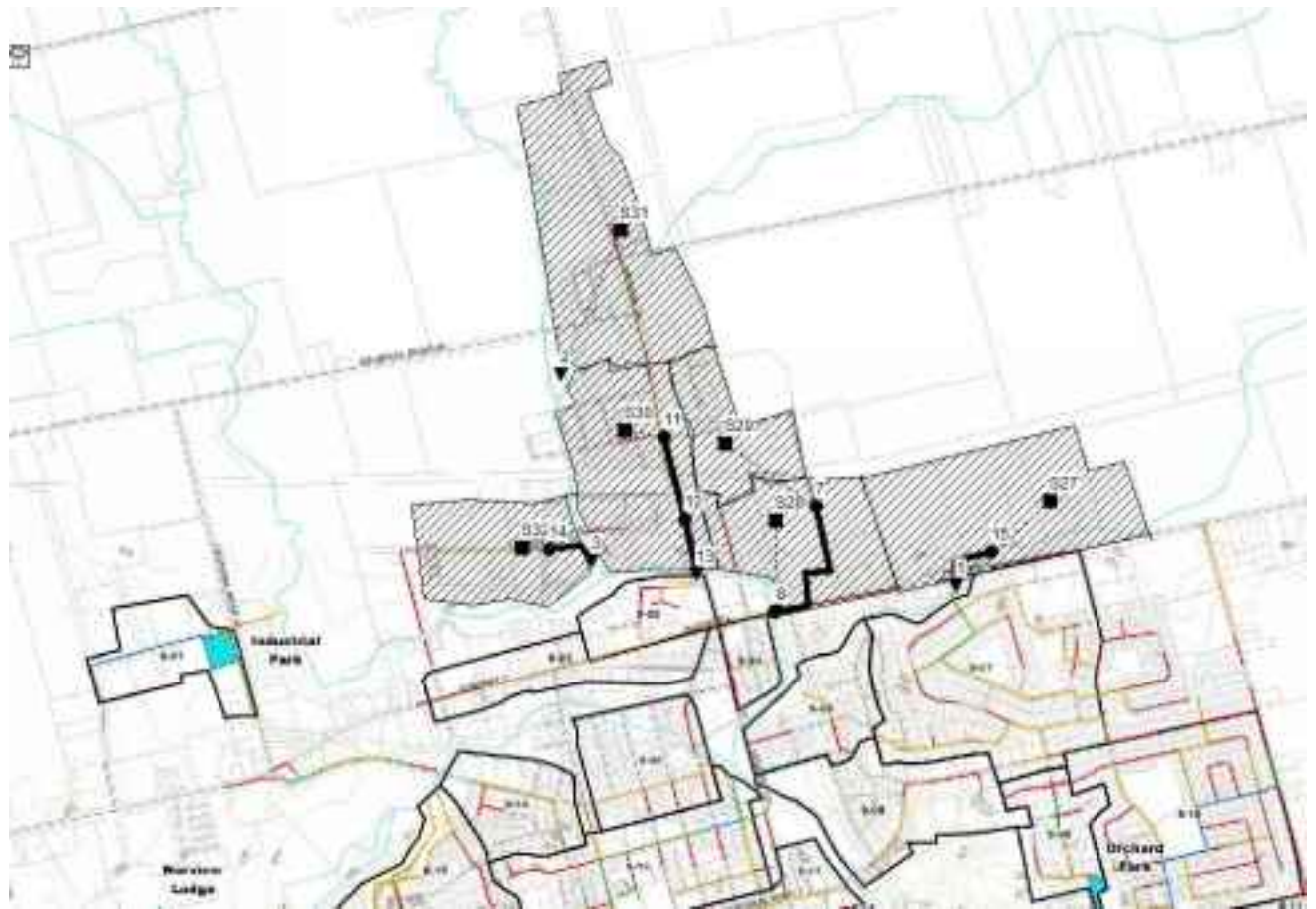


Existing Conditions EPA SWMM Model

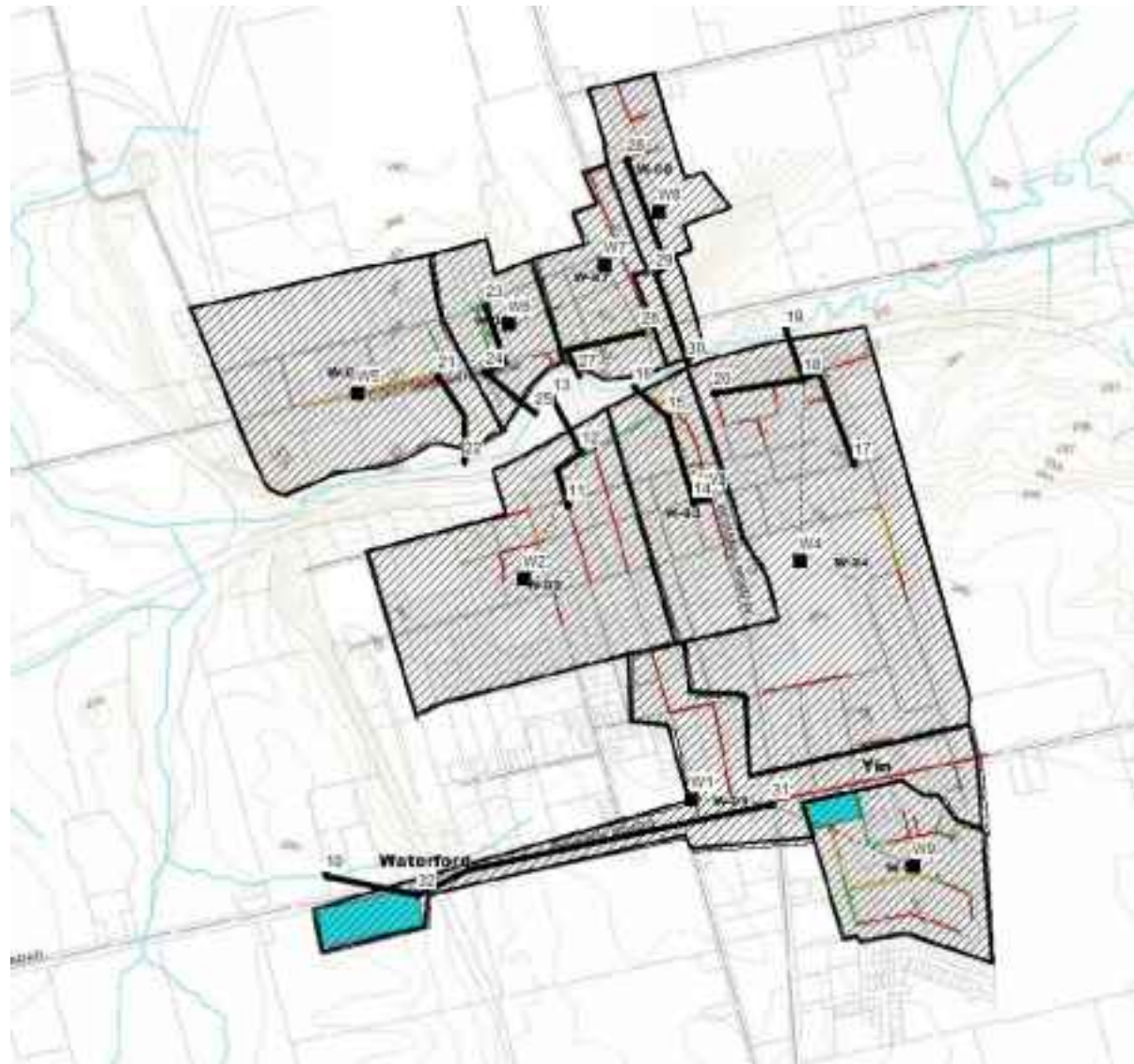
Simcoe Drainage Schematic 1



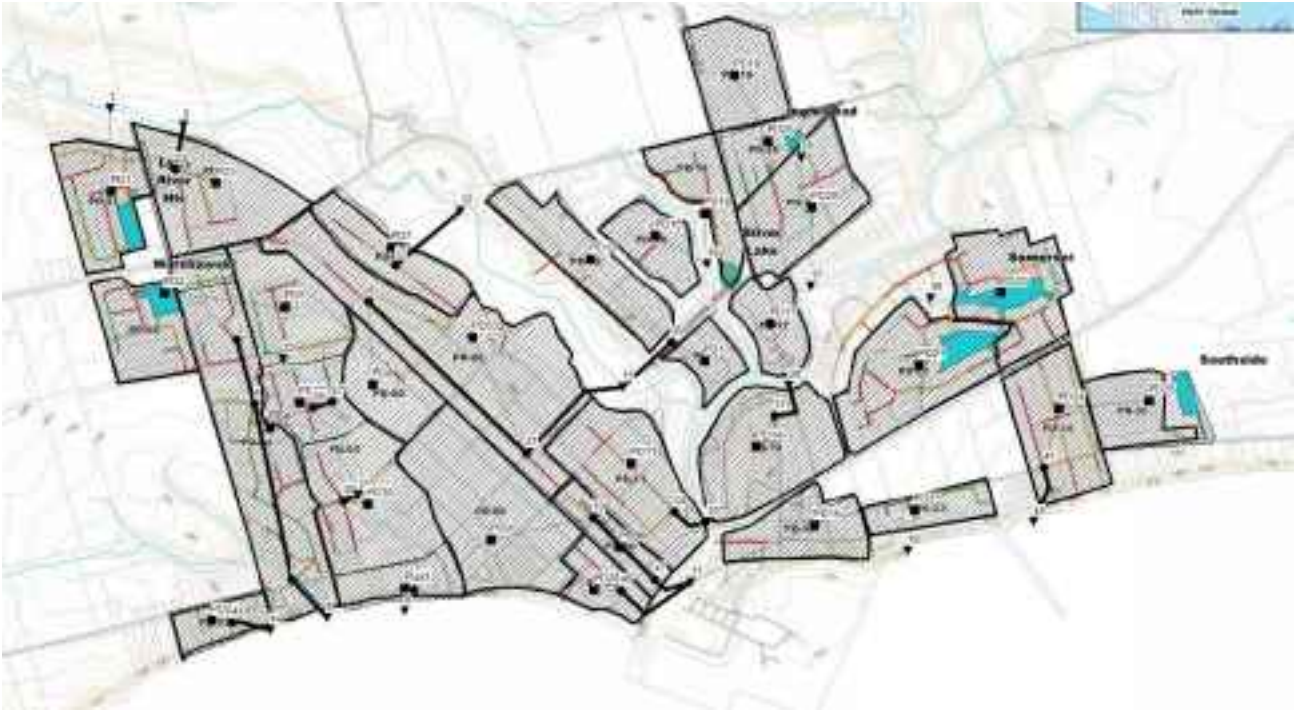
Simcoe Drainage Schematic 2



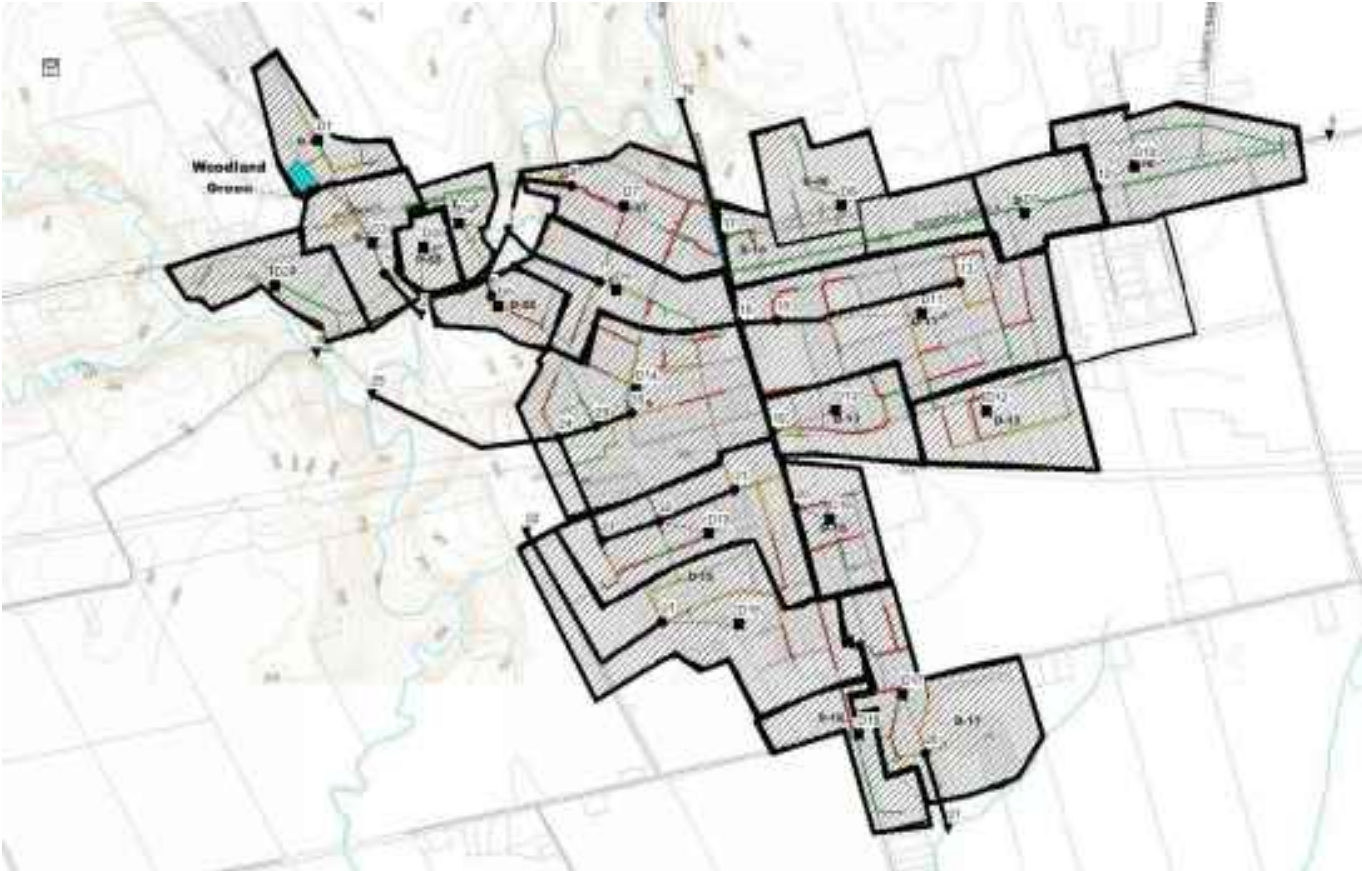
Waterford Drainage Schematic



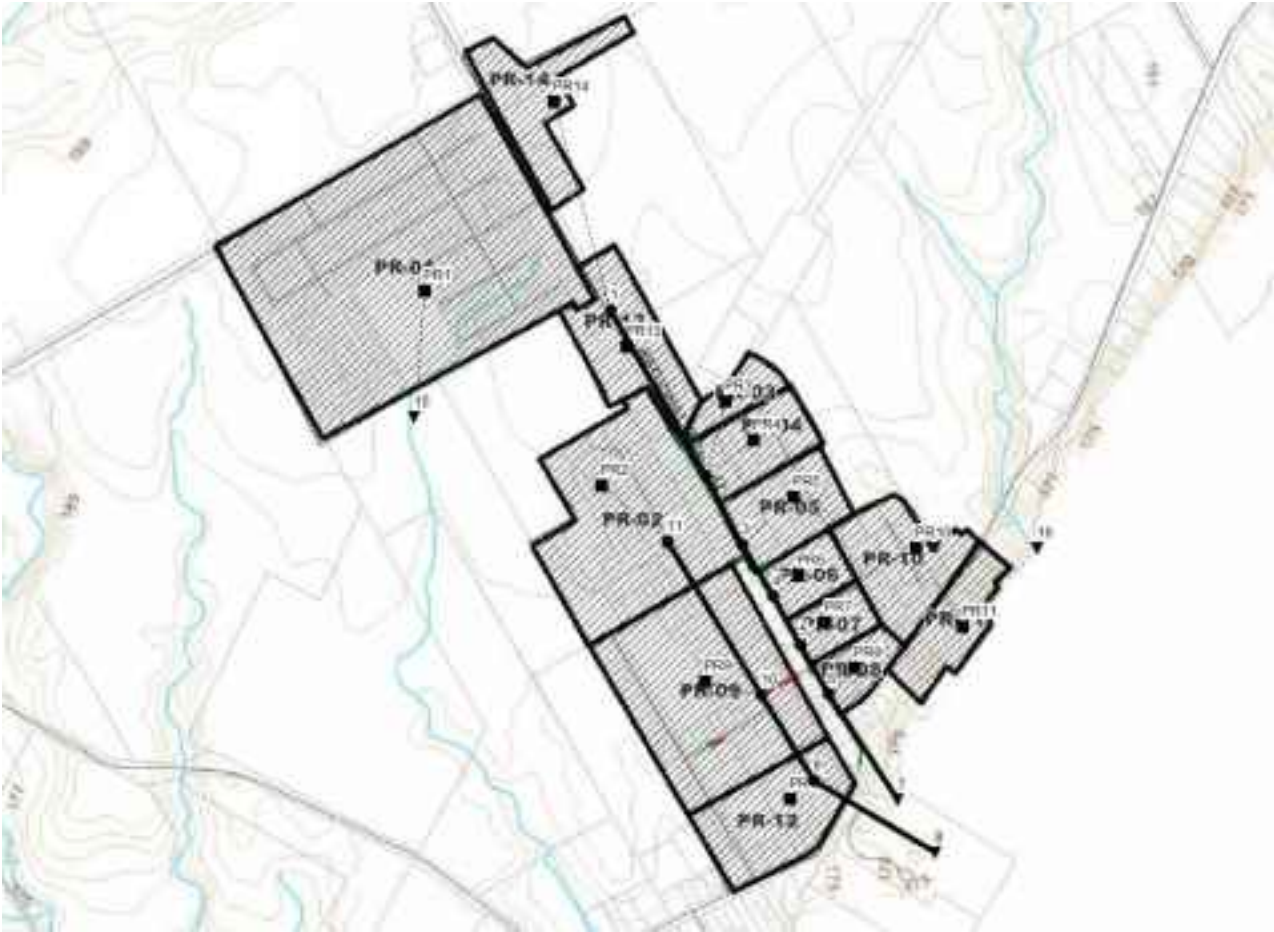
Port Dover Drainage Schematic



Delhi Drainage Schematic



Port Rowan Drainage Schematic

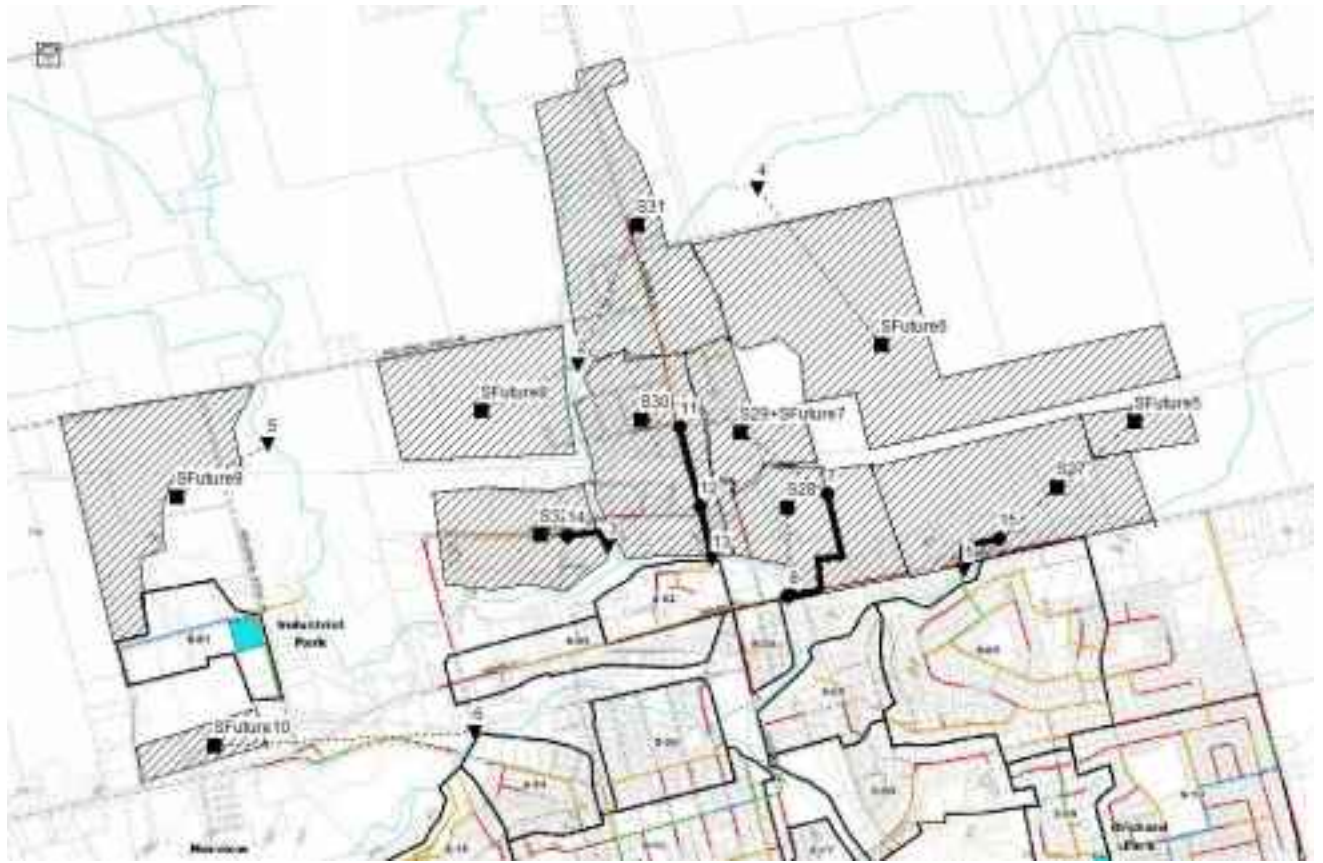


Future Conditions EPA SWMM Model

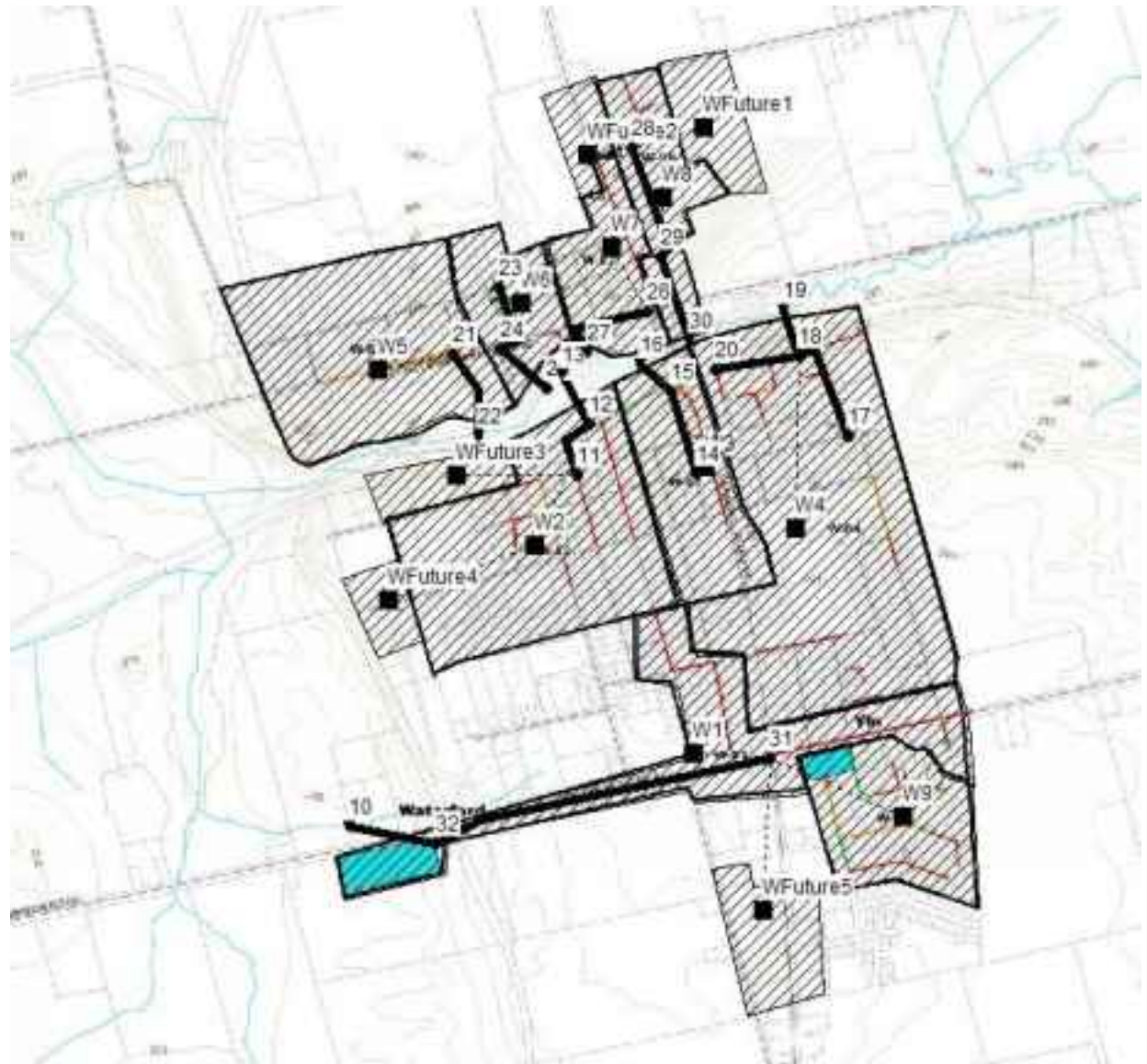
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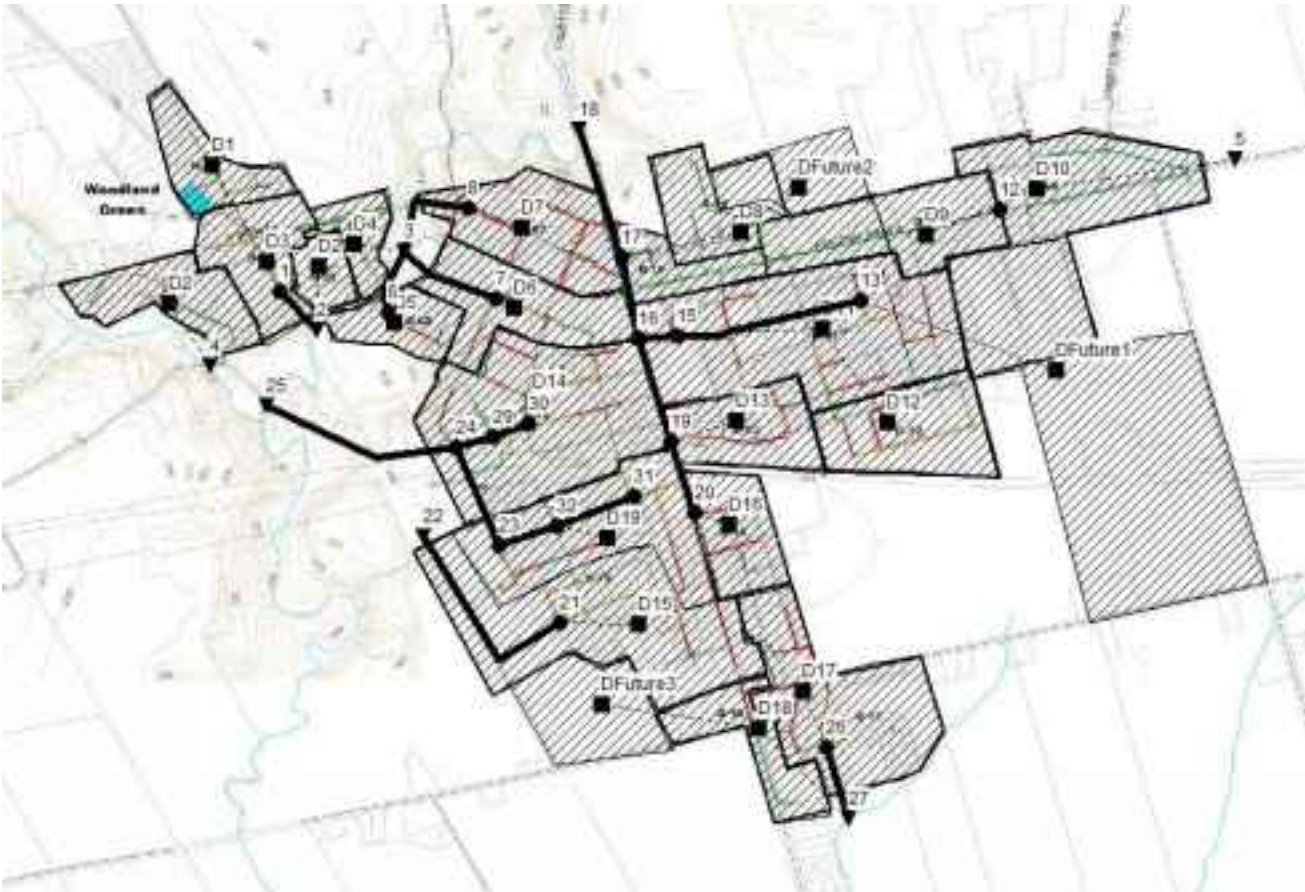
Simcoe Drainage Schematic 2



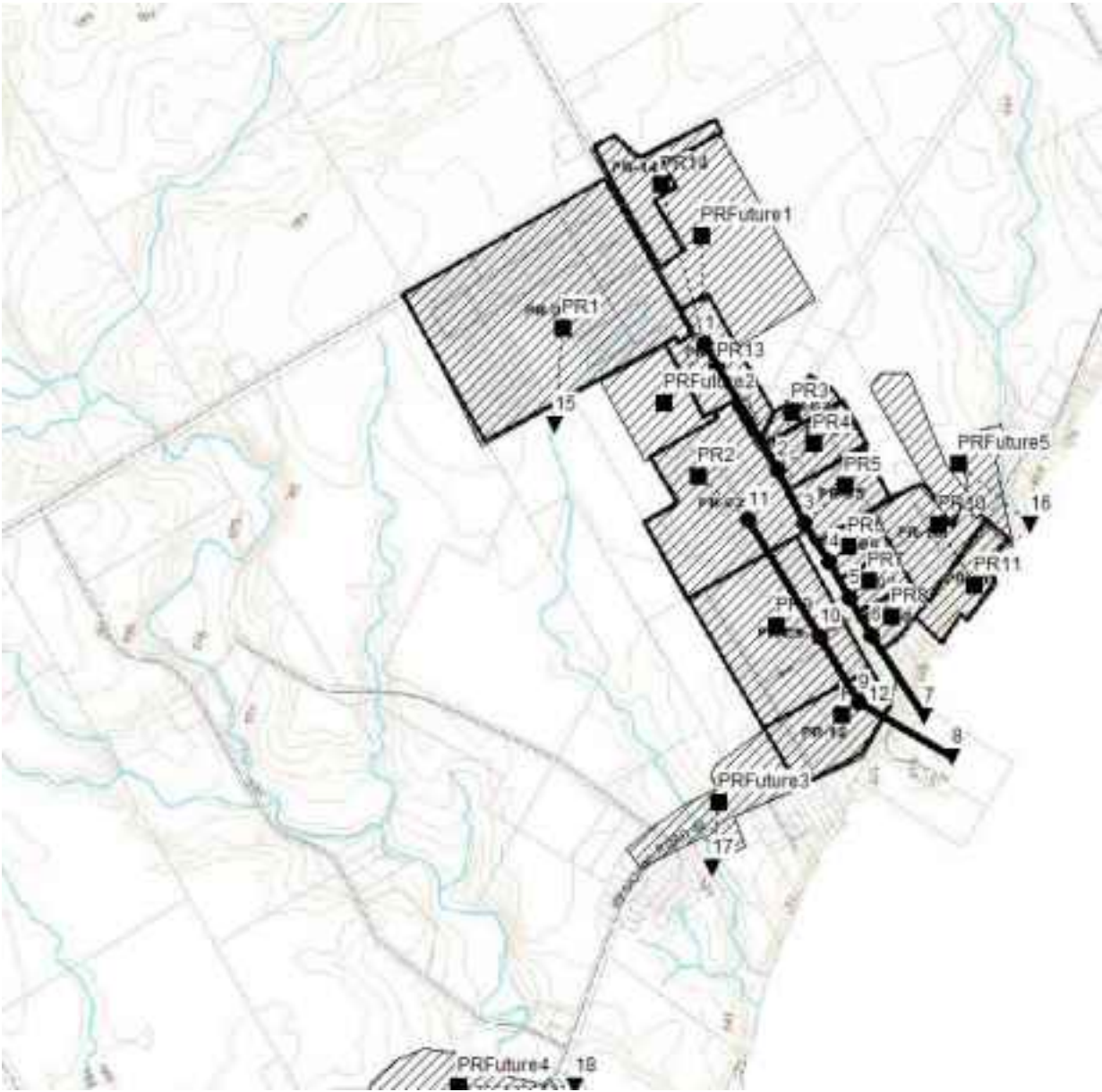
Waterford Drainage Schematic

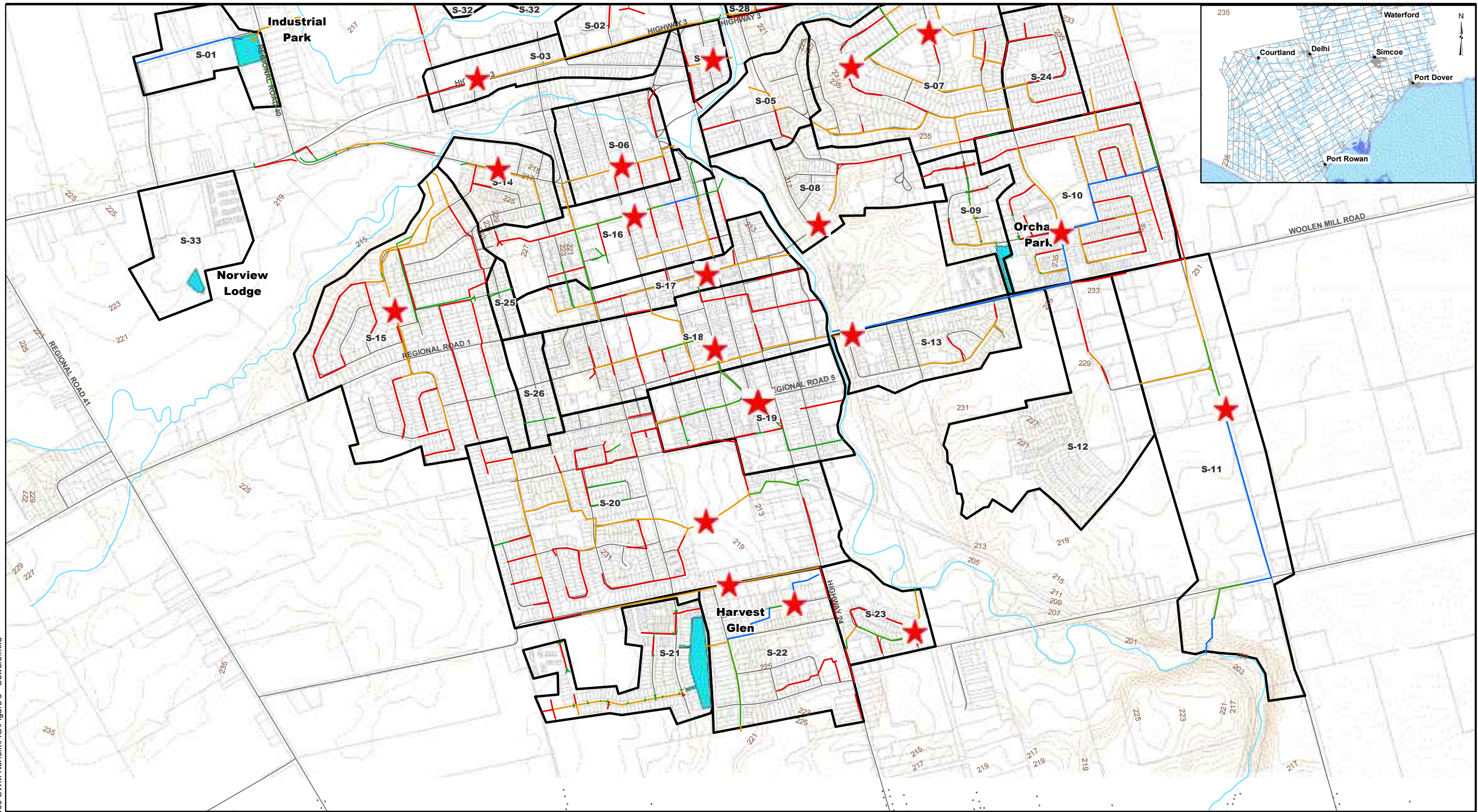


Delhi Drainage Schematic




Port Rowan Drainage Schematic



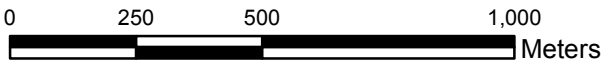


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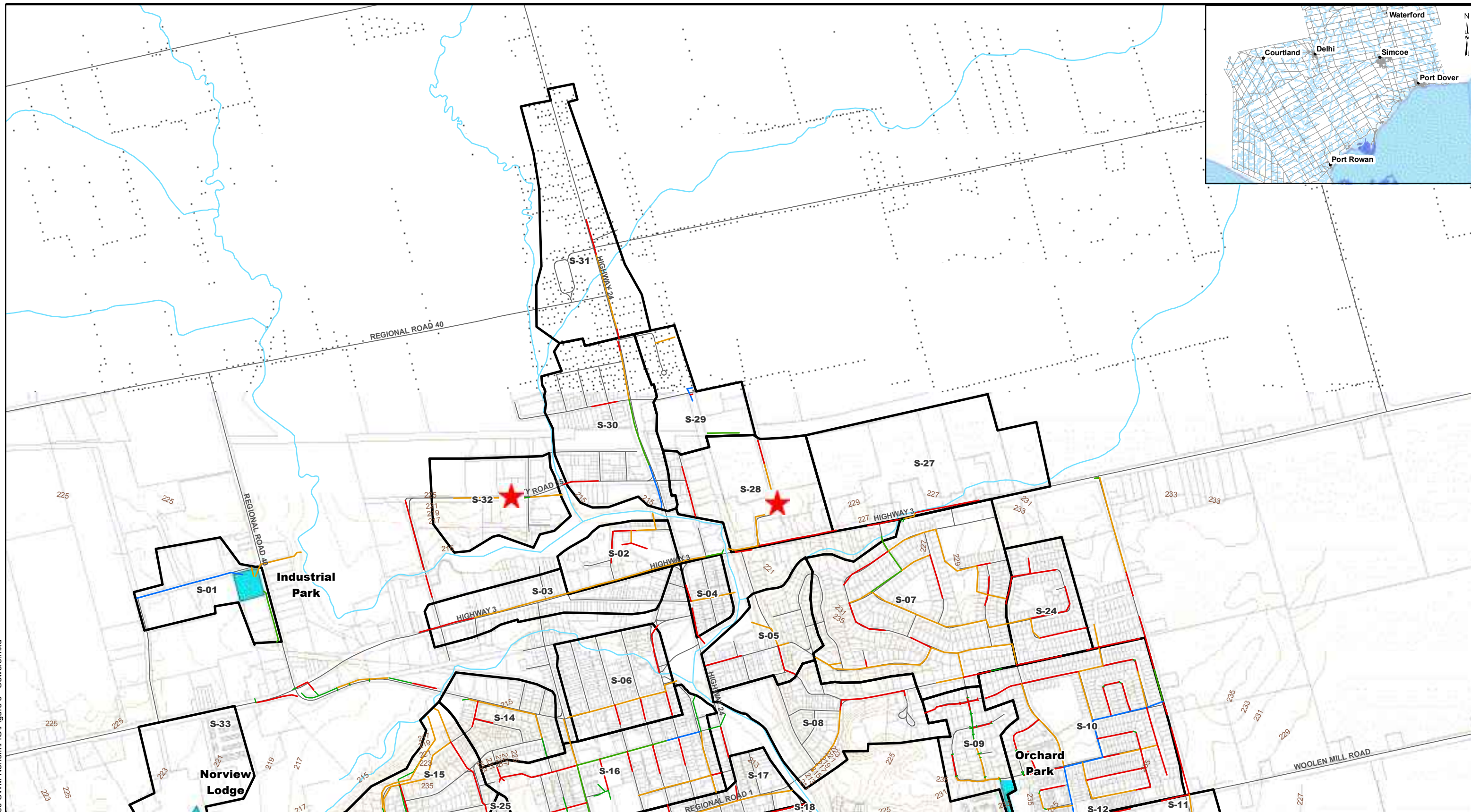
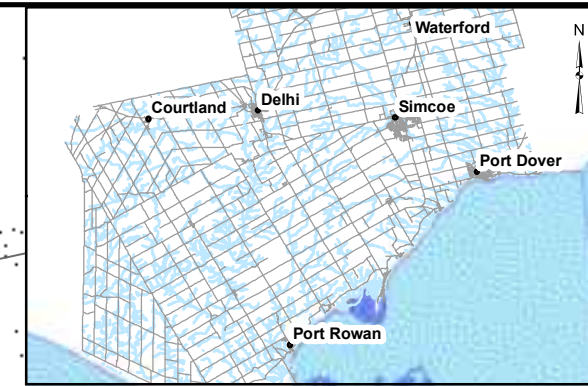
- CATCHMENTS
- WATERCOURSE
- ROADS
- CONTOURS (2m)
- STORM SEWER (2011)**
 100-400
 400-800
 800-1100
 1100-2150
- STORM PONDS
- PARCELS



0 250 500 1,000 Meters



CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS Flood Risk SIMCOE-I	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3Ai



Legend

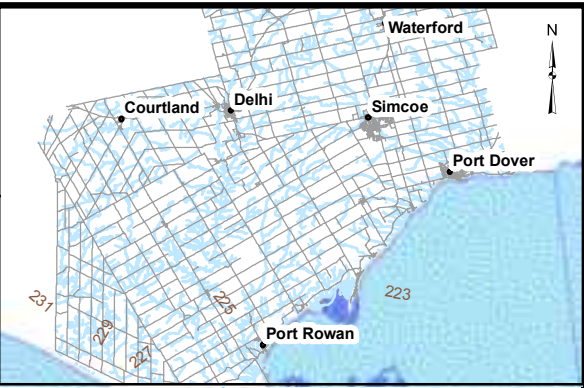
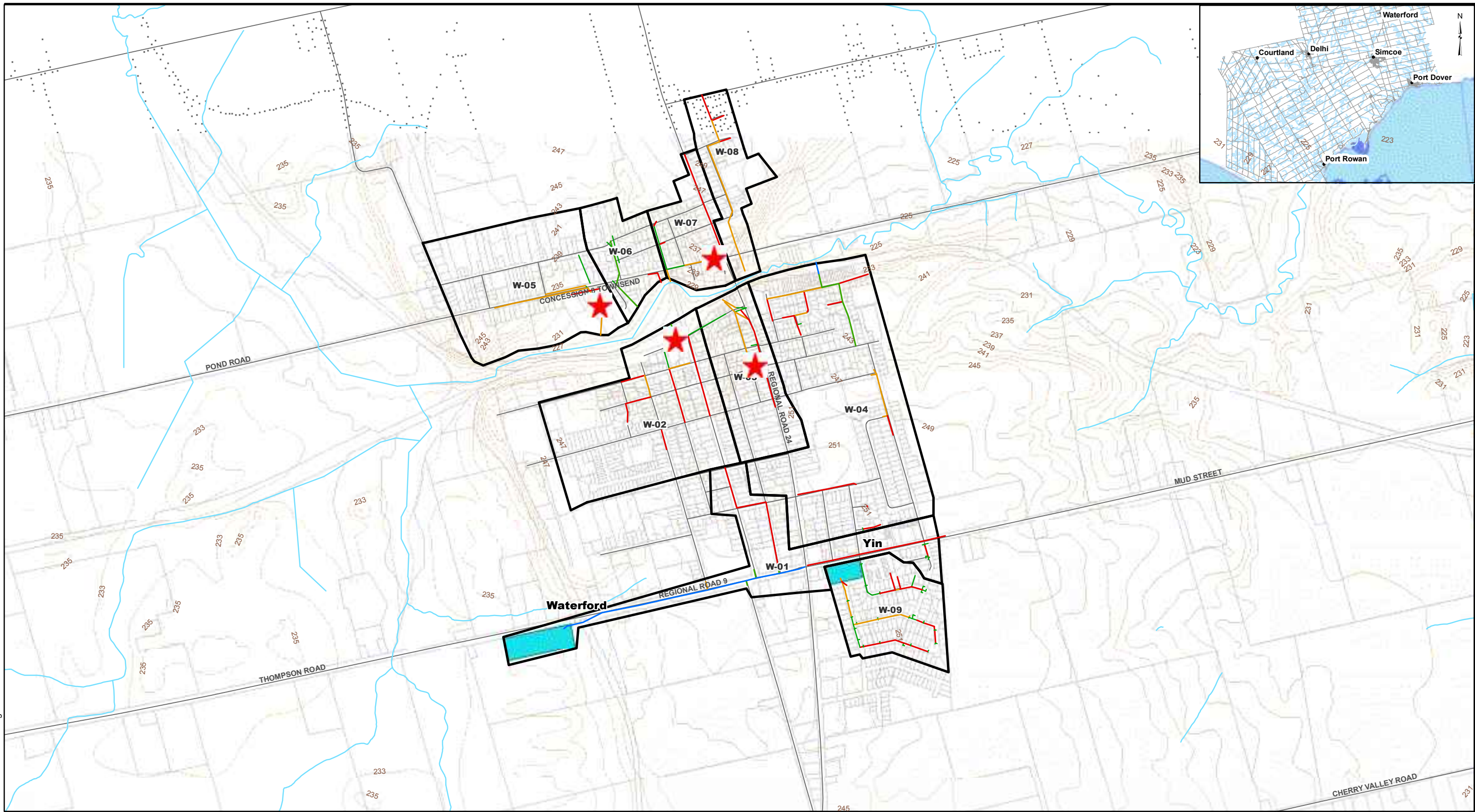
- CATCHMENTS
- WATERCOURSE
- ROADS
- CONTOURS (2m)
- STORM SEWER (2011) 100-400
- 400-800
- 800-1100
- 1100-2150
- STORM PONDS
- PARCELS

0 250 500 1,000 Meters

CLIENT
NORFOLK COUNTY


TITLE
INTEGRATED SUSTAINABLE MASTER PLAN
STORM SEWERS Flood Risk
SIMCOE-II

Checked A.Z.	Drawn S.Y.
Date June 2016	Proj. No. 33-15300-000-SWM
Scale 1:15,000	Figure No. 3Aii

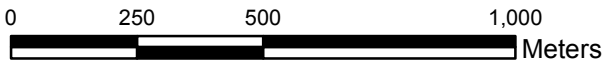


Legend

- CATCHMENTS
- WATERCOURSE
- ROADS
- CONTOURS (2m)
- STORM SEWER (2011)**
100-400
- 400-800
- 800-1100
- 1100-2150
- STORM PONDS
- PARCELS



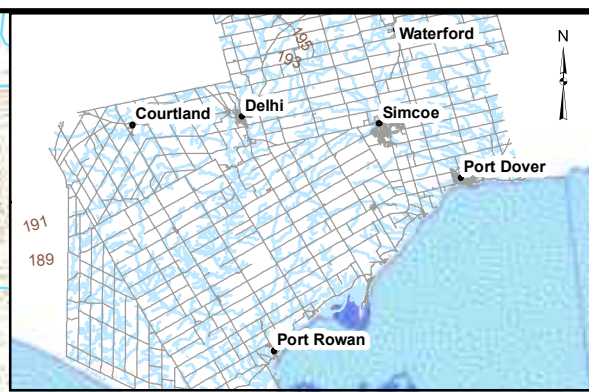
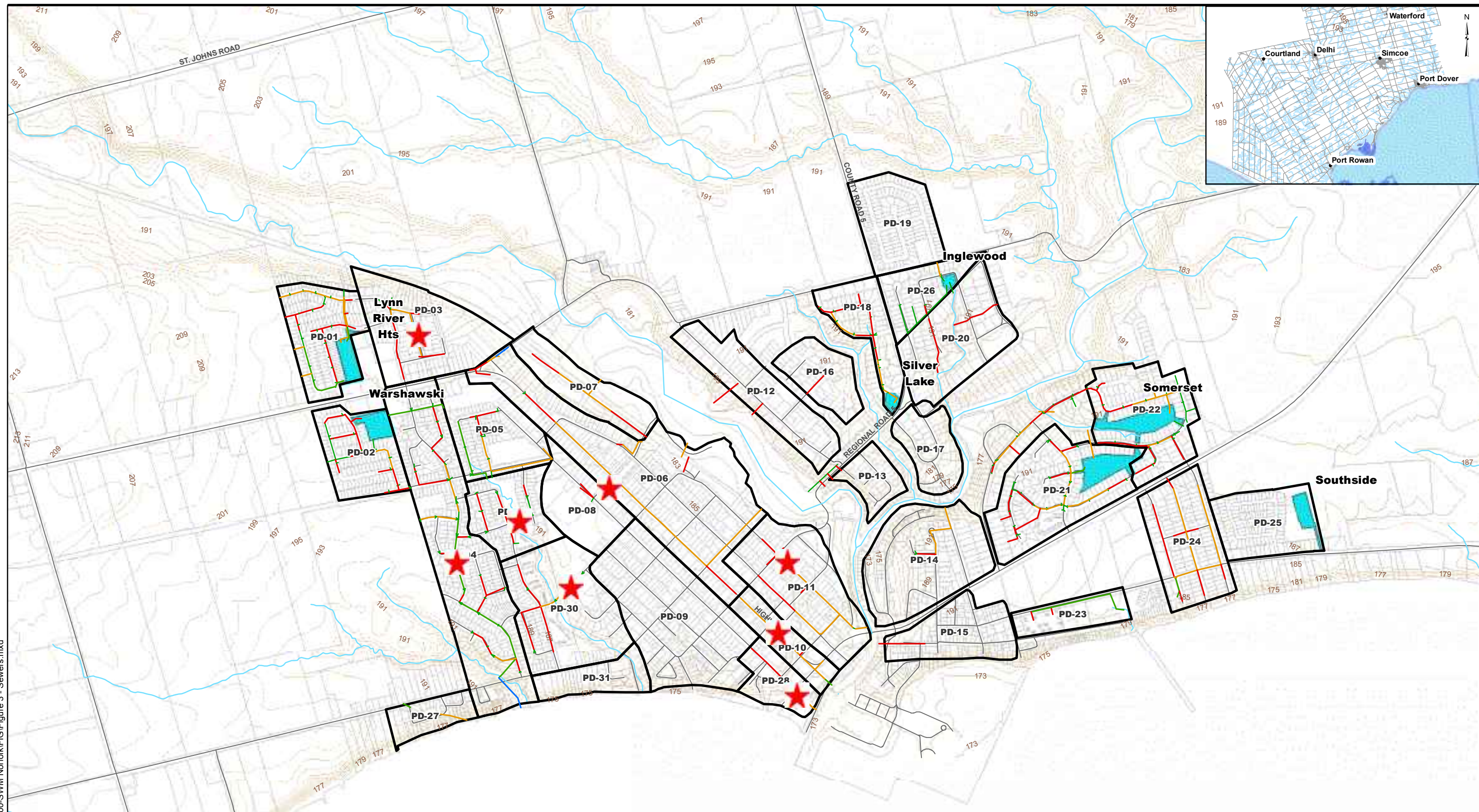
0 250 500 1,000 Meters



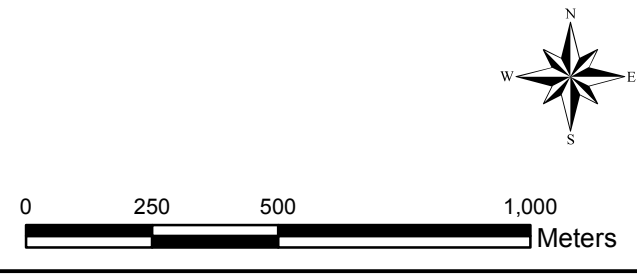
CLIENT	NORFOLK COUNTY	
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN	
	STORM SEWERS Flood Risk WATERFORD	
Checked	A.Z.	Drawn S.Y.
Date	June 2016	Proj. No. 33-15300-000-SWM
Scale	1:15,000	Figure No. 3B



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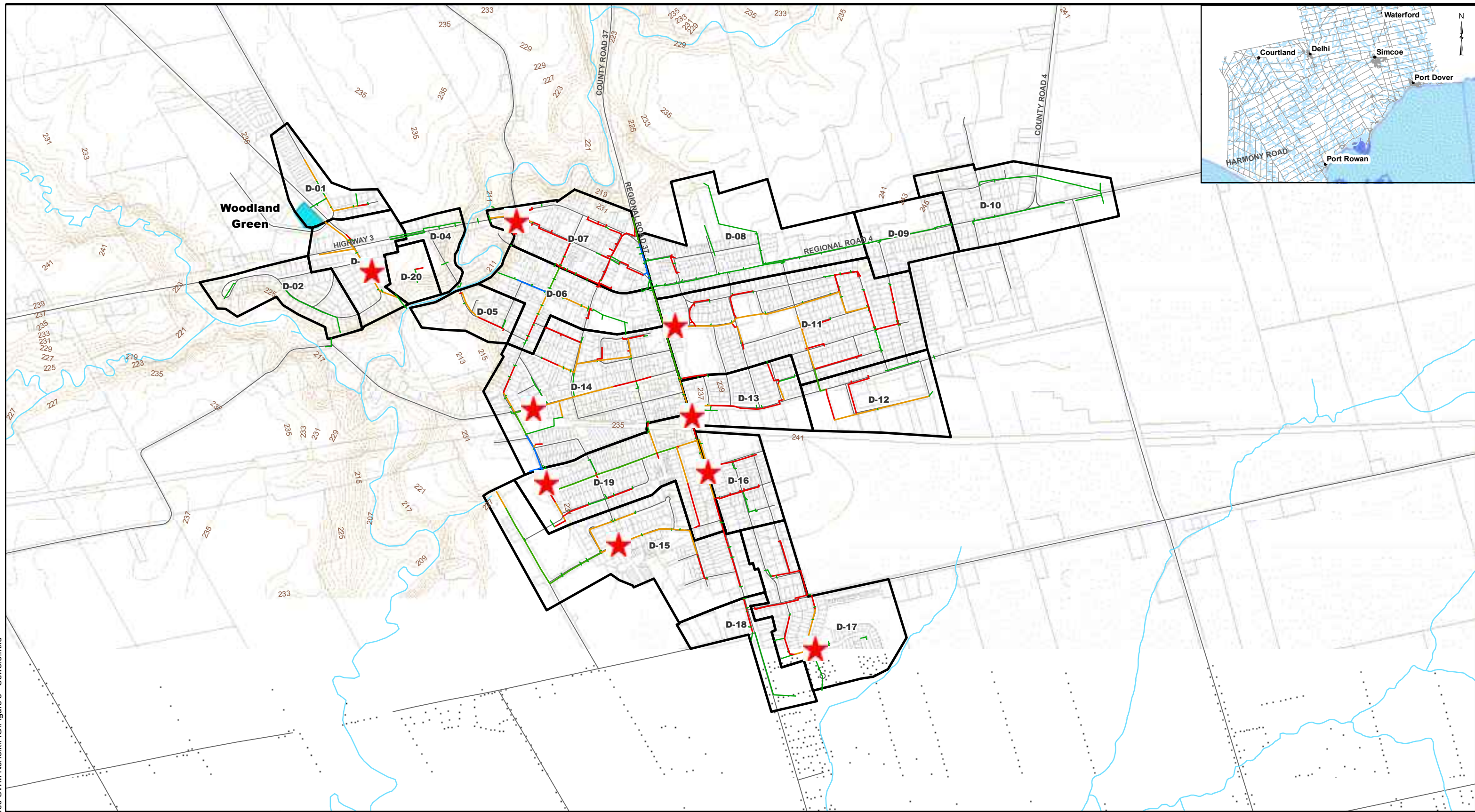


Legend			
	CATCHMENTS		STORM PONDS
	WATERCOURSE		PARCELS
	ROADS		
	CONTOURS (2m)		
	STORM SEWER (2011) 100-400		
	400-800		
	800-1100		
	1100-2150		



CLIENT	NORFOLK COUNTY
TITLE	INTEGRATED SUSTAINABLE MASTER PLAN
STORM SEWERS Flood Risk PORT DOVER	

Checked	A.Z.	Drawn	S.Y.
Date	June 2016	Proj. No.	33-15300-000-SWM
Scale	1:15,000	Figure No.	3C



Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
WATERCOURSE	100-400	PARCELS
ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

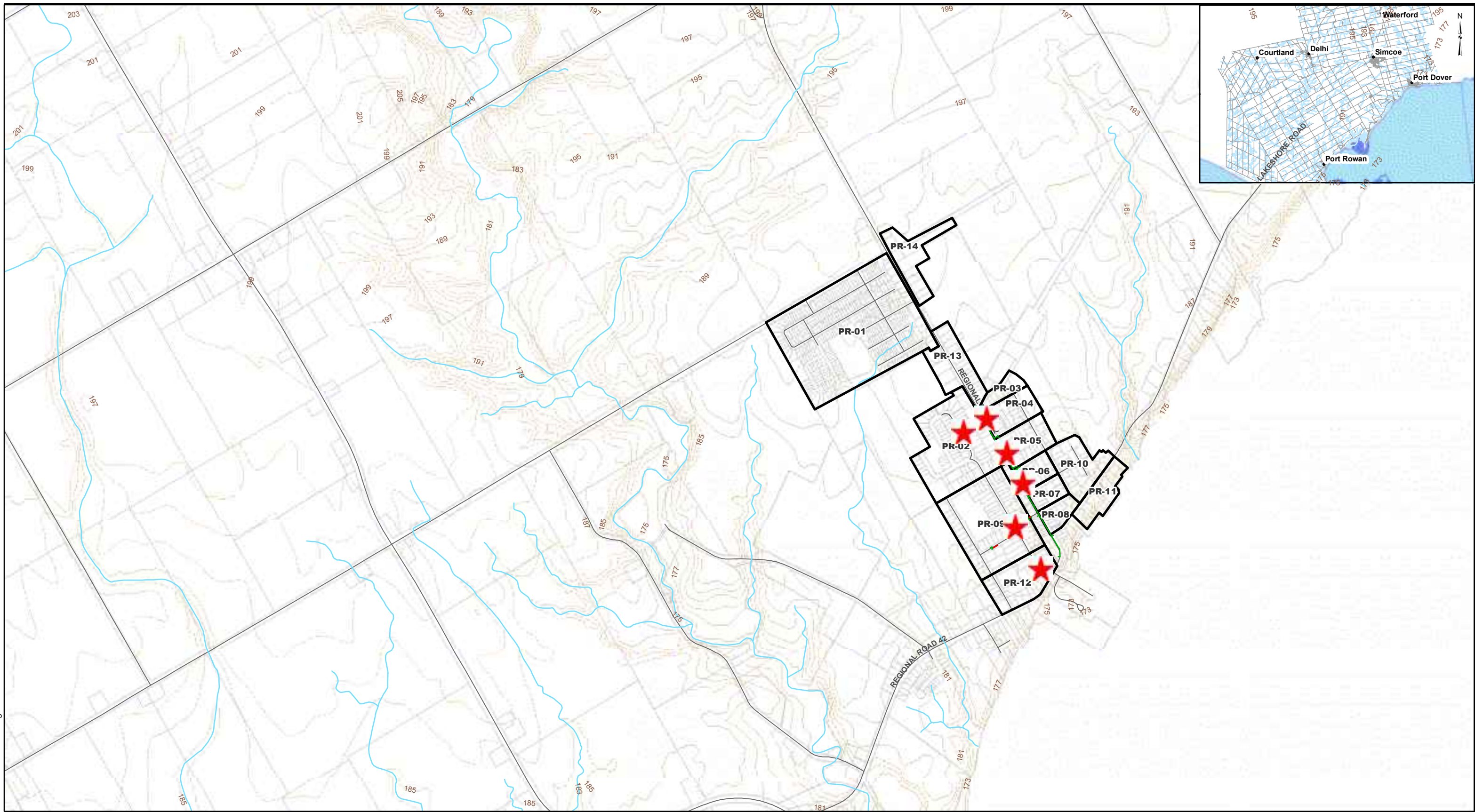
0 250 500 1,000 Meters

CLIENT
NORFOLK COUNTY

TITLE
INTEGRATED SUSTAINABLE MASTER PLAN

STORM SEWERS Flood Risk DELHI

Checked A.Z.	Drawn S.Y.
Date June 2016	Proj. No. 33-15300-000-SWM
Scale 1:15,000	Figure No. 3D



Legend

CATCHMENTS	STORM SEWER (2011)	STORM PONDS
WATERCOURSE	100-400	PARCELS
ROADS	400-800	
CONTOURS (2m)	800-1100	
	1100-2150	

0 250 500 1,000 Meters

CLIENT
NORFOLK COUNTY

TITLE
INTEGRATED SUSTAINABLE MASTER PLAN

**STORM SEWERS Flood Risk
PORT ROWAN**

Checked A.Z.	Drawn S.Y.
Date June 2016	Proj. No. 33-15300-000-SWM
Scale 1:15,000	Figure No. 3E

Appendix H

Transportation Model Validation

Appendix H: Transportation Model Validation

A validation of the 2011 Model was completed in order to ensure that travel patterns forecasted in the model were consistent to those of existing conditions. This involved comparing the modelled volumes to Average Annual Daily Traffic (AADT), comparing the VKT and VHT metrics between the different roadway classes and reviewing the vehicle speeds of modelled traffic on the different roadway classes.

A.1 Average Annual Daily Traffic (AADT)

AADT was provided by the County and this represents the total volume of traffic on a roadway in the period of year. As the model was run for the p.m. peak hour, the AADT was converted to peak hour data to make it comparable to the modelled volumes. The two volumes were compared using the GEH statistic, a measure used to determine the accuracy of the modelled volumes. A summary of the GEH results can be seen in **Table A.1** below.

Table A.1: Summary of GEH Results

GEH	Frequency	Relative Frequency	Cumulative Frequency
5	73	35%	35%
10	68	32%	67%
15	35	17%	83%
20	16	8%	91%
1000	19	9%	100%
Total	211	100%	

The table shows that 67% of the modelled volumes are within GEH 10. While it is generally preferred to have most of the modelled volumes within GEH 10, it must be noted that the model is largely uncongested. As a result, the model assigns traffic to paths with the shortest travel time when, in reality, drivers may not choose to deviate from a more direct route along arterials to shorten their trips by a relatively insignificant amount of time. In order to account for some of these trips, the model was run using a stochastic assignment, rather than a more typical all-or-nothing assignment, to account for the randomness of human behaviour such as choosing not to deviate from more direct routes.

A.2 VKT and VHT by Roadway Classification

To determine whether the different road classes were being utilized in a manner that accurately reflects travel patterns, the VKT and VHT values by each road class were compared. These are shown in **Table A.2** below.

Table A.2: 2011 VKT and VHT by Road Classification

Roadway Classification	Type Code	VKT	% of Total VKT	VHT	% of Total VHT	Total Distance (km)
Highway	1	70,751	20%	724	14%	114
Arterial	11/21/31	110,866	31%	1,999	37%	850
Collector	12/22/32	163,350	46%	2,413	45%	2954
Local Street	13/23/24	12,665	4%	224	4%	420
Total		357,632	100%	5,360	100%	4,338

Generally, the results are as expected. While only 31% of total VKT and 37% of total VHT are taken on arterial roadways, it must be noted that this only comprises of 33% of the total roadway network length in Norfolk. As a result, these numbers are largely in-line with the observed existing conditions, where travellers are not constrained by congestion and are taking the most convenient route.

A.3 Vehicle Speeds

A summary of posted speeds and modelled speeds are shown in **Table A.3** below. The speeds have been categorized by the different road classes.

Table A.3: Vehicle Speeds by Road Classification

Roadway Classification	Posted Speed (km/h)	Average Speed (km/h)
Highway	80	95.70
Arterial	50-80	63.96
Collector	50-80	70.08
Local Street	50	56.47
Network	50-80	64.42

An average speed of 64.42 km/h in the network indicates an overall low level of congestion. This is also represented amongst the different road classes. Generally speaking, due to the lack of congestion on the roadway network speeds are higher than posted, which is more in line with observed behavior for Norfolk residents. This also results in a larger percentage of users travelling along MTO Highways since these are the highest design classification roadways. Overall these speeds are indicative of a largely rural road network with little congestion.

Appendix I

Future Transportation Condition Results

Appendix I: Future Transportation Condition Results

It should be noted that in the 2011 National Household Survey data, there was a significant difference between the number for Employed Labour Force (ELF) and the number of jobs, or Employment (EMP) within the County. This resulted in a deficit of approximately 16,000 labour members. As a result, this deficit was assumed to be a result of the fact that these employees will be travelling outside of the county to reach their place of work. The external areas that consisted of these jobs are Haldimand County, Bayham Municipality, South-West Oxford, Norwich, Brant, Hamilton and London. This deficit was reduced in the future, as additional employment was created within the County at a rate faster than the projected Employed Labour Force growth.

As mentioned in Section 5.3.1 of the Norfolk ISMP, the model was run for future horizon years of 2021, 2031 and 2041 using the population and employment forecast projections for the report by Hemson Consulting. The projections are summarized in **Table B.1** below.

Table B.1: Population and Employment Forecasts

2021	64,840	23,814
2031	68,340	24,251
2041	69,580	25,584

Please note that due to the fact that the “Status Quo” alternative option was selected as the preferred, the following result represent the network with only the “Status Quo” improvements.

B.1 2021 Horizon

As noted earlier, in the future scenarios with additional employment in the County, the deficit of ELF to EMP is reduced. Furthermore, while the number of jobs within the County did increase, it was assumed that the 16,000 jobs that worked in the external zones would continue to do so in the future. The justification behind this is that those making the trip to external areas for employment are anticipated to continue doing the same in the future. Therefore, the increase in jobs within the county would be fulfilled by those living in the external areas and commuting to Norfolk.

A summary of the system metrics by road class for 2021 can be seen below in **Table B.2**.

Table B.2: 2021 VKT and VHT by Road Classification

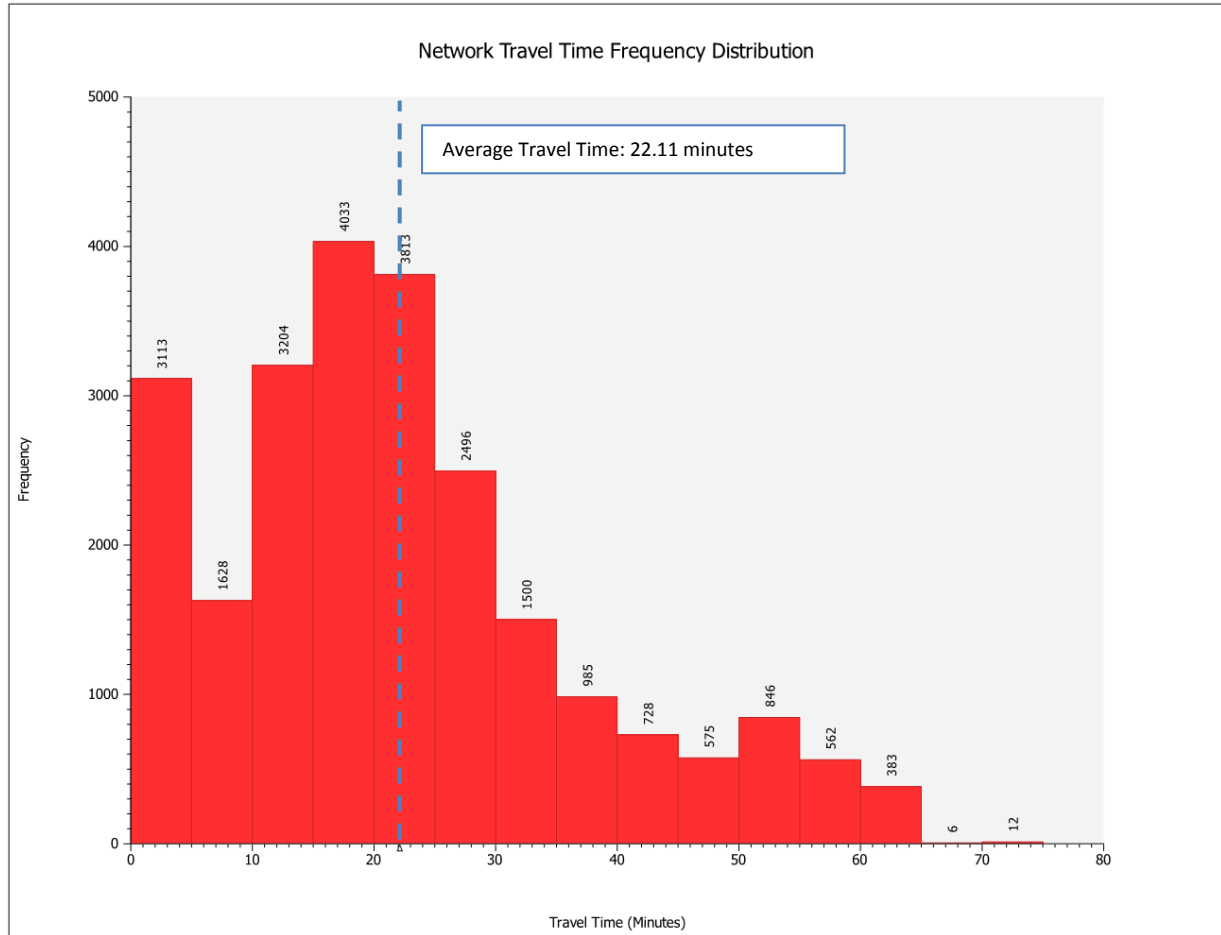
Roadway Classification	Type Code	VKT	% of Total VKT	VHT	% of Total VHT	Total Distance (km)
Highway	1	88,125	19%	960	13%	114
Arterial	11/21/31	139,009	30%	2,809	38%	850
Collector	12/22/32	213,794	47%	3,383	46%	2956
Local Street	13/23/24	15,759	3%	279	4%	420
Total		456,687	100%	7,431	100%	4,340

Note: Individual percentages may not add up to 100% due to rounding.

The table shows that the overall VKT and VHT in the network have increased. This is a reflection of the growth experienced in the County. The overall distribution of traffic along the different roadways, however, has not changed significantly. It can also be seen that the total distance of roadways has marginally increased from the 2011 scenario. This is a consequence of the improvements that were added in all future scenarios, as mentioned earlier in Section 5.3.1 of the Norfolk ISMP. The improvements added to two collector class roadways.

The growth experience in 2021 has led to an increased average travel time in the network. The number has increased from 20.88 minutes in 2011 to 22.11 minutes in 2021. This is an expected outcome as a result of more trips being made in the network, as well as an increased number of external trips travelling into the County. The behaviour of travel times has remained similar with the majority of trips within 25 minutes. A visual of the travel time distribution in the network can be seen in **Figure B.1** below.

Figure B.1: 2021 Norfolk County Travel Time Frequency Distribution



B.2 2031 Horizon

Just as in the 2021 horizon, the 16,000 jobs that were being fulfilled in the external zones were maintained in 2031. Due to population and employment growths being non-linear and growing at different rates with respect to each other, the number of people that would be going into Norfolk for work from the external zones would actually decrease in 2031.

A summary of the system metrics in 2031 is shown in **Table B.3** below.

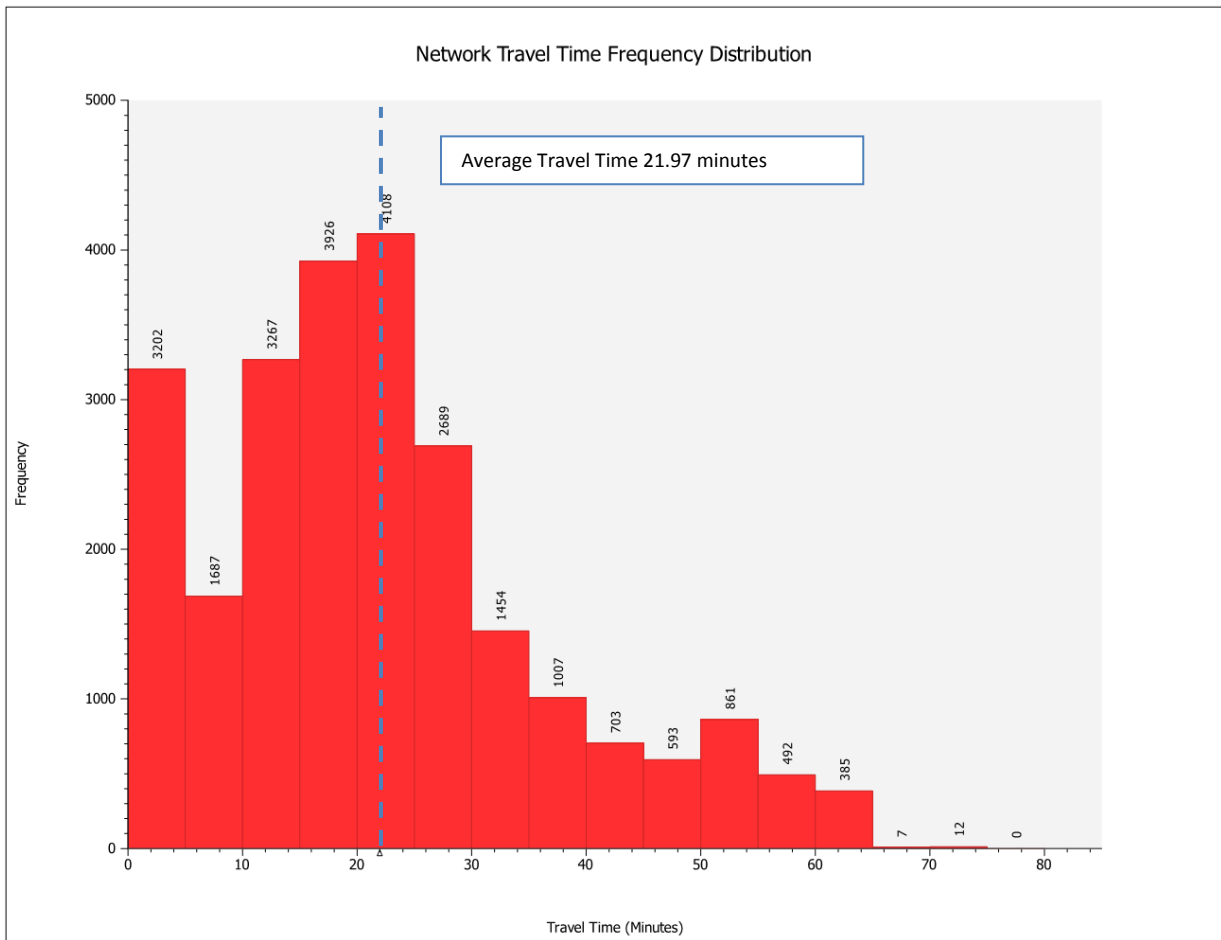
Table B.3: 2031 VKT and VHT by Road Classification

	Type Code	VKT	% of Total VKT	VHT	% of Total VHT	Total Distance (km)
Highway	1	88,269	19%	962	13%	114
Arterial	11/21/31	142,262	31%	2,905	38%	850
Collector	12/22/32	215,784	47%	3,436	45%	2956
Local Street	13/23/24	16,227	4%	288	4%	420
Total		458,632	100%	7,436	100%	4,340

Note: Individual percentages may not add up to 100% due to rounding.

The VKT and VHT metrics have increased as a result of continued growth in 2031. The distribution of traffic across the different road classes has more or less remained the same. The total number of trips being made in the network has increased, however, the average travel time in the network has marginally dropped from 22.11 minutes in 2021 to 21.97 minutes in 2031. The reason for this lowered average trip time is mainly due to the stochastic assignment procedure, which has resulted in a variance of approximately 9 seconds. Overall, this indicates that the travel time is expected to remain constant. A travel time distribution for the network is shown in **Figure B.2**.

Figure B.2: 2031 Norfolk County Travel Time Frequency Distribution



B.3 2041 Horizon

With population and employment growth continuing to occur in 2041, the number of trips in the network has also grown. The trips being made to external zones for employment that represent the 16,000 jobs have also been maintained in this horizon. Converse to 2031, the number of jobs that are fulfilled by external zone residents now increases in 2031. These numbers are summarized in **Table B.4** below. The reason for the fluctuation of this number across the scenarios is because the number of people coming into the County to work from external zones is a function of the difference between the population and employment growth rates. The proportion of labour force to jobs determines how many jobs will have to be fulfilled from external zones.

Table B.4: Jobs in Norfolk Fulfilled by External Zone Residents

Horizon Year	No. of Jobs
2021	7,166
2031	5,838
2041	6,545

A summary of the system metrics in 2041 is shown in **Table B.5** below.

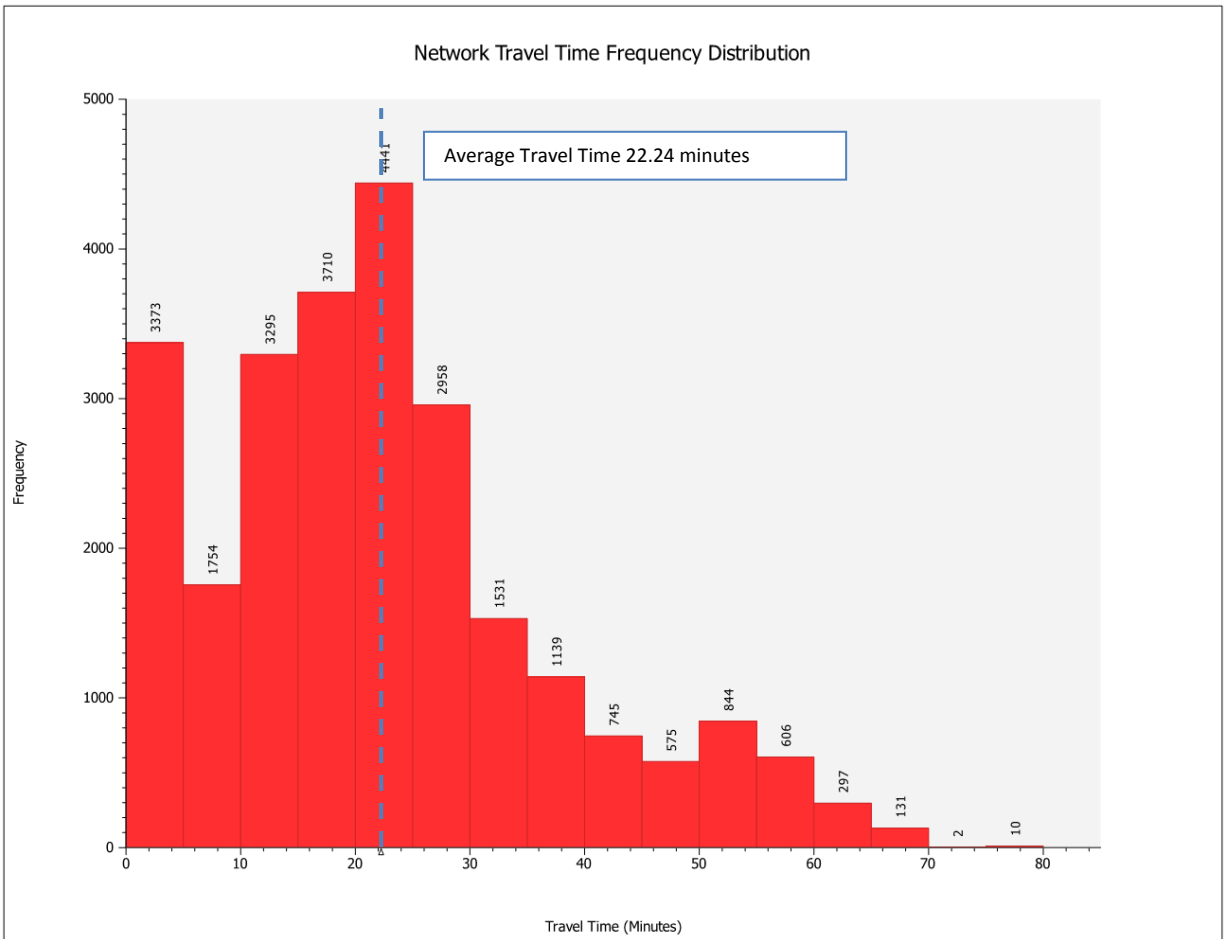
Table B.5: 2041 VKT and VHT by Road Classification

Roadway Classification	Type Code	VKT	% of Total VKT	VHT	% of Total VHT	Total Distance (km)
Highway	1	90,744	19%	1,010	13%	114
Arterial	11/21/31	144,051	30%	3,053	38%	850
Collector	12/22/32	226,281	47%	3,669	46%	2956
Local Street	13/23/24	17,223	4%	306	4%	420
Total		478,299	100%	8,038	100%	4,340

Note: Individual percentages may not add up to 100% due to rounding.

Similar to the 2021 and 2031 horizon years, the increased number of trips results in a more distance travelled and more time spent on the roadways in the network. The proportions of VKT and VHT among the different roadway classes remain consistent. With all the growth experienced up to 2041, the model forecasts the network to be largely uncongested, as described in Section 5.3.1 of the Norfolk ISMP. The average travel time in the network is 22.24 minutes, a number that has increased slightly from 2031 and is also higher than the time in 2021. This reflects not only the highest growth, but also the number of trips that are made from external zones to the County, as shown in Table B.4. The majority of trips that are made in the network are still within 25 minutes, however, there are now 10 trips in the 75-80 minute range that did not occur in previous scenarios. This can be attributed to the trips that happen between the County and external zones as they will likely have to make the longest distance trips. The travel time distribution for 2041 can be seen on **Figure B.3** below.

Figure B.3: 2041 Norfolk County Travel Time Frequency Distribution



Appendix J

TIS Guidelines

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A1.1 WHEN TO COMPLETE A TIS

A transportation impact study (TIS) should be completed for every development proposal within Norfolk County that may have an impact on the County road network. Generally speaking, developments that are expected to produce 75 vehicle trips to and from a development would constitute as having an impact. However, the County may request a TIS for developments that produce less than 75 trips in situations where other issues, including but not limited to: safety concerns, significant traffic peaking, and other operational concerns are identified, at the discretion of County staff.

If a development is deemed not to result in a significant impact to the County road network, then a Transportation Impact Study Brief will be required. This brief will provide the information required in Sections x to x of the Transportation Impact Study Guidelines.

A1.2 DATA REQUIREMENTS

The following list of information identifies the data that must usually be collected in order to complete a Transportation Impact Study. Additional information may be required depending on the needs of each individual study.

Table A1
Data Requirements for Transportation Impact Studies

Data	Source
Turning Movement Counts	Manual Collection Information from other studies
Signal Timing Plans	County Staff
Historical AADTs	County Staff MTO iCorridor Website
Road Configuration	Site Visit Google Streetview or equivalent (updated within the last year)
Background Developments within Study Area	County Staff
Collision Information within Study Area	County Staff

A1.3 EXISTING CONDITIONS

- ▶ Describes the road jurisdictions, road classifications, existing land use type, speed limits, lane configurations, street names, existing Active Transportation facilities, signalized and/or unsignalized intersections and their locations.
- ▶ Where possible, this information should be provided on detailed maps and diagrams.
- ▶ Existing Heavy Vehicle Volumes, to be used in the analysis. In areas with significant Heavy Vehicle volumes, please see section A.10 Heavy Vehicle Trips.



A1.4 STUDY AREA

- ▶ Contains a description and a map of the study area including but not limited to the site location, land use, type of the surroundings and subject development lands.
- ▶ The study area should extend far enough to contain all highways, interchanges and intersections that will be affected by the traffic generated by the proposed development.

A1.5 DEVELOPMENT LAND USE TYPE & SITE PLAN

- ▶ Contains a description of the type of land uses proposed and a detailed site plan showing structures, parking, access and site circulation.
- ▶ Identifies existing road edges, entrances, pavement markings and traffic control for roads adjacent to the proposed development, shown to scale.
- ▶ Details on development size, including property area, number of residential units, gross floor area, number of employees, etc.
- ▶ Details on development phasing (if applicable) and approximate timing for partial and full occupancy.

A1.6 STUDY HORIZONS

- ▶ Includes the opening date of the development, 5 and 10 years from the opening date.
- ▶ Where applicable, each major phase in a multi-phased development should be assessed separately for the 5 and 10 year horizons beyond full build-out of the site.
- ▶ Alternative study horizon years require confirmation by ministry staff prior to the commencement of the TIS.

A1.7 TRAFFIC ANALYSIS

- ▶ Traffic analysis should be completed using software which calculates traffic capacity under the latest Highway Capacity Manual methodology.
- ▶ Impacts on the road network should be evaluated for both weekday A.M. and P.M. peak hours and for the site peak generation hour, if it falls outside highway peak hour times.
- ▶ At signalized intersections, movements with v/c ratio greater than 0.85 are deemed to be “critical” in terms of operations. Movements that experience a v/c ratio of 0.85 or greater should be evaluated for possible operational improvements.

A1.8 EXISTING CONDITIONS TRAFFIC ANALYSIS

- ▶ The existing conditions analysis will utilize the information obtained in previous steps, in order to determine the baseline traffic conditions that will be used to identify and compare the impacts in the future analyses.

A1.9 FUTURE CONDITIONS

A1.9.1 Transportation Network Improvements

- ▶ Any planned transportation network improvements in the study area will be confirmed with County staff prior to undertaking the future analysis. This will include roads widenings or changes, modifications to intersection configurations.

A1.9.2 Future Background

- ▶ The future background traffic conditions are a composite of the existing conditions, and the change in traffic volumes as a result of new development in the immediate area, or more generally throughout the County.
- ▶ In order to estimate the various components of the background traffic growth, the following items should be reviewed with the County.

A1.9.3 Growth Rates

- ▶ Generalized growth rates on collector and arterial roadways in the County are intended to represent the change in traffic volumes as a result of volumes beyond the study area. This is because it is likely the majority of this traffic is “pass-through” traffic destined to other locations.
- ▶ Growth rates should be estimated based on availability of the following sources: historical AADT information, macro model link volumes, or local experience.

A1.9.4 Other Background Developments

- ▶ Traffic anticipated to be generated from approved developments within the study area must be accounted for. County Planning staff should be consulted in order to determine the location and magnitude of these developments, and to obtain traffic impact studies for these developments (if available)

A1.9.5 Trip Generation

- ▶ The volume of traffic generated by a proposed development should be estimated using the procedures described in ITE’s Trip Generation Handbook.
- ▶ Special consideration should be given to the guiding principles included in Chapter 3 of the ITE’s Trip Generation Handbook for the selection between rates and equations.
- ▶ If local data is available, or an alternative methodology for trip generation is proposed, its use should be discussed with Ministry’s staff prior to commencement of the TIS.
- ▶ For trip generators considered by the Ministry as unique, an alternative methodology for trip generation should be discussed and approved with the Ministry staff prior to commencement of the TIS.
- ▶ Trip Generation assumptions and results should be presented in a tabular form.
- ▶ For mixed-use developments, NCHRP Project 8-51 should be referenced in addition to Chapter 7 of ITE’s Trip Generation Handbook

A1.9.6 Trip Distribution

- ▶ Describes methods and assumptions for distribution and route assignment of traffic.
- ▶ Assumptions for trip distribution should be supported by one or more of the following:
 - Origin-destination Surveys
 - Comprehensive Travel Surveys
 - Planning models
 - Market studies
 - Assumptions for route assignment should be supported by:
 - Existing travel patterns
 - Expected future travel patterns
- ▶ Assumptions for Origin/Destination and Percent Distribution should be presented in tabular form, while traffic assignment should be presented as a diagram.
- ▶ For retail developments, pass-by trips should also be assigned as discussed in Chapter 5 of the ITE Trip Generation Handbook.

A1.9.7 Total Future Analysis and Recommendations

- ▶ All volumes should be shown in exhibits.
- ▶ The Total Future analysis should identify critical movements at intersections and determine what improvements should be made to mitigate these critical movements.
- ▶ Proposed improvements should be selected and designed in accordance with the Section A.A Roadway Improvements below.
- ▶ In addition, the Total Future Analysis and Recommendations should include measures to maintain and/or improve existing Active Transportation conditions including interconnection of existing facilities.
- ▶ Any possible effects on existing or proposed Active Transportation facilities generated by the proposed development should be discussed and mitigated where possible.

A1.10 HEAVY VEHICLE TRIPS

- ▶ For developments in which truck trip generation and their effects in the study area are relevant, the following information shall be included as part of the TIS:
 - Existing conditions related to truck traffic (percentage, safety).
 - Relationship between land use and truck traffic (cargo, service hours, routing).
 - Physical requirements (dedicated access, dedicated lanes).

A1.11 ROADWAY IMPROVEMENTS

For Transportation Impact Studies, or traffic operations studies in general, the following roadway improvements should be selected and designed in accordance with the Norfolk County Design Criteria. For additional design information, the references indicated below in **Table A2** should also be used.

Improvement	Reference(s)	Other Considerations
Widening	1. TAC Geometric Design Guidelines for Canadian Roads	Widening should be justified through detailed operations study.
Turn Lanes	1. TAC Geometric Design Guidelines for Canadian Roads 2. MTO Geometric Design Guidelines for Ontario Highways	Need for turn lane to be determined through MTO Geometric Design Guidelines for Ontario Highways Left Turn Lane warrant.
Traffic Signals	1. OTM Book 12	Traffic signals should only be installed as warranted by OTM Book 12. However, County staff has the latitude to install at locations where the warrant is not met at their discretion, if there are no significant impacts to adjacent intersections.
Roundabouts	1. FHWA An Informational Guide to Roundabouts 2. Waterloo Region Context Sensitive Regional Transportation Corridor Design Guidelines (Section 4.4.7.6)	Roundabouts should be considered using the criteria available in the FHWA guidelines, in parallel with consideration for all-way stops and signals. Detailed design criteria available in Waterloo guidelines.
School Zones	1. TAC School and Playground Areas and Zones: Guidelines for Application and Implementation	Guidelines for limits of school and playground zones, as well as how they should be appropriately implemented, are included.
All-Way Stop	1. OTM Book 5	Consideration for All-way stops should also include reviewing potential for roundabouts and signals.

Appendix K

Roundabouts

TABLE OF CONTENTS

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A2.3 Roundabout Design	2



A2.1 FOREWORD

The following sections of this appendix, if adopted, should be inserted into the Norfolk County Design Criteria under subsection 6 – Roadways. It will form the basis for roundabout selection and design in the County.

A2.2 SELECTION CRITERIA FOR ROUNDABOUTS

The primary purpose of providing roundabouts as a form of intersection control, as opposed to providing traffic signals, is to reduce the number of angle collisions at an intersection and to provide traffic calming in the form of reduced travel speeds. As a result, roundabouts should only be installed as a form of traffic calming at locations where a need to reduce speeds or angle collisions is demonstrated.

At new intersections, roundabouts may be installed if, upon designing the roundabout in accordance with the criteria in Section A1.3, property and other impacts can be mitigated.

A2.3 ROUNDABOUT DESIGN

Roundabouts must be designed in accordance with the FHWA publication “An Informational Guide to Roundabouts”. Typical details to be included for roundabout drawings are provided in the **Standard Roundabout Details** figure.

Appendix L

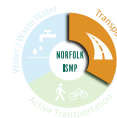
Transportation Figures



Norfolk Integrated Sustainable Master Plan September 2016

Figure

5-3



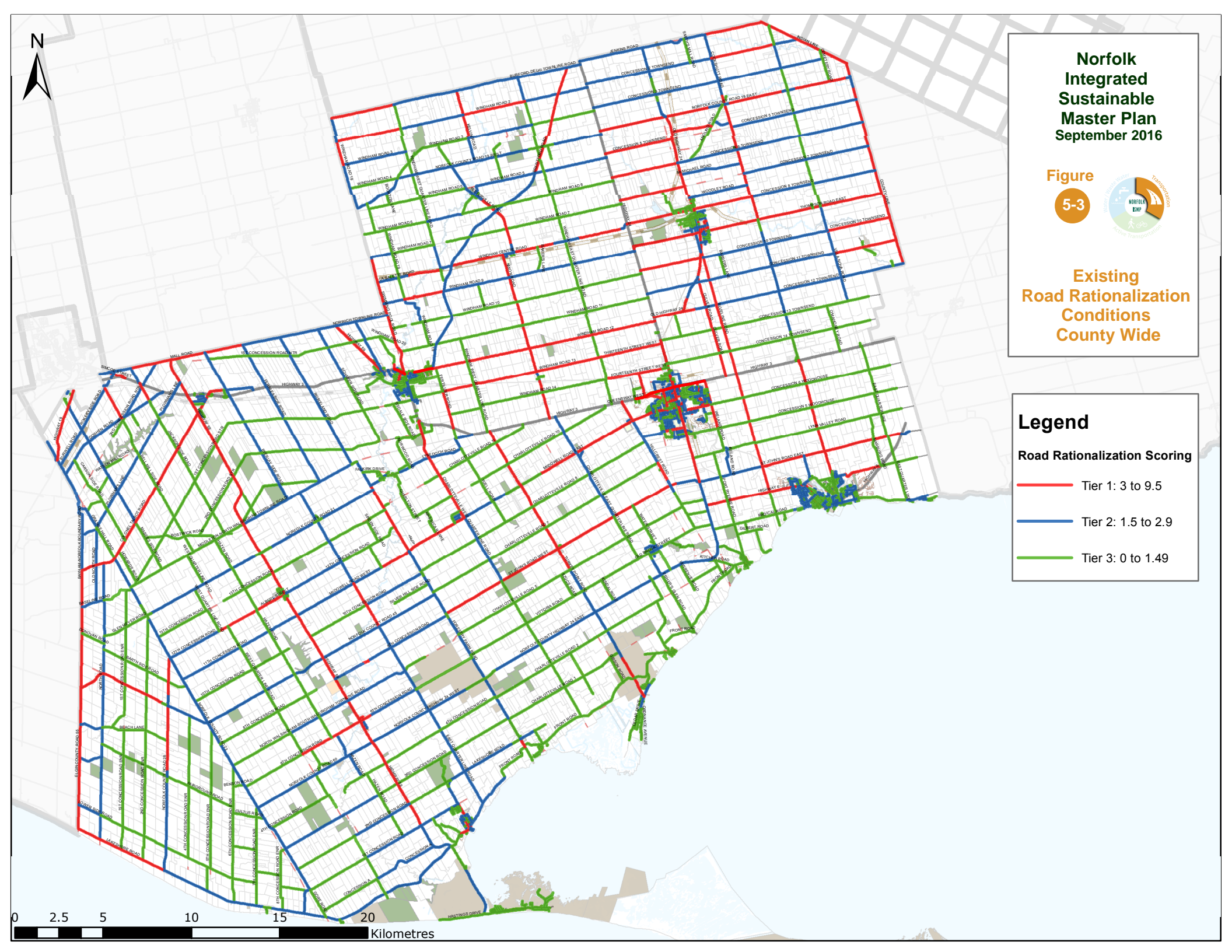
Existing Road Rationalization Conditions County Wide

Legend

Road Rationalization Scoring

- Tier 1: 3 to 9.5
- Tier 2: 1.5 to 2.9
- Tier 3: 0 to 1.49

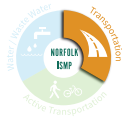
0 2.5 5 10 15 20 Kilometres



**Norfolk
Integrated
Sustainable
Master Plan
September 2016**

Figure

5-4



**Recommended
Goods Movement
County Wide**

Legend

Recommended Goods
Movement Roadways

Load Restriction

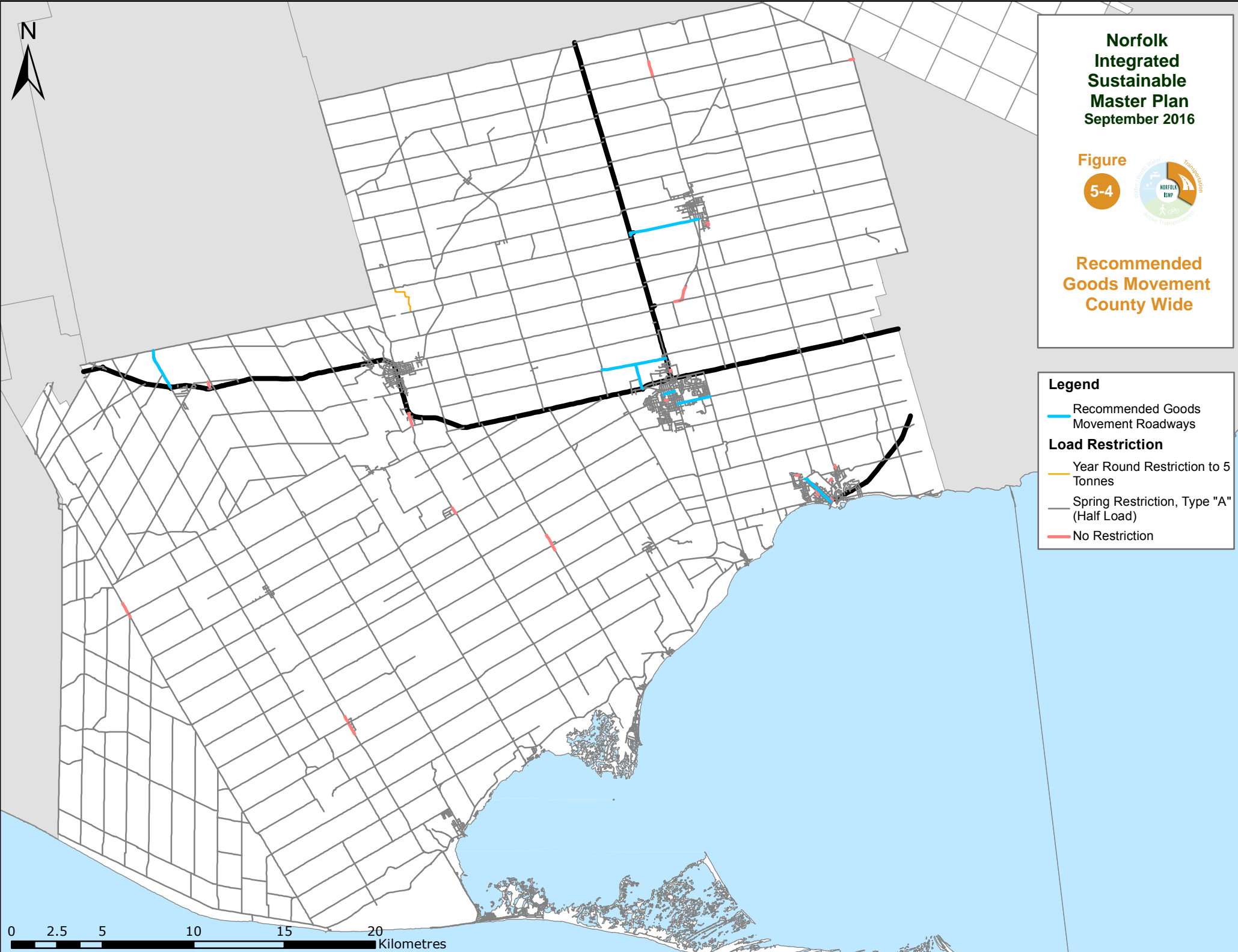
Year Round Restriction to 5
Tonnes

Spring Restriction, Type "A"
(Half Load)

No Restriction



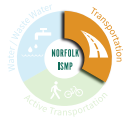
0 2.5 5 10 15 20 Kilometres





Norfolk Integrated Sustainable Master Plan September 2016

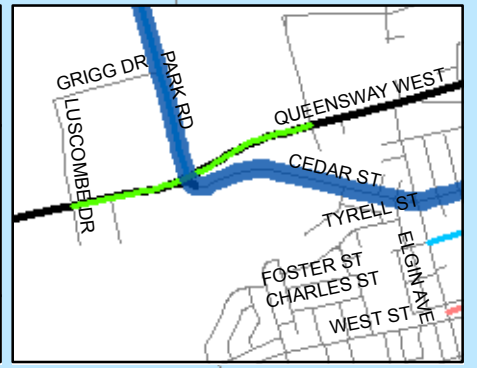
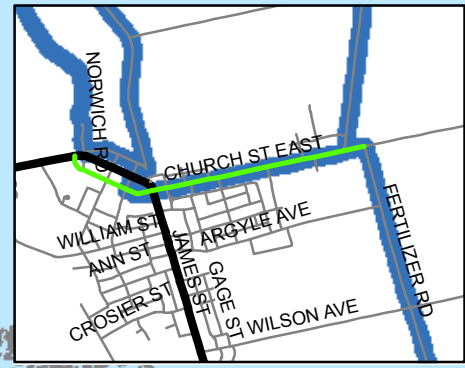
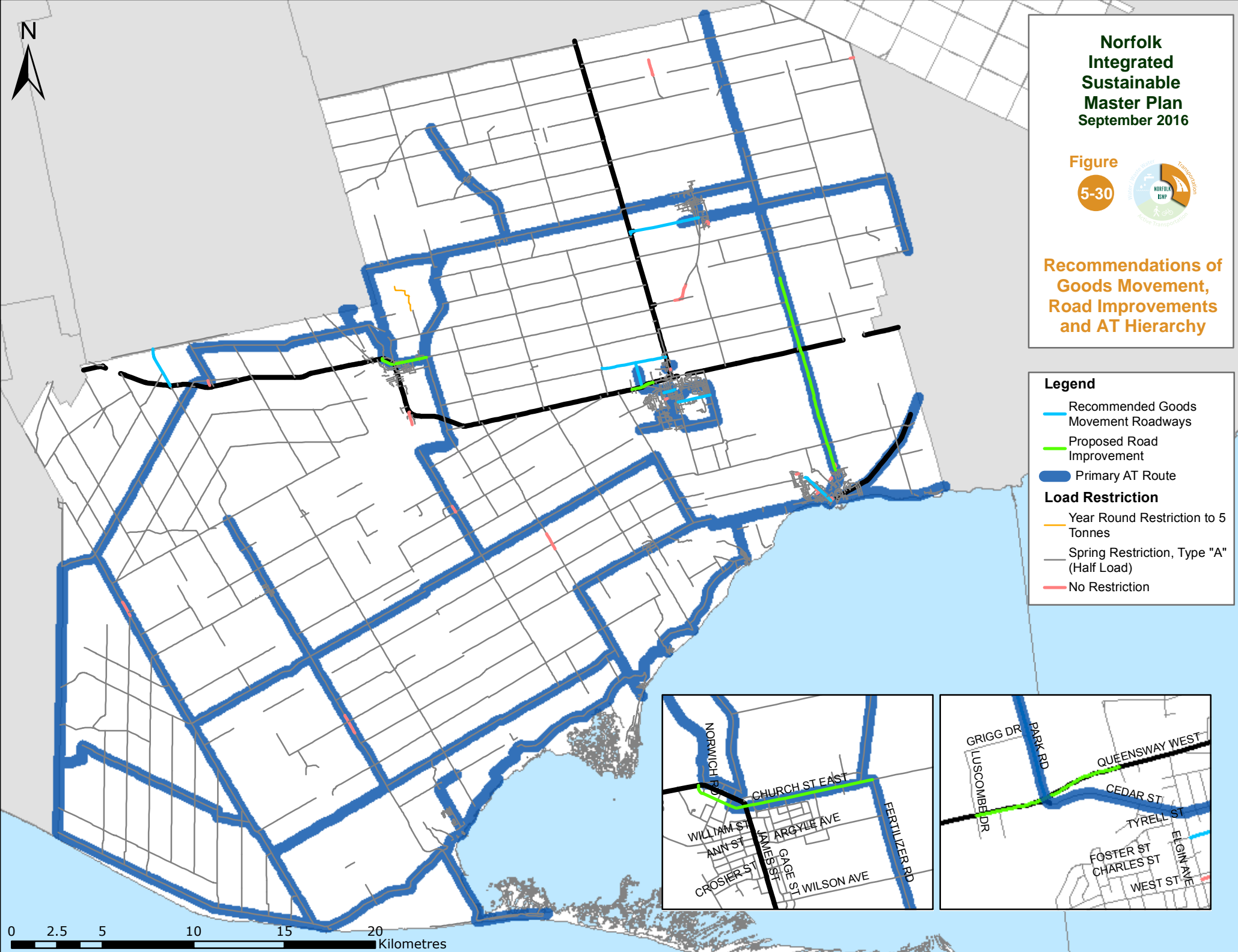
Figure
5-30



Recommendations of Goods Movement, Road Improvements and AT Hierarchy

Legend

- Recommended Goods Movement Roadways
- Proposed Road Improvement
- Primary AT Route
- Load Restriction**
 - Year Round Restriction to 5 Tonnes
 - Spring Restriction, Type "A" (Half Load)
 - No Restriction



0 2.5 5 10 15 20 Kilometres

Appendix M

Norfolk Integrated Sustainable Master Plan

August 2016

Map
1A



Existing Active Transportation Conditions County Wide Legend

Active Transportation Routes

- Existing Off-Road Trail¹
- Paved Shoulder
- On-Road Cycling Route²

Network Enhancements

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage
- Connection to Surrounding Municipality

Regional Routes

- Trans Canada Trail
- South Coast Cycling Route
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour

Key Community Destination

- Accommodation
- Hospital
- Library
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

Legend Notes:

1. Existing Off-Road Trails includes hiking trails, urban trails, park trails, woodlot trails and rail trails. Routes have been identified and mapped based on information included in the County's GIS database.
2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders.

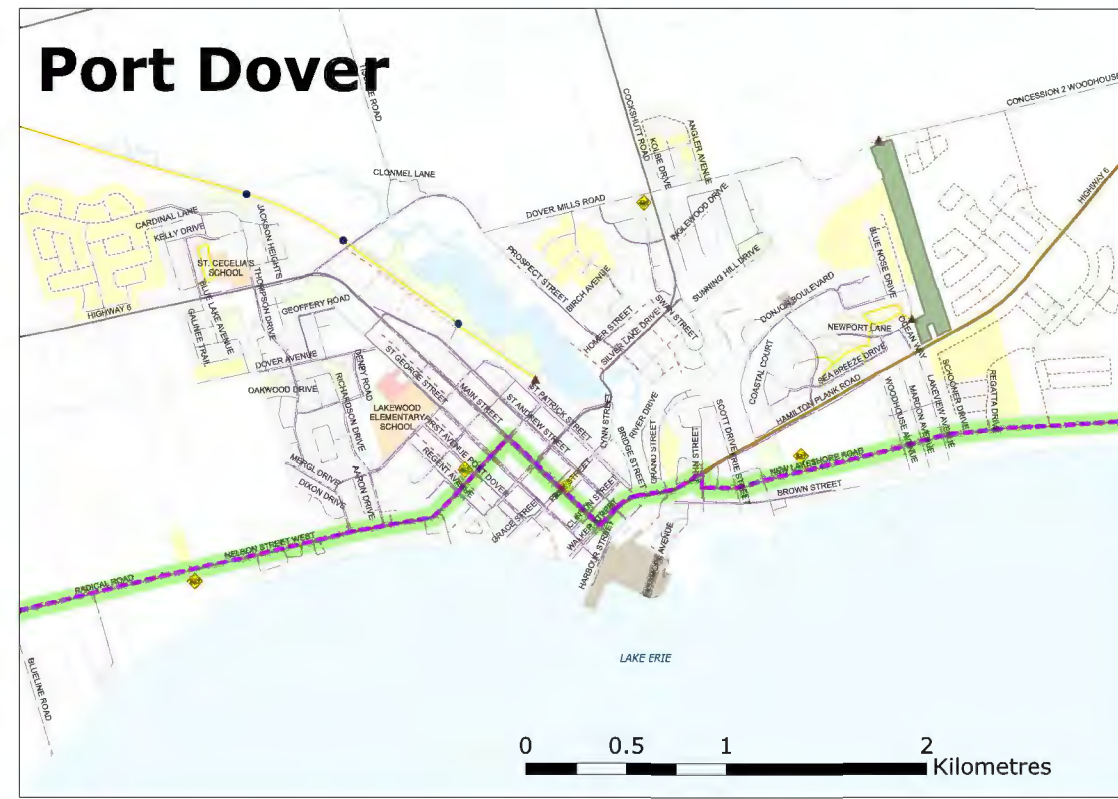


Simcoe



Legend Notes:
 1. Existing Off-Road Trails includes hiking trails, urban trails, park trails, woodlot trails and rail trails. Routes have been identified and mapped based on information included in the County's GIS database.
 2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders.

Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan August 2016

Map
1B



Existing Active Transportation Conditions Community Areas Legend

- Active Transportation Routes**
 - Existing Off-Road Trail¹
 - Paved Shoulder
 - Sidewalks
 - On-Road Cycling Route²
- Network Enhancements**
 - Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Regional Routes**
 - Trans Canada Trail
 - South Coast Cycling Route
 - Lake Erie Waterfront Trail
 - Lake Erie Waterfront Trail / South Coast Cycling Tour
- Key Community Destination**
 - Accommodation
 - Hospital
 - Library
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
 - Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
 - County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Norfolk Integrated Sustainable Master Plan

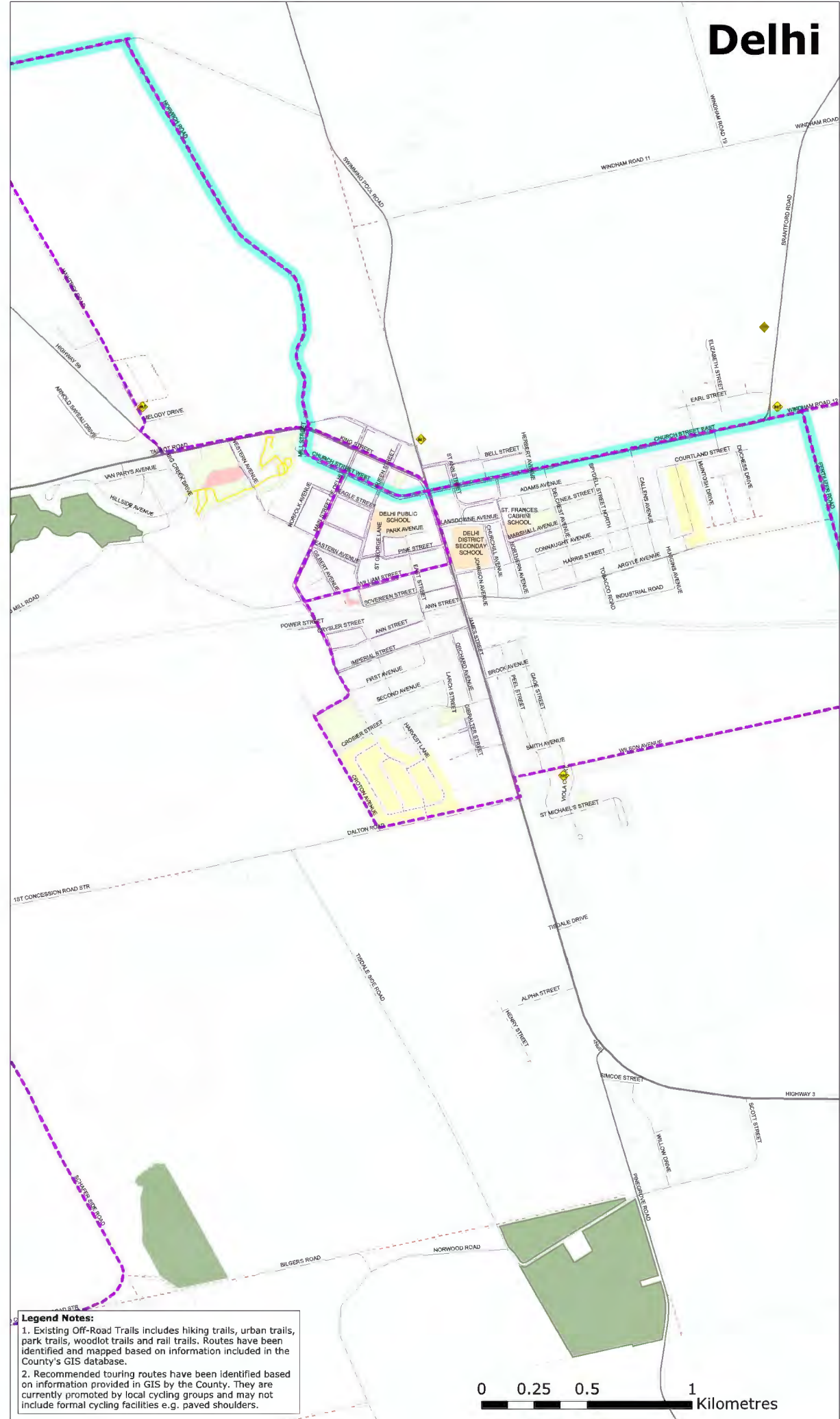
August 2016

Map

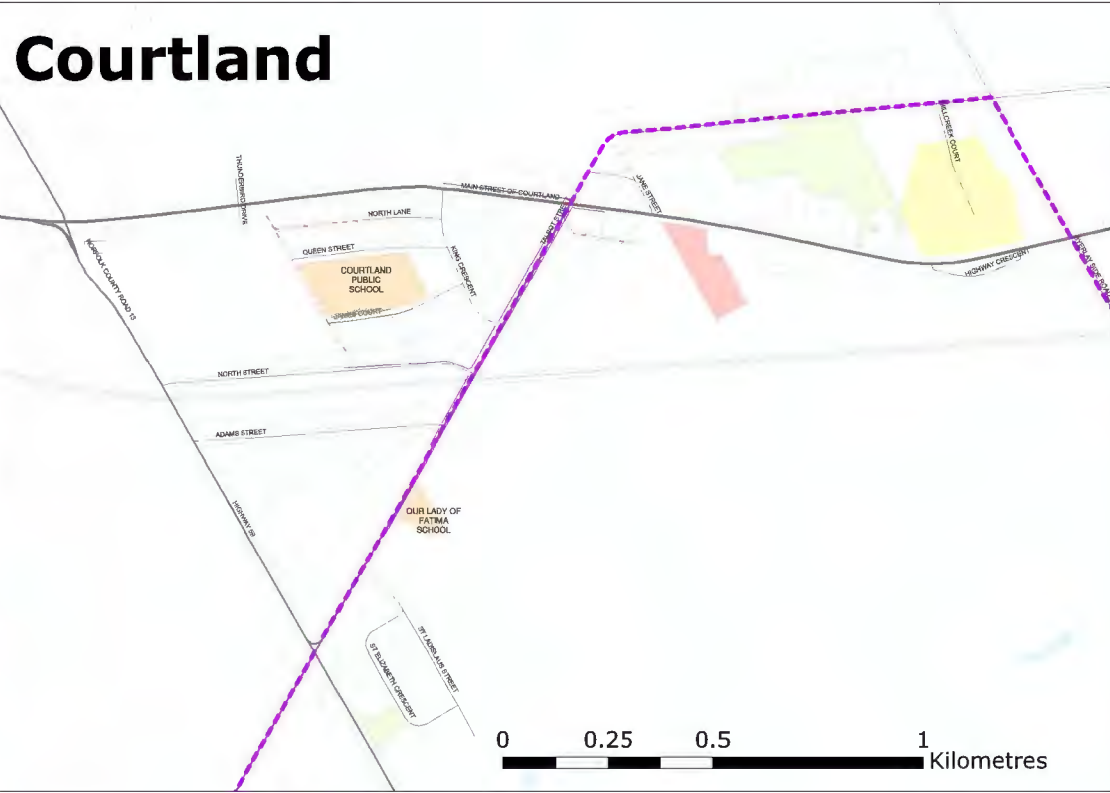
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Existing Active Transportation Conditions Community Areas Legend



Legend Notes:
 1. Existing Off-Road Trails includes hiking trails, urban trails, park trails, woodlot trails and rail trails. Routes have been identified and mapped based on information included in the County's GIS database.
 2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders.



Active Transportation Routes

- Existing Off-Road Trail¹
- Paved Shoulder
- Sidewalks
- On-Road Cycling Route²

Network Enhancements

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Regional Routes

- Trans Canada Trail
- South Coast Cycling Route
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour

Key Community Destination

- Accommodation
- Hospital
- Library
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Norfolk Integrated Sustainable Master Plan

August 2016

Map
2A



Candidate Active Transportation Routes County Wide Legend

Active Transportation Routes

- Existing Off-Road Trail¹
- Existing Paved Shoulder

Network Enhancements

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage
- Connection to Surrounding Municipality

Regional Routes

- Trans Canada Trail
- South Coast Cycling Route
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour
- On-Road Cycling Route²

Candidate AT Routes

- Additional Routes being Considered

Key Community Destination

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

Legend Notes:

1. Existing Off-Road Trails includes hiking trails, urban trails, park trails and rail trails. Based on information included in the County GIS database.
2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders. Cycling touring routes will be reviewed to confirm appropriateness as part of the AT network and preferred facility types as necessary.



Norfolk Integrated Sustainable Master Plan

August 2016

Map

2B



Candidate Active Transportation Routes Community Areas Legend

- Active Transportation Routes**
 - Existing Off-Road Trail¹
 - Existing Paved Shoulder
 - Sidewalks
- Network Enhancements**
 - Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Regional Routes**
 - Trans Canada Trail
 - South Coast Cycling Route
 - Lake Erie Waterfront Trail
 - Lake Erie Waterfront Trail / South Coast Cycling Tour
 - On-Road Cycling Route²
- Candidate AT Routes**
 - Additional Routes being Considered
- Key Community Destination**
 - Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
 - Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
 - County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Simcoe



Legend Notes:
 1. Existing Off-Road Trails includes hiking trails, urban trails, park trails and rail trails. Based on information included in the County GIS database.
 2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders. Cycling touring routes will be reviewed to confirm appropriateness as part of the AT network and preferred facility types as necessary.

Port Dover



Waterford



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August 2016

Map

2C



Candidate Active Transportation Routes Community Areas Legend

Active Transportation Routes

- Existing Off-Road Trail¹
- Existing Paved Shoulder

Network Enhancements

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Regional Routes

- Trans Canada Trail
- South Coast Cycling Route
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour
- On-Road Cycling Route²

Candidate AT Routes

- Additional Routes being Considered

Key Community Destination

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road

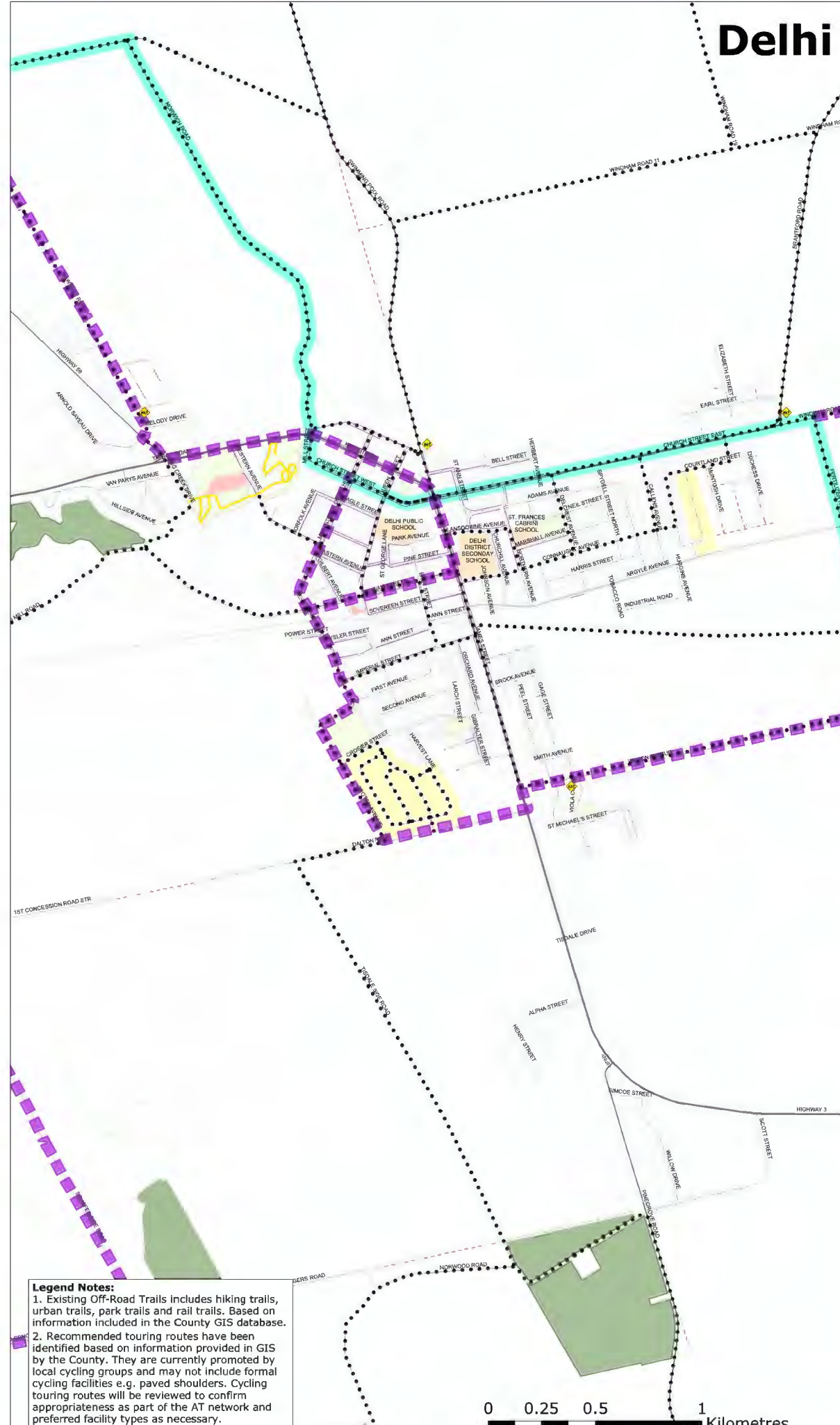
Other

- Abandoned Railway
- Active Railway
- Sidewalks

Land Use Features

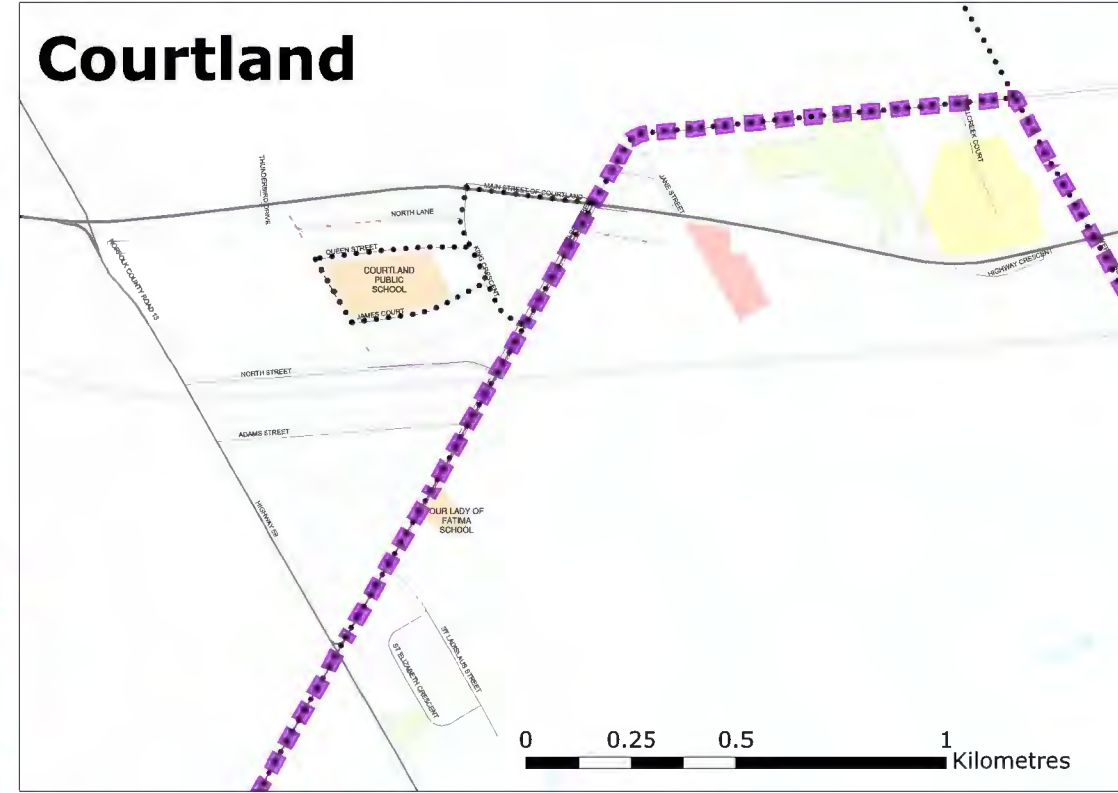
- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Delhi

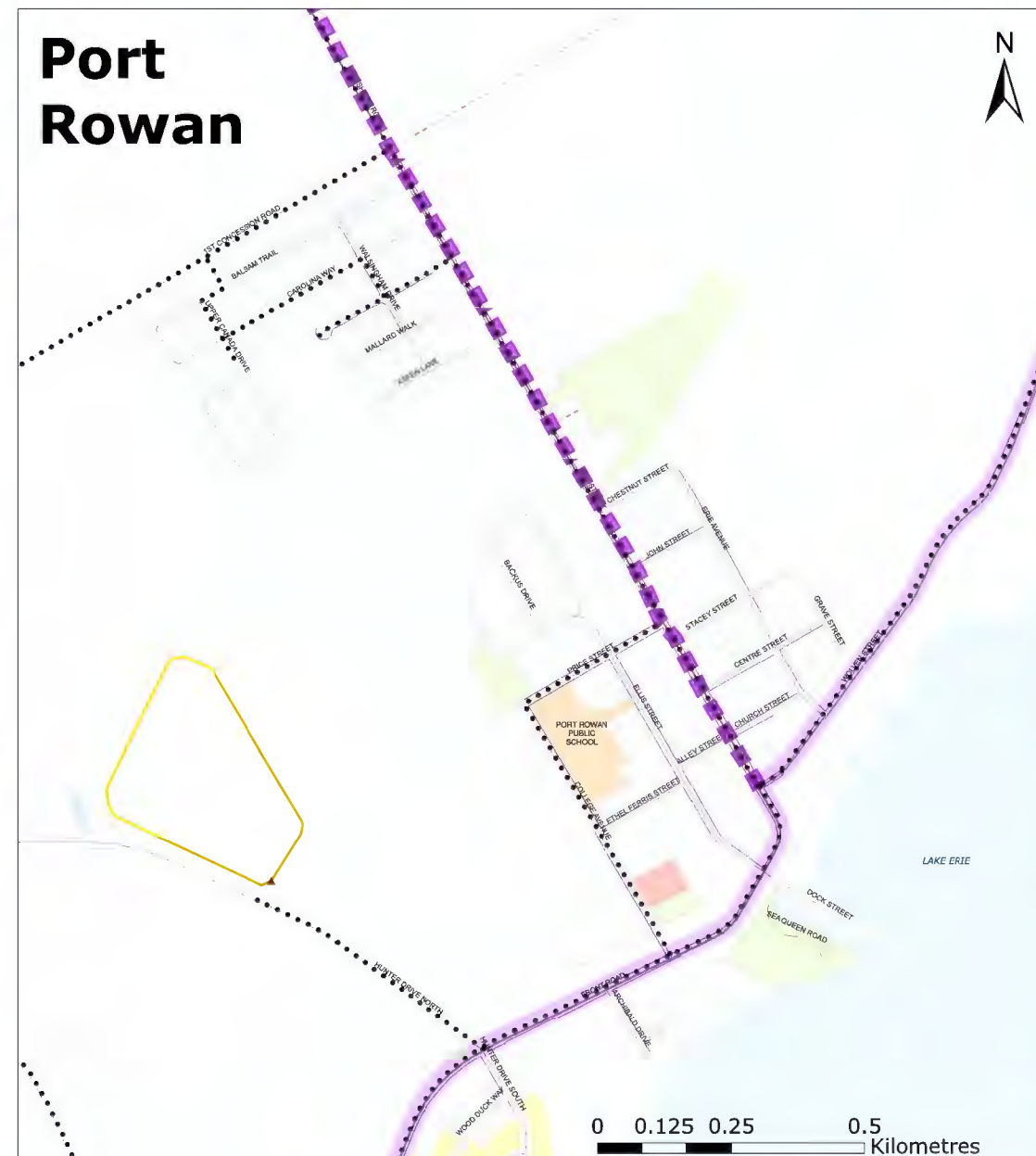


Legend Notes:
 1. Existing Off-Road Trails includes hiking trails, urban trails, park trails and rail trails. Based on information included in the County GIS database.
 2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders. Cycling touring routes will be reviewed to confirm appropriateness as part of the AT network and preferred facility types as necessary.

Courtland



Port Rowan



Norfolk Integrated Sustainable Master Plan

August 2016

Map

3A



Proposed Route Hierarchy County Wide Legend

Proposed Route Hierarchy

- Primary Route
- Secondary Route
- Off-Road Trail

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Network Enhancements

- Connection to Surrounding Municipality

Regional Routes

- Trans Canada Trail
- Lake Erie Waterfront Trail
- South Coast Cycling Route
- Lake Erie Waterfront Trail / South Coast Cycling Tour

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

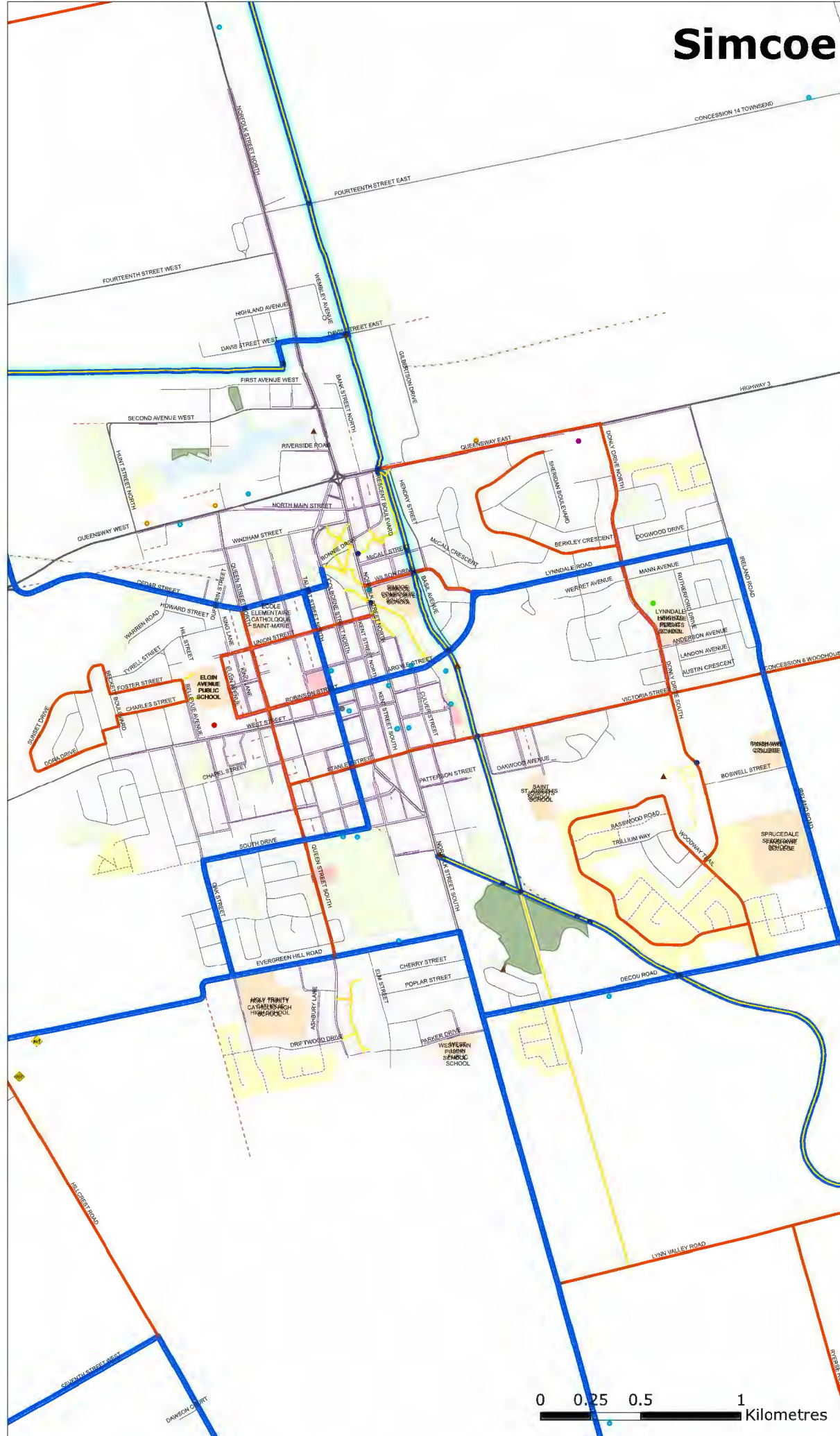
Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

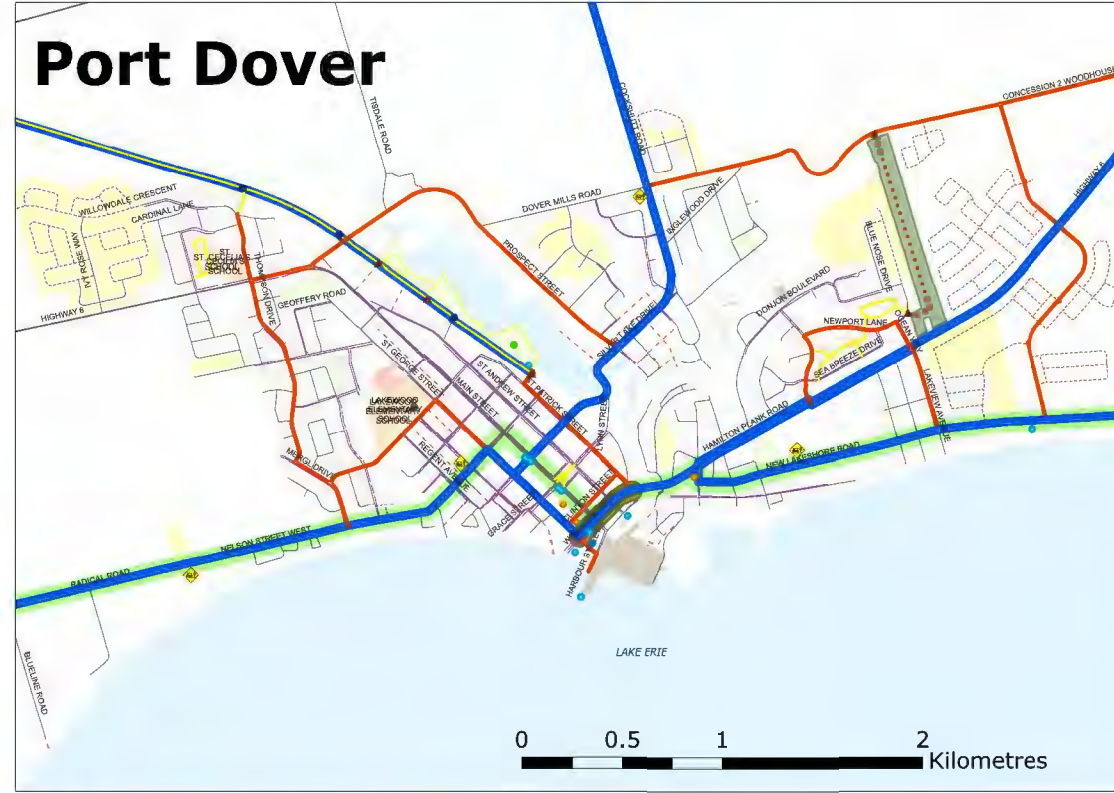


LONG POINT NATIONAL WILDLIFE AREA

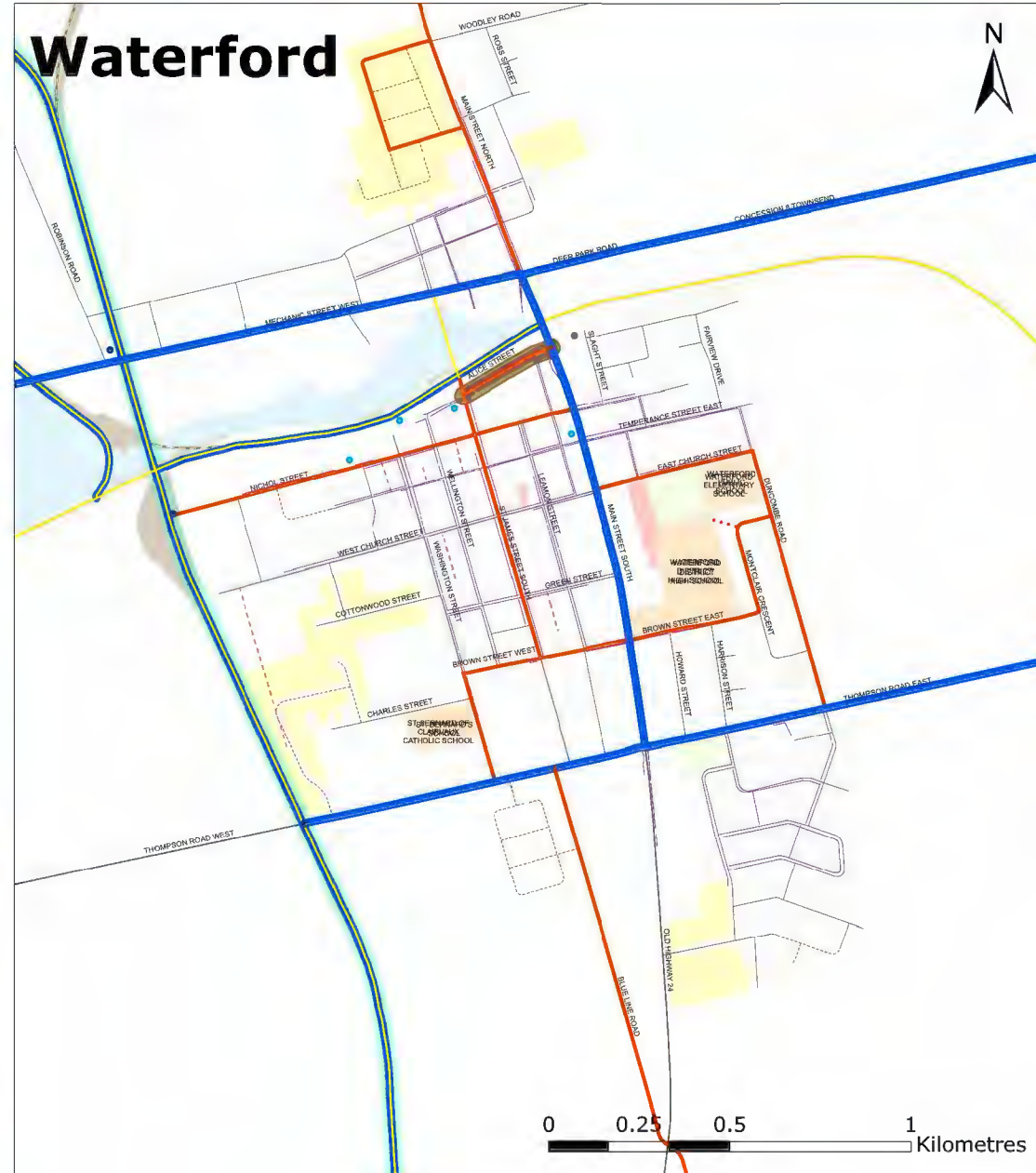
Simcoe



Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan August 2016

Map
3B



Proposed Route Hierarchy Community Areas Legend

Proposed Route Hierarchy

- Primary Route
- Secondary Route
- Off-Road Trail
- Sidewalks

Existing Network Features

- Existing Trail Access
- ▲ Existing Trailhead
- ◆ Existing Share the Road Signage

Regional Routes

- Trans Canada Trail
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Norfolk Integrated Sustainable Master Plan

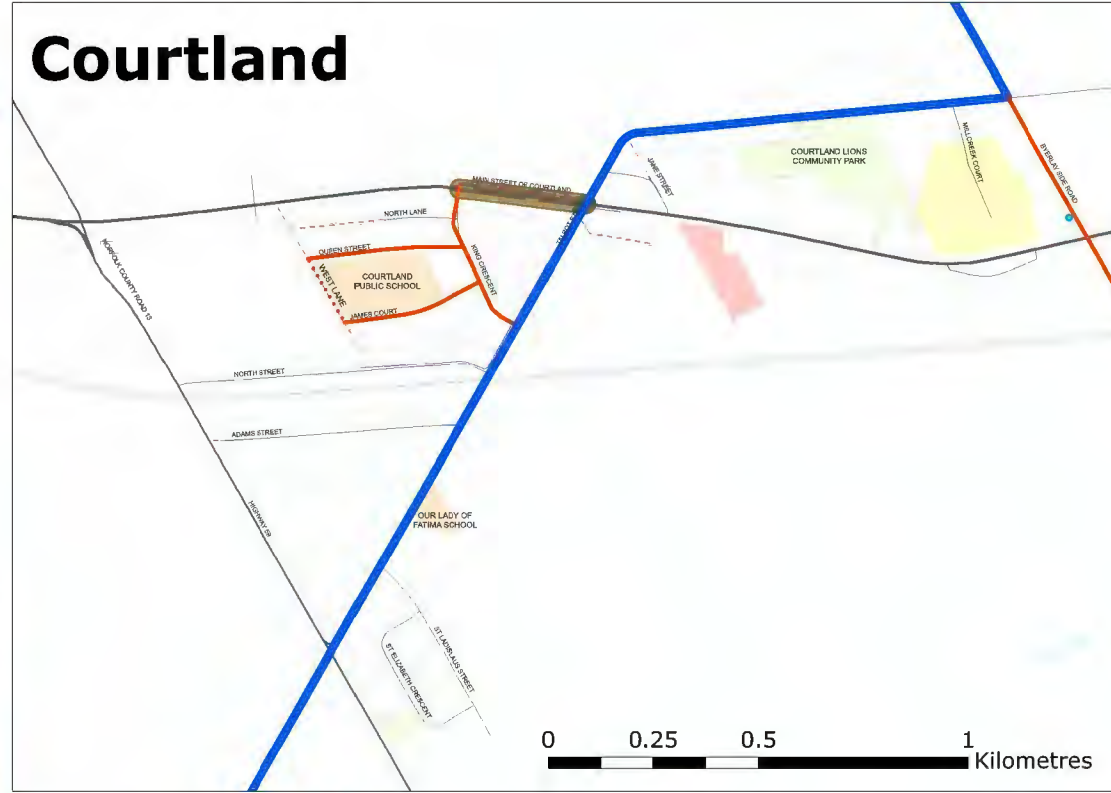
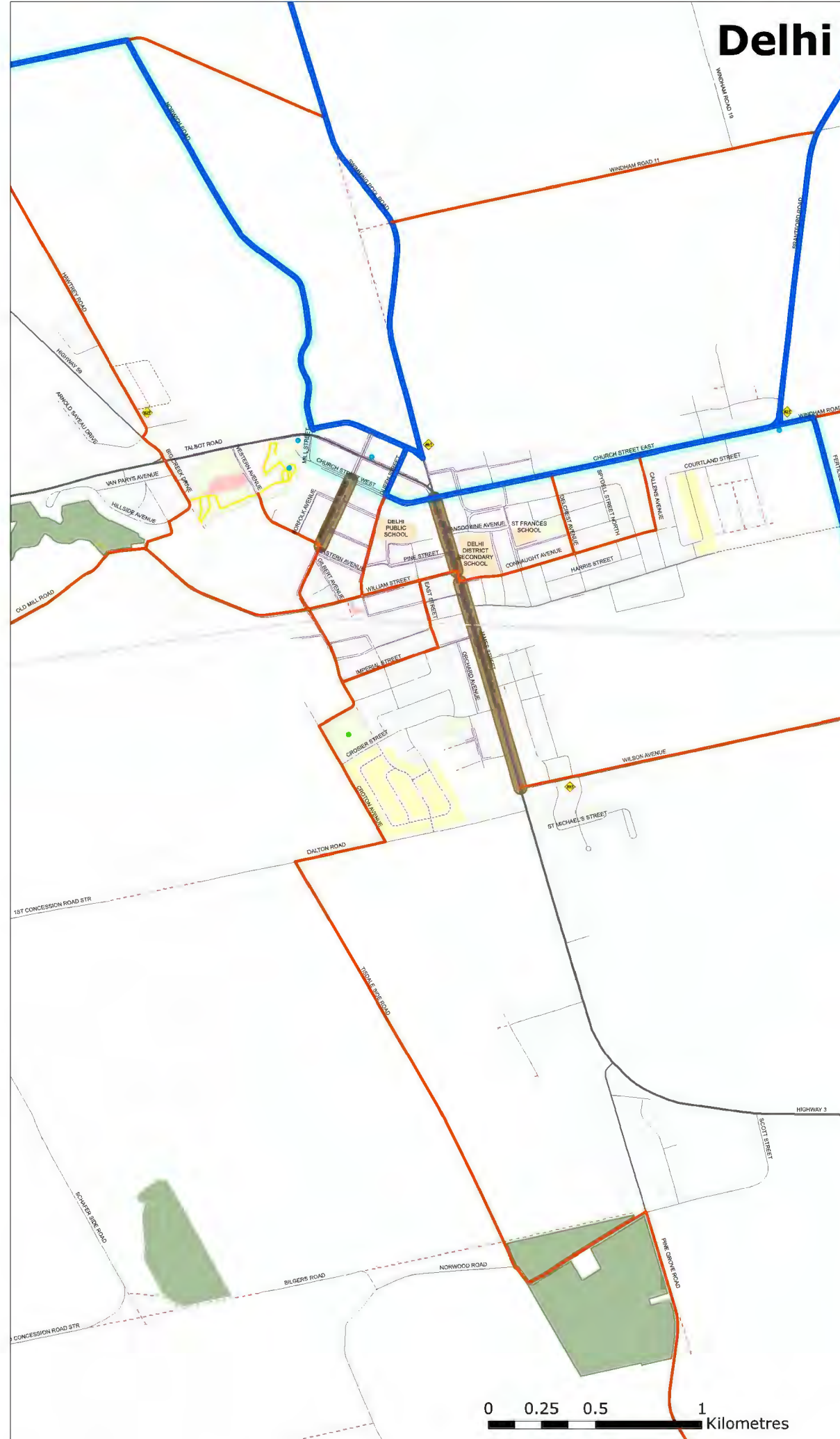
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Map

3C



Proposed Route Hierarchy Community Areas Legend



- Proposed Route Hierarchy**
- Primary Route
 - Secondary Route
 - Off-Road Trail
 - Sidewalks
- Existing Network Features**
- Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Regional Routes**
- Trans Canada Trail
 - Lake Erie Waterfront Trail
 - Lake Erie Waterfront Trail / South Coast Cycling Tour
- Key Community Destinations**
- Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
- Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
- Land Use Features
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Norfolk Integrated Sustainable Master Plan

August 2016

Map
4A



Proposed Facility Types County Wide Legend

- Existing Pedestrian Facility Types¹**
 - Off-Road Trail
- Existing Cycling Facility Types²**
 - Paved Shoulder
- Proposed Pedestrian Facility Types³**
 - Off-Road Trail
- Proposed Cycling Facility Types**
 - Buffered Paved Shoulder
 - Paved Shoulder
 - Signed Route
- Existing Network Features**
 - Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Network Enhancements**
 - Proposed Share the Road Signage
 - Desired Connection⁴
 - Connection to Surrounding Municipality
- Regional Routes**
 - Trans Canada Trail
 - Lake Erie Waterfront Trail
 - South Coast Cycling Route
 - Lake Erie Waterfront Trail / South Coast Cycling Tour
- Key Community Destinations**
 - Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
 - Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
 - County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Parcel Property
 - Watercourse

Legend Notes:

- Existing Off-Road Trails includes hiking trails, urban trails, park trails, woodlot trails and rail trails. Routes have been identified and mapped based on information included in the County's GIS database.
- Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders. Cycling touring routes will be reviewed to confirm appropriateness as part of the AT network and preferred facility types as necessary.
- Proposed Pedestrian Facility Types include off-road trails and in-boulevard multi-use trails that are intended to be used by both pedestrians and cyclists. Proposed facility types should be a minimum of 3.0m to accommodate pedestrian and cyclist travel.
- Desired connections include suggested routes that are found on lands not under the County's jurisdiction at this time (e.g. MTO, private land owners, etc.) or future development areas.



TOWNSHIP OF SOUTH-WEST OXFORD

TOWNSHIP OF NORWICH

BRANT COUNTY

HALDIMAND COUNTY

MUNICIPALITY OF BAYHAM

Widening of Bayham-Norfolk Boundary Road platform width is required to accommodate a 1.5m paved shoulder

Abandoned railway under ownership of Norfolk County.

LONG POINT NATIONAL WILDLIFE AREA



Proposed Facility Types Community Areas Legend

Existing Pedestrian Facility Types¹

- Off-Road Trail
- Sidewalks

Existing Cycling Facility Types²

- Paved Shoulder

Proposed Pedestrian Facility Types³

- Off-Road Trail
- In-Boulevard Multi-Use Trail

Proposed Cycling Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route with Edgeline
- Signed Route with Sharrow
- Signed Route

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Network Enhancement

- Existing Signal
- Existing Pedestrian Crossing
- Proposed Trailhead
- Proposed Share the Road Signage
- Proposed Crossing Enhancement
- Enhanced Wayfinding Signage
- Proposed Pedestrian Access
- Proposed Pedestrian Crossing
- Enhanced Railway Crossing
- Proposed Sharrow
- Desired Connection⁴
- Candidate for Complete Street redesign

Regional Routes

- Trans Canada Trail
- Lake Erie Waterfront Trail
- Lake Erie Waterfront Trail / South Coast Cycling Tour

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

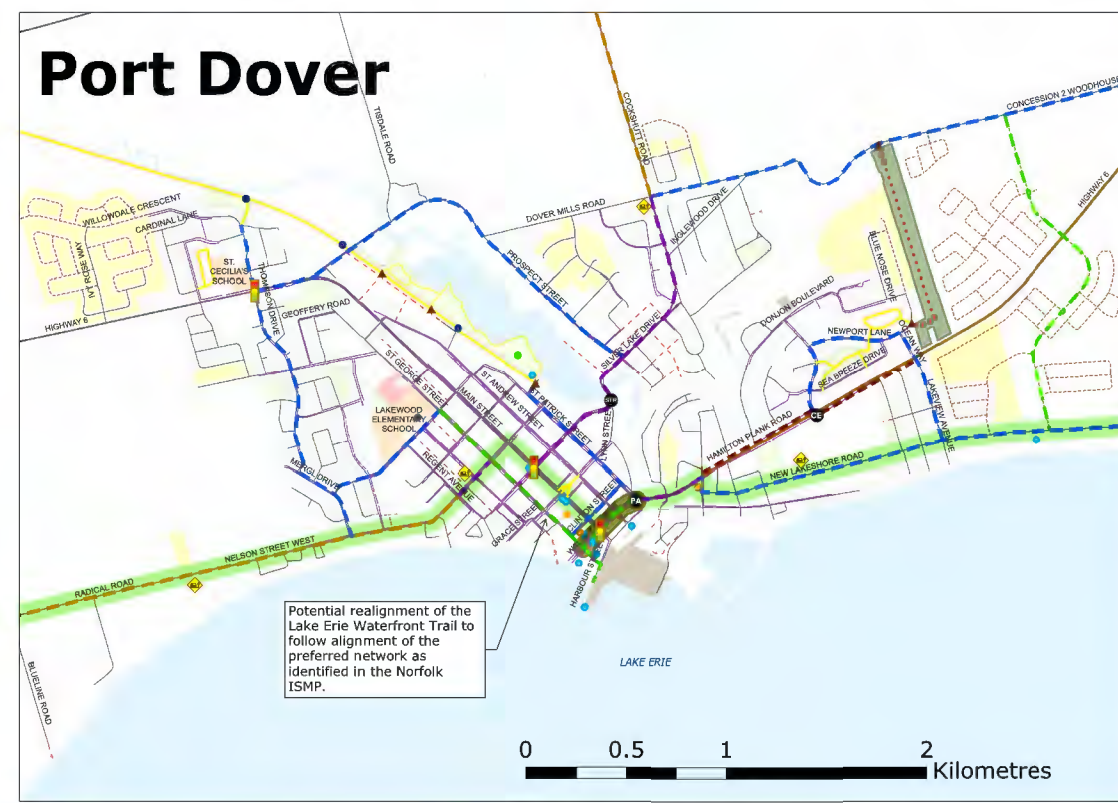
Simcoe



Legend Notes:
 1. Existing Off-Road Trails includes hiking trails, urban trails, park trails, woodlot trails and rail trails. Routes have been identified and mapped based on information included in the County's GIS database.
 2. Recommended touring routes have been identified based on information provided in GIS by the County. They are currently promoted by local cycling groups and may not include formal cycling facilities e.g. paved shoulders. Cycling touring routes will be reviewed to confirm appropriate.
 3. Proposed Pedestrian Facility Types include off-road trails and in-boulevard multi-use trails that are intended to be used by both pedestrians and cyclists. Proposed facility types should be a minimum of 3.0m to accommodate pedestrian and cyclist travel.
 4. Desired connections include suggested routes that are found on lands not under the County's jurisdiction at this time (e.g. MTO, private land owners, etc.) or future development areas.



Port Dover



Potential realignment of the Lake Erie Waterfront Trail to follow alignment of the preferred network as identified in the Norfolk ISMP.

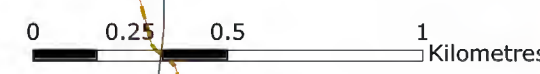


Waterford



Abandoned railway under ownership of Norfolk County.

Abandoned railway under ownership of Norfolk County.



Norfolk Integrated Sustainable Master Plan

August 2016

Map
4C



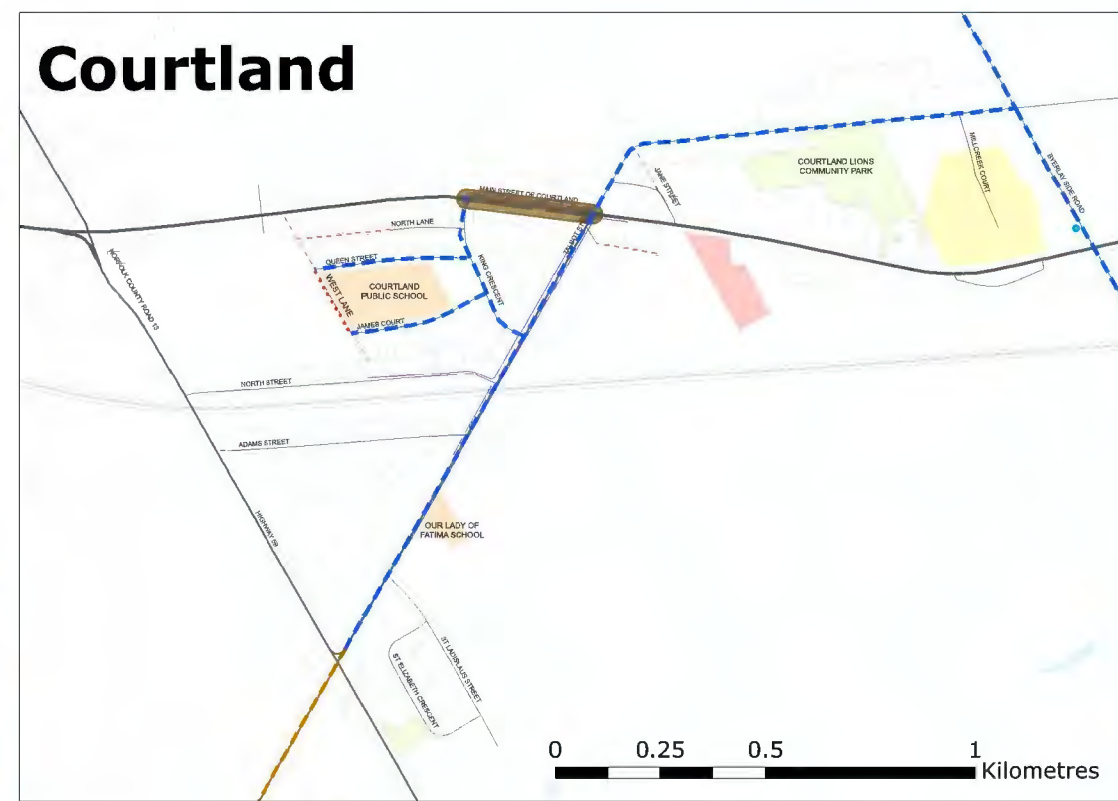
Proposed Facility Types Community Areas Legend

- Existing Pedestrian Facility Types¹**
- Off-Road Trail
 - Sidewalks
- Existing Cycling Facility Types²**
- Paved Shoulder
- Proposed Pedestrian Facility Types³**
- Off-Road Trail
 - In-Boulevard Multi-Use Trail
- Proposed Cycling Facility Types**
- Bike Lane
 - Paved Shoulder
 - Signed Route with Edgeline
 - Signed Route with Sharrow
 - Signed Route
- Existing Network Features**
- Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Network Enhancement**
- Existing Signal
 - Existing Pedestrian Crossing
 - Proposed Trailhead
 - Proposed Share the Road Signage
 - Proposed Crossing Enhancement
 - Enhanced Wayfinding Signage
 - Proposed Pedestrian Access
 - Proposed Pedestrian Crossing
 - Enhanced Railway Crossing
 - Proposed Sharrow
 - Desired Connection⁴
 - Candidate for Complete Street redesign
- Regional Routes**
- Trans Canada Trail
 - Lake Erie Waterfront Trail
 - Lake Erie Waterfront Trail / South Coast Cycling Tour
- Key Community Destinations**
- Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
- Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
- Land Use Features
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Delhi



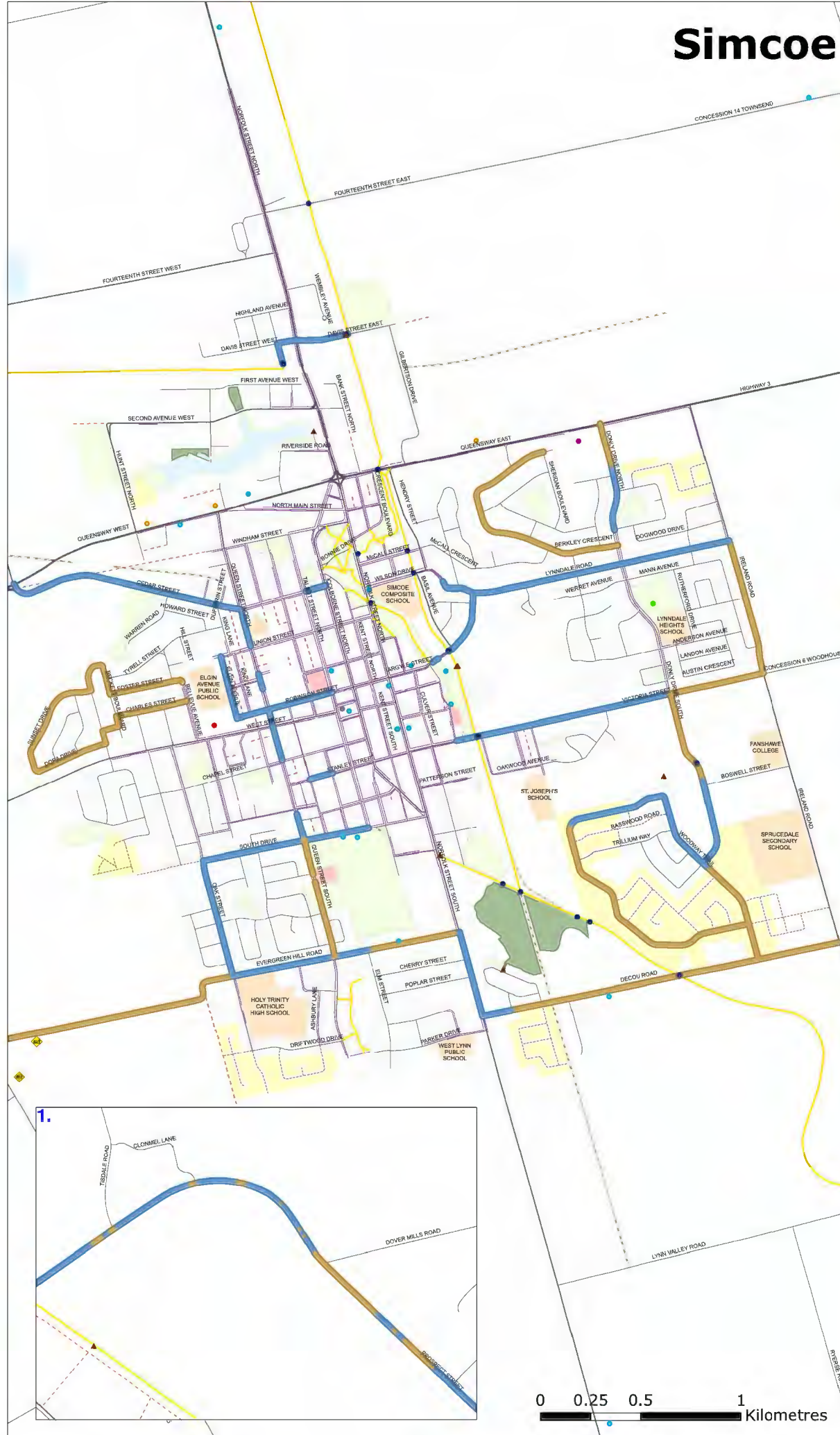
Courtland



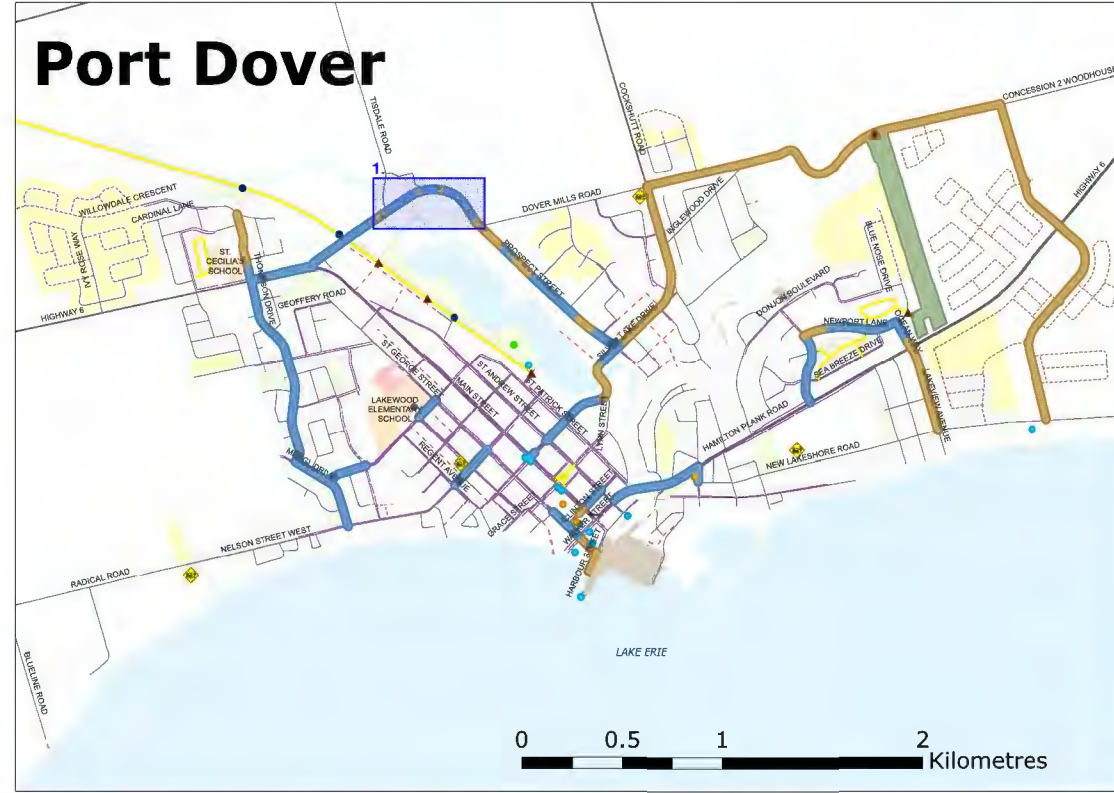
Port Rowan



Simcoe



Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan

August 2016

Map

5A



Existing Sidewalk Gaps Community Areas Legend

Existing Pedestrian Facility Types

- Off-Road Trail
- Existing Sidewalks

Sidewalk Network Gaps

- No Sidewalk (on either side of the roadway)
- Sidewalk on one side of the roadway

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Norfolk Integrated Sustainable Master Plan

August 2016

Map

5B



Existing Sidewalk Gaps Community Areas Legend

Existing Pedestrian Facility Types

- Off-Road Trail
 - Existing Sidewalks
- ### Sidewalk Network Gaps
- No Sidewalk (on either side of the roadway)
 - Sidewalk on one side of the roadway

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

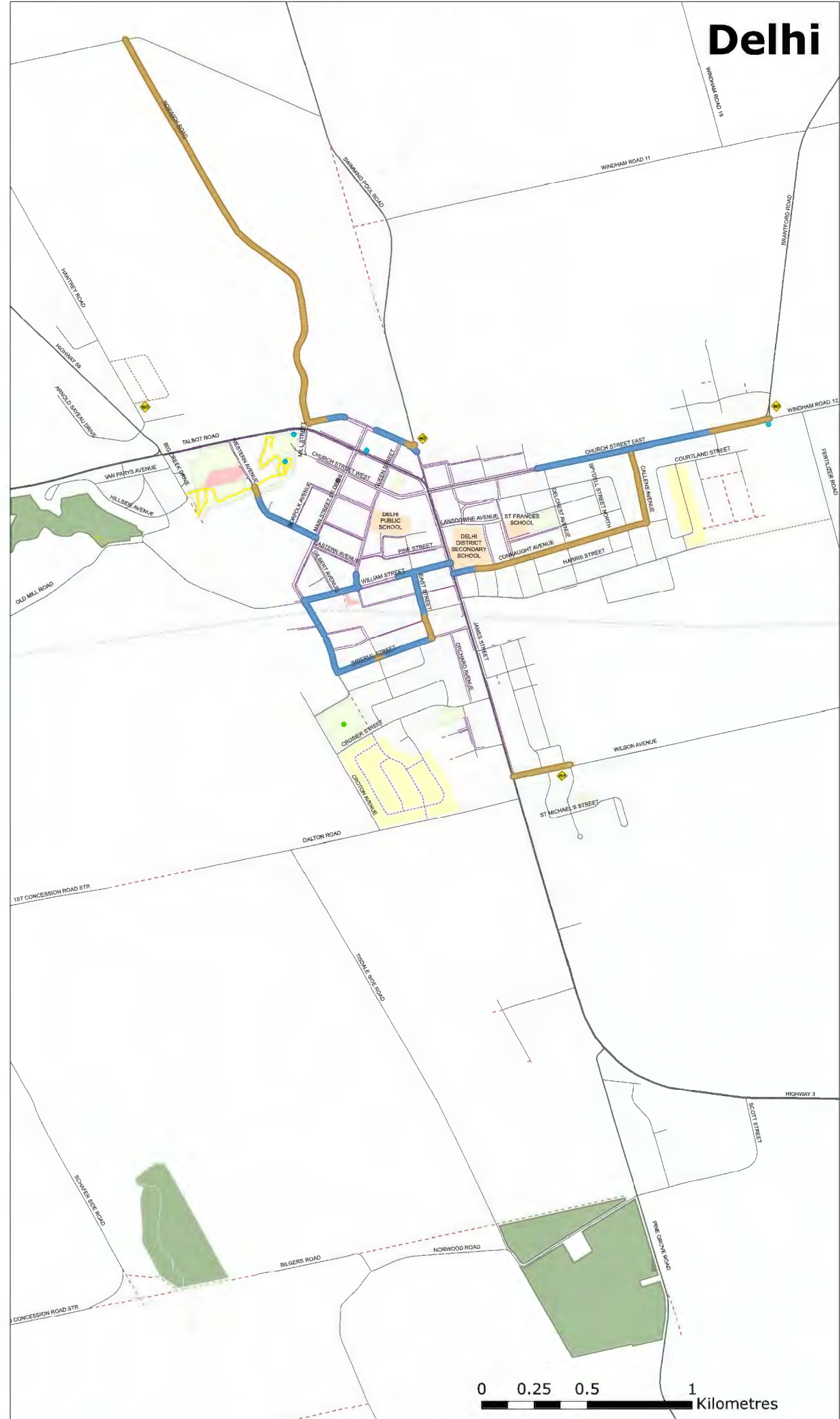
Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

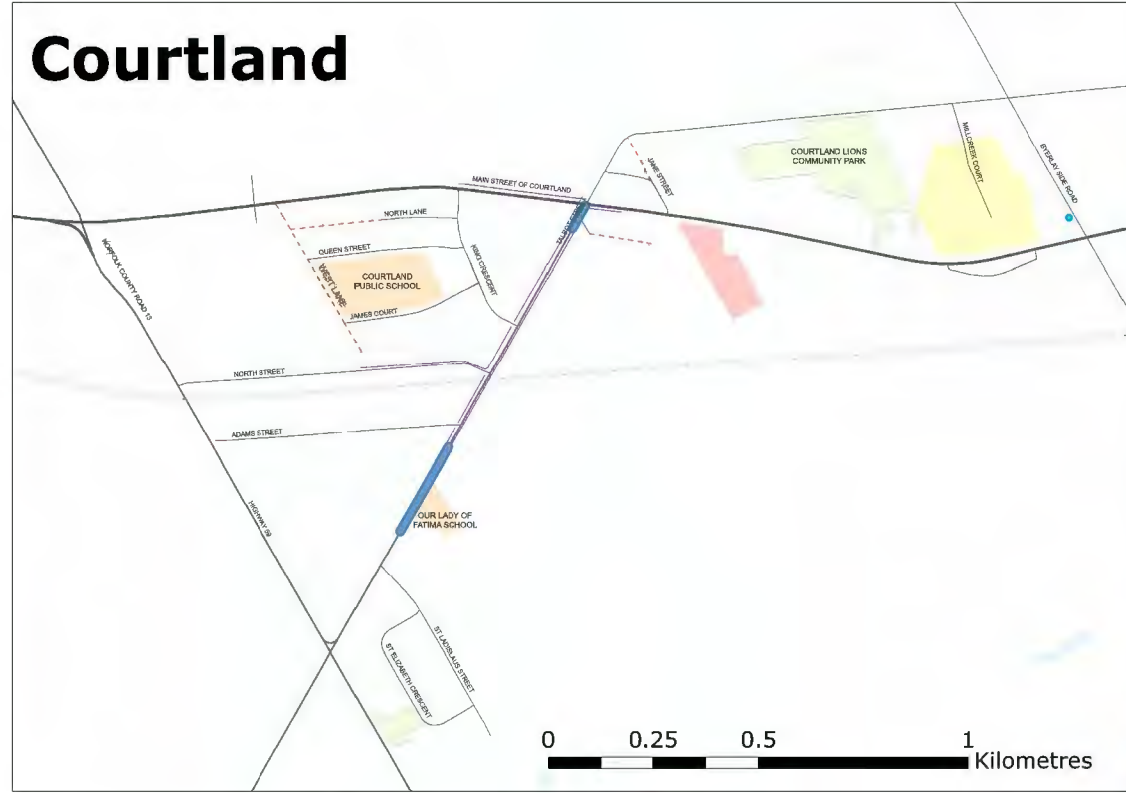
Land Use Features

- Land Use Features
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Delhi



Courtland



Port Rowan



0 0.25 0.5 1 Kilometres

0 0.125 0.25 0.5 Kilometres

Norfolk Integrated Sustainable Master Plan

August 2016

Map
6A



Previously Planned Projects County Wide Legend

Existing Pedestrian Facility Types

Off-Road Trail

Existing Cycling Facility Types

Paved Shoulder

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Network Enhancements

- Proposed Share the Road Signage
- Connection to Surrounding Municipality

Proposed Phasing

- Short Term (0-5 Years)
- Medium Term (5-15 Years)

Previously Planned Projects

Previously Planned Road Construction and / or Rehab Project

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

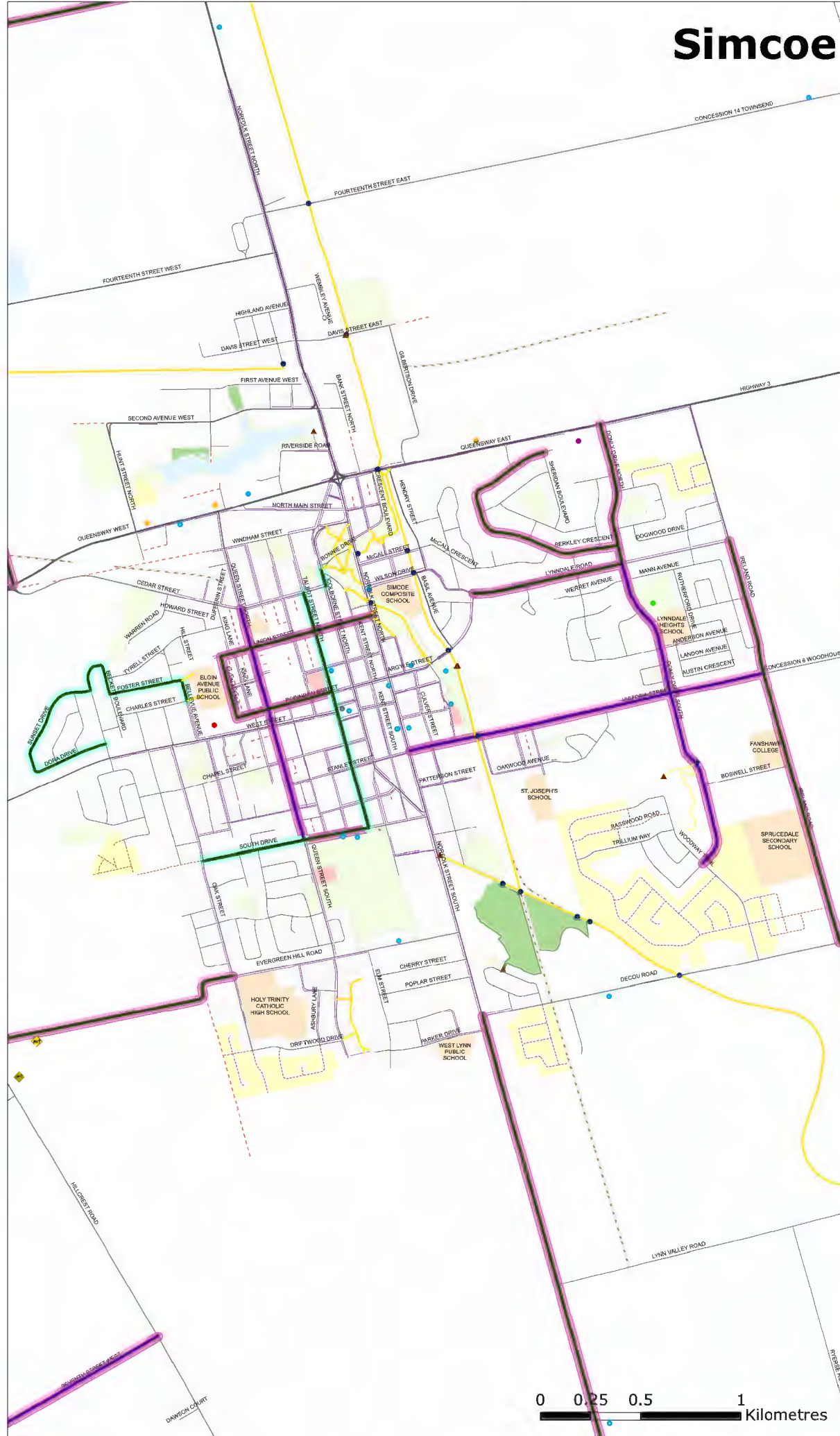
- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

Legend Note:
Previously approved projects are based on the County's capital budget and planned roadway rehabilitations and / or construction. Projects have been organized into short and medium term phase based on the timelines identified in the Norfolk TMP and ATMP (as part of the ISMP).

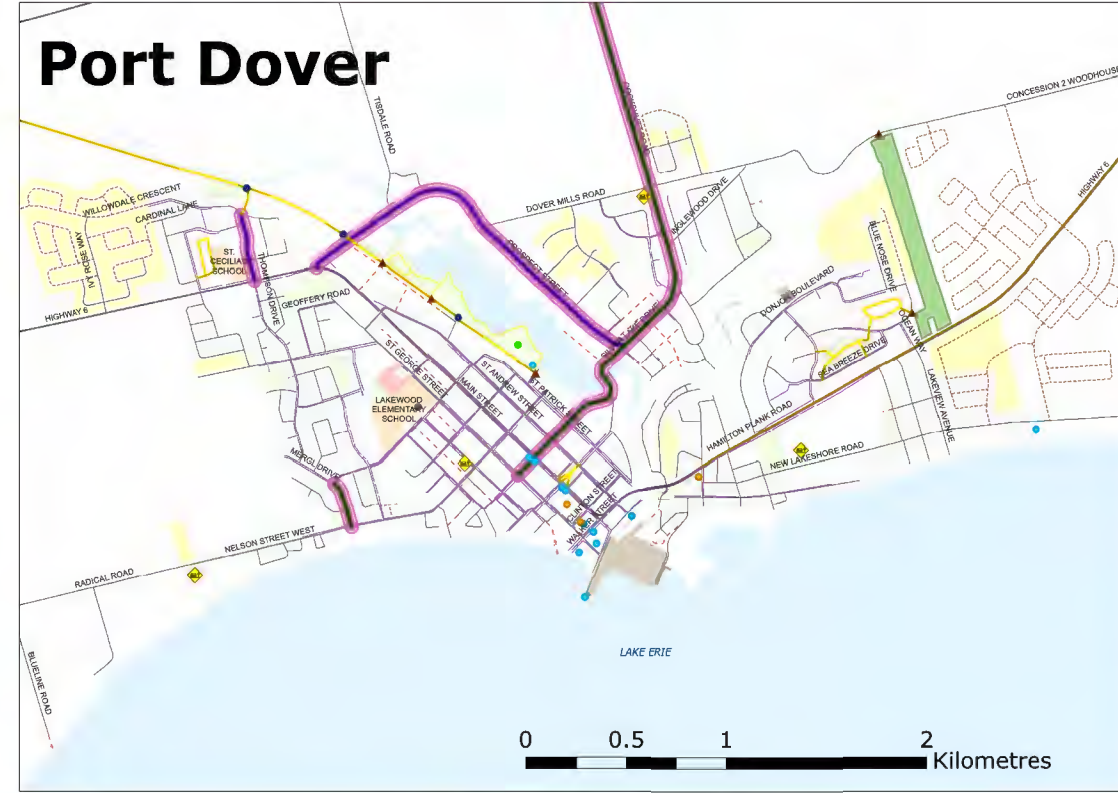


LONG POINT NATIONAL WILDLIFE AREA

Simcoe



Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan August 2016

Map
6B



Previously Planned Projects Community Areas Legend

Existing Pedestrian Facility Types

- Off-Road Trail
- Sidewalks

Existing Cycling Facility Types

- Paved Shoulder

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Phasing

- Short Term (0-5 Years)
- Medium Term (5-15 Years)

Previously Approved Projects

- Previously Planned Capital Works Project
- Planned Road Construction and / or Rehab Project

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Future Planned Subdivision
- Parcel Property
- Watercourse

Legend Note:

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Norfolk Integrated Sustainable Master Plan

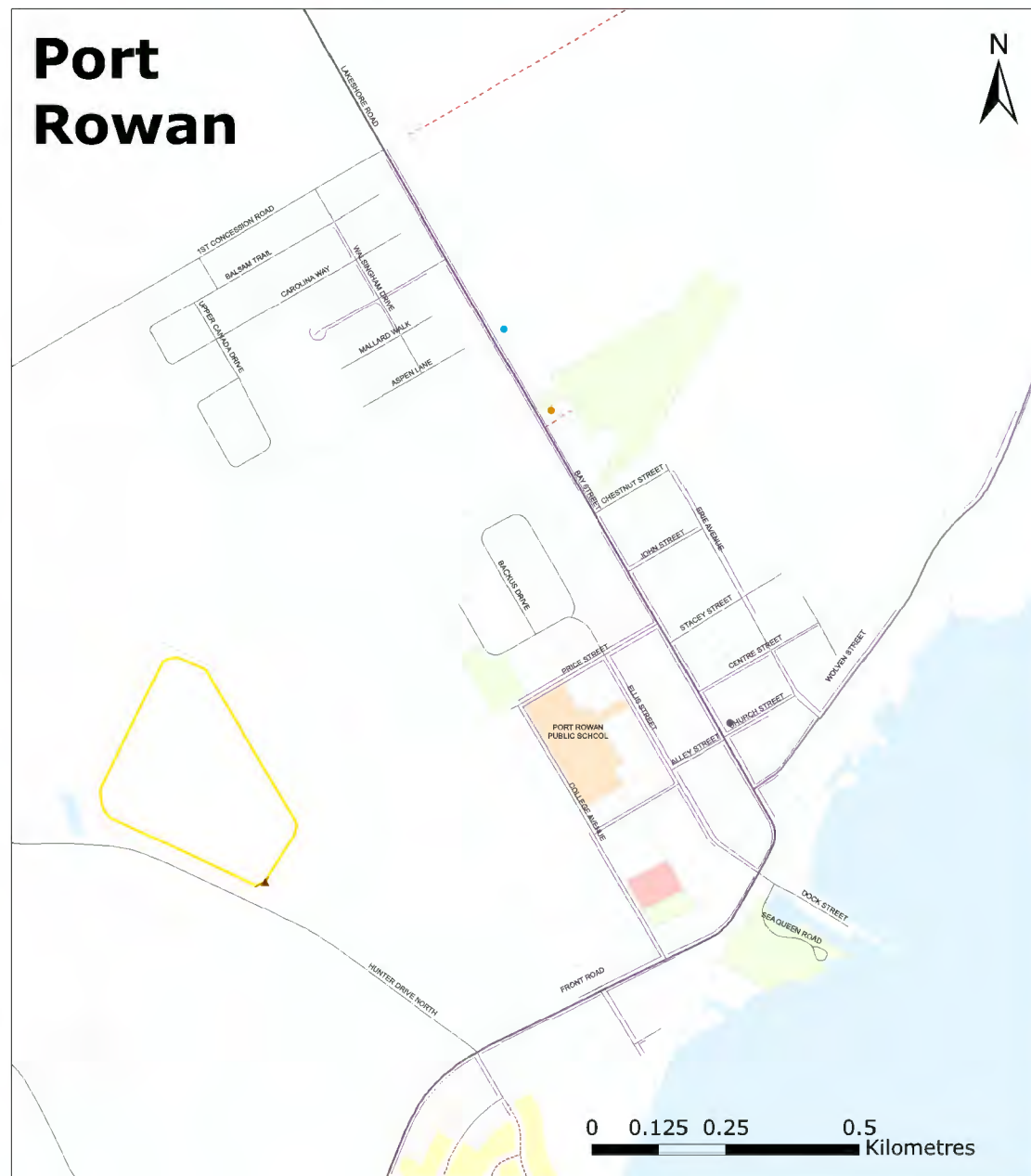
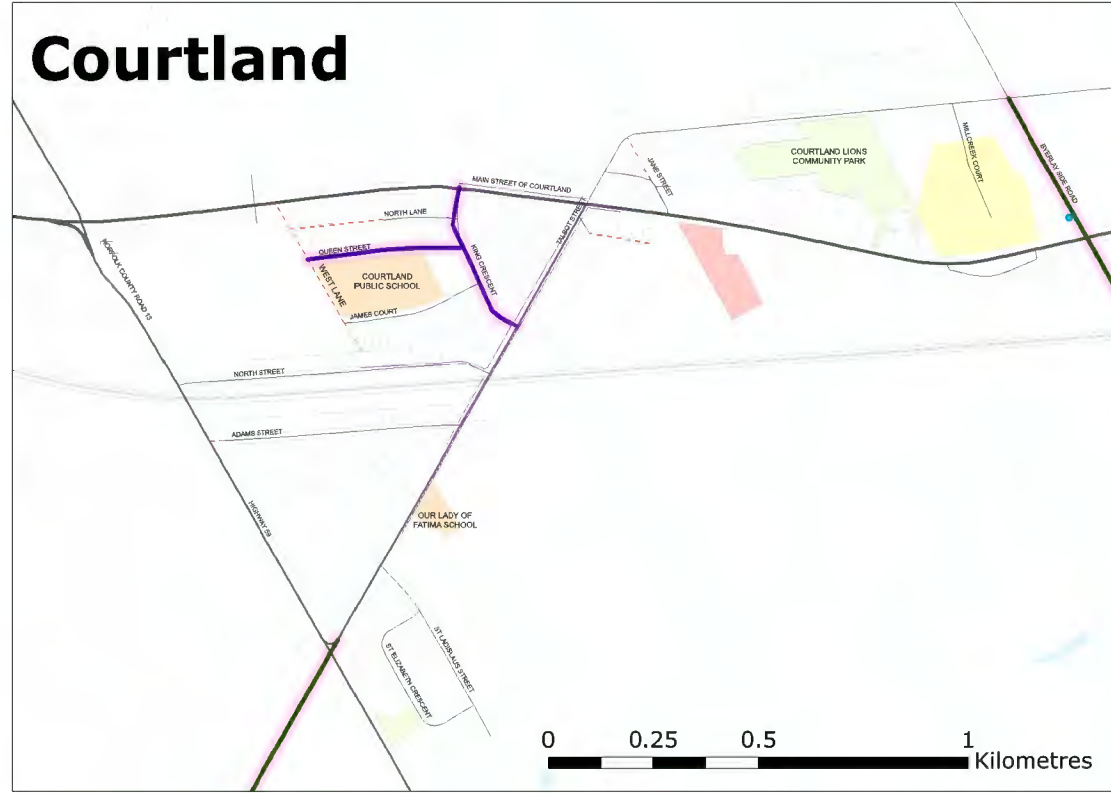
August 2016

Map

6C



Previously Planned Projects Community Areas Legend



- Existing Pedestrian Facility Types**
- Off-Road Trail
 - Sidewalks
- Existing Cycling Facility Types**
- Paved Shoulder
- Existing Network Features**
- Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Phasing**
- Short Term (0-5 Years)
 - Medium Term (5-15 Years)
- Previously Planned Projects**
- Previously Planned Capital Works Project
 - Planned Road Construction and / or Rehab Project
- Key Community Destinations**
- Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
- Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
- Land Use Features
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Legend Note:
Previously approved projects are based on the County's capital budget and planned roadway rehabilitations and / or construction. Projects have been organized into short and medium term phase based on the timelines identified in the Norfolk TMP and ATMP (as part of the ISMP).

Norfolk Integrated Sustainable Master Plan

August 2016

Map

7A



Previously Planned Projects & Additional Strategic Linkages County Wide Legend

Existing Pedestrian Facility Types

Off-Road Trail

Existing Cycling Facility Types

Paved Shoulder

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Network Enhancements

- Proposed Share the Road Signage
- Connection to Surrounding Municipality

Proposed Phasing

- Short Term (0-5 Years)
- Medium Term (5-15 Years)

Previously Approved Projects

Planned Road Construction and / or Rehab Project

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination

- School
- Community Centre / Arena

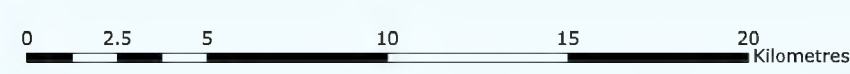
Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

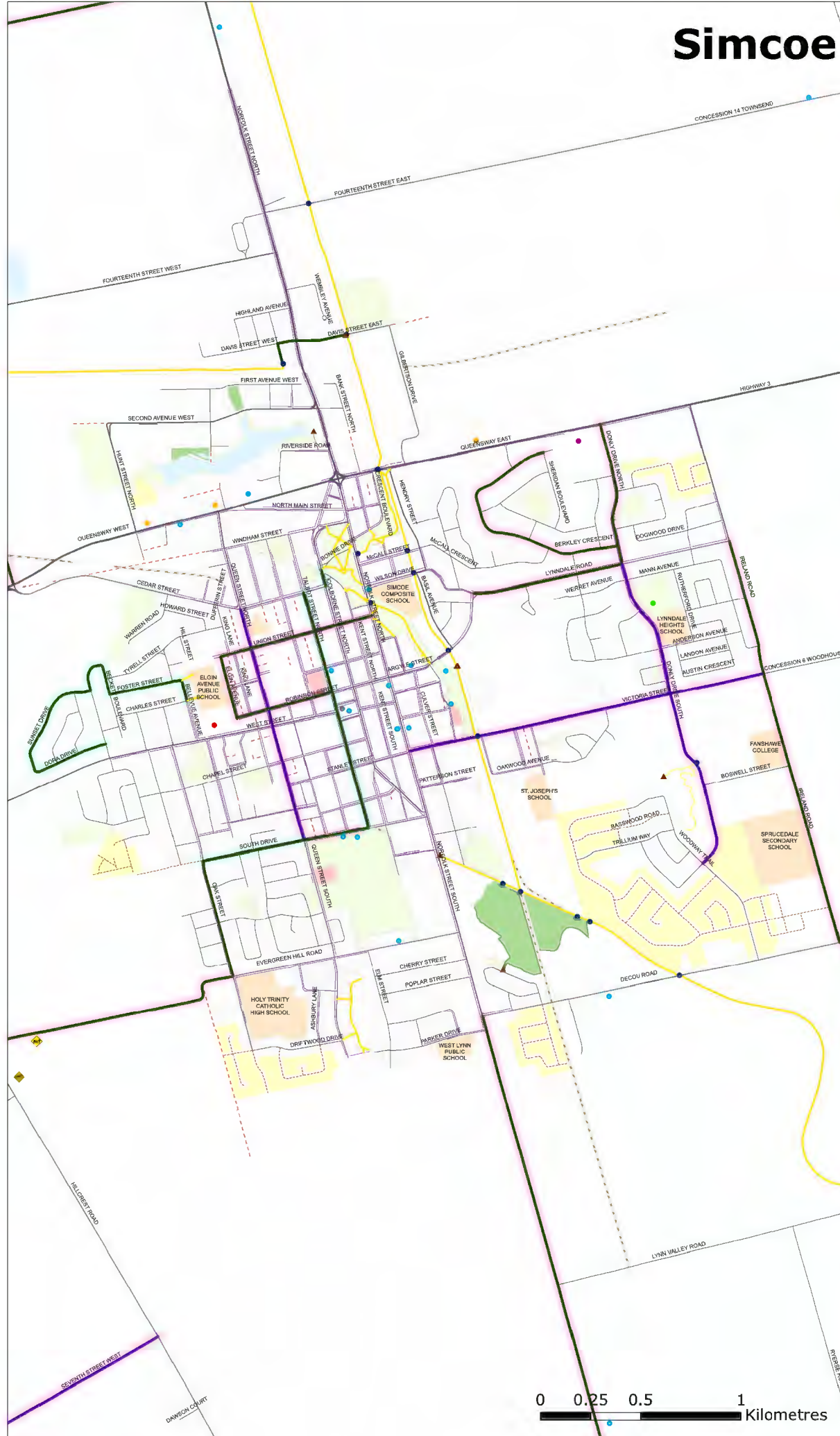
Land Use Features

- County Parks
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

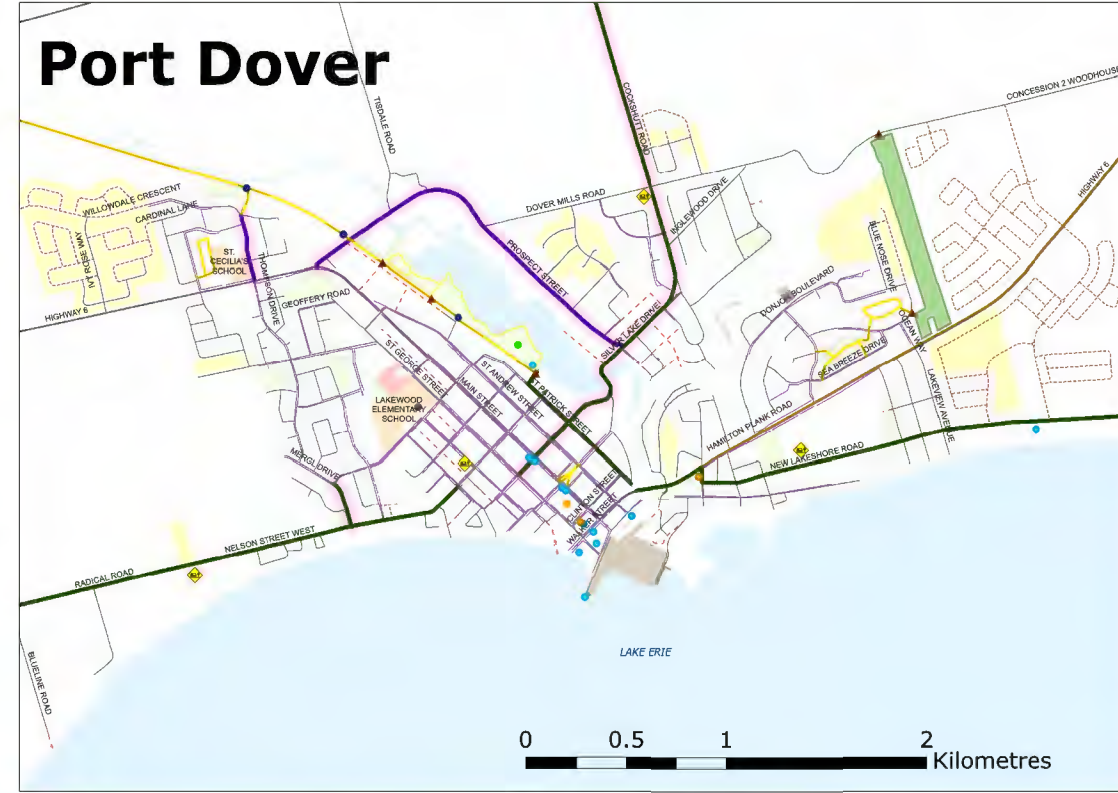
Legend Note:
Previously approved projects are based on the County's capital budget and planned roadway rehabilitations and / or construction. Projects have been organized into short and medium term phase based on the timelines identified in the Norfolk TMP and ATMP (as part of the ISMP).



Simcoe



Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan August 2016

Map
7B



Previously Planned Projects & Additional Strategic Linkages County Wide Legend

- Existing Pedestrian Facility Types**
 - Off-Road Trail
 - Sidewalks
- Existing Cycling Facility Types**
 - Paved Shoulder
- Existing Network Features**
 - Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Phasing**
 - Short Term (0-5 Years)
 - Medium Term (5-15 Years)
- Previously Planned Projects**
 - Previously Planned Capital Works Project
 - Planned Road Construction and / or Rehab Project
- Key Community Destinations**
 - Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
 - Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
 - County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Future Planned Subdivision
 - Parcel Property
 - Watercourse

Legend Note:
Previously approved projects are based on the County's capital budget and planned roadway rehabilitations and / or construction. Projects have been organized into short and medium term phase based on the timelines identified in the Norfolk TMP and ATMP (as part of the ISMP).

Norfolk Integrated Sustainable Master Plan

August 2016

Map
8A



Proposed AT Priorities County Wide Legend

- Existing Pedestrian Facility Types**
- Off-Road Trail
- Existing Cycling Facility Types**
- Paved Shoulder
- Proposed Pedestrian Facility Types**
- Off-Road Trail
 - In-Boulevard Multi-Use Trail
- Proposed Cycling Facility Types**
- Buffered Paved Shoulder
 - Paved Shoulder
 - Signed Route
- Existing Network Features**
- Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Network Enhancements**
- Connection to Surrounding Municipality
- Proposed Phasing**
- Short Term (0-5 Years)
 - Medium Term (5-15 Years)
 - Long Term (15-25 Years)
- Priority Projects**
- Signed Touring Routes
 - Repaint Bike Lanes
 - Rural Paved Shoulder
 - Waterfront Trail & Trans Canada Trail Gaps
 - Erie Boulevard & Longpoint Causeway
- Key Community Destinations**
- Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
- Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
- County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Parcel Property
 - Watercourse



0 2.5 5 10 15 20 Kilometres

Norfolk Integrated Sustainable Master Plan

August 2015

Map
8B



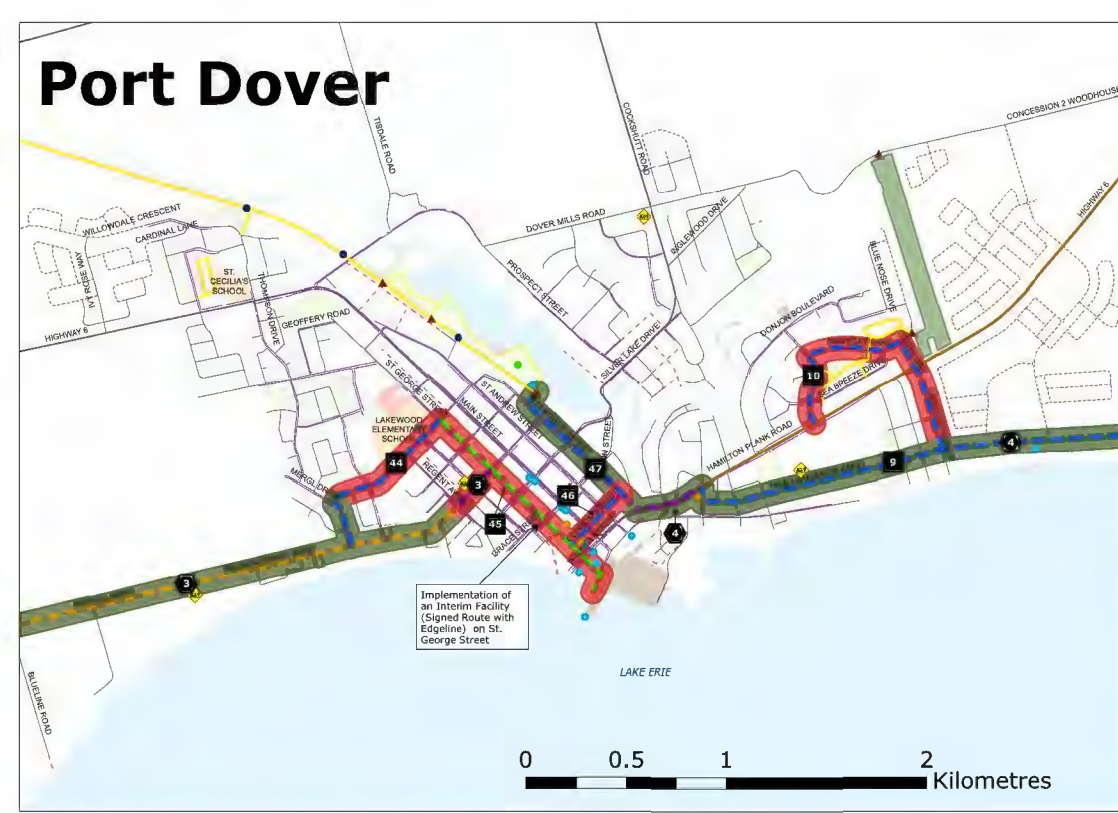
Proposed AT Priorities Community Areas Legend

- Existing Pedestrian Facility Types**
 - Off-Road Trail
 - Sidewalks
- Existing Cycling Facility Types**
 - Paved Shoulder
- Proposed Pedestrian Facility Types**
 - Off-Road Trail
 - 1+1-Boulevard Multi-Use Trail
- Proposed Cycling Facility Types**
 - Bike Lane
 - Paved Shoulder
 - Signed Route with Edgeline
 - Signed Route with Sharrows
 - Signed Route
- Existing Network Features**
 - Existing Trail Access
 - Existing Trailhead
 - Existing Share the Road Signage
- Proposed Phasing**
 - Short Term (0-5 Years)
 - Medium Term (5-15 Years)
 - Long Term (15-25 Years)
- Priority Projects**
 - Signed Touring Routes
 - Repaint Bike Lanes
 - Rural Paved Shoulder
 - Waterfront Trail & Trans Canada Trail Gaps
 - Erie Boulevard & Longpoint Causeway
- Key Community Destinations**
 - Accommodation
 - Hospital
 - Library
 - Shopping Centre
 - Sport Facility
 - Tourist Destination
 - School
 - Community Centre / Arena
- Transportation Features**
 - Provincial Highway
 - Arterial Road
 - Collector Road
 - Local Road
 - Future Road
 - Unopened Road
 - Abandoned Railway
 - Active Railway
- Land Use Features**
 - County Parks
 - Long Point Region Conservation Authority Lands
 - Federally / Provincially Owned Lands
 - Parcel Property
 - Watercourse

Simcoe



Port Dover



Waterford



Norfolk Integrated Sustainable Master Plan

August 2015

Map

8C



Proposed AT Priorities Community Areas Legend

Existing Pedestrian Facility Types

- Off-Road Trail
- Sidewalks

Existing Cycling Facility Types

- Paved Shoulder

Proposed Pedestrian Facility Types

- Off-Road Trail
- In-Boulevard Multi-Use Trail

Proposed Cycling Facility Types

- Bike Lane
- Paved Shoulder
- Signed Route with Edgeline
- Signed Route with Sharrow
- Signed Route

Existing Network Features

- Existing Trail Access
- Existing Trailhead
- Existing Share the Road Signage

Proposed Phasing

- Short Term (0-5 Years)
- Medium Term (5-15 Years)
- Long Term (15-25 Years)

Priority Projects

- Signed Touring Routes
- Repaint Bike Lanes
- Rural Paved Shoulders
- Waterfront Trail & Trans Canada Trail Gaps
- Erie Boulevard & Longpoint Causeway

Key Community Destinations

- Accommodation
- Hospital
- Library
- Shopping Centre
- Sport Facility
- Tourist Destination
- School
- Community Centre / Arena

Transportation Features

- Provincial Highway
- Arterial Road
- Collector Road
- Local Road
- Future Road
- Unopened Road
- Abandoned Railway
- Active Railway

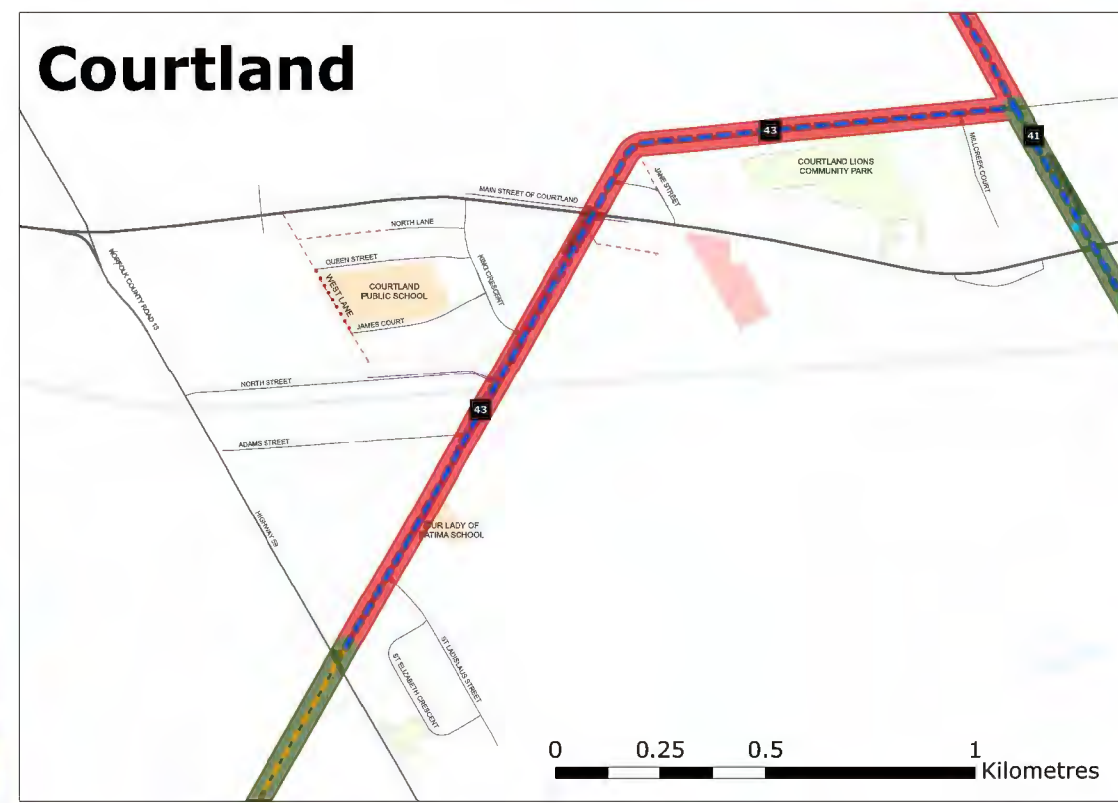
Land Use Features

- Land Use Features
- Long Point Region Conservation Authority Lands
- Federally / Provincially Owned Lands
- Parcel Property
- Watercourse

Delhi



Courtland



Port Rowan

