Township of King

Water and Wastewater Master Plan Class Environmental Assessment

Project File Report

FINAL REPORT ▪ JULY 2020

REPORT PREPARED FOR

TOWNSHIP OF KING
2585 KING ROAD
KING CITY, ON L7B 1A1
(905) 833-5321

REPORT PREPARED BY

THE MUNICIPAL INFRASTRUCTURE GROUP LTD.
8800 DUFFERIN STREET, SUITE 200
VAUGHAN, ON L4K 0C5
(905) 738-5700

TMIG PROJECT NUMBER 14100

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CONTENTS

APPENDICES

FIGURES

TABLES

1 INTRODUCTION

1.1 Purpose

The Township of King has retained the services of The Municipal Infrastructure Group Ltd (TMIG) to undertake the Master Plan Class Environmental Assessment for the water, wastewater and stormwater systems within the communities of King City, Nobleton, Schomberg and Ansnorveldt.

The communities of King City, Nobleton and Schomberg are serviced via municipal water, wastewater and storm sewer networks, and are currently experiencing growth. The community of Ansnorveldt has a municipal water distribution system.

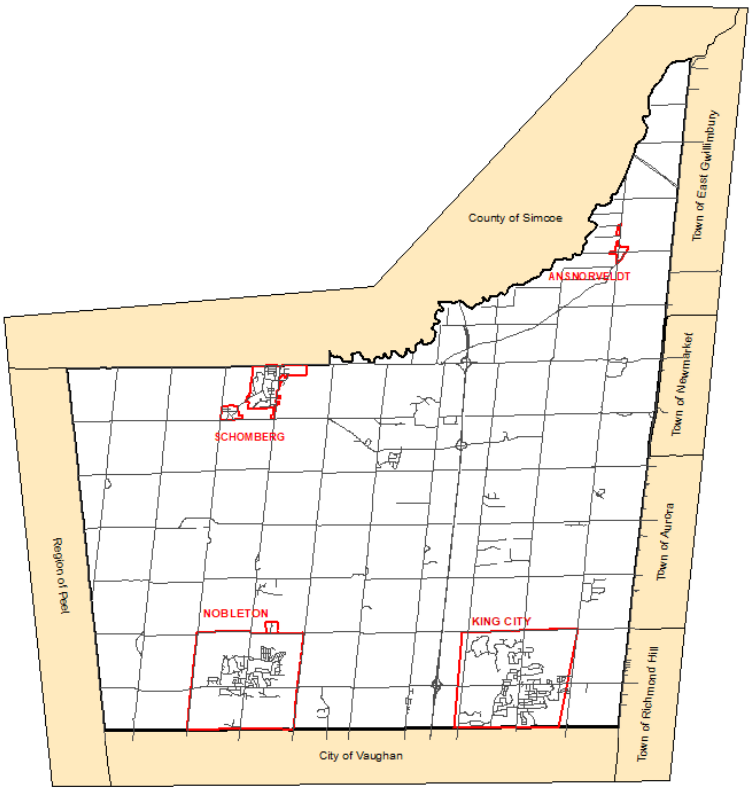
A review and analysis of the existing services in King City, Nobleton, Schomberg and Ansnorveldt will allow the Township to coordinate municipal infrastructure planning with its Official Plan review, to ensure that the policies developed in each are compatible with one another and that the services are available in time to service the projected growth.

This project file documents the planning process that was followed, the study area, a summary of the background information, the problem/opportunity statement, the evaluation of the alternative water and wastewater solutions, the public consultation, and the preferred solution.

1.2 Study Area

The Study Area consists of the existing community boundaries for King City, Nobleton, Schomberg and Ansnorveldt. The study area consists of the areas outlined in **Figure 1-1**.

Figure 1-1 Study Area, within King Township



1.3 Class Environmental Assessment Process

The planning of major municipal projects or activities is subject to the Ontario Environmental Assessment (EA) Act, R.S.O. 1990, and requires the proponent to complete an Environmental Assessment, including an inventory and description of the existing environment in the area affected by the proposed activity.

The Class EA process was developed by the Municipal Engineers Association, in consultation with the Ministry of the Environment, Conservation and Parks (MECP), as an alternative method to Individual Environmental Assessments for recurring municipal projects that were similar in nature, usually limited in scale and with predictable range of environmental effects which were responsive to mitigating measures.

A Class EA Master Plan is a long-range plan that ties together the various needs of an overall system, and is typically comprised of a set of separate projects that are to be individually implemented over an extended period of time. A Master Plan considers the individual needs of a system within a broader context, and integrates infrastructure needs with environmental assessment planning principals. Master Plans address Phase 1 and 2 of the Municipal Class EA process and include a stakeholder consultation program. **Figure 1-2** illustrates the Class EA planning flowchart.

A Master Plan is typically subject to the approval of the municipality for which it was prepared. Prior to being approved, a clear and concise Master Plan report is made available for review and comment by the public and review agencies. Following consideration of any public comment and subsequent approval of the Master Plan, the report is reviewed periodically to determine whether there is a need for formal updating of the Master Plan. Details on how and when a specific Master Plan will be reviewed are generally documented in that Master Plan. The public consultation of the EA process is discussed further in **Section 10** of this report, with associated materials provided in **Appendix H**.

The King Township Water/Wastewater and Stormwater Master Plan Class EA is classified as a Schedule 'B' activity in accordance with the Municipal Class EA schedules. Therefore, the following Class EA planning phases apply:

Phase 1 — Identify the problem (deficiency) or opportunity.

Phase 2 — Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution taking into account public and review agency input.

The individual projects recommended under a Master Plan may be categorized as Schedule 'A', Schedule 'A+', Schedule 'B' or Schedule 'C' under the Municipal Class EA process. At the time that the individual projects included in the Master Plan are to be implemented, they are subject to the requirements of the Municipal Class EA process. For Schedule 'B' and Schedule 'C' projects identified within a Master Plan, the work undertaken during the development of the Master Plan can be used in support of the requirements of Phases 1 and 2 of the Municipal Class EA.

For example, if an individual project is to be implemented and it is a Schedule 'B' project under the Municipal Class EA process, the work undertaken during the development of the Master Plan can be used in support of some of the requirements of Phases 1 and 2 of the Municipal Class EA. It may be necessary to fulfil the additional requirements of the individual projects in order to consider project specific issues that were beyond the scope of the Master Planning process.

The Class EA provides for the three following designations of the project depending upon potential impacts:

Schedule A — Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are pre-approved. Schedule A projects generally include normal or emergency operational and maintenance activities.

Schedule A + — Projects are within existing buildings, utility corridors, rights-of-way, and have minimal adverse environmental effects. These projects are pre-approved; however, the public is to be notified prior to project implementation.

Schedule B Projects have the potential for some adverse environmental effects. The proponent is required to undertake a screening process, involving mandatory contact with directly affected public and relevant review agencies, to ensure they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. Schedule B projects generally include improvements and minor expansions to existing facilities.

Schedule C Projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Class EA document. Schedule C projects require that an Environmental Study Report be prepared and filed for review by the public and review agencies. Schedule C projects generally include the construction of new treatment facilities and major expansions to existing treatment facilities.

The Class EA process also provides an appeal process to change the project status. Under the provisions of subsection 16 of the amended EA Act, there is an opportunity under the Class EA planning process for the Minister to review the status of a project. Members of the public, interest groups and review agencies may request the Minister to require a proponent to comply with Part II of the EA Act, before proceeding with a proposed undertaking. This is known as a “Part II Order” (formerly called “Bump-Up Request”). The Minister determines whether this is necessary with the Minister’s decision being final. The procedure for dealing with concerns which may result in the Minister, by order, requiring the proponent to comply with Part II of the Act is outlined in the Municipal Class Environmental Assessment document.

Following the end of the review period, if there are no outstanding Part II Order Requests, the project may proceed to Phase 5 of the Class EA process to complete the contract drawings and tender documents, and then move on to construction. This study encompasses Phase 1 and Phase 2 of this process with Phase 5 (implementation) being the subject of future work for each of the individual projects identified at the appropriate time.

1.4 Project Team

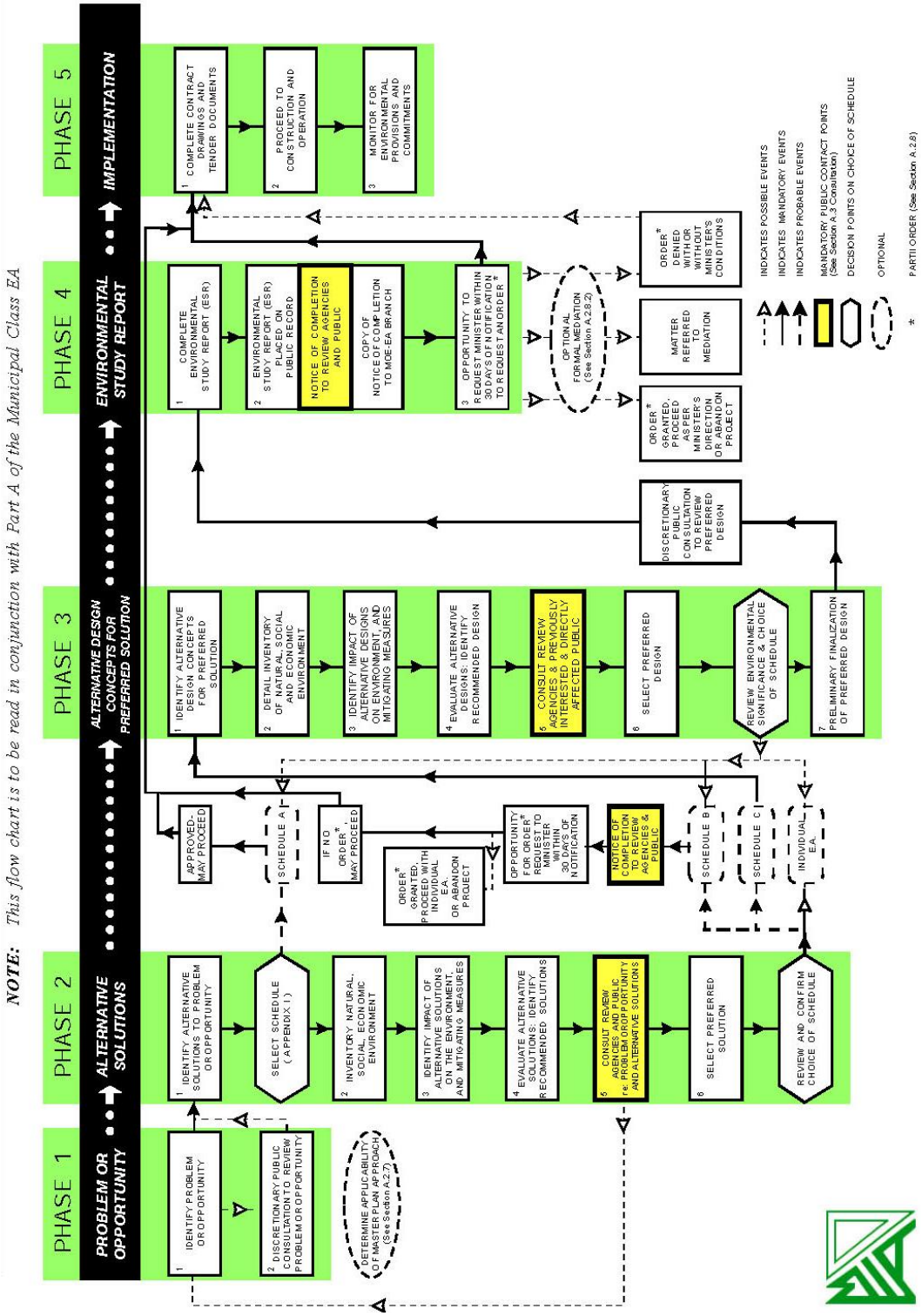
The Township of King retained The Municipal Infrastructure Group Ltd. to undertake the Schedule B Class Environmental Assessment. The key members of the project team are listed in Table 1-1.

Table 1-1 Key Project Team Members

King Township	
Wayne Pinkney C.E.T.	Project Manager
The Municipal Infrastructure Group Ltd.	
Kevin Brown, P.Eng., Steve Hollingworth,P.Eng.	Project Manager Assistant Project Manager
Swerhun Savanta, Inc Golder Associates	Communications Facilitation Natural Environmental Consultants Geotechnical Consultants Hydrogeological Consultants Archaeological Assessment

Figure 1-2 Class EA Planning Flow Chart

(Source: Municipal Engineers Association (October 2000, as amended in 2007, 2011 & 2015)



2 BACKGROUND INFORMATION

There are a number of completed and ongoing studies that are being reviewed and referenced as part of this Master Plan. A summary of those studies is provided below.

2.1 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

The 2019 Growth Plan for the Greater Golden Horseshoe has been prepared under the Ontario Provincial Government 2005 Places to Grow Act. The Growth Plan establishes population and employment forecasts up to 2041 as well as general intensification requirements, prime agricultural protection policies; and identifies potential future transportation corridors and priorities.

The Places to Grow Act and the Growth Plan provide the basis for the updates to King Township's Planning documents.

2.2 Official Plan Review

King Township is undertaking an Official Plan Review to:

(i) develop a new, overarching parent Official Plan, and

(ii) complete Provincial plan conformity exercises to incorporate the Greenbelt Plan, the Growth Plan, the Lake Simcoe Protection Plan, and Source Protection Plans into the Township's Official Plan documents.

The new Parent Official Plan establishes vision for how King is going to evolve and grow over the long-term, and how to achieve it.

This Master Plan is based on the Official Plan, the Community Plans, and known and anticipated development within the communities of King City, Nobleton, Schomberg, and Ansnorveldt.

2.3 Township of King Transportation Master Plan

King Township is also undertaking a Transportation Master Plan (TMP) Study (anticipated completing in January 2020). The TMP Study guides the development of the Township's long-term transportation vision.

This Study reflects the Township's desire to develop a sustainable transportation system with a strong focus on efficient use of existing infrastructure, transit, active transportation and Transportation Demand Management.

2.4 York Region 2016 Water and Wastewater Master Plan

The Region has recently their updated Water and Wastewater Master Plan, which was previously updated in 2009.

As York Region supplies King Township with treated drinking water, and also receives King Township's Wastewater and conveys it to the Region's Water Resource Recovery Facilities, it is important that the Township and the Region share a common understanding of how water demands, and wastewater flows will change over time, ensuring that both systems are capable of supporting the projected growth throughout the serviced areas of the Township.

The following projects within King Township are identified in the Region's Master Plan:

- W28 - Nobleton Water Supply Expansion: Increase supply capacity to support proposed Nobleton community expansion through addition of new wells and/or revision of existing Permit to Take Water limit.
- WW21- Nobleton Water Resource Recovery Facility Expansion: Increase capacity of Nobleton Water Resource Recovery Facility from 2.9 MLD to 4.2 MLD, including the adding a third treatment train, upgrades to the filtration system and modification to existing headworks and pump station. The expansion is required to accommodate growth in Nobleton.

2.5 King Township Urbanization Study

Related to this Master Plan is a separate Urbanization Study (by Urban Strategies Inc) that has been undertaken for the King City, Nobleton and Schomberg community cores. It demonstrates how the streetscapes can be modified to accommodate some intensification while also emphasizing pedestrian access and incorporating stormwater management improvements.

There are opportunities to consider the recommendations of the Urbanization Study along with any infrastructure improvements that may be identified through this Master Plan to provide for the planned growth of these communities.

2.6 Greenbelt Plan

The Greenbelt Plan was established in 2005 (updated in 2017) within the Greenbelt Act to protect identified agricultural lands and environmental spaces that provide linkages between the protected lands, while addressing the needs of developing communities in the Golden Horseshoe. Lands that fall within the Greenbelt are designated as Protected Countryside and may be further designated as Towns and Villages, Agricultural System, and Natural Heritage System.

The study areas, in the case of King City, Nobleton and Schomberg are designated Settlement Areas in the Greenbelt Plan and Oak Ridges Moraine Conservation Plan. The study areas of Ansorveldt and Llyodtown are identified as Hamlets by the Greenbelt Plan

2.7 Oak Ridges Moraine Conservation Plan

The Oak Ridges Moraine Conservation Plan is an ecologically based plan established by the Ontario government to provide land use and resource management direction for the 190,000 hectares of land and water within the Moraine. The decisions of provincial ministers, ministries and agencies made under the Planning Act or the Condominium Act, 1998 or in relation to a prescribed matter, are required to conform with this Plan.

Municipal planning decisions shall also conform with this Plan, which takes precedence over municipal official plans.

All of King City and a portion of Nobleton lie within lands designated as “Settlement Areas” within the ORM Conservation Plan (as shown in **Figure 2-1** and **Figure 2-2**). Urban uses and development as set out in the Municipal Official Plan are allowed within Settlement Areas.

Figure 2-1 Oak Ridges Moraine – King City

(Source: Savanta)

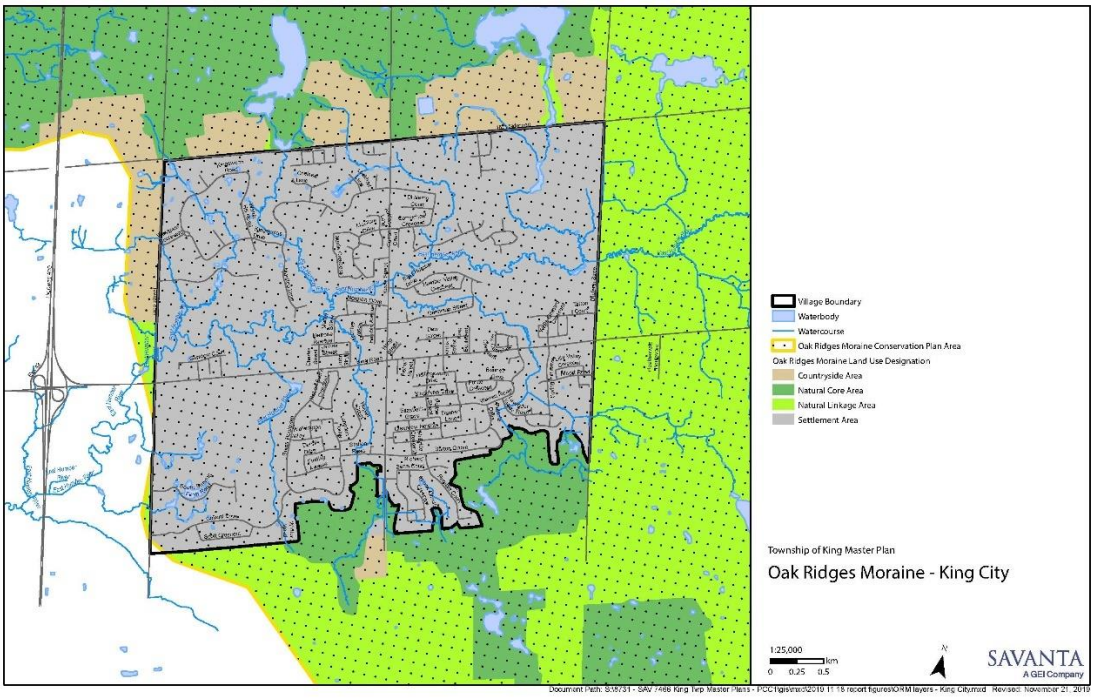
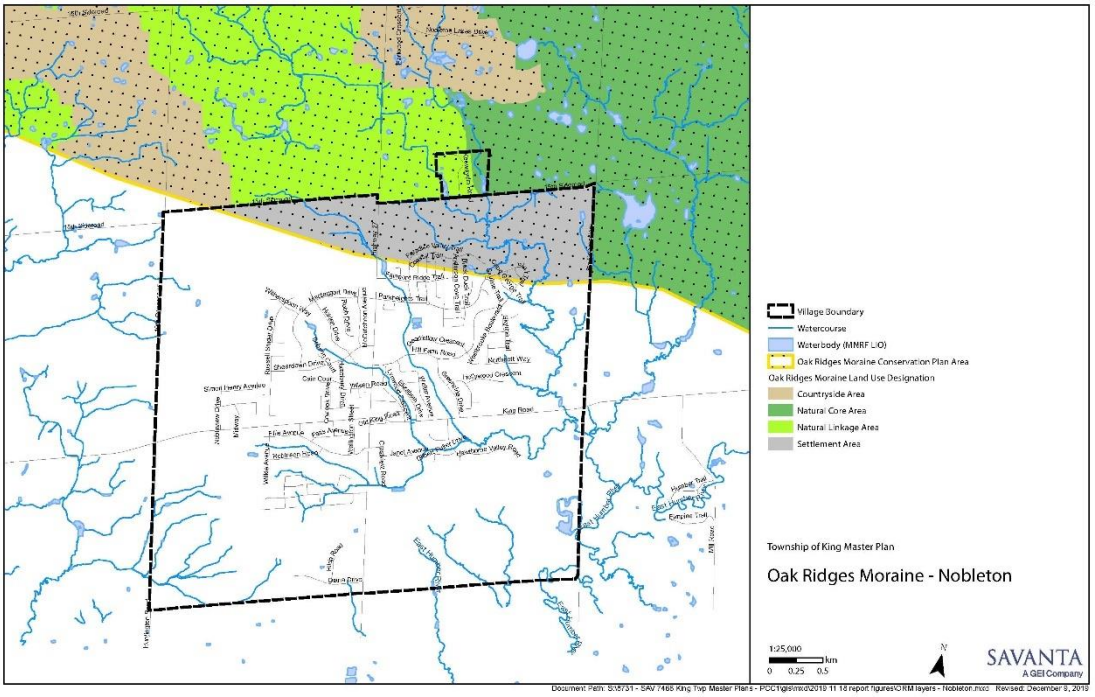


Figure 2-2 Oak Ridges Moraine – Nobleton

(Source: Savanta)



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3 DESCRIPTION OF THE PROJECT AREA

3.1 Planning Information

All municipalities within the Greater Golden Horseshoe are required under the Provincial Growth Plan to update their Official Plans to conform to the Growth Plan. The York Region has recently established their growth strategy and forecasted the anticipated number of dwelling units required in King Township to meet the Growth Plan in York Region. The Region has forecasted that the residential population in King Township is to increase from 24,400 to 34,900 by 2041 and employment to increase from 9,100 to 11,900 by 2031. The 2041 projections are anticipated in late 2020 or early 2021, as part of the Municipal Comprehensive Review. For the purposes of the Township's Master Planning activities, the currently-available projections will be used.

The growth within King Township is predominantly directed to the three communities of King City, Nobleton and Schomberg.

Growth will have two distinct forms:

- new greenfield development on lands previously designated in the local Community Plans, and;
- intensification of existing built-up areas to accommodate a greater population density to make better use of existing infrastructure.

The King Township Planning Department has identified lands that can accommodate the planned growth. The lands fall into distinct categories:

- Existing
- Approved and,
- Designated.

All three of the above types of development are accounted for within the Town's Official Plan. As such, these developments will all be accounted for in the Water and Wastewater Master Plan.

The current population projections are addressed in the following sections. These are included as the reference point from which the present Master Plans are being undertaken. The actual approved numbers of development units will be established by the Township's Planning Department, and not through this Master Plan. The Master Plan will establish the infrastructure requirements for the currently-anticipated growth and assess the alternative servicing solutions to support this growth. As specific development densities are approved, it may be necessary to re-evaluate the sizing of the servicing recommendations of this Master Plan.

Projected growth within the Township is detailed in Table 3-1.

Table 3-1 King Township Population Projections

	2016 Population	Buildout Population	Planned Growth (2016-2031)
King City	6,900	15,500	8,600
Nobleton	5,700	10,900	5,200
Schomberg	2,900	3,700	800
Countryside	10,000	10,000	-
TOTAL	**25,500**	**40,100**	**14,600**

3.2 Population Consideration for Regional Facilities

The current development projections for King City, Nobleton and Schomberg provided in the above are higher than the current service capacity at Regional facilities. Region has initiated studies to explore options to expand the capacity of King City SPS and Nobleton WRRF. Through this Master Plan, the Township's aim is to understand the required upgrades to Township's infrastructure to service the above approved population.

In Nobleton, specifically, the Official Plan identifies the following:

> *[…] If all land designated for residential development and intensification were developed, the total population of the Village of Nobleton would reach between 9,600 and 10,900 persons. However, growth in Nobleton is anticipated to be limited over the horizon of this Plan due to servicing constraints, and as such, the lands may be considered for development within the 2031 – 2041 horizon, subject to the completion of the Municipal Comprehensive Review of the York Region Official Plan, the Nobleton Class Environmental Assessment for water and wastewater improvements and subsequent review of this Plan. At the time of completing this Plan, an Environmental Assessment process has been initiated to consider alternatives for the servicing constraints in Nobleton.*

King Township will continue to coordinate the communities' needs with York Region to ensure that the required infrastructure is available to support the approved growth targets.

Figure 3-1 King City Land Use Budget

(Source: King Township)

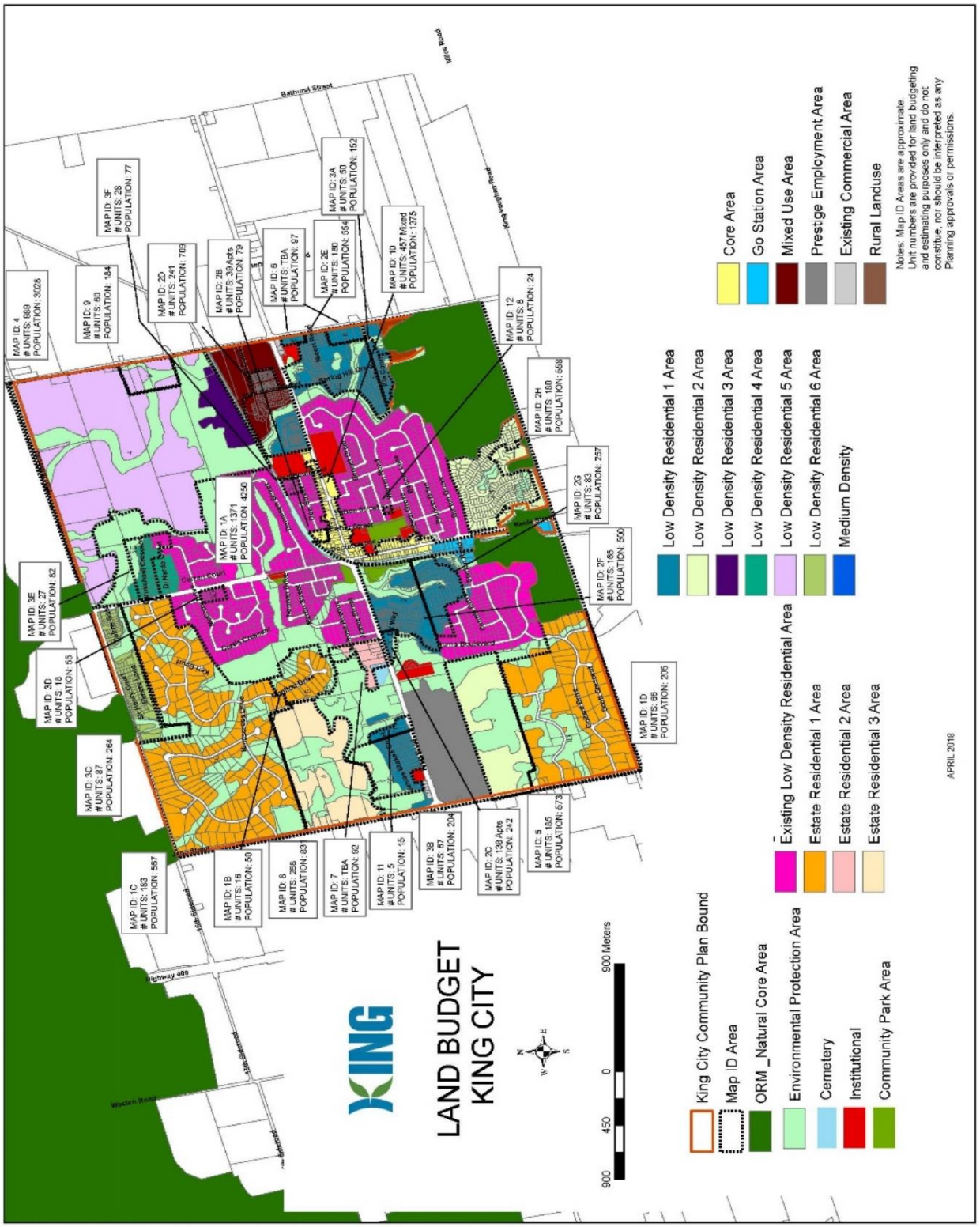


Figure 3-2 Nobleton Land Use Budget

(Source: King Township)

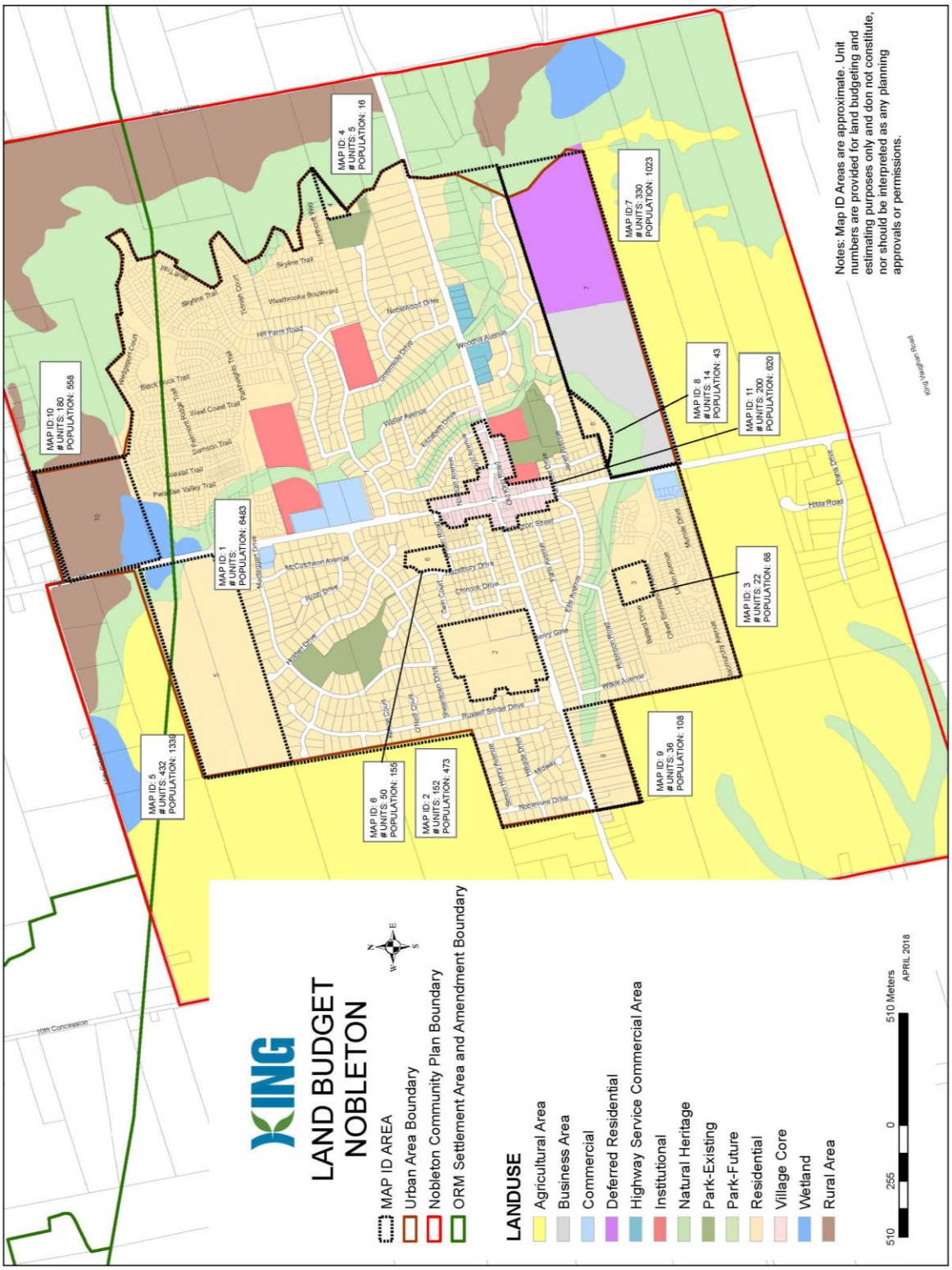
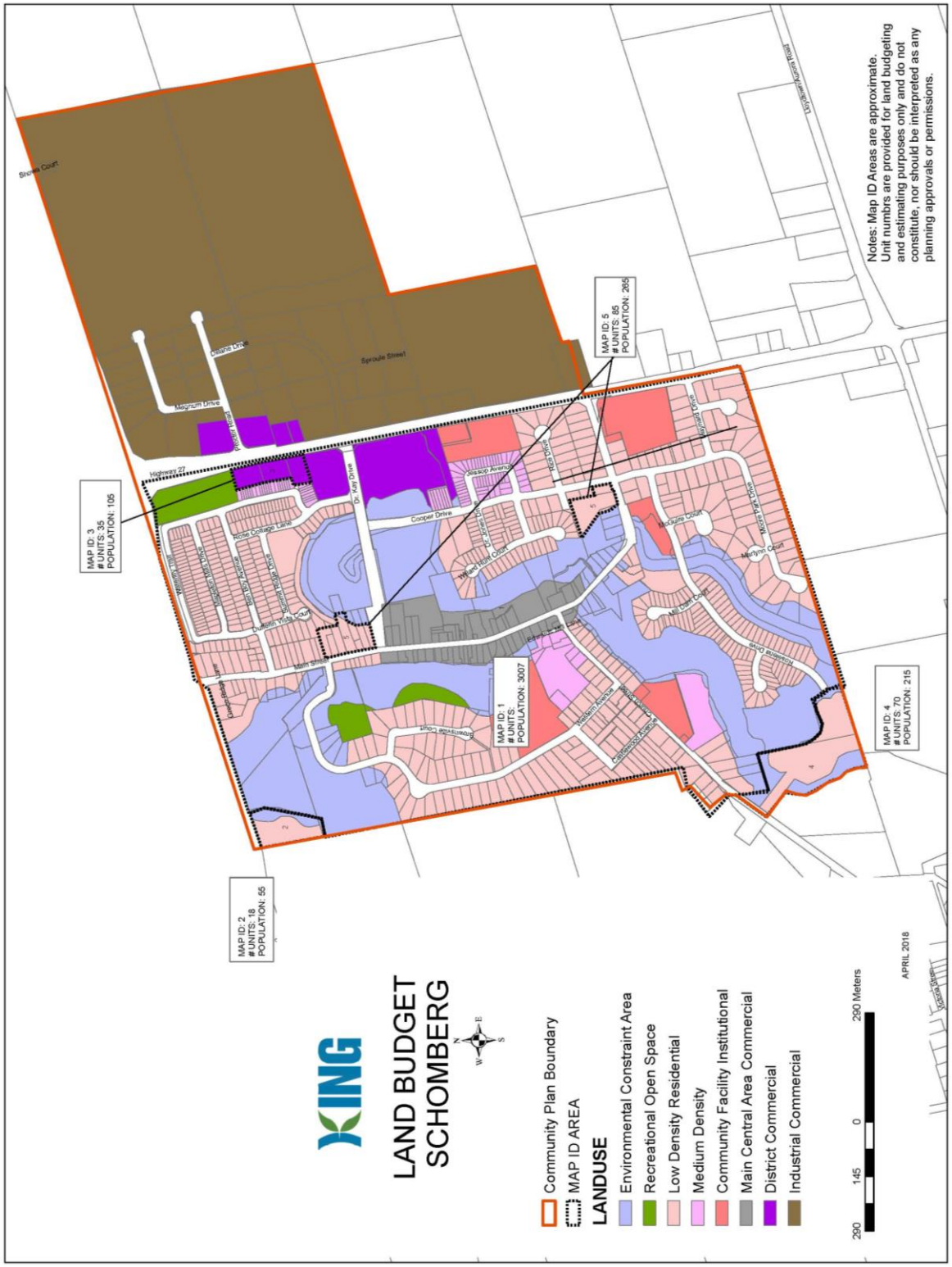


Figure 3-3 Schomberg Land Use Budget

(Source: King Township)



3.3 Natural Environment

A detailed review of the natural environment was completed in support of this Master Plan, and the full report (by Savanta Inc) is provided in **Appendix D**.

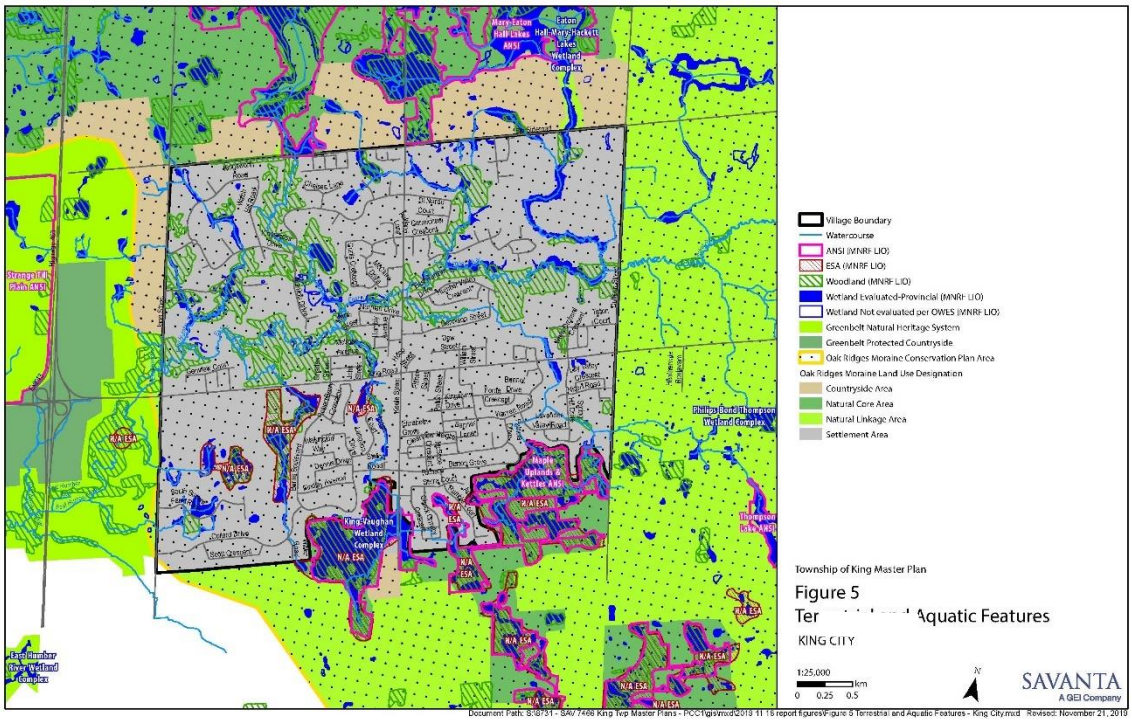
The following sections highlight the most significant features within the Study Area, excerpted from that report. The maps included in the text below are provided for contextual purposes; full-sized versions are available in **Appendix D**.

3.3.1 King City

The community of King City features a number of urban land uses alongside sensitive natural heritage features. Portions of the significant King-Vaughan Wetland Complex and the Eaton Hall-Mary Hackett Lakes Wetland Complex appear throughout the Village (**Figure 3-4**). The East Humber River and its associated valleys flow throughout the King City Study Area with the majority of Ministry of Natural Resources and Forestry (MNRF) identified woodlands occurring along watercourse. The southern portion of the Study Area contains unnamed (Environmentally-Sensitive Areas) ESAs, along with the Maple Uplands & Kettles Areas of Natural and Scientific Interest (ANSI). This portion of the Study Area also contains Oak Ridges Moraine Natural Core (ORMNC) Area designations. The King City Study Area is also located within the Oak Ridges Moraine Conservation Plan (ORMCP) area.

Figure 3-4 King City Environmental Features

(Source: Savanta, Inc)



3.3.2 Nobleton

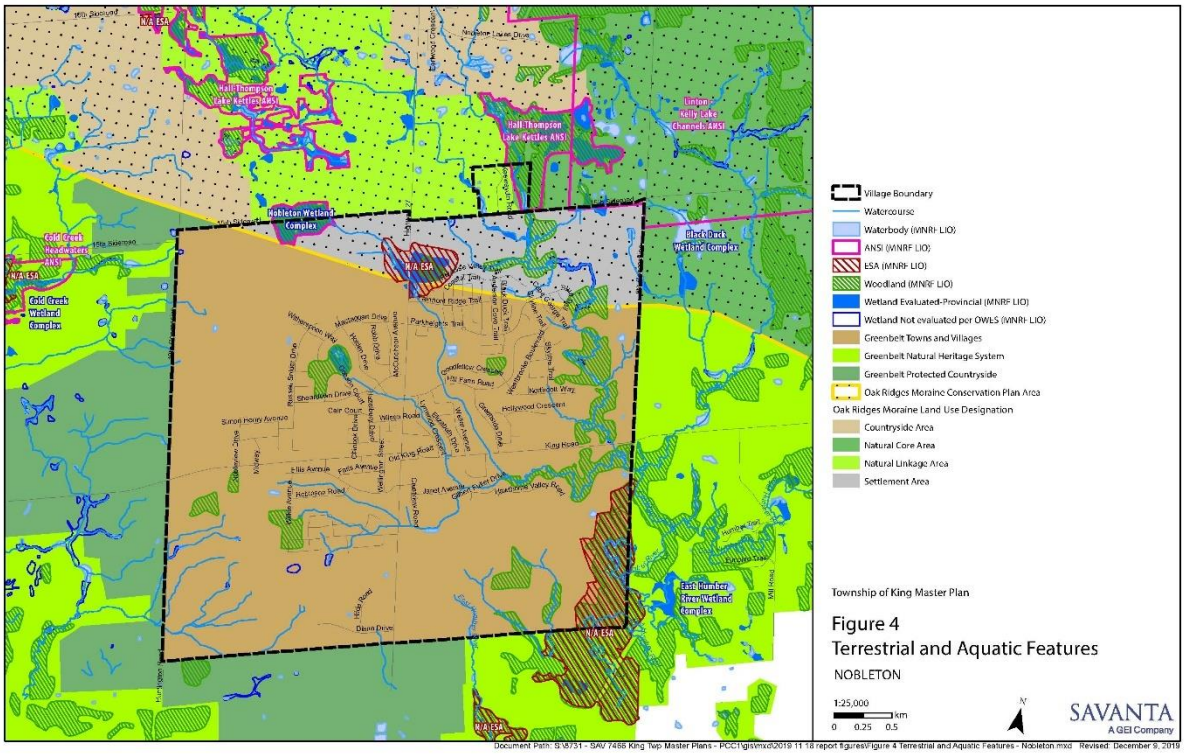
The community of Nobleton contains a number of natural heritage features concentrated in the northeast corner of the area. Two significant wetlands are located along the northern boundary of the Nobleton Study Area: the Nobleton Wetland Complex and the Black Duck Wetland Complex. All wetlands associated with these complexes have been mapped Minimum Vegetation Protection Zones (MVPZs) along with Minimum

Areas of Influence (MAIs) as per the Nobleton Community Plan within King's OP. Portions of the East Humber River Wetland Complex are located in the southeastern portion of the Nobleton Study Area within an Unnamed ESA and on adjacent lands to the east. The East Humber River and its associated valleys and tributaries flow primarily in a north-south direction within the east side of the Nobleton Study Area (**Figure 3-5**). The river appears to flow through portions of the Black Duck Wetland Complex and the Nobleton Wetland Complex. The Hall-Thompson Lakes Kettles ANSI is located in the northwestern portion of the Nobleton community and along the northeastern boundary of the community. A number of woodlots ranging in size occur in the northeast corner of the area and along the East Humber River throughout the community. Significant woodlands identified in the northeast corner of Nobleton are afforded MVPZs and MAIs as per the Nobleton Community Plan within the Township of King's OP.

The Nobleton Study Area is designated Settlement Area by the Greenbelt Plan and ORMCP area.

Figure 3-5 Nobleton Environmental Features

(Source: Savanta, Inc)



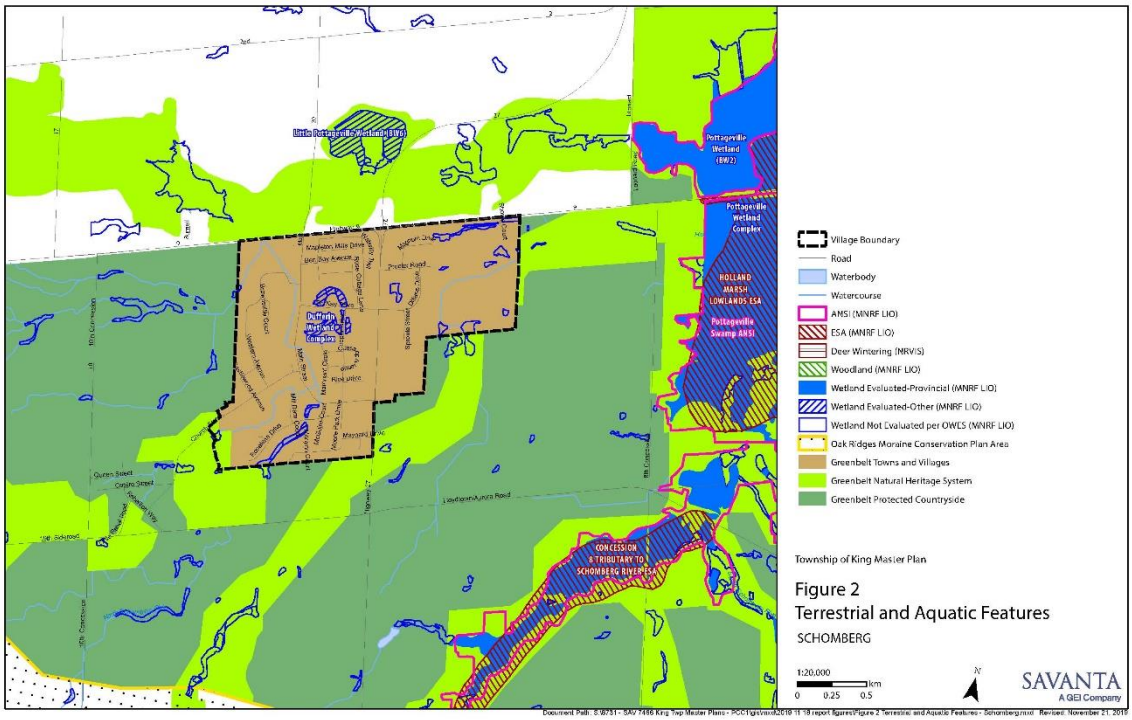
3.3.3 Schomberg

The community of Schomberg contains the significant Dufferin Wetland Complex. It is located in the center of Schomberg Village and although small, provides habitat to a number of birds, mammals and locally rare flora. In addition to the Dufferin Wetland Complex, the Little Pottageville Wetland is located directly north of the community plan boundary. This wetland is unlikely to provide direct constraints to infrastructure development in the community, as it is located over 1.5 km from the Sub-Study Area.

Both the North and South branches of the Schomberg River flow through the Sub-Study Area. The Northern branch flows centrally through Schomberg, while the southern branch flows partially along the northeastern portion of the community. A large segment of the north Schomberg River flows through woodlands identified by the Ministry of Natural Resources and Forestry (MNRF). In the northeastern corner of the Schomberg Study Area, an MNRF identified woodland is located directly adjacent to the South Schomberg River (**Figure 3-6**).

Figure 3-6 Schomberg Environmental Features

(Source: Savanta, Inc)



3.3.4 Ansnorveldt

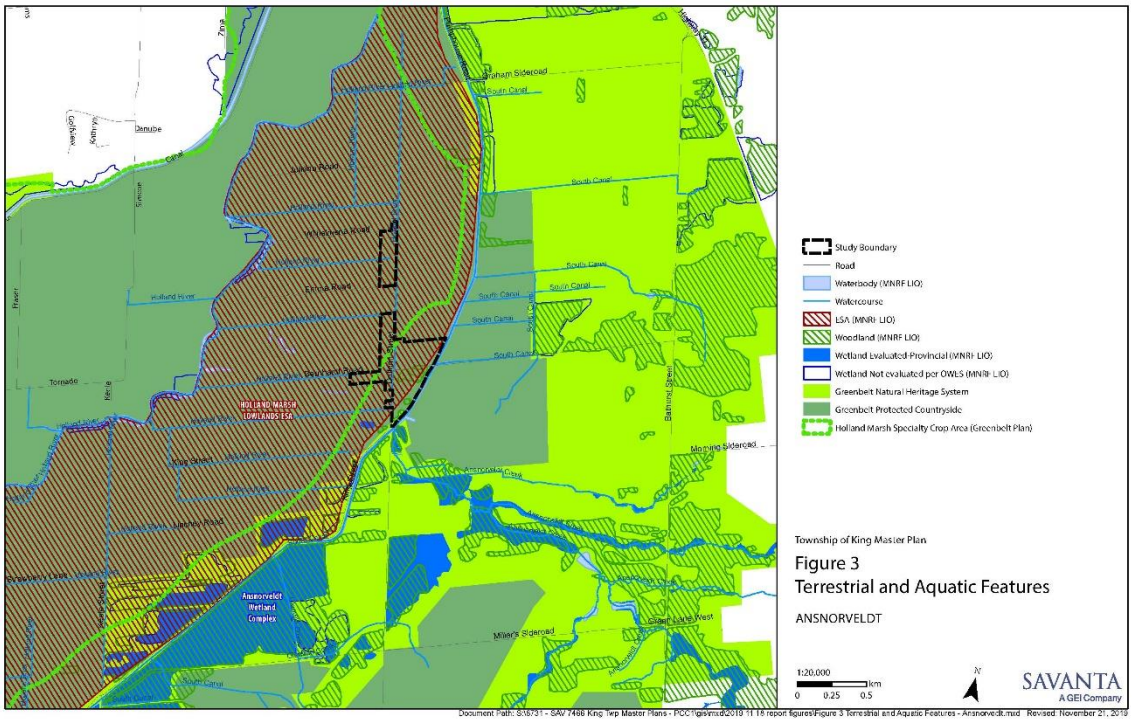
The community of Ansnorveldt is wholly within the Holland Marsh Lowlands ESA. The South Canal of the Holland River abuts the southern portion of the Study Area (**Figure 3-7**). Four canals associated with the Holland River to the west are within the Study Area extending westward from Dufferin Street. These canals are utilized for agricultural purposes.

The Ansnorveldt Wetland Complex is found immediately south of the community plan boundary.

The hamlet of Ansnorveldt is predominantly designated Holland Marsh Specialty Crop Area by the Greenbelt Plan with a small area in the south designated as Greenbelt Natural Heritage System.

Figure 3-7 Ansnorveldt Environmental Features

(Source: Savanta, Inc)



3.4 Geotechnical Conditions

A desktop review of the geological conditions was completed in support of this Master Plan, and the full report (by Golder Associates) is provided in **Appendix E**.

The following sections highlight the most significant features within the Study Area, excerpted from that report. The maps included in the text below are provided for contextual purposes; full-sized versions are available in **Appendix E**.

Based on surficial geology mapping, the communities of King City and Nobleton lie within an area of till consisting of clay to silt textured till derived from glaciolacustrine deposits or shale. The surficial geology mapping also indicates modern alluvial deposits (clay, silt, sand, gravel) along surface water channels. In King City there are fine textured glaciolacustrine deposits of silt and clay, minor sand and gravel north of King Road.

The surficial geology mapping indicates that Schomberg lies within an area consisting of variable subsurface conditions, predominantly fine-textured glaciolacustrine deposits (silt and clay, minor sand and gravel, massive to well laminated) along with deposits of till (clay to silt textured till derived from glaciolacustrine deposits or shale) and modern/older alluvial deposits (clay, silt, sand, gravel).

3.4.1 King City

The existing boreholes indicated that the subsurface conditions generally consist of interstratified layers stiff to hard silty clay till, compact to very dense silt and very stiff to hard silty clay with localized deposits of compact to very dense sand to sandy silt and sandy silt till.

The glacially derived soils should be expected to contain cobbles and boulders, which could affect excavations. It is expected that the overburden soils can be excavated using conventional hydraulic excavating equipment. Contractors working in this area should be made aware of the potential presence of cobbles and/or

boulders within the overburden soils as it may affect their excavation progress rates and it may require cobble/boulder removal.

3.4.2 Nobleton

The review of existing boreholes indicated that the subsurface conditions generally consist of stiff to hard silty clay overlying deposits of dense to very dense silt to very stiff to hard silty clay with localized deposits of compact to very dense silty sand, sand to gravelly sand and sandy silt till to silty sand till, at variable depths.

The glacially derived soils should be expected to contain cobbles and boulders, which could affect excavations. It is expected that the overburden soils can be excavated using conventional hydraulic excavating equipment. Contractors working in this area should be made aware of the potential presence of cobbles and/or boulders within the overburden soils as it may affect their excavation progress rates and it may require cobble/boulder removal.

3.4.3 Schomberg

The review of existing boreholes indicated topsoil or surficial fill materials generally overlying deposits of firm to very stiff clayey silt which was found to extend to depths greater than 8 m.

3.4.4 Ansnorveldt

A review of existing borehole data was not completed for Ansnorveldt. A specific geotechnical review or investigation will be initiated if warranted by the recommendations of the Master Plan.

3.5 Hydrogeological Conditions

A desktop review of the hydrogeological conditions was completed in support of this Master Plan, and the full report (by Golder Associates) is provided in **Appendix F**. Because these communities had traditionally been serviced by private wells (before the construction of the water distribution systems), there are hundreds of well records available within each community, providing a good indication of the subsurface conditions.

The following sections highlight the most significant features within the Study Area, excerpted from that report. The maps included in the text below are provided for contextual purposes; full-sized versions are available in **Appendix F**.

3.5.1 King City

The majority (63%) of the 663 wells within the King City Study Area were drilled overburden wells. The average static water level in these wells was 20.7 m below grade.

Approximately 5% of the wells were reported as deep bored wells, with an average static water level of 5.5 m below grade.

Approximately 3% of the wells in the study area were shallow dug or bored wells, with an average static water level of 3.4 m below grade.

In general, the subsurface hydrogeological conditions in King City are amenable to construction of new infrastructure, with dewatering potentially required depending on the location of the required works.

3.5.2 Nobleton

The majority (60%) of the 334 wells within the Nobleton Study Area were drilled overburden wells. The average static water level in these wells was 17.2 m below grade.

Approximately 6% of the wells were reported as deep bored wells, with an average static water level of 7.1 m below grade.

Approximately 4% of the wells in the study area were shallow dug or bored wells, with an average static water level of 3.2 m below grade.

In general, the subsurface hydrogeological conditions in Nobleton are amenable to construction of new infrastructure, with dewatering potentially required depending on the location of the required works.

3.5.3 Schomberg

The majority (40%) of the 172 wells within the Schomberg Study Area were drilled overburden wells. The average static water level in these wells was 16.1 m below grade.

Approximately 24% of the wells were reported as deep bored wells, with an average static water level of 5.1 m below grade.

Approximately 4% of the wells in the study area were shallow dug or bored wells, with an average static water level of 3.1 m below grade.

In general, the subsurface hydrogeological conditions in Schomberg are amenable to construction of new infrastructure, with dewatering potentially required depending on the location of the required works.

3.5.4 Ansnorveldt

A review of existing well data was not completed for Ansnorveldt. A specific hydrogeological review or investigation will be initiated if warranted but the recommendations of the Master Plan.

3.6 Archaeological Conditions

A desktop review of the archaeological conditions was completed in support of this Master Plan and the supporting documents (by Golder Associates) are provided in **Appendix G**.

The presence of recorded archaeological sites and historic structures within King City, Nobleton and Schomberg results in a moderate to high archaeological potential with all three communities. A Stage 1 Archaeological Assessment is recommended prior to any development within the community's boundaries.

3.7 Socio-Economic Conditions

The Township of King has a community plan for King, Nobleton and Schomberg. These plans help shape the future of King Township. These three communities are home to approximately 12,500 residents. Jobs in these areas include manufacturing and retail, transportation and warehousing, construction amongst others. This is supported by road and other infrastructure systems and any future water and wastewater infrastructure planning, being the subject of this study, must be cognizant of this environment in order to mitigate impacts to it during implementation.

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4 EXISTING WATER INFRASTRUCTURE

4.1 Overview of King Township Water Distribution Systems

4.1.1 King City

King City is supplied through York Region's blended system, with water treated by both Peel Region and the City of Toronto, conveyed through York Region's transmission mains.

The Township's King City distribution system is fed from the Region's trunk watermain along Dufferin Street.

The King City system consists of a single pressure zone for the entire community.

Storage is provided in two elevated tanks:

1. King City North Elevated Tank: 2.7 ML, located in central King City, at 60 Fischer Street
2. King City South Elevated Tank: 2.8 ML, located along Dufferin Street, at King Vaughan Road.

A map of the King City System (including the Regional facilities) is provided in **Figure 4-1**.

4.1.2 Nobleton

Nobleton is supplied through three groundwater wells, owned and operated by York Region. The groundwater is treated on-site and discharged directly to the distribution system. A fourth well was commissioned in 2015.

The Nobleton system comprises two pressure zones, with Zone 2 supplying a small neighbourhood in the west end of Nobleton, consisting of Cedarwood Crescent, Midway Crescent, Nobleview Drive, Simon Henry Avenue, Hillside Drive, and a short stretch of King Road.

Storage is provided in two elevated tanks:

1. Nobleton Elevated Tank: 2.0 ML, located in the west end of Nobleton, at the intersection of Russell Snuder Drive and Sheardown Drive; and
2. Nobleton North Elevated Tank: 0.9 ML, located in North Nobleton, along Highway 27 north of Fairmont Ridge Trail.

A map of the Nobleton System (including the Regional facilities) is provided in **Figure 4-2**.

The Region and the Township are presently in discussions regarding transferring the ownership and responsibility of the Zone 2 Booster Pumping Station from the Region to the Township.

4.1.3 Schomberg

Schomberg is supplied through three groundwater wells, owned and operated by York Region. The groundwater is treated on-site and discharged directly to the distribution system.

The Schomberg system consists of a single pressure zone for the entire community.

Storage is provided in a single elevated tank (1.5 ML), located along Church Street at the south-east end of the community. A second elevated tank is identified in the Region's 2009 Master Plan Update.

A map of the Schomberg System (including the Regional facilities) is provided in **Figure 4-3**.

4.1.4 Ansnorveldt

The Ansnorveldt system was originally constructed to supply irrigation water to the area farms, and was eventually converted to supply potable drinking water to the community. The well system is owned and operated by York Region.

There is a single pressure zone for the community, with storage provided through a pressure tank.

The Ansnorveldt water distribution system was not designed to provide fire protection to the community.

4.2 Review of Existing Design Criteria

The Township's water infrastructure design criteria are provided in **Table 4-1**.

Table 4-1 Water Design Criteria

Criterion	Value	Note
Residential Average Day Demand	365 Lpcd	-
Maximum Day Factor	King City: 2.00 Nobleton: 2.00 Schomberg: 2.00	From the Township's Design Standards
Peak Hour Factor	King City: 2.75 Nobleton: 2.75 Schomberg: 2.75	From the Township's Design Standards
Commercial / Industrial / Institutional	86 persons/ha	Equivalent residential population
Fire Flows	Per Fire Underwriters Survey	-
System Pressures – Peak Hour	275 to 700 kPa	40 to 100 psi
System Pressures – Maximum Day plus Fire	140 to 700 kPa	20 to 100 psi

4.2.1 Fire Flows

The Fire Underwriters Survey (FUS) presents a methodology by which recommended fire flows can be calculated for a given property. This calculation considers the following criteria:

- Building Floor Area;
- Construction Type (from wood frame to fire-resistive);
- Building Occupancy (from non-combustible contents to rapid-burning contents); and,
- Separation from adjacent buildings.

Due to the nature of the calculations, the individual requirements of each building within the communities could not be calculated through the Master Plan. Rather, fire flow estimates have been calculated for 'typical' Residential, Commercial, and Industrial sites, and these will be considered as appropriate for Master Planning purposes. The fire flow demands considered in this Master Plan are as indicated in **Table 4-2**.

Figure 4-1 Existing King City Water Distribution System

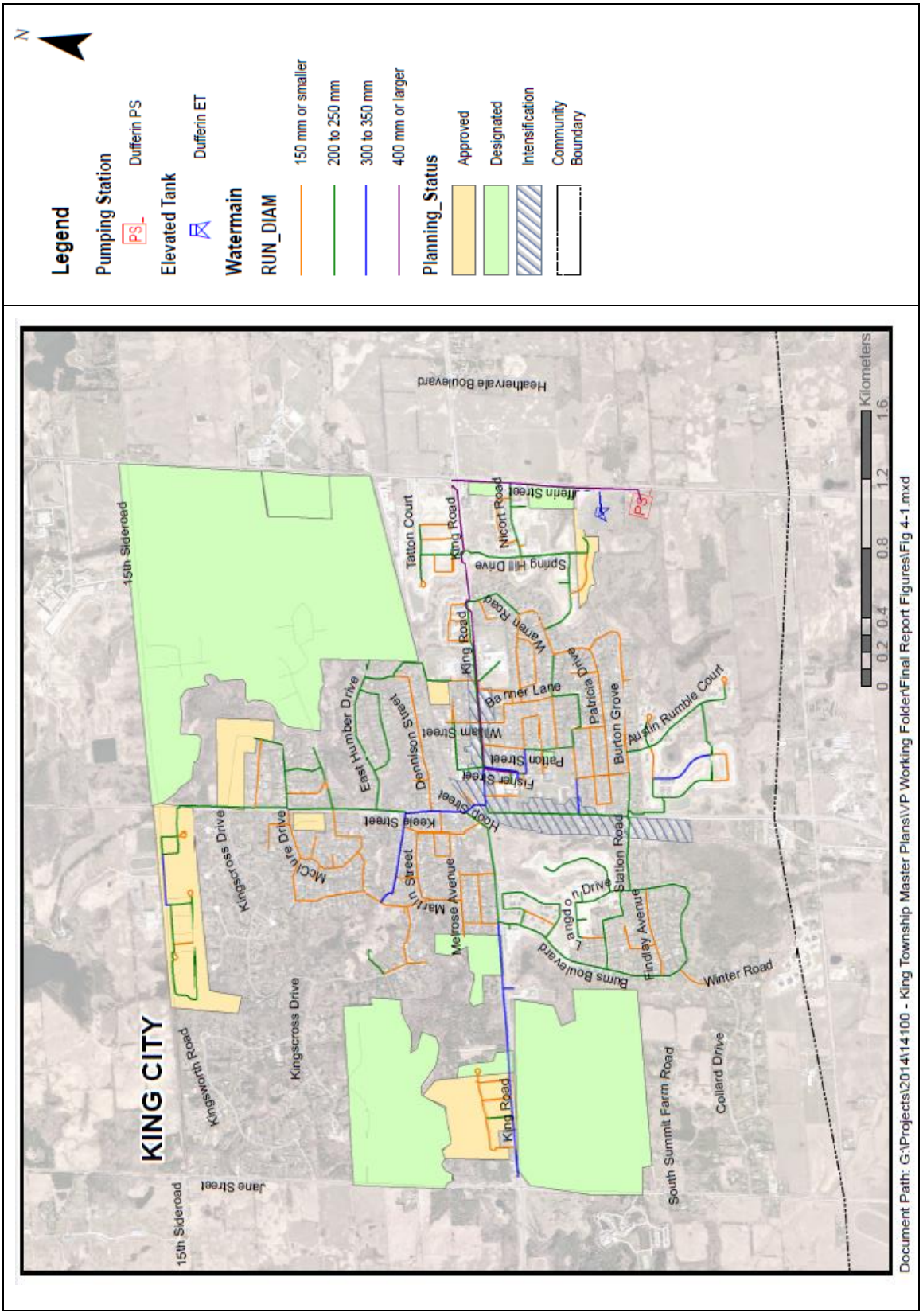


Figure 4-2 Existing Nobleton Water Distribution System

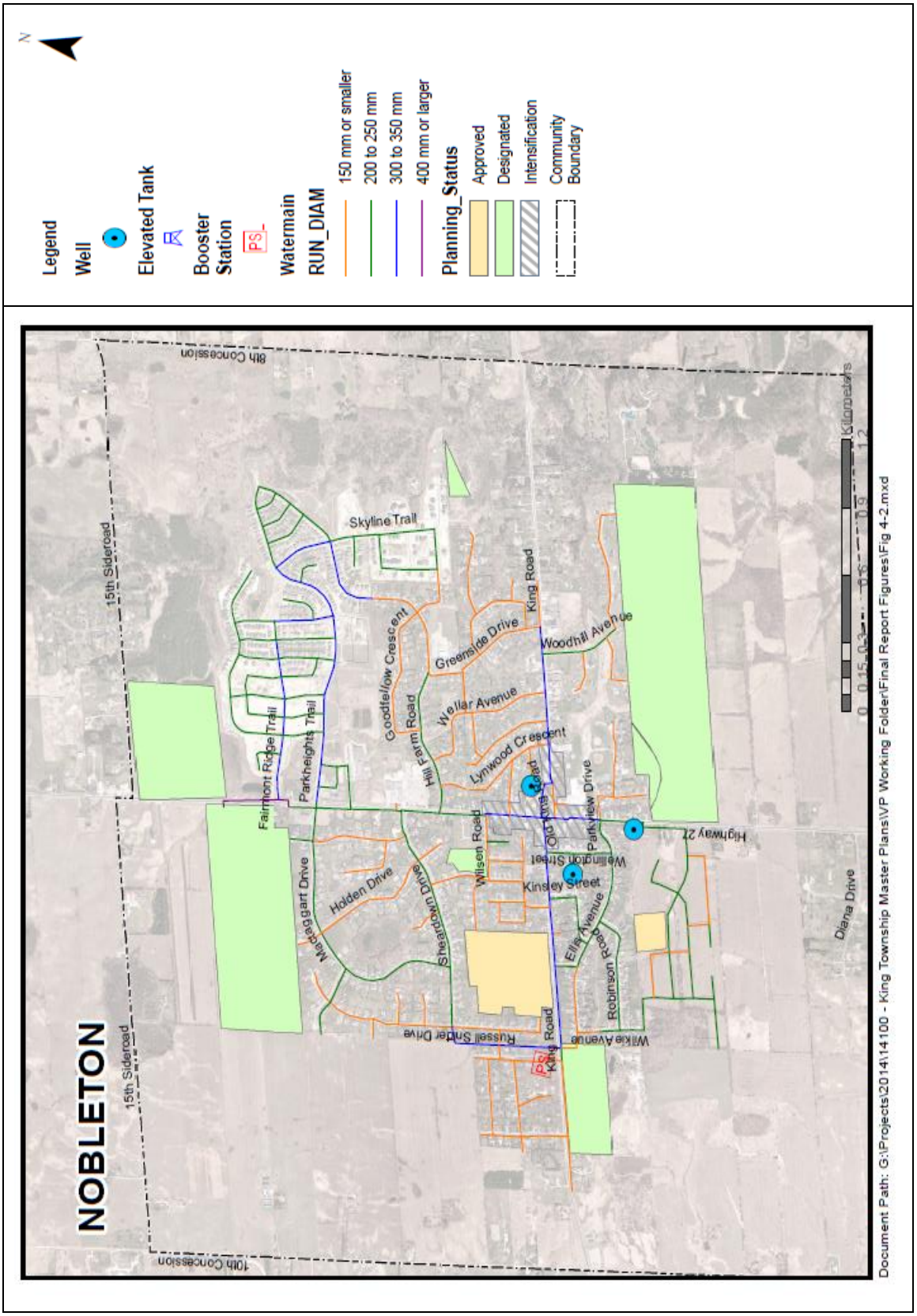


Figure 4-3 Existing Schomberg Water Distribution System

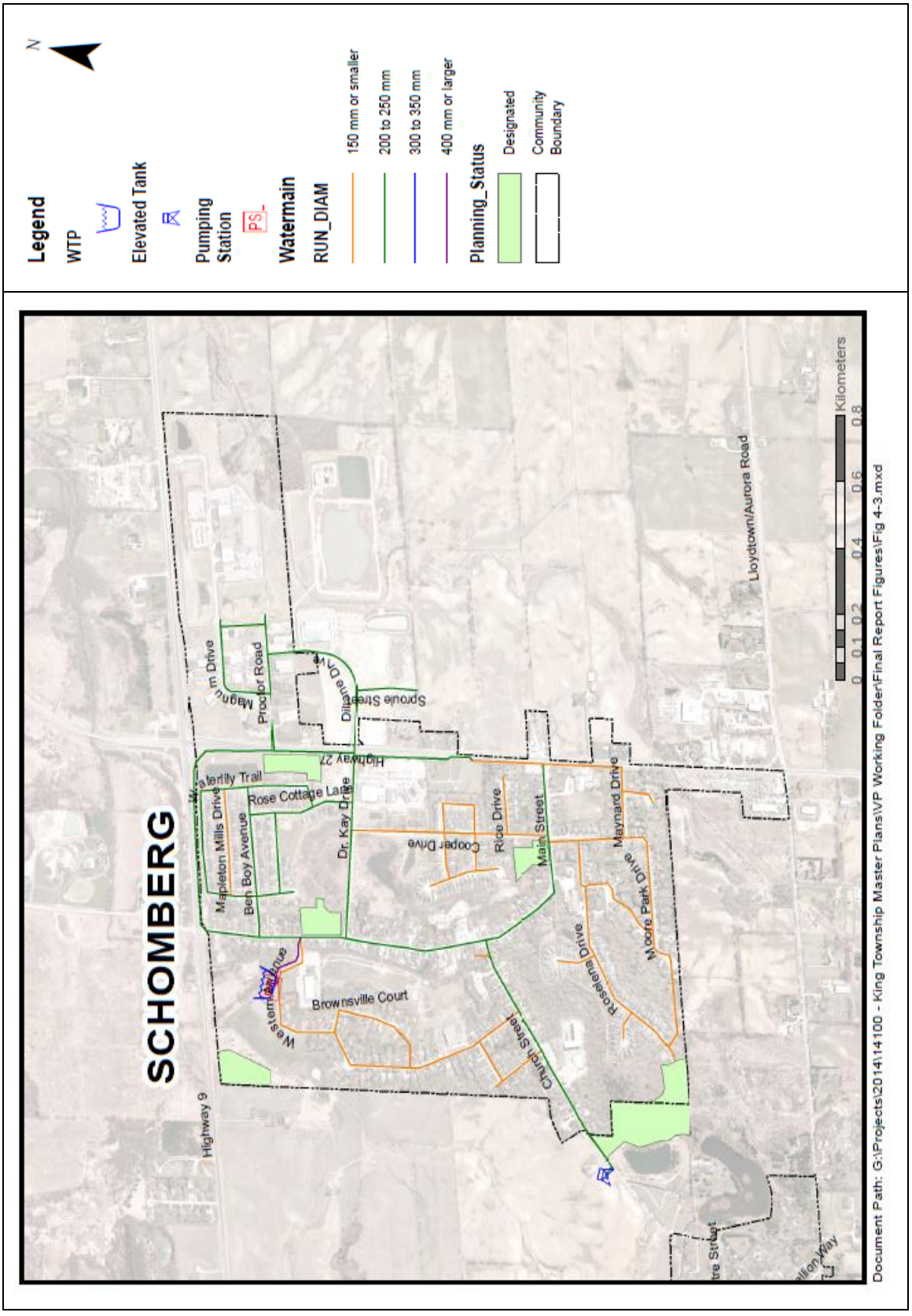


Figure 4-4 Existing Ansnorveldt Water Distribution System

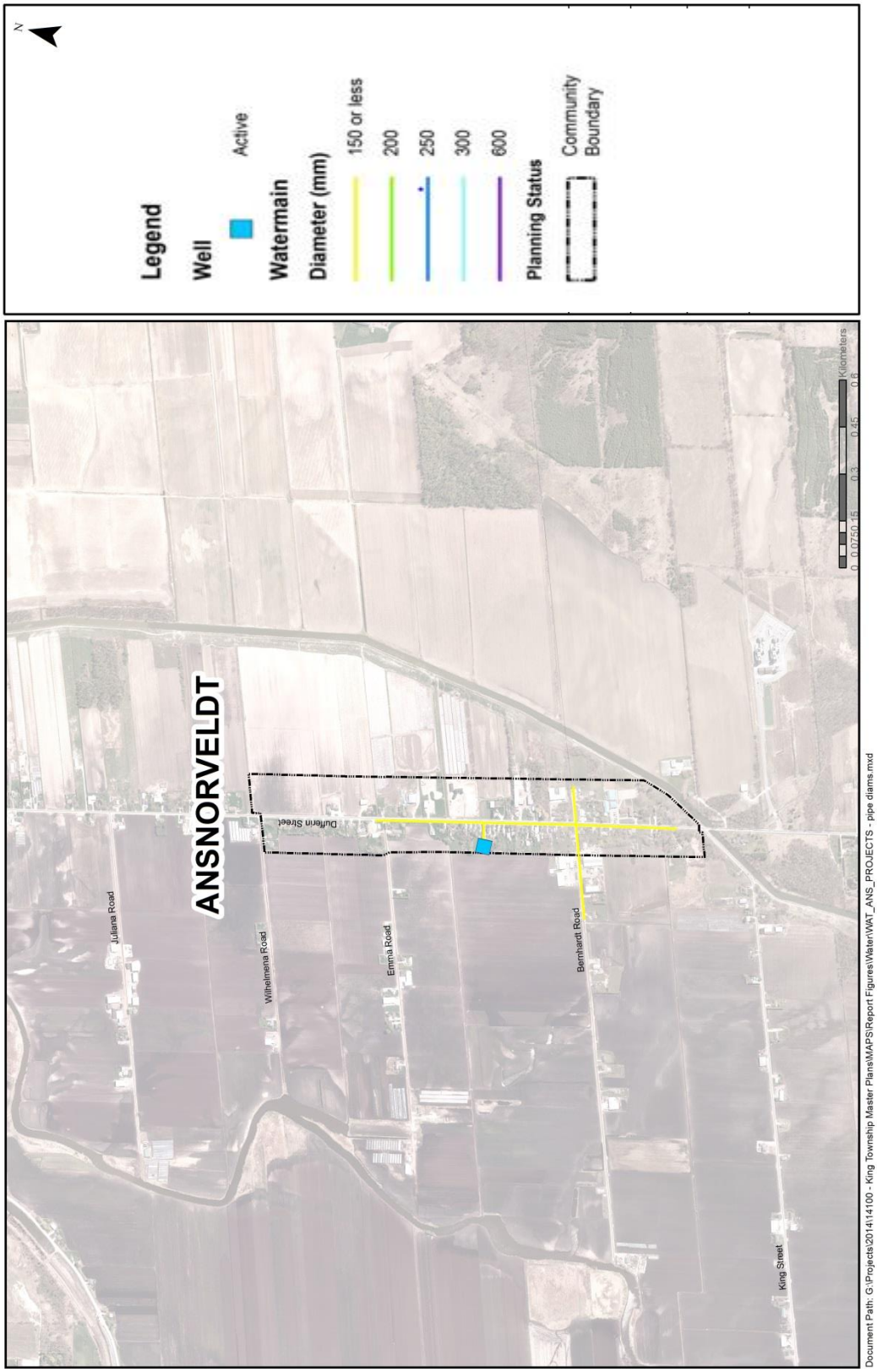


Table 4-2 Typical Fire Flows

Category	Structure Characteristics	Calculated Fire Flow	Example
Residential	260 m^2 (2,800 ft^2) 'Ordinary' Construction Limited Combustible Content Not Sprinklered	63 L/s	 
Main Street Commercial	300 m^2/storey (3,200 ft^2) Two Storeys (apartment above) 'Ordinary' construction Combustible Content NFPA 13 Sprinkler System	103 L/s	
Major Retail/ Industrial	5,000 m^2 (55,000 ft^2) 'Non-Combustible' Construction Combustible Content NFPA 13 Sprinkler System	187 L/s	 
Photo Source: ©2015 Google			

4.3 Review of Existing Water Demands

TMIG reviewed information provided by York Region in order to assess the water consumption rates for the four communities.

4.3.1 King City

Based on the Region's billing to the Township, the total volume of water used by King City in 2016 was approximately 797,424 m^3, which amounts to approximately 2,177 m^3/day. Based on King City's 2016

population of 6,900, this amounts to a per-capita demand of 315 Lpcd (blended, including both residential and employment demands).

This average daily consumption is below the Township's design criterion of 365 Lpcd.

4.3.2 Nobleton

As Nobleton's water supply is groundwater well based, consumption is estimated based on well production.

Based on the Region's billing to the Township, the total volume of water used by Nobleton in 2016 was approximately 666,796 m^3, which amounts to approximately 1,815 m^3/day. Based on Nobleton's 2016 population of 5,700, this amounts to a per-capita demand of 318 Lpcd (blended, including both residential and employment demands).

The average daily consumption is well below the Township's design criterion of 365 Lpcd.

4.3.3 Schomberg

As Schomberg's water supply is groundwater well based, consumption is estimated based on well production.

Based on the Region's billing to the Township, the total volume of water used by Schomberg in 2016 was approximately 497,399 m^3, which amounts to approximately 1,358 m^3/day. Based on Schomberg's 2016 population of 2,900, this amounts to a per-capita demand of 468 Lpcd (blended, including both residential and employment demands).

The average daily consumption is well above the Township's design criterion of 365 Lpcd.

4.3.4 Ansnorveldt

As Ansnorveldt's water supply is groundwater well based, consumption is estimated based on well production.

Based on the Region's billing to the Township, the total volume of water used by Ansnorveldt in 2016 was approximately 15,640 m^3, which amounts to approximately 43 m^3/day. Based on 2016 population data of 194 residents, this amounts to a per-capita demand of 220 Lpcd (blended, including both residential and employment demands).

The average daily consumption is well below the Township's design criterion of 370 Lpcd.

4.4 Review of Potential Water Servicing Constraints

The capacities of the King City, Nobleton, Schomberg and Ansnorveldt water distribution systems have been analyzed based on the Township's current planning projections (from the Town's Draft Official Plan) and the current design criteria. The analysis was completed using water distribution system models built for this Master Plan using the InfoWater modelling platform.

The Township's existing King City and Nobleton water models were converted from WaterCAD to InfoWater, and the Schomberg and Ansnorveldt models were developed based on the Township's GIS data.

When considering the servicing of future development, the future water demands were assigned to appropriate locations in the existing distribution system based on the following considerations, in the order specified:

1. Existing Functional Servicing Reports;
2. Location of existing watermains adjacent to the property in question; or
3. Anticipated or assumed street patterns.

Potential constraints have been identified based on meeting a residual pressure of 140 kPa (20 psi) under maximum day plus fire flow demands, or 275 kPa (40 psi) under peak hour in Ansnorveldt (as the system does not supply fire protection).

4.4.1 King City Servicing Constraints

Error! Reference source not found.**Figure 4-5** illustrates the ability of the existing water distribution system to provide the recommended fire flows under maximum day demand conditions and at a residual pressure of not less than 140 kPa (20 psi). The available fire flows were identified through hydraulic modelling of the distribution system and are in addition to the Maximum Day design water demand. The fire demand for each node in the model is assigned based on the adjacent land use type. From the results of the fireflow analysis, Residual fireflow at each node is calculated as the difference between the Total Available Fireflow and Total demand (Domestic demand+fire demand). Red nodes indicate where the FUS-recommended fire flows (as described in **Section 4.2.1**) cannot be provided.

Generally, the locations showing available fire flows below those recommended through the FUS calculation occur at cul-de-sacs, where fire flows are provided from a single location, rather than a looped connection along most streets. Cul-de-sacs generally have fire flows only slightly below the recommended levels, and the full fire flow is usually available where that pipe meets the looped connection at the cross street.

Aside from the cul-de-sacs, FUS fire flows might not be available at the following locations (based on build-out populations, and the planned water system infrastructure):

- King City Employment Lands (south side of King Road, just east of Jane Street); and
- The designated estate residential area located east of Jane Street, and north of King Road.

As it has been demonstrated that the actual water demands in King City are below the design values, the actual available fire flows within the system will be greater than what is indicated in the figures.

In addition, the water system modelling revealed three areas that are vulnerable to the failure of ‘critical pipes’, which are pipes that provide the only water supply to the area in question. These areas would be cut-off from the municipal water supply if the critical pipe were to fail or have to be taken out of service for maintenance purposes.

The Master Plan will consider these potential constraints (identified in Figure 4-5) and identify alternatives that could be considered by the Township.

4.4.2 Nobleton Servicing Constraints

Figure 4-6 illustrates the ability of the existing water distribution system to provide the recommended fire flows under maximum day demand conditions and at a residual pressure of not less than 140 kPa (20 psi). The available fire flows were identified through hydraulic modelling of the distribution system and are in addition to the Maximum Day design water demand. The fire demand for each node in the model is assigned based on the adjacent land use type. From the results of the fireflow analysis, Residual fireflow at each node is calculated as the difference between the Total Available Fireflow and Total demand (Domestic demand+fire demand). Red nodes indicate where the FUS-recommended fire flows (as described in **Section 4.2.1**) cannot be provided.

Generally, the locations showing available fire flows below those recommended through the FUS calculation occur at cul-de-sacs, where fire flows are provided from a single location, rather than a looped connection along most streets. Cul-de-sacs generally have fire flows only slightly below the recommended levels, and the full fire flow is usually available where that pipe meets the looped connection at the cross street.

In order to determine the impact of the Zone 2 Booster Pumping Station being out of service, this assessment considered that the Zone 2 Booster Pumping Station was being bypassed. The modelling results indicate that the pressures and availability of fire flows to the lands currently within Pressure Zone 2 appear to be appropriate even if those properties were to be serviced from Pressure Zone 1.

As it has been demonstrated that the actual water demands in Nobleton are below the design values, the actual available fire flows within the system will be greater than what is indicated in the figures.

In addition, the water system modelling revealed three areas that are vulnerable to the failure of ‘critical pipes’, which are pipes that provide the only water supply to the area in question. These areas would be cut-off from

the municipal water supply if the critical pipe were to fail or have to be taken out of service for maintenance purposes.

The Master Plan will consider these potential constraints and identify alternatives that could be considered by the Township.

4.4.3 Schomberg Servicing Constraints

Figure 4-7 illustrates the ability of the existing water distribution system to provide the recommended fire flows under maximum day demand conditions and at a residual pressure of not less than 140 kPa (20 psi). The available fire flows were identified through hydraulic modelling of the distribution system and are in addition to the Maximum Day design water demand. The fire demand for each node in the model is assigned based on the adjacent land use type. From the results of the fireflow analysis, Residual fireflow at each node is calculated as the difference between the Total Available Fireflow and Total demand (Domestic demand+fire demand). Red nodes indicate where the FUS-recommended fire flows (as described in **Section 4.2.1**) cannot be provided, while the node labels indicate what fire flow is available at the given node.

There are two main locations in Schomberg where the FUS-recommended fire flows cannot be supplied through the existing waster distribution system:

- Residential neighbourhood along Roselena Drive and Moore Park Drive;
- The Industrial lands in the northeast part of Schomberg.

As it has been demonstrated that the actual water demands in Schomberg are below the design values, the actual available fire flows within the system will be greater than what is indicated in the figures.

In addition, the water system modelling revealed three areas that are vulnerable to the failure of ‘critical pipes’, which are pipes that provide the only water supply to the area in question. These areas would be cut-off from the municipal water supply if the critical pipe were to fail or have to be taken out of service for maintenance purposes. One of these is along Church Street in southwest Schomberg, where a watermain failure would effectively take the elevated tank out of service.

The Master Plan will consider these potential constraints and identify alternatives that could be considered by the Township.

Figure 4-5 Potential King City Water Servicing Constraints

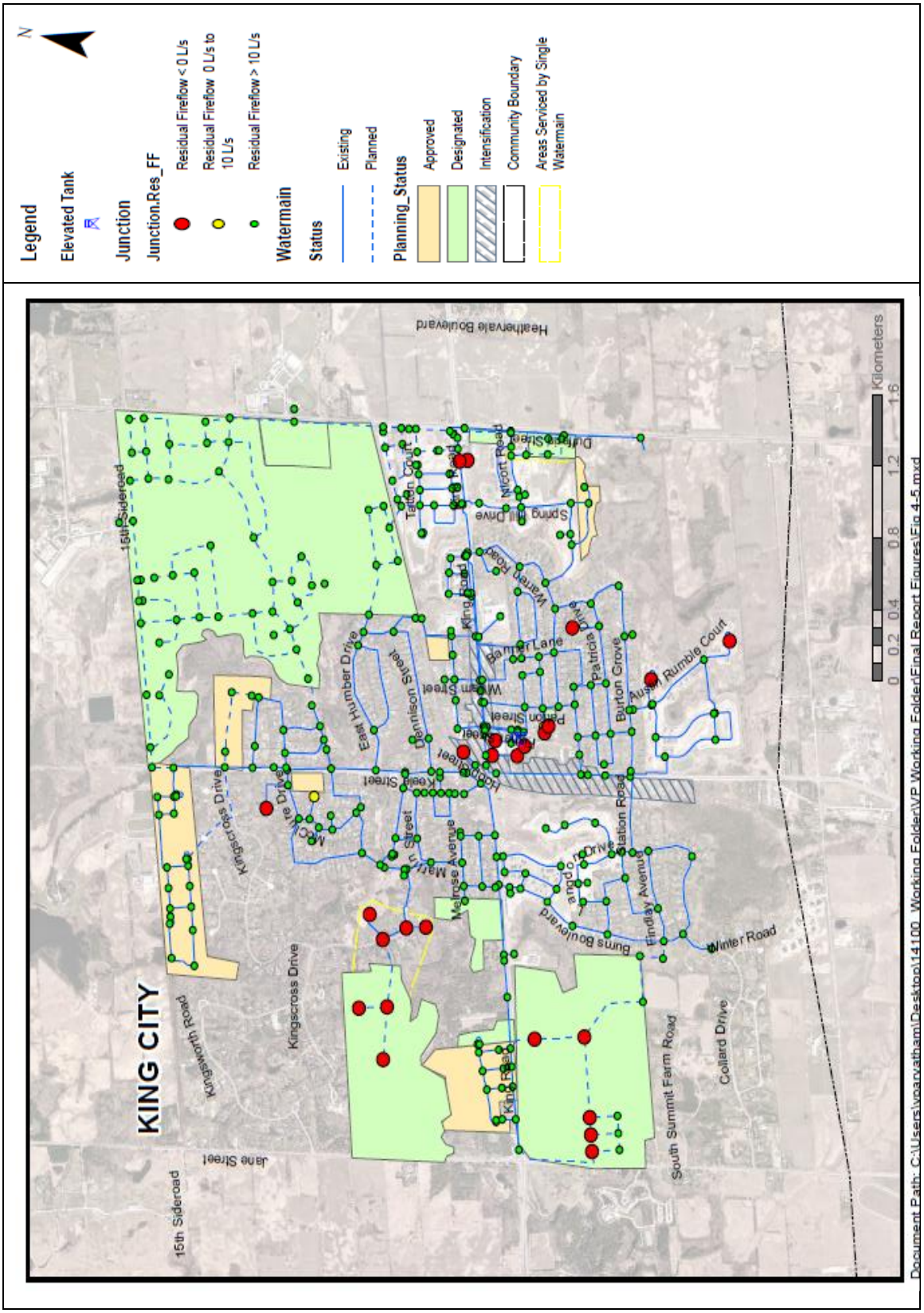


Figure 4-6 Potential Nobleton Water Servicing Constraints

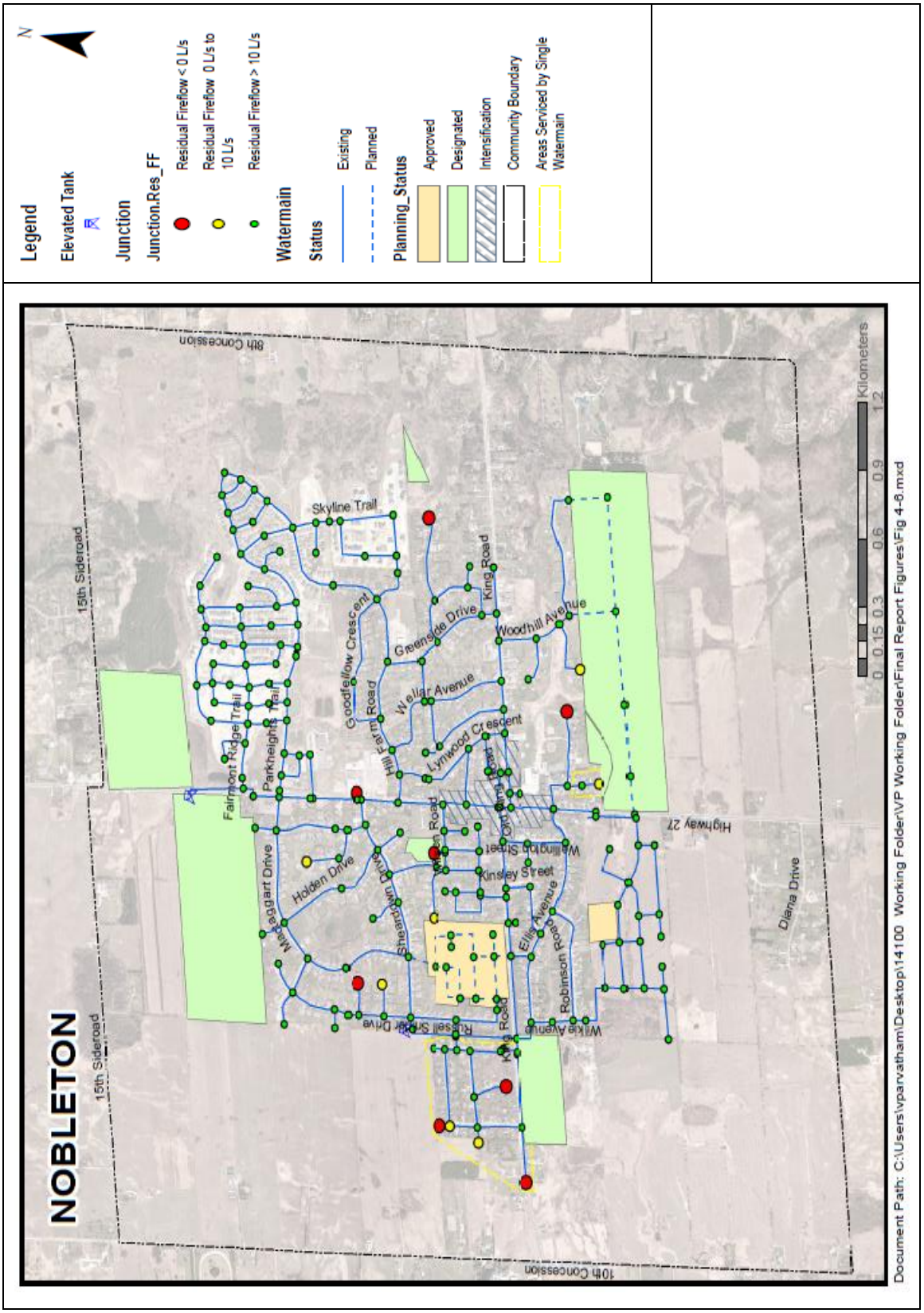


Figure 4-7 Potential Schomberg Water Servicing Constraints

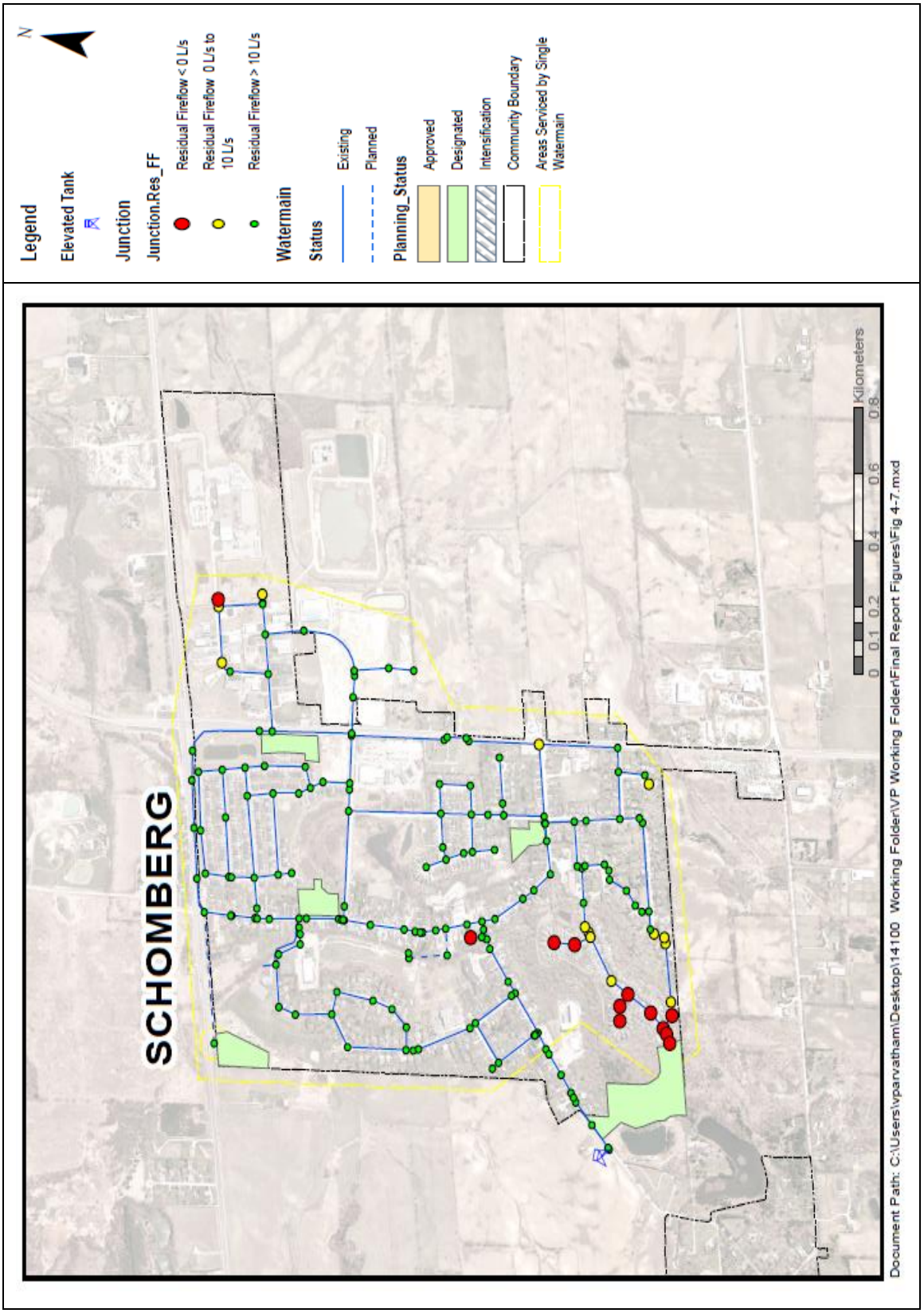
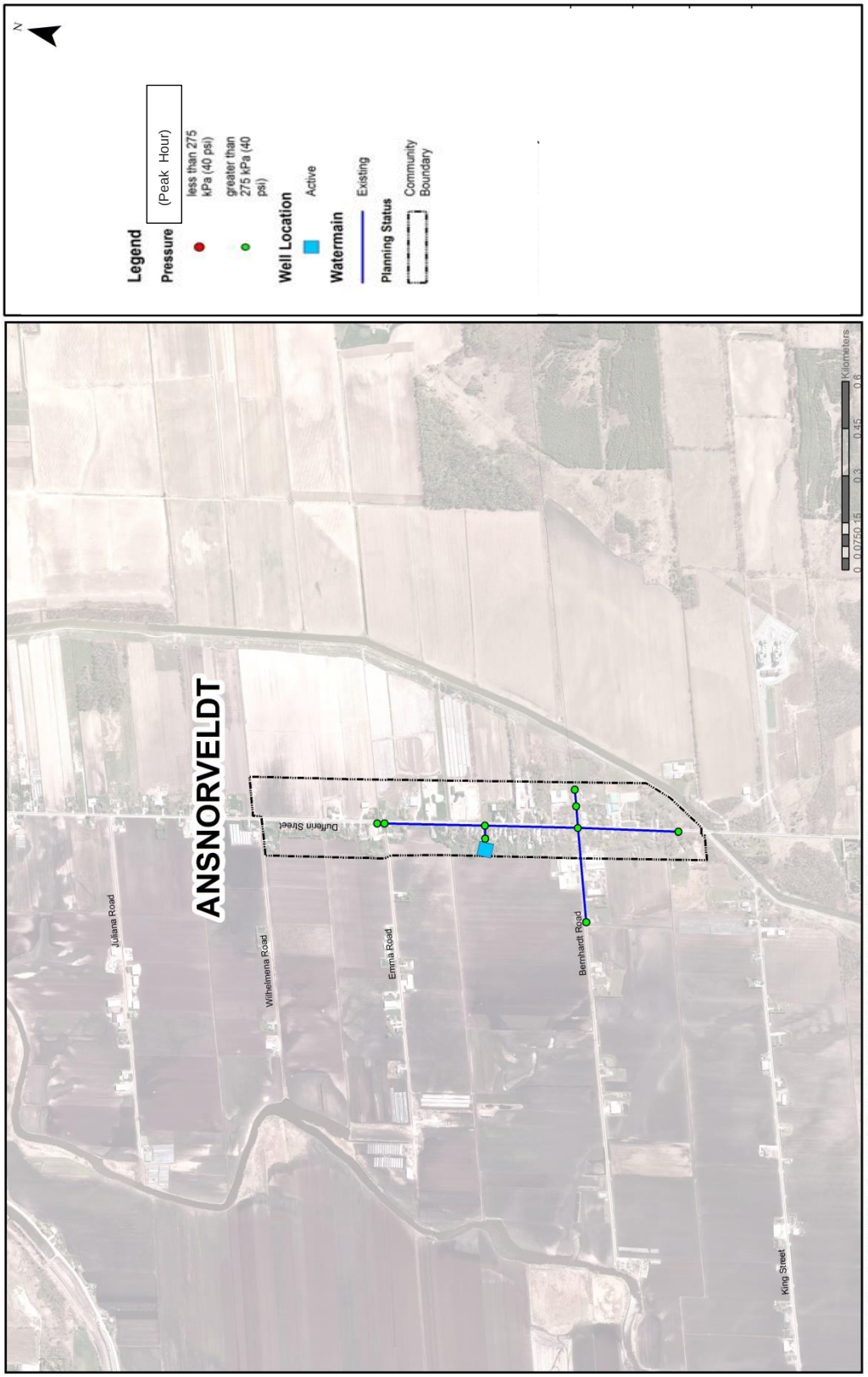


Figure 4-5 Potential Ansnorveldt Water Servicing Constraints



5 EXISTING WASTEWATER INFRASTRUCTURE

5.1 Overview of King Township Systems

5.1.1 King City

The King City wastewater collection system consists of local gravity sewers and five existing sewage pumping stations (SPS). A sixth SPS is under construction, and a seventh is currently planned. The collection system is shown in **Figure 5-1**, and the SPS information is provided in **Table 5-1**.

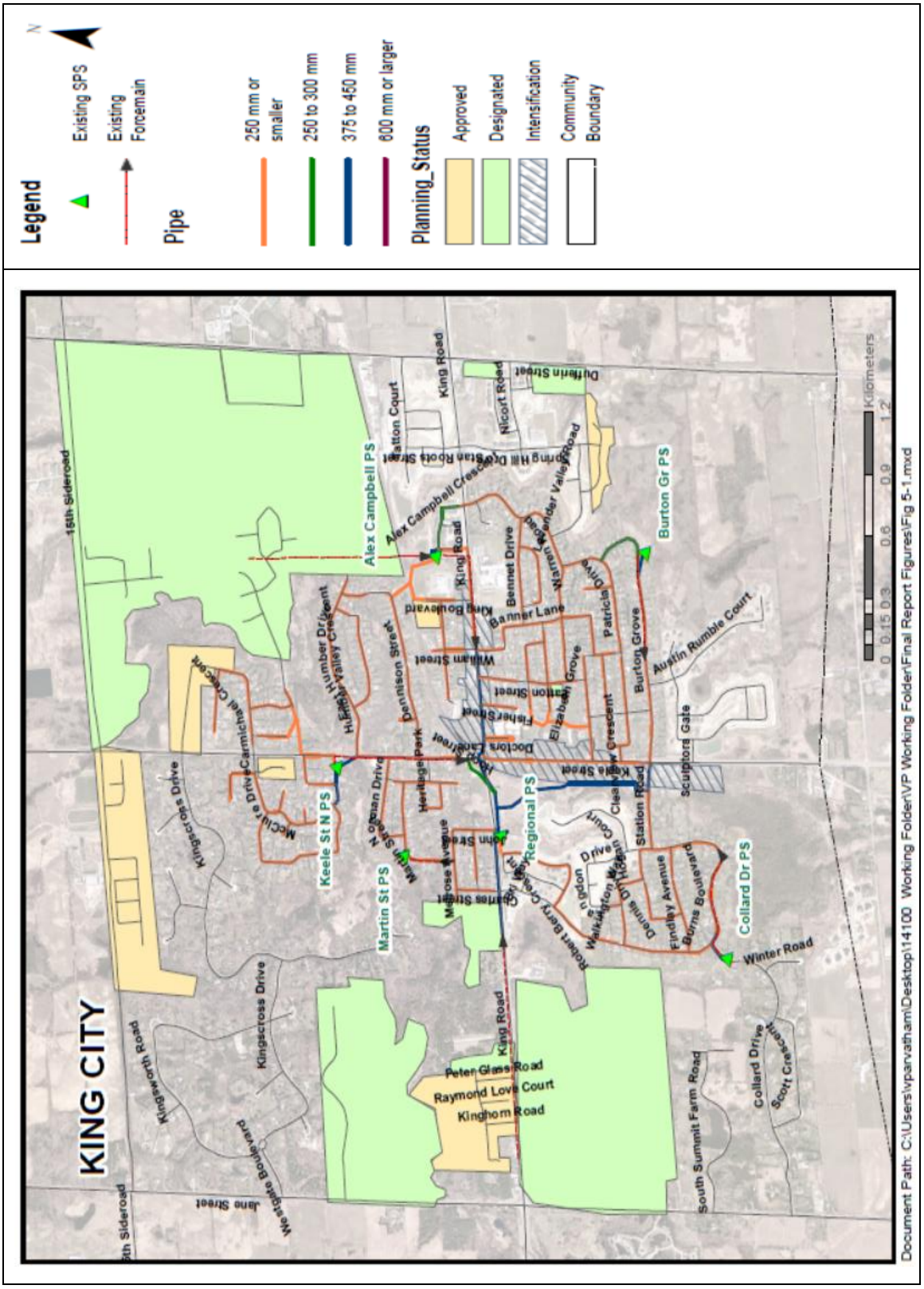
The King City collection system is relatively new, having been constructed within the past five years.

Table 5-1 King City SPS Information

Sewage Pumping Station	Station Location	Forcemain Discharge Location	Firm Capacity
Alex Campbell SPS	Alex Campbell Crescent	King Road, at Banner Lane	137 L/s
Keele Street SPS	Keele Street, north of East Humber Drive	Keele Street, at King Road	64 L/s
Burton Grove SPS	Burton Grove (east limit)	Burton Grove	18 L/s
Collard Drive SPS	Collard Drive, west of Burns Boulevard	Burns Boulevard	10 L/s
Martin Street SPS	Martin Street, west of Norman Drive	Martin Street, at Melrose Avenue	11 L/s
Kingsview SPS (Under Construction)	King Road, east of Jane Street	King Road, west of Charles Street	110 L/s
Northeast King SPS (Planned)	Northeast King Development	Alex Campbell SPS	56 L/s (Planned)

The King City collection system ultimately discharges to York Region's King City SPS, which is located on King Road, just west of Keele Street.

Figure 5-1 King City Collection System



5.1.2 Nobleton

The Nobleton wastewater collection system consists of local gravity sewers and one existing sewage pumping station (SPS). The collection system is shown in **Figure 5-2**, and the SPS information is provided in **Table 5-2**.

The Nobleton collection system is relatively new, having been constructed within the past five years.

Table 5-2 Nobleton SPS Information

Sewage Pumping Station	Station Location	Forcemain Discharge Location	Firm Capacity
Noble Ridge SPS	Bluff Trail	Parkheights Trail and Black Duck Trail	34 L/s

The Nobleton collection system ultimately discharges to York Region's Janet Avenue SPS, which is located at the eastern terminus of Janet Avenue, adjacent to the Nobleton Community Centre.

5.1.3 Schomberg

The Schomberg wastewater collection system consists of local gravity sewers and one existing sewage pumping station (SPS). The collection system is shown in **Figure 5-3**, and the SPS information is provided in **Table 5-3**.

The Schomberg collection system is much older than the King City and Nobleton systems, with the majority of the system having been constructed in the 1950s and 1960s.

Table 5-3 Schomberg SPS Information

Sewage Pumping Station	Station Location	Forcemain Discharge Location	Firm Capacity
Proctor Road SPS	Proctor Road	Schomberg WPCP	30 L/s

The Proctor Road SPS services the land on the east side of Highway 27, and discharges to the Schomberg Water Pollution Control Plant (WPCP). The balance of Schomberg's collection system discharges to York Region's Dr. Kay SPS which is located along Dr. Kay Drive, just east of Main Street. The Dr. Kay SPS also discharges to the Schomberg WPCP.

Figure 5-2 Nobleton Collection System

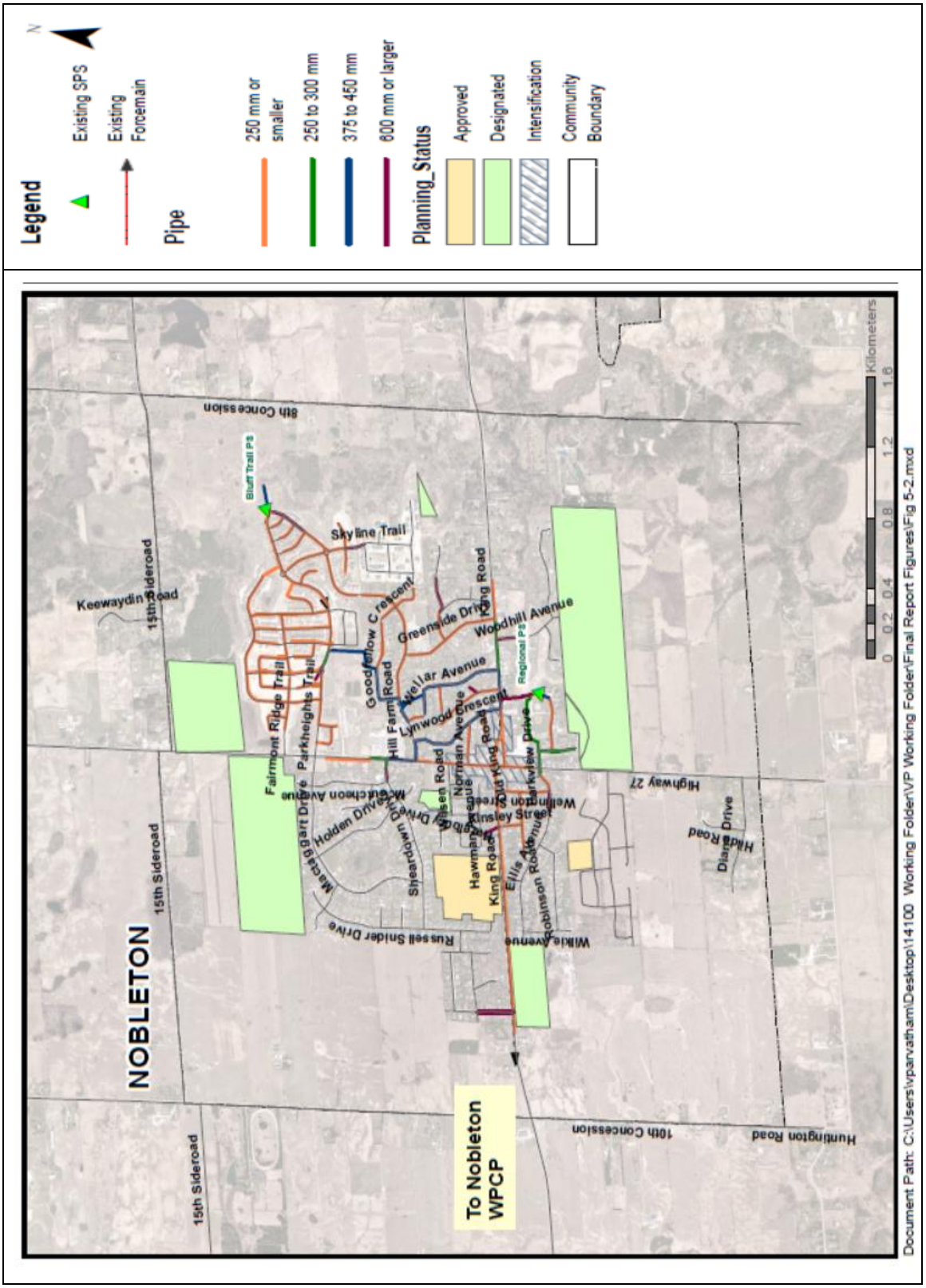
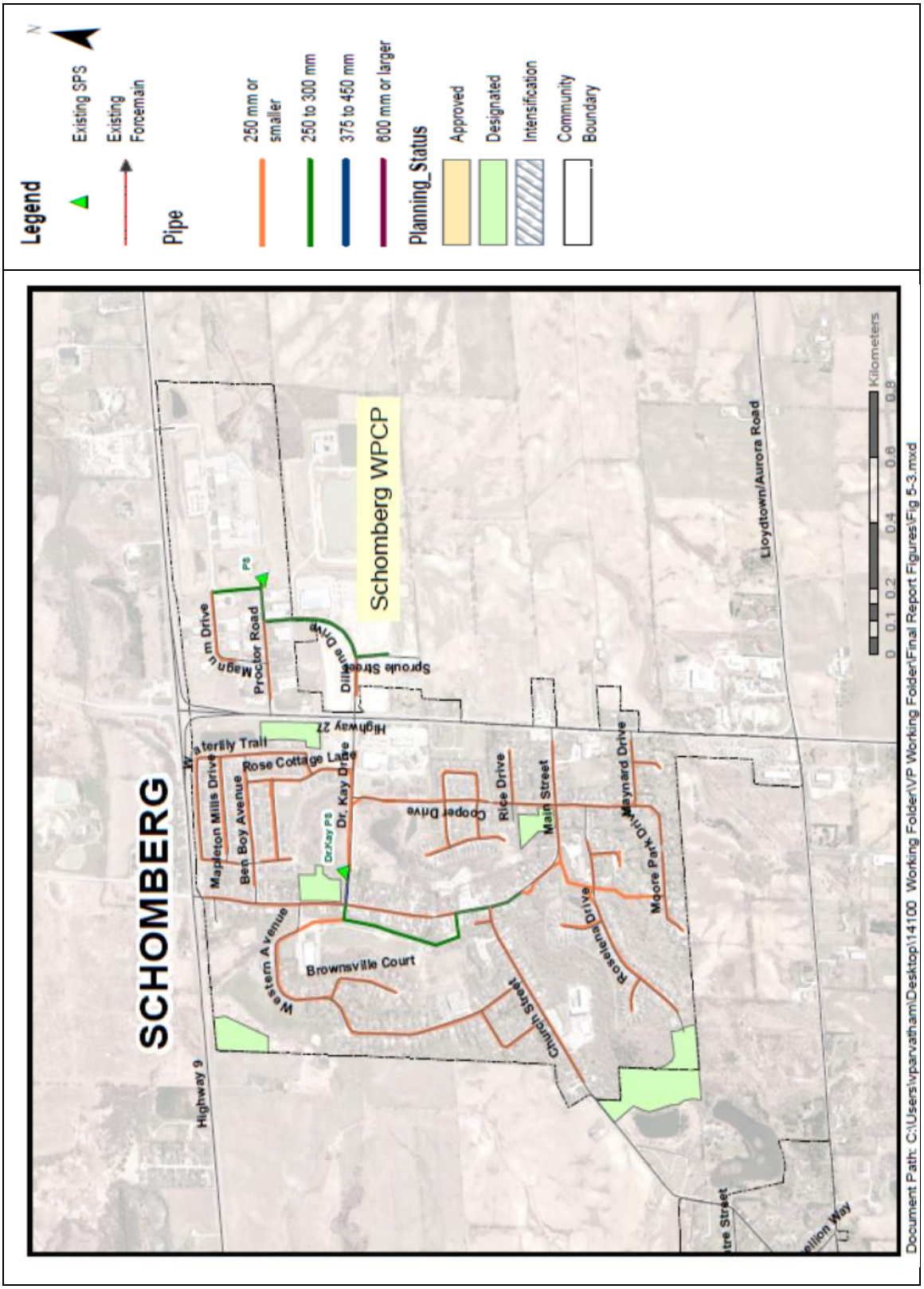


Figure 5-3 Schomberg Collection System



5.2 Review of Existing Design Criteria

The Township's wastewater system design criteria are provided in **Table 5-4**.

Table 5-4 Wastewater Design Criteria

Criterion	Value	Note
Residential Average Day Flow	450 Lpcd (1)	
Infiltration Allowance	0.20 L/s/ha	Applies to Residential Lands only
Commercial Flows [includes infiltration and peaking]	65 m^3/gross lot ha/day	Includes infiltration and peaking
Industrial Flows (Light)	35 m^3/gross lot ha/day	Peak per MECP Design Guidelines
Industrial Flows (Heavy)	55 m^3/gross lot ha/day	Peak per MECP Design Guidelines
Institutional Flows [includes infiltration and peaking]	65 m^3/gross lot ha/day	Includes infiltration and peaking

Notes:

1. This per-capita flow rate is discussed further in **Section 5.3** of this report.

5.3 Review of Existing Wastewater Flows

While the Township's wastewater design criteria states that sewers are to be designed based on a per-capita demand of 450 Lpcd, the practice recently (in King City and Nobleton) has been to size the sewers based on a flow rate of 365 Lpcd. This practice is consistent with many other municipalities in the Greater Toronto Area, and reflects the advances of water conservation measures (public education, and the general conversion to low-flow fixtures). This reduced value (365 Lpcd) is also consistent with York Region's design criteria.

Based upon a review of wastewater flows at the Regional facilities (see **Table 5-5**), the 365 Lpcd value still represents a conservative design value.

Table 5-5 2016 Wastewater Flow Generation, by Community

Regional SPS	Annual Pumped Flow - 2016 (m^3) (1)	Daily Average (m^3/day)	Serviced Population - 2016 (2)	Average Per-Capita Flow (Lpcd)
King City SPS	524,116	1,436	6,900	208
Nobleton WRRF	402,798	1104	5,600	197
Dr. Kay SPS (Schomberg)	254,932	699	2,900	241

1. Source: York Region
2. Source: King Township Official Plan

5.4 Review of Potential Sanitary Servicing Constraints

The capacities of the King City, Nobleton and Schomberg wastewater collection systems have been analyzed based on the Township's current planning projections (from the existing Community Plans) and the current design criteria. The analysis was completed using wastewater collection system models built for this Master Plan using the InfoSewer modelling platform and based on the Township's GIS data.

When considering the servicing of future development, the future sanitary loads were assigned to appropriate locations in the existing collection system based on the following considerations, in the order specified:

1. Existing Functional Servicing Reports;
2. Location of existing sewers adjacent to the property in question; or
3. Existing topography to accommodate gravity drainage where possible.

5.4.1 King City Servicing Constraints

The surcharge status of the existing sewers is shown in **Figure 5-4**, based on the Township's design criteria and the connection locations indicated on the figure for the expansion areas.

The figure indicates that some stretches of sanitary sewer will exceed 80 percent of their full flow capacity, and that some of the pipes along King Road west of Keele Street are expected to surcharge under full buildout conditions.

The Master Plan will consider these potential constraints, and identify alternatives that could be considered by the Township.

5.4.2 Nobleton Servicing Constraints

The surcharge status of the existing sewers is shown in **Figure 5-5**, based on the Township's design criteria and the connection locations indicated on the figure for the expansion areas.

The figure indicates that some stretches of sanitary sewer will exceed 80 percent of their full flow capacity, and that one section of pipe along Highway 27 is expected to surcharge under full buildout conditions.

The Master Plan will consider these potential constraints, and identify alternatives that could be considered by the Township.

5.4.3 Schomberg Servicing Constraints

The surcharge status of the existing sewers is shown in **Figure 5-6**, based on the Township's design criteria and the connection locations indicated on the figure for the expansion areas.

The figure indicates that some stretches of sanitary sewer will exceed 80 and even 100 percent of their full flow capacity:

- Main Street Sewer (including the stretches along Main Street, and along the river); and
- Dr. Kay Drive Sewer.

The Master Plan will consider these potential constraints and identify alternatives that could be considered by the Township.

Figure 5-4 Potential King City Wastewater Servicing Constraints

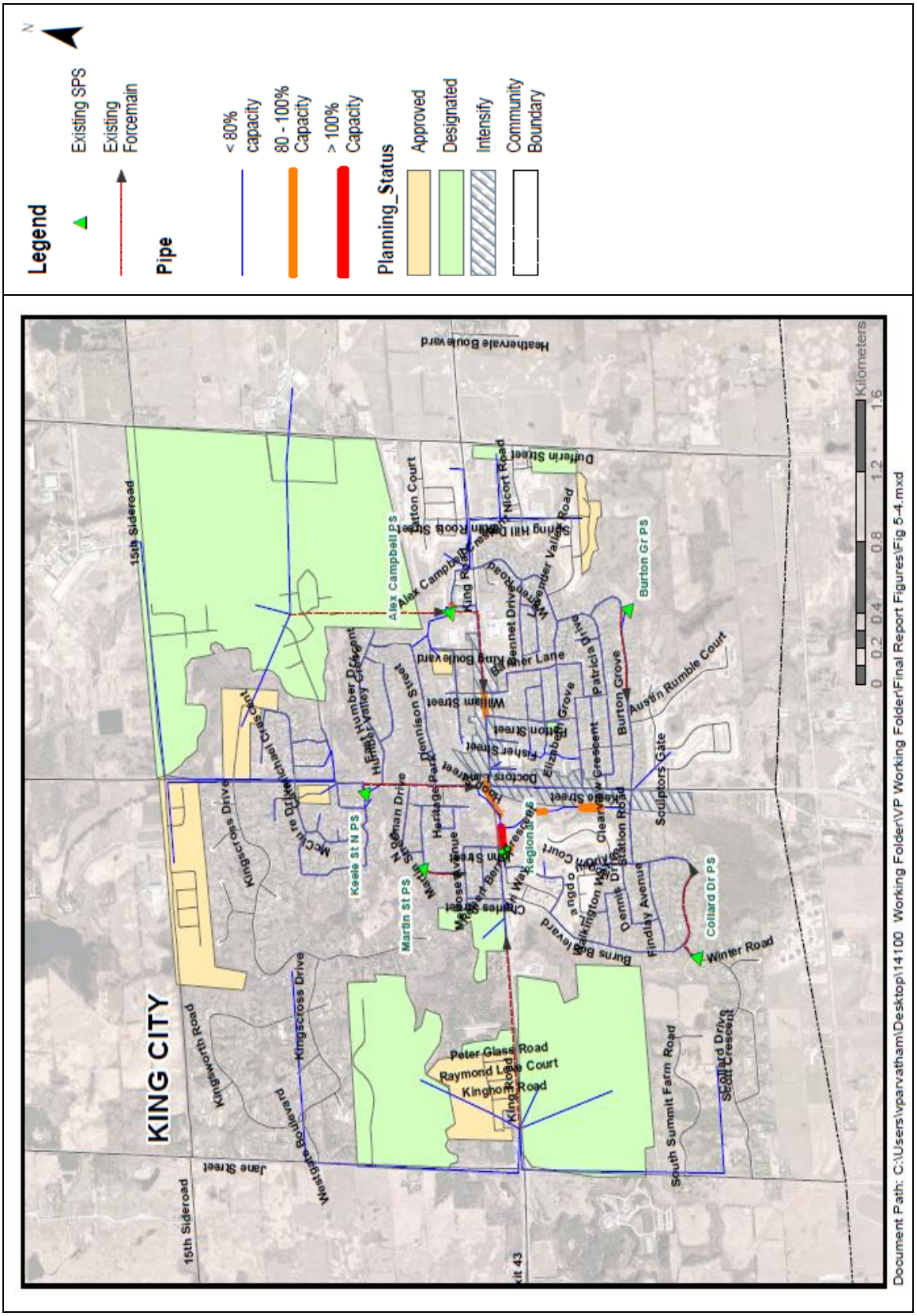


Figure 5-5 Potential Nobleton Wastewater Servicing Constraints

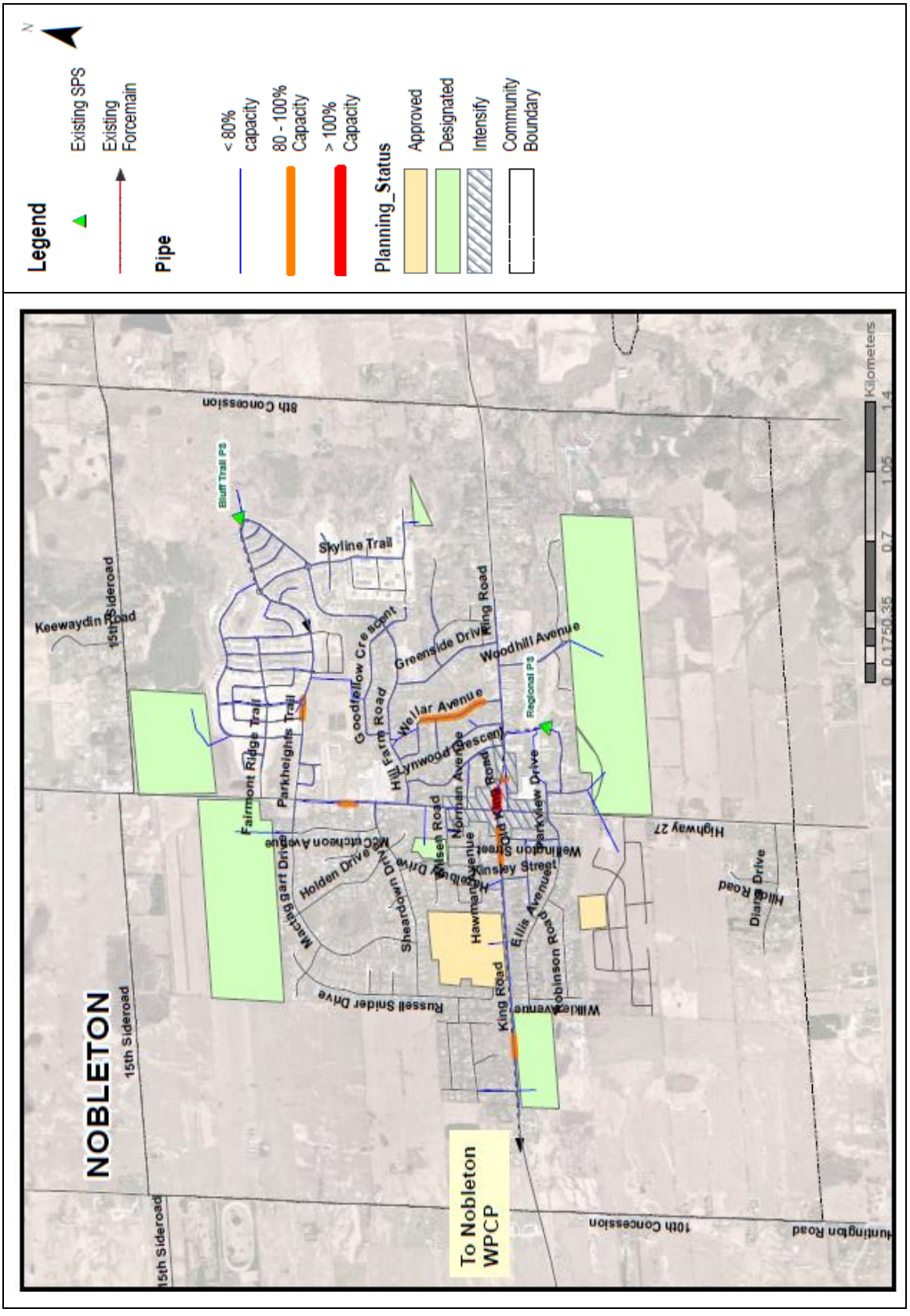
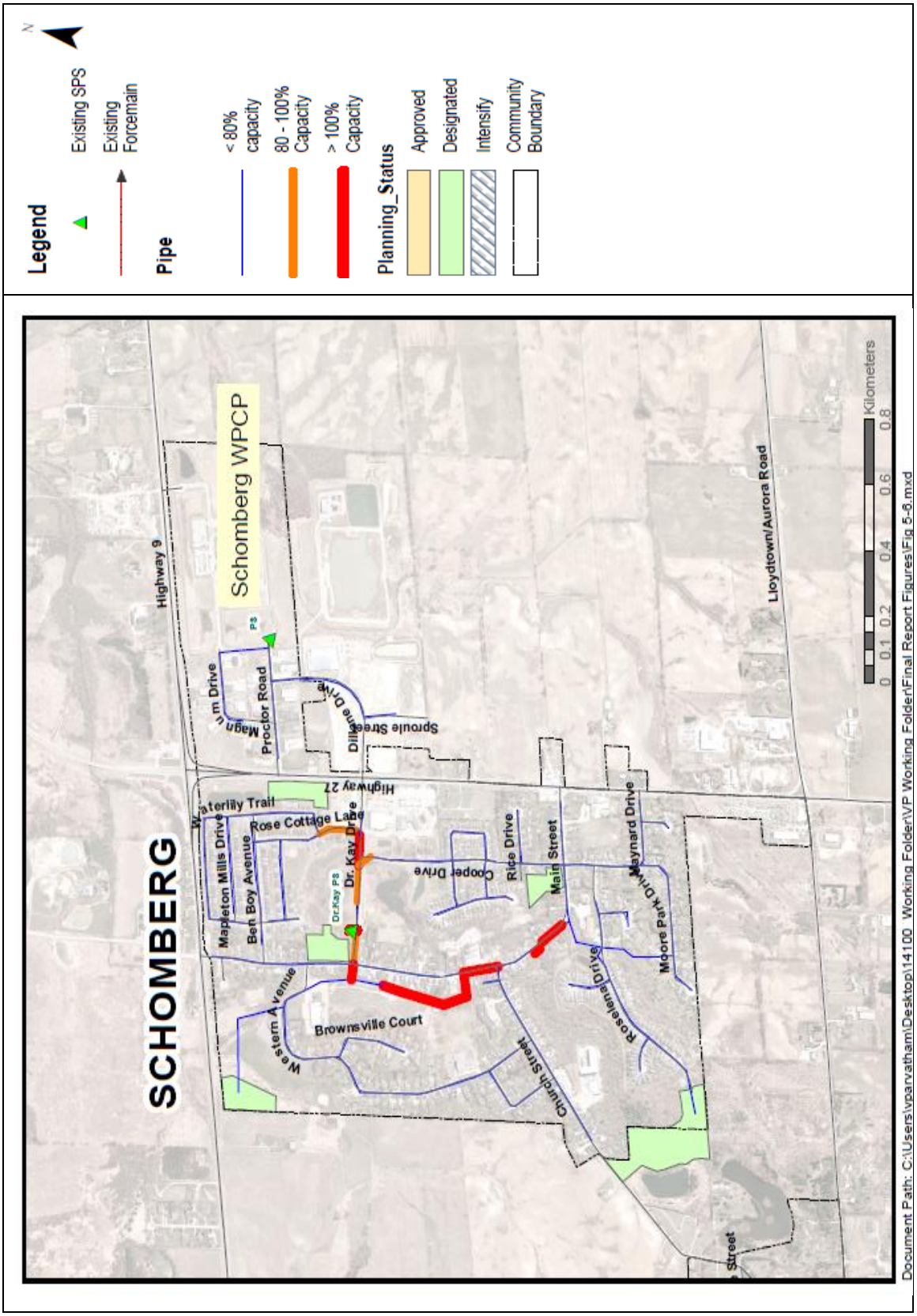


Figure 5-6 Potential Schomberg Servicing Constraints



6 PROBLEM/OPPORTUNITY STATEMENT

Like all municipalities in the Greater Golden Horseshoe, the Township of King has to accommodate growth in order to help the Province achieve the growth objectives identified in the *Places to* Grow initiative.

King Township has initiated Master Plan studies that will support the Township's Official Plan and the individual Community Plans, while ensuring that the level of service for the existing serviced areas is maintained. The studies will consider all lands currently designated for development, plus an allowance to accommodate intensification within the existing development limits as established by York Region and the provincial Growth Plan (Places to Grow).

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7 DEVELOPMENT AND EVALUATION OF ALTERNATIVE SOLUTIONS

This section discusses the development of Master Plan-level alternative solutions considered, as well as the evaluation methodology applied to identify the preferred alternatives for each of the water and wastewater systems.

7.1 Evaluation Methodology

All alternative water and wastewater solutions were comparatively and qualitatively evaluated based on criteria developed within the following main categories, which represent the broad definition of the environment in the EA Act.

Within each main category, project-specific evaluation criteria have been developed based on a review of the Municipal Class EA, the existing conditions of the project area, the alternative watermain and sewer projects being considered, and the problem statement. The project-specific evaluation criteria are listed in **Table 7-1**.

Table 7-1 Water and Wastewater Evaluation Criteria

Category	Description	Considerations
Technical Merit	The technical feasibility, constructability, ease of access, operation and maintenance, and other engineering aspects of the alternative solution	• Functionality • Constructability
Natural Environment	The potential impacts to the natural and physical components of the environment (*i.e.*, air, land, water and biota) including natural and/or environmentally sensitive areas	• Impact on Natural Environment • Need for Greenbelt or Oak Ridges Moraine Crossings • Impact on Terrestrial or Aquatic Habitats
Socio-Economic Environment	The potential impacts to residents, neighbourhoods, businesses, community character, social cohesion, historical/archaeological remains and heritage features, and community features	• Cultural Heritage Impacts • Transportation Impacts and Road Closures • Impacts to Residents and Businesses • Odour and Air Quality
Financial Impact	The capital costs of the alternative solution	• Anticipated Construction Cost

Each of the alternatives was evaluated comparatively and qualitatively against the considerations presented above and scored based on its impact relative to the other Alternatives, as shown in **Table 7-2**.

Table 7-2 Evaluation Scoring

Lowest Score	Medium Score	Highest Score

Based on the evaluation criteria, a qualitative "net effects analysis" has been applied to identify the potential effects on the environment and apply reasonable mitigative measures, identify the relative advantages and disadvantages, and propose the recommended solutions.

7.2 Water & Wastewater System Alternatives

The following discusses the various Master Planning-level alternatives that were developed in response to the problem statement (see **Section 6**) and evaluated for both the Township's water and wastewater infrastructure systems.

7.2.1 Alternative 1 – Do Nothing

This alternative does not consider any material changes to the existing water distribution and wastewater collection infrastructure systems while the Township implements the recommendations and direction provided in its current Community Plans. While this alternative does not address the problem statement, it does provide a benchmark for evaluating the other alternatives as required by the Class EA process.

7.2.2 Alternative 2 – Limit Community Growth

This is an adaptation of Alternative 1 in that, while it does not consider any material changes to the existing infrastructure, it seeks to limit the growth envisioned in the existing Community Plans to the extent necessary based on the capacity that can be supported by the existing water and wastewater systems.

7.2.3 Alternative 3 – Water Conservation (Water & Wastewater) and I/I Reduction (Wastewater)

This alternative seeks to expand on Alternative 2 by attempting to provide for the growth mandated by the existing Community Plans without building new infrastructure through the reduction of water consumption and wastewater generation, as well as the reduction of infiltration/inflow to the existing sanitary sewer system. Water conservation would include a reduction in water demand through mandatory/voluntary conservation initiatives. Reduction of Infiltration/Inflow (I/I) would involve the identification and prioritization of areas and initiatives to reduce current I/I levels as well ensuring new infrastructure construction is considerate of this matter.

7.2.4 Alternative 4 – Expand & Enhance Water & Wastewater Infrastructure

This alternative considers a combination of enhancements to, and extension of, the existing infrastructure systems to provide for mandated growth within the developed portion of the communities as well as the new growth areas encompassed in the urban boundary as envisioned in the existing Community Plans. This alternative provides the opportunity to optimize available and planned capacity within the existing municipal infrastructure while expanding into currently unserviced areas inside the urban boundary that have already been identified for development.

7.3 Evaluation of Water & Wastewater System Alternatives

The following table presents the results of the evaluation process for each of the alternatives considered for both of the Township's water and wastewater systems. Alternative 4, being the expansion and enhancement of the Township's existing water and wastewater infrastructure, was identified as the preferred alternative as a result of Alternatives 1 through 3 not being able to satisfy the Township's (and Province's) growth mandate.

Further details regarding the individual projects included in each of these preferred alternatives is provided in subsequent sections of this report as well as in **Appendices B and C**.

Table 7-3 Evaluation of Water and Wastewater Alternatives

	ALTERNATIVE 1 *Do Nothing*	**ALTERNATIVE 2** *Limit Community Growth*	**ALTERNATIVE 3** *Water Conservation and I/I Reduction*	**ALTERNATIVE 4** *Expand and Enhance Existing Municipal Systems*
Technical Merit	This would result in the desired level of service not being provided	Does not permit the Township to achieve the Regional growth targets.	This would maximise the use of the existing built capacity but does not provide for servicing of greenfield development.	Completely addresses the growth envisioned in the Community Plans through intensification and expansions to urban boundaries. However, the local wastewater systems may be limited by the capacity of Regional facilities and the collection systems area expanded accordingly
Natural Environment	No impact but does not offer improvements to existing conditions.	No impact but does not offer improvements to existing conditions.	No impact and offers improvements to existing conditions.	Some impact as a result of construction works including creek crossings. Most construction will occur in road right-of-ways and the use of trenchless technologies will largely mitigate concerns. Offers valuable improvements to existing conditions.
Socio-Economic Environment	Could result in basement flooding associated with surcharged sanitary sewers. Minimum pressure requirements or fire flow availability might not meet the desired level-of-service	This option does not meet the growth and density objectives of the Township's Community Plans.	Socially, it can be difficult to force residents/businesses to conserve to the degree required to ensure success. Cannot guarantee long-term compliance. Greenfield development not serviced.	Modest impacts during construction, most of which will occur in outlying areas Completely satisfies the Township's growth objectives.
Financial Impact	No impact.	Minor financial investment required to address existing capacity constraints.	Modest financial investment required. If not successful, would require additional investment in implementing another solution.	Reasonable financial investment required.
OVERALL	**Cannot satisfy Township's Servicing Policies.**	**Cannot satisfy Provincially-mandated growth targets.**	**Cannot satisfy Provincially-mandated growth targets.**	**Optimal balance of benefits and impacts across all evaluation criteria while fully satisfying The Township's growth objectives.**
				PREFERRED ALTERNATIVE

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8 DESCRIPTION OF PREFERRED ALTERNATIVE SOLUTIONS

As discussed in **Section 7.3**, the preferred alternative for both the water and wastewater components of this study is Alternative 4 – Expand and Enhance Existing Municipal Systems. This alternative meets all the planned growth projections and directions provided in the Township's existing Community Plans which, in turn, is shaped in accordance with the Province of Ontario's strategy for growth.

The preferred water servicing alternative should also include a water conservation component. Water Conservation and I/I reduction was identified as an Alternative but was not selected as the preferred alternative as it does not present a complete solution. York Region, in an effort to reduce the impacts of growth on their overall water and wastewater servicing capacity, will be implementing Region-wide conservation measures. It is anticipated that King Township will be an active partner in encouraging these practices. While the conservation measures are not expected to *eliminate* the need for the recommended water and wastewater projects, it may be possible to *delay* their required in-service dates. Further, infiltration and inflow reduction is an operation and maintenance best practice that is aimed at ensuring that the built system capacity is maximised and maintained.

8.1 Preferred Water Servicing Alternatives

The preferred water servicing alternative (Alternative 4) consists of a set of projects and/or initiatives aimed at supporting the ongoing use of the existing water distribution system infrastructure as well as its expansion into areas that are currently undeveloped but within the urban boundary as identified in the Township's current Community Plans. This list of projects is provided in **Table 8-1**, with a discussion on each below. Plans showing the projects are provided in **Figure 8-1** through **Figure 8-3** and **Appendix B**, with individual project information sheets including preliminary cost estimates provided in **Appendix C**.

As discussed in Section 7.2.3, water conservation measures should be promoted to help maintain water consumption at levels below the Township's design criteria in order to maximise the long-term operational efficiency of the water distribution system.

8.1.1 W-K-1: West King City Watermain Looping

This project contemplates expanding upon the currently-contemplated watermain network through future development areas in West King City and looping the network to King Road via Jane Street. This will also bolster the available fire flows through the planned employment lands. This project contains two components:

A. The portion along the public right-of-way (Jane Street); and,

B. The portion along private lands.

The component along private lands should be considered during the development application, once the extent of the development and alignment of internal roads are confirmed.

8.1.2 W-K-2: Kinghorn Road Watermain

This project contemplates the construction of a watermain between the approved low density residential neighbourhood northeast of Jane Street and King Road and the designated estate residential neighbourhood to the north. This infrastructure is recommended in order to deliver the required fire flows to these future neighbourhoods at an acceptable minimum pressure of 140 kPa (20 psi). This watermain will also provide looping to eliminate the dead-end water networks of both proposed developments. This project contains two components:

A. The portion along the public right-of-way (Jane Street); and,

B. The portion along private lands.

The component along private lands should be considered during the development application, once the extent of the development and alignment of internal roads are confirmed.

8.1.3 W-K-3: Valley Point Crescent Watermain

This project contemplates the extension of a watermain starting at Nicort Road at Dufferin Street and ending within the designated low-density residential neighbourhood southwest of Dufferin Street and Nicort Road. While not integral to the servicing of the proposed development, adding this second watermain connection to Dufferin Street is recommended to ensure security of supply.

This project should be considered during the development application.

8.1.4 W-K-4: Dufferin Street Watermain

This project contemplates the construction of a new 300 mm watermain along Dufferin Street, from King Road north to 15th Sideroad. This watermain provides the primary feed around the perimeter of the proposed development in northeast King City and will also supply the Country Day School.

This construction will include one creek crossing, which is anticipated can be installed via trenchless technologies.

8.1.5 W-K-5: 15th Sideroad Watermain

This project contemplates the construction of a new 300 mm watermain along 15th Sideroad, from Keele Street east to Dufferin Street. This watermain provides the primary feed around the perimeter of the proposed development in northeast King City and will also supply Seneca College.

This construction will include two creek crossings, which are anticipated can be installed via trenchless technologies.

8.1.6 W-K-6: Mary Lake Estates Watermain

This project contemplates the extension of a watermain from the proposed Mary Lake Estates Development to Keele Street. While not integral to the servicing of the proposed development, adding this second watermain connection to Keele Street is recommended to ensure security of supply.

This project is proceeding through the development application.

8.1.7 W-N-1: Crestview Road Watermain

This project contemplates the extension of the Crestview Road watermain south to the designated residential development to the south. The infrastructure is expected to provide looping to eliminate the dead-end Crestview Road watermain.

This project should be considered during the development application.

8.1.8 W-S-1: Roselena Drive Watermain

This project contemplates the construction of a watermain starting at the west end of Roselena Drive and ending at Church Street near the Schomberg Elevated Tank. The infrastructure is expected to provide additional water supply to the south end of the Schomberg water network, providing additional looping to the area.

This project should be considered during the development of the designated lands in southwest Schomberg.

Table 8-1 Recommended Water Servicing Projects

Project ID	Description	Trigger	Anticipated Class EA Schedule	Estimated Cost (2020 Dollars)
W-K-1A	West King Watermain Looping (Jane Street Portion)	Providing sufficient fire flows at the minimum required pressure to support development of the employment lands.	A+	$643,000
W-K-1B	West King Watermain Looping (Private lands portion)	Providing sufficient fire flows at the minimum required pressure to support development of the employment lands.	Exempt (1)	$760,000
W-K-2	Kinghorn Road Watermain (Jane Street Portion)	Dead end water networks within developments west of Manitou Dr. and northeast of Jane St. and King Rd.	A+	$468,000
W-K-2	Kinghorn Road Watermain (Private Lands Portion	Dead end water networks within developments west of Manitou Dr. and northeast of Jane St. and King Rd.	Exempt (1)	$234,000
W-K-3	Valley Point Crescent Watermain	Dead end water network at Valley Point Cres.	Exempt (1)	$117,000
W-K-4	Dufferin Street Watermain	Servicing of future development in northeast King City and Country Day School	A+	$1,636,000
W-K-5	15th Sideroad Watermain	Servicing of future development in northeast King City and Seneca College	A+	$1,870,000
W-K-6	Mary Lake Estates Watermain	Security of supply to approved development.	Exempt (1)	$351,000
W-N-1	Crestview Road Watermain	Dead end water network at Crestview Rd.	Exempt (1)	$146,000
W-S-1	Roselena Drive Watermain	Low available fire flows along Roselena Dr.	Exempt (1)	$321,000

1. *This project is to be undertaken by Private Sector developers and considered exempt from the EA Act.*

Figure 8-1 Recommended King City Water Projects

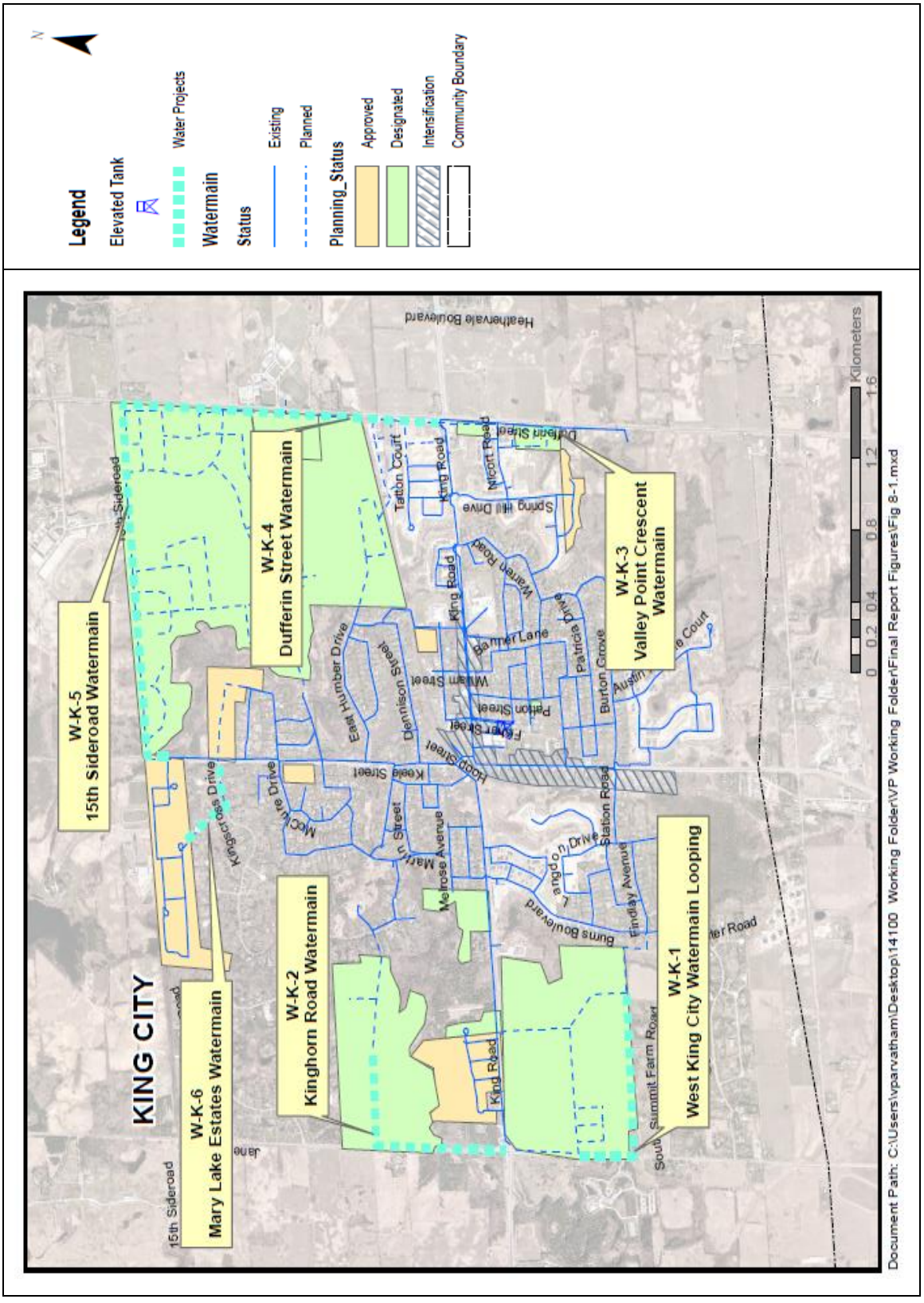


Figure 8-2 Recommended Nobleton Water Projects

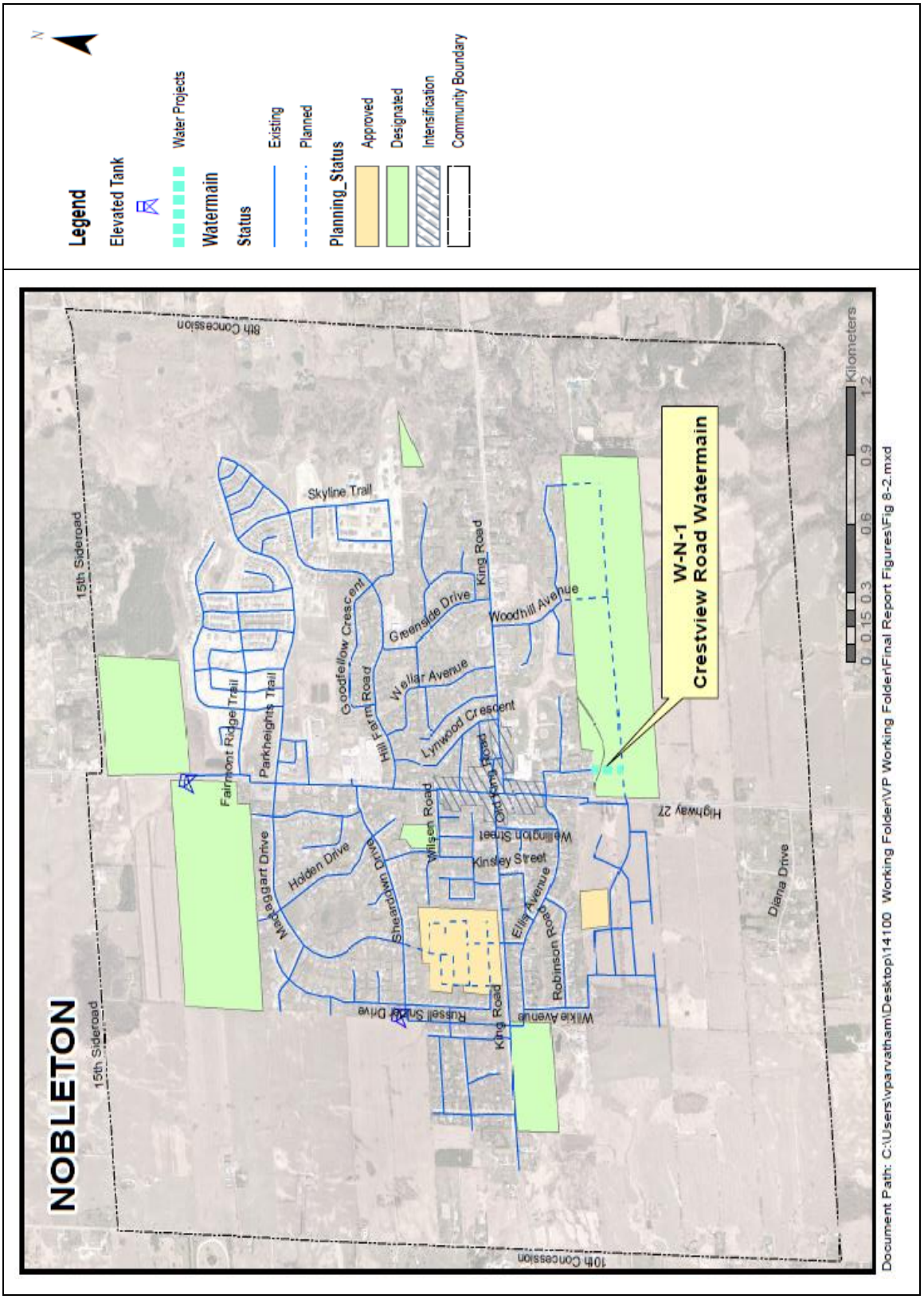
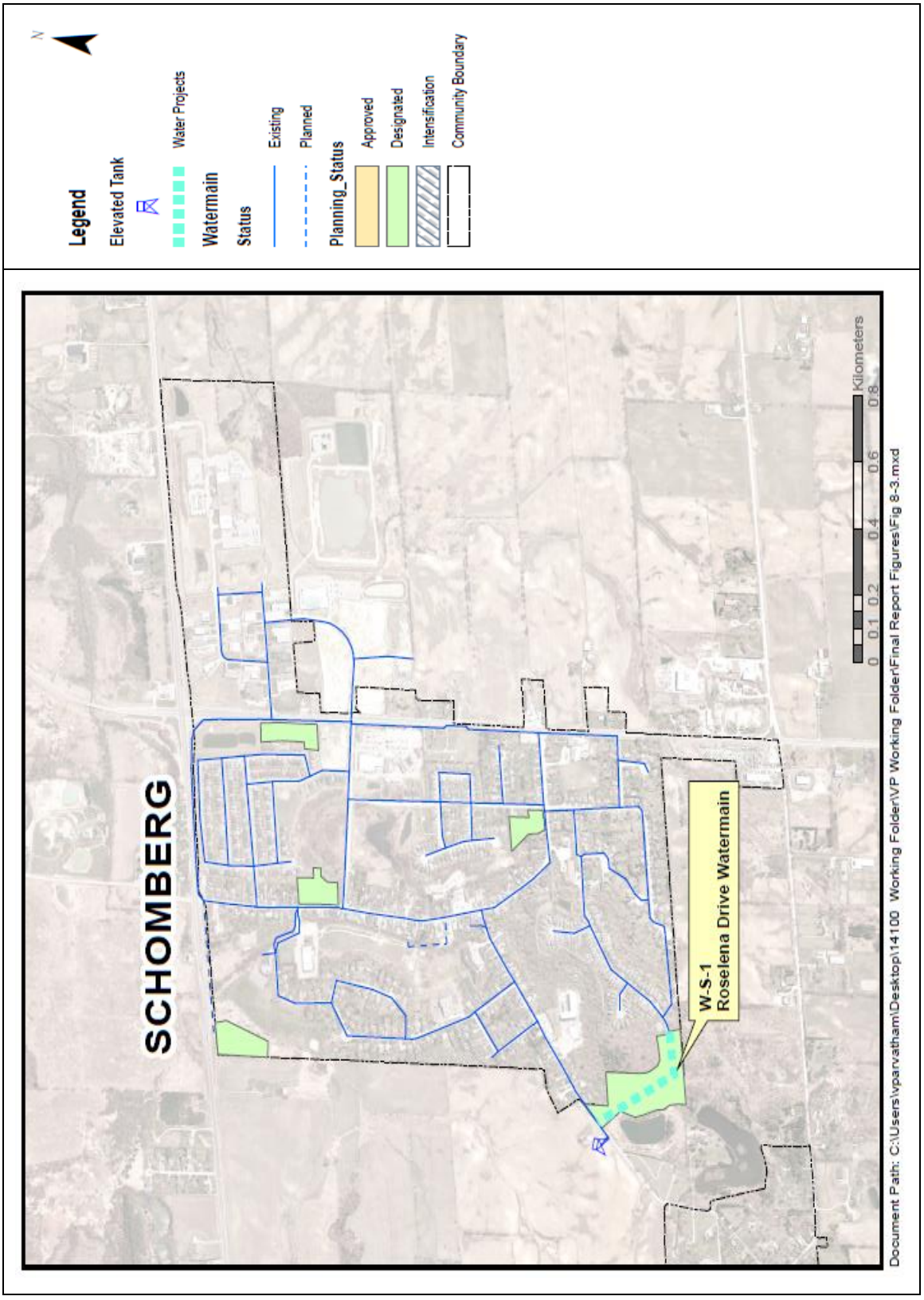


Figure 8-3 Recommended Schomberg Water Projects



8.2 Preferred Wastewater Servicing Alternatives

The preferred wastewater servicing alternative (Alternative 4) consists of a set of projects and/or initiatives aimed at supporting the ongoing use of the existing wastewater collection infrastructure as well as its expansion into areas that are currently undeveloped but within the urban boundary as identified in the Township's current Community Plans. This list of projects is provided in Table 8-2, with a discussion on each below. A plan showing the projects is provided in **Figure 8-4** through **Figure 8-6** and **Appendix B**, with individual project information sheets including preliminary cost estimates provided in **Appendix C**.

As discussed in Section 7.2.3, I/I identification and reduction measures should be considered by the Township to in order to maximise the long-term efficiency of the wastewater collection system, and to ensure that future upgrades are not triggered by excessive volumes of groundwater or stormwater entering the wastewater collection system. Excessive I/I flow effectively consume some of the capacity within the pipes, pumping stations and treatment facilities.

8.2.1 WW-K-1: King Road and Keele Street Sewer Upgrade

This project contemplates upsizing of the existing sewers along King Road and Keele Street upstream of the regional sewage pumping station. This infrastructure upgrade is recommended, as it will provide additional capacity required to service the existing system and planned future development in Northeast King and North along Dufferin St (including Seneca College and County Day School).

There may be opportunities to defer this work, subject to detailed flow monitoring upstream of the potential surcharge locations.

8.2.2 WW-K-2: Northeast Pumping Station and Forcemain

This project contemplates the construction of a new pumping station and force main to service the future development of Northeast King City.

The exact location of the sewage pumping station will be confirmed through the Planning process, but the forcemain will discharge to the existing sanitary collection system upstream of the Alex Campbell SPS.

8.2.3 WW-K-3: Keele Street Sewer

This project contemplates a new sewer along Keele Street, between 15th Side Road and McClure Drive. This new infrastructure is required to service for the development north-west of the King City and Seneca College.

This project is proceeding through the development application process.

8.2.4 WW-K-4: Northwest King City Sewer

While there is presently no plan to service the estate residential lands in northwest King City, the approved and designated developments north of King Road shall provide ultimate outlets to support the potential servicing of the external unserviced areas.

8.2.5 WW-K-5: Southwest King City Sewer

While there is presently no plan to service the estate residential lands in southwest King City, the approved and designated developments south of King Road shall provide ultimate outlets to support the potential servicing of the external unserviced areas.

8.2.6 WW-N-1: King Road and Hwy 27 Sewer Upgrade

This project contemplates upsizing of the existing sewers along King Road east of Highway 27 upstream of the regional sewage pumping station. This infrastructure upgrade is recommended, as it will provide additional capacity required to service the planned future development in West Nobleton.

There may be opportunities to defer this work, subject to timing of the planned developments.

8.2.7 WW-N-2: Wellar Avenue Sewer Upgrade

This project contemplates upsizing of the existing sewers along Parkheights Trail just downstream of where the force main from Bluff Trail PS discharges. This infrastructure upgrade is recommended, as it will provide additional capacity required to service the planned future development in East and North Nobleton.

There may be opportunities to defer this work, subject to timing of the planned developments.

8.2.8 WW-S-1: Main Street Sewer Upgrade

This project contemplates upsizing of the existing sewers along Main Street and a portion of Dr. Kay Drive. Hydraulic Modelling has identified that these sewers currently do not have sufficient capacity for the design flows from the existing serviced area. This infrastructure upgrade should be considered, as it will provide additional capacity to the existing system and ensure that the designated development lands in northwest and southwest Schomberg can also be serviced.

The required timing of this upgrade could be better established by installing a flow meter upstream of the surcharged section and tracking the flow over time.

8.2.9 WW-S-2: Rose Cottage Lane and Dr. Kay Drive Sewer Upgrade East of Dr. Kay Sewage Pumping Station

This project contemplates upsizing of the existing sewers along Rose Cottage Lane and Dr. Kay Drive upstream of the Dr.Kay Sewage Pumping Station. Hydraulic Modelling has identified that these sewers currently do not have sufficient capacity for the design flows from the existing serviced area and proposed developments. This infrastructure upgrade should be considered, as it will provide additional capacity to the existing system.

The required timing of this upgrade could be better established by installing a flow meter upstream of the surcharged section and tracking the flow over time.

8.2.10 WW-S-3: Main street Sewer Upgrade South of Church Street

This project contemplates upsizing of the existing sewers along Main street south of Church street. Hydraulic Modelling has identified that these sewers currently do not have sufficient capacity for the design flows from the planned developments. This infrastructure upgrade should be considered, as it will provide additional capacity to the existing system.

Table 8-2 Recommended Wastewater Servicing Projects

Project ID	Description	Trigger	Anticipated Class EA Schedule	Estimated Cost (2020 Dollars)
WW-K-1	King Road and Keele Street Sewer Upgrade	Development of northeast King City, and lands along 15th Side Road (including Seneca College and Country Day School)	A+	$1,286,000
WW-K-2	Northeast Pumping Station and Forcemain	Development of northeast King City, (including Country Day School)	Exempt (1)	$5,843,000
WW-K-3	Keele Street Sewer	New gravity sewers are required to service lands along 15th Side Road (including Seneca College)	A+	$1,636,000
WW-K-4	Northwest King City Sewer	Potential future servicing of the currently developed lands in northwest King City	Deferred (2)	$1,636,000
WW-K-5	Southwest King City Sewer	Potential future servicing of the currently developed lands in southwest King City	Deferred (2)	$1,753,000
WW-N-1	King Road and Hwy 27 Sewer Upgrade	Developments in West Nobleton (Growth Areas 2 and 9)	A+	$1,286,000
WW-N-2	Wellar Avenue Sewer Upgrade	Developments in East and North Nobleton (Growth Areas 4 and 10)	A+	$1,279,000
WW-S-1	Main Street Sewer Upgrade	Currently undersized, based on the Township's Design Criteria.	A+	$1,103,000
WW-S-2	Dr. Kay Drive Sewer Upgrade East of Dr. Kay Sewage Pumping Station	Currently undersized, based on the Township's Design Criteria.	A+	$1,268,000
WW-S-3	Main street Sewer Upgrade South of Church St.	Developments near Main St and Cooper Dr. (Growth Area 5)	A+	$182,000

1. *This project is to be undertaken by Private Sector developers and considered exempt from the EA Act.*
2. *As there is no current plan to service these already-developed lands, a separate Class EA should be undertaken if servicing is determined to be required. This Master Plan establishes the ultimate servicing strategy for this existing neighbourhood, based on the existing development density. The design capacity of the Kingsview Sewage Pumping Station (which would receive flow from this neighbourhood) is not limiting the serviceability of these lands.*

8.3 Coordination with York Region Projects

York Region's 2016 Water and Wastewater Master Plan identifies the following projects, phased for completion in 2036 – 2041:

- W28 - Nobleton Water Supply Expansion: Increase supply capacity to support proposed Nobleton community expansion through addition of new wells and/or revision of existing Permit to Take Water limit.
- WW21 - Nobleton Water Resource Recovery Facility Expansion: Increase capacity of Nobleton Water Resource Recovery Facility from 2.9 MLD to 4.2 MLD, including the adding a third treatment train, upgrades to the filtration system and modification to existing headwork and pump station. The expansion is required to accommodate growth in Nobleton.

Coordinating King Township's needs with planned Regional initiatives should be considered, to the extent possible. Also, capacity of the local systems may be limited by the capacity of the Reginal system until the Region's facilities/infrastructure are expanded accordingly.

Figure 8-4 Recommended King City Wastewater Projects

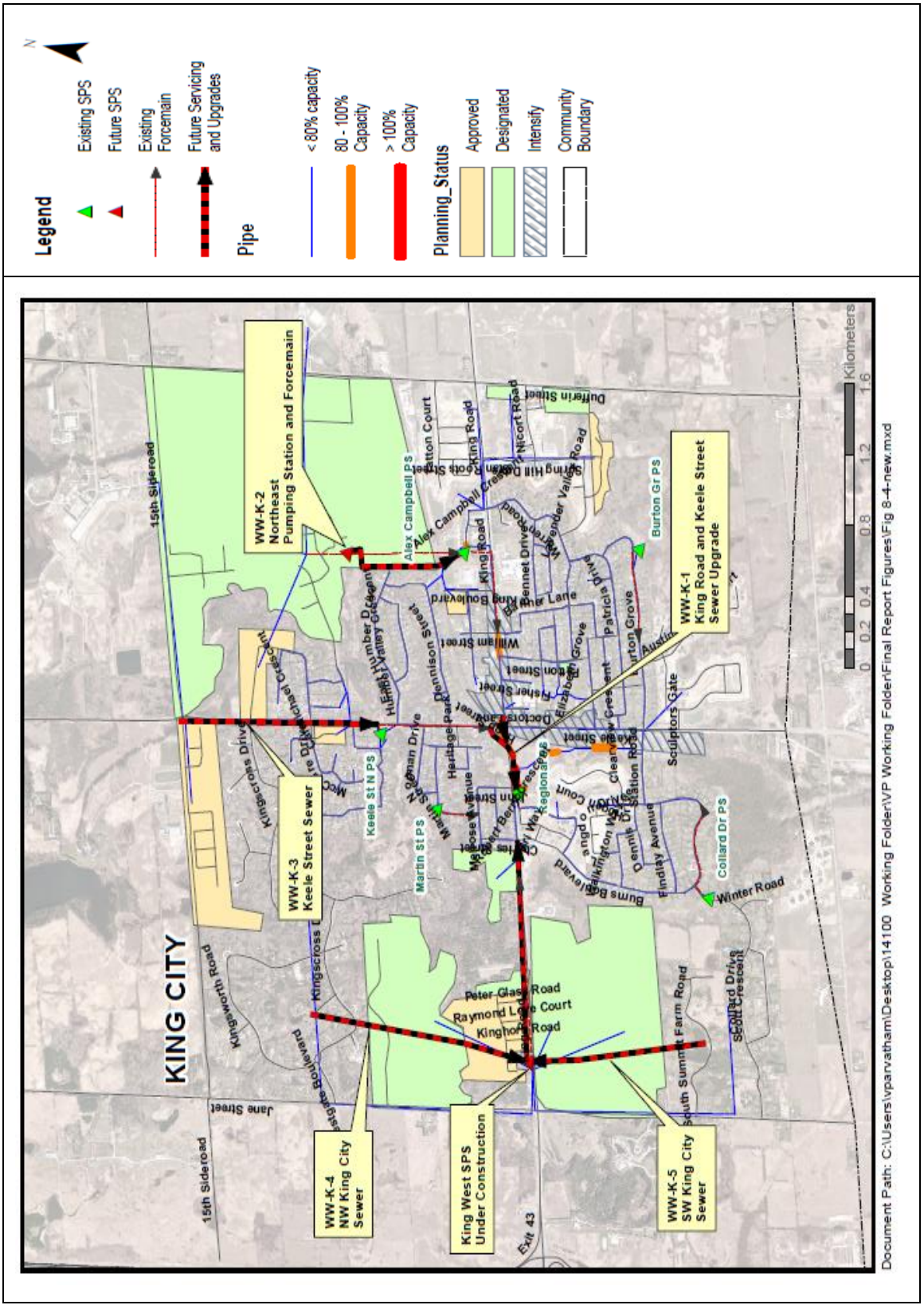


Figure 8-5 Recommended Nobleton Wastewater Projects

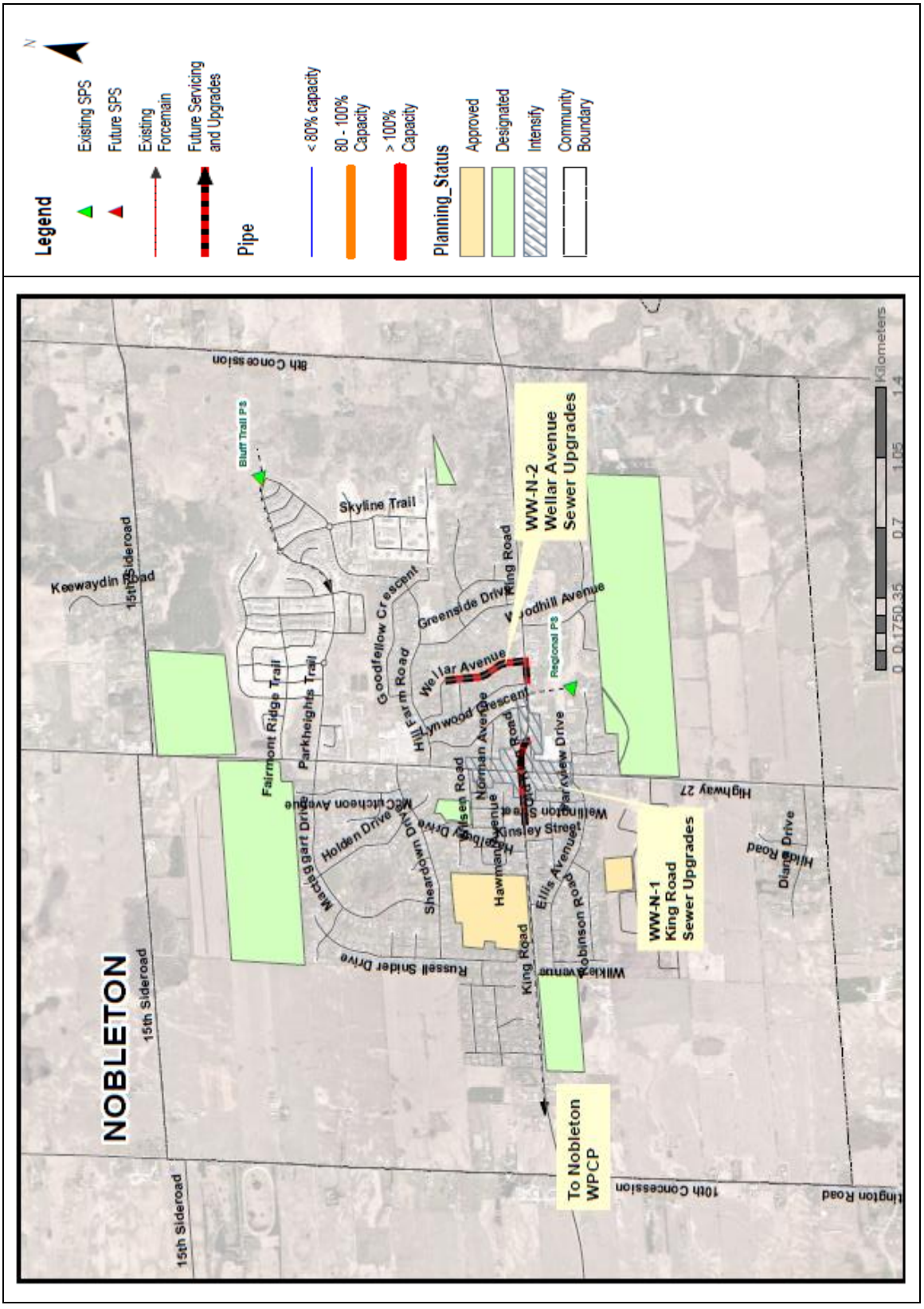
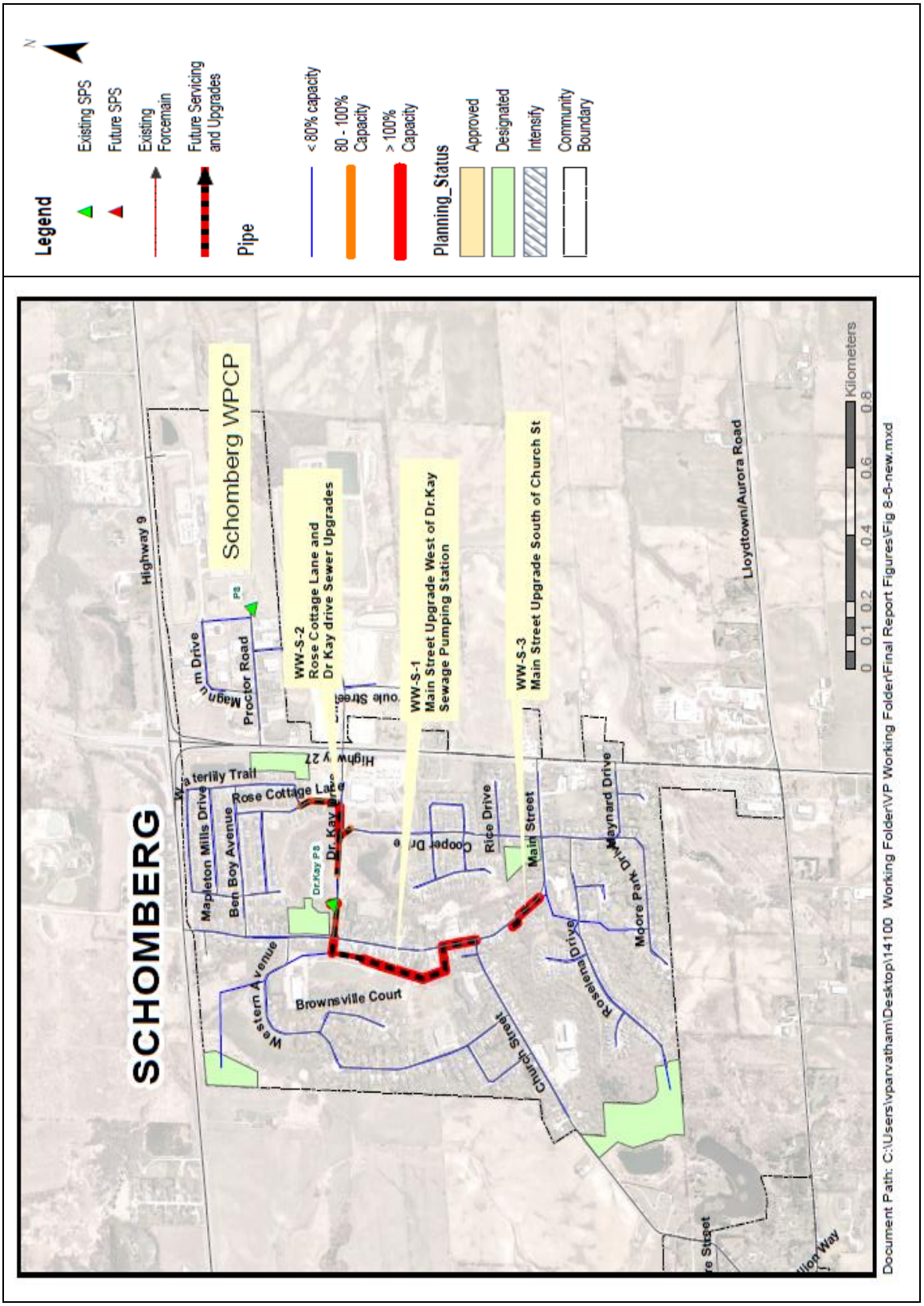


Figure 8-6 Recommended Schomberg Wastewater Projects



9 MITIGATION MEASURES

This section identifies mitigation measures that should be implemented to minimise the environmental impacts of the identified water and wastewater projects.

9.1 Natural Environment

The identified water and wastewater sewer projects will be constructed within existing or future road rights-of-way. Adverse effects to adjacent aquatic and terrestrial features from this project are not anticipated. The potential construction related impacts are discussed in the following section.

9.1.1 Watercourses

Sewer watercourse crossings should be minimized, and all possible efforts be made for the new sewers to be located within the existing and/or future roadways. Should any watercourse crossings be required, they should be completed using trenchless technologies to minimise the potential impact to the watercourses, and the species that rely on these watercourses. The potential for dewatering during the construction phases and the requirement to discharge this water must also be addressed during the detailed hydrogeological investigations and detailed design stage.

To prevent accidental introduction of debris into the water, the establishment and use of specific construction access routes is recommended, as well as the use of mitigation techniques that contain sediment and debris within the work site.

Best Management Practices (BMPs) for the protection of aquatic habitat, including the use of standard erosion and sediment control devices, is to be reviewed at the detailed design stage and incorporated into the detailed design package and should adhere to the principles limiting soil mobilization and trapping sediment as close to the source as possible.

9.1.2 Temporary Construction Related Effects on Groundwater

The construction of sewers and watermains is not anticipated to have an adverse impact on the local groundwater system. Any environmental impacts from the construction of the sewers and watermains, in terms of the hydrogeological aspects, are likely to be localized and temporary. If a Permit to Take Water is required an additional mitigation program will be developed to mitigate migration of contaminants across property boundaries and potential adverse effects. The dewatering plan should be in accordance with the TRCA's or LSRCA's guidelines.

9.1.3 Vegetation

The identified water and wastewater projects could result in the removal or disturbance of small portions of roadside vegetation

A tree preservation plan and restoration plan will need to be prepared at the detailed design stage, to protect existing trees and compensate for any required tree removals.

9.1.4 Climate Change

The Provincial Policy Statement states that "infrastructure and public service facilities shall be provided in a co-ordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs." (Policy 1.6.1).

The Township of King has adopted a Corporate Energy and Conservation Demand Management Plan (2019) and an Integrated Community Sustainability Plan (2019).

As the projects identified in this Master Plan proceed to the implementation phase, opportunities to mitigate climate change impacts should be considered, as appropriate.

9.2 Social Environment

9.2.1 Temporary Access to Private Property

The Contractor will minimize impacts on adjacent private properties by confining all construction activities to the working area and not entering upon or occupying any private property outside of the working area for any purpose unless written permission from the landowner has been obtained in advance. Should access to private property be granted, the property will be restored to its original condition or better following the completion of construction operations. Photographs are to be taken of the areas to be disturbed prior to construction operations. The Contract Administrator (CA) will be the sole judge of whether the disturbed areas are restored to a satisfactory condition.

9.2.2 Temporary Construction Related Nuisance Effects (Noise, Vibration, Dust, Odours and Fumes)

The Contractor's activities, specifically the operation of construction equipment, will result in a temporary increase in noise, vibration, dust and odours in the project area during the construction period. While it is anticipated that these effects will be short in duration and limited to periods of construction machinery operation, best management practices should be implemented to mitigate any air quality impacts caused by construction dust. The Ministry of the Environment, Conservation and Parks recommends that non-chloride dust suppressants be applied.

Best Practices for the reduction of air emissions from construction activities are recommended for implementation to minimize or eliminate the potential adverse effects.

9.2.3 Temporary Modifications to Driveway Access and Boulevards

Other than minor, temporary restrictions, access to businesses and existing sidewalks will be maintained during and following construction. The Contractor will be responsible for contacting property owners and notifying them of the temporary modifications to their driveways and any potential for temporary disruptions to their access well in advance of commencing such activities in order to allow for the development of alternative arrangements.

Any boulevards damaged by construction activities including settlements caused by the storage of material will be restored with topsoil and re-sodded.

9.2.4 Temporary Disruption of Traffic on Roads

All disruptions should be identified early, and traffic management measures must conform with the Ontario Traffic Manual's Book 7. All construction staging plans will be submitted to King Township and/or York Region for review. During the work, the disruption should be communicated to the travelling public in advance of the proposed work to allow traffic to plan an alternate route as required. All traffic signals and lighting must remain operational throughout the project or temporary works must be provided.

9.2.5 Generation of Excess Materials

The proposed improvements could require excavation and filling. Various types of materials, including asphalt, rock, and soil could be generated during these project activities and could require the appropriate management. Contractors will b required to submit a fill management plan for Township approval.

Material identification and management options will be used both inside and outside the construction area during construction. All excess and unsuitable materials generated during construction will be managed appropriately. If soil removed during construction is determined to be contaminated, disposal shall be

consistent with Part XV.1 of the Environmental Protection Act and Ontario Regulation 153/04 (as amended), Records of Site Condition. The materials may be reused as a construction material or managed as engineered fill. Materials may also be temporarily stockpiled in preparation for these uses or removed from the site if required. Where an excess material management option cannot meet environmental constraints, another option must be pursued or the material must be managed as waste, in accordance eoth the Township By-Laws.

Any and all contaminated wastes must be taken to an appropriately approved waste disposal site and transported by an appropriately licensed waste disposal carrier as per the operational constraint for the management of contaminated materials. The Contractor will be required to manage all waste materials generated by construction activities in accordance with all provincial and federal regulations/approval requirements. The Contractor will be required to provide a copy of all approvals and agreements, including waste manifests to the Contract Administrator.

9.2.6 Impact on Built Infrastructure

To avoid impact on built infrastructure, monitoring should be completed pre-construction, during construction and post-construction.

9.3 Cultural Environment

9.3.1 Encountering of Deeply Buried Archaeology Remains

Prior to construction, archaeological assessments shall be completed to clear the areas of archaeological concerns. Should deeply buried archaeological remains be encountered during construction, the Ministry of Tourism and Culture regulations under the Ontario Heritage Act require the Contractor to immediately cease activities in the affected area and contact the Ministry.

9.3.2 Encountering of Human Remains

In the event that human remains are encountered during construction, both MCL and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services should be contacted immediately.

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10 CONFIRMATION OF EA SCHEDULE

Projects are classified as either Schedule A, A+, B, or C undertakings. Based on guidance provided in the MCEA document, the projects identified in **Table 8-1** and **Table 8-2** are defined as indicated in those tables. As all of the identified projects are either Schedule, A, A+ or B activities, this Master Plan supports the pre-approval of those activities.

Several of the identified projects are dependent on the final plans of subdivision for the subdivisions that the infrastructure will ultimately service. Those projects (identified as 'Exempt' from the EA process) will be undertaken by private-sector developers, and approval will be sought through the provisions of the Planning Act (per Section 2 of O.Reg.345/93).

The Schedule A and Schedule A+ activities are considered pre-approved through the completion of this Master Plan.

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11 PUBLIC AND AGENCY CONSULTATION

11.1 Notice of Study Commencement

A Notice of Study Commencement, dated March 6, 2014, was prepared to describe the purpose of the Environmental Assessment, to notify the public of the study and invite comment, and provide contact information for the project. The notice was issued by the following means:

- Letter mailed directly to the Contact List on March 18, 2014;
- E-Mails to the Contact List on March 21, 2014;
- Newspaper advertisement in King Weekly Sentinel on March 6th, 2014; and,
- Posting on the King Township website (http://king.ca/WaterMasterPlans).

Interested parties were invited to provide comments. The Notice of Study Commencement and a summary of the comments received during Phase One Public Consultation are provided in **Appendix H**.

11.2 Stakeholder Consultation

11.2.1 Phase I Public Consultation Centre

In accordance with the Municipal Class EA planning and design process, a discretionary Phase I Public Consultation Centre (PCC) was held on May 13, 2014 to present an overview of the Class EA Process, background information for the study, study objectives and Problem /Opportunity Statement.

Stakeholders were notified as follows:

- Letter mailed directly to the Contact List on May 6, 2014;
- E-Mails to the Contact List on May 8, 2014;
- Newspaper advertisement in the King Weekly Sentinel on May 1st and May 8th, 2014; and,
- Posting on the King Township website (http://king.ca/WaterMasterPlans).

The May 13, 2014 PCC was held at the King Township Council Chamber (located at 2075 King Road, in King City) from 6:30 PM to 8:30 PM. The PCC followed an informal open house format with display boards presenting the project information. The PCC provided participants with an opportunity to review and comment on the project information and to discuss the project directly with the project team.

Fourteen individuals attended the PIC. Attendees were encouraged to provide written comments on comment sheets provided. Three comment sheets were completed and submitted. The PIC display boards were posted to the project website. Copies of the Notice, Display Boards and Attendance Sheets for the PIC are included in **Appendix H.**

11.2.2 Technical Advisory Committee Meeting

A Technical Advisory Committee (TAC) meeting was held on June 23, 2015. Representatives from the following key stakeholder groups were invited to attend:

- King Township;
- York Region;
- King Township Sustainability Advisory Committee;
- Toronto and Region Conservation Authority (TRCA);
- Lake Simcoe Region Conservation Authority (LSRCA); and,
- The Ontario Ministry of the Environment, Conservation and Parks (MECP).

Representatives of the LSRCA and MECP were not available to attend.

All representatives (present and regrets) were provided with a copy of the Phase 1 Report, and the meeting consisted of a presentation outlining the Study in detail, including the recommendations that were to be carried forward to the Phase II PCC. The materials presented at the meeting are provided in **Appendix H**. Comments from the representatives were incorporated into the Phase II PCC presentation**.**

11.2.3 Phase II Public Consultation Centre

A Phase II public consultation is a mandatory step in the EA Process, individual Public Consultation Centres were held in each of the three main communities addressed in the Master Plan (Ansnorveldt was omitted, as there were no projects identified as being required in that community).

Holding multiple Phase II PCCs over two separate weeks also decreased the likelihood that an interested party would not be able to attend a PCC due to scheduling conflicts. The Phase II PCCs were held at the following locations:

- **Schomberg**: Wednesday July 15th 2015 (6:30 to 8:30 PM) at the Trisan Centre, 25 Dillane Drive
- **King City**: Thursday July 16th 2015 (6:30 to 8:30 PM) at the King City Arena, 25 Doctors Lane
- **Nobleton**: Tuesday July 21st 2015 2015 (6:30 to 8:30 PM) at the Nobleton Arena, 10 Old King Road

Stakeholders were notified of this event as follows:

- Letter mailed directly to the Contact List on July 7, 2015;
- Newspaper advertisement in the King Weekly Sentinel on July 2nd and July 9th, 2015; and,
- Posting on the King Township website (http://king.ca/WaterMasterPlans).

The PCC followed an informal open house format with display boards presenting the findings of the study including the evaluation of alternatives and the identification of the preliminary preferred alternative for each of the water and wastewater infrastructure systems, and the recommended further study for the stormwater systems. The display boards were also posted to the project website.

A total of 11 individuals attended the PCCs (two in Schomberg, five in King City, and four in Nobleton) and were encouraged to provide written comments on the comment sheets provided or otherwise prior to July 31st, 2015. A single comment form was received, but no response was required (the comment only indicated that the information was well-presented). Copies of the Notice, Display Boards, Attendance Sheets, comments received, and responses issued are included in **Appendix H.**

11.2.4 Public Information Update

Following the original Phase II PCC, the Town finalised their Official Plan, which included minor updates to the original planning projections considered in this Master Plan. The impacts of these updates on the water and wastewater infrastructure were re-assessed, with just minor modifications to the previously identified projects. As such, a public information update session was held, in the form of a webinar broadcast similar to a PCC Presentation.

A Public Notice was issued, advising residents and stakeholders of the update. The broadcast was advertised by the following means:

- Newspaper advertisement in King Weekly Sentinel on May 14th and May 21st, 2020; and,
- Posting on the King Township website (http://king.ca/WaterMasterPlans).

Interested parties were invited to provide comments. The Notice and a summary of the comments received and responses to those comments are provided in **Appendix H**.

11.3 First Nations Consultation

First Nation groups that potentially have an interest or stake specifically for this project were identified to provide them with an opportunity to provide their input and to address their comments/concerns.

During the Municipal Class EA, the project team-initiated contact with First Nations and Métis groups and organizations, including the following:

- Chippewas of Georgina Island
- The Chiefs of Ontario
- The Métis Nation of Ontario

All of the EA Notices were mailed to the above noted and the Ontario Ministry of Aboriginal Affairs, and the federal Department of Indian and Northern Affairs. A copy of the letter is provided in **Appendix H**. Follow-up calls were completed to confirm receipt.

11.4 Notice of Study Completion and Report Review

The Notice of Study Completion dated July 23rd, 2020, was prepared to notify the public of the completion of this study, and to advise of opportunities to review this report. The notice was issued by the following means:

- E-Mails to the Contact List on July 23rd, 2020.
- Newspaper advertisement in the King Weekly Sentinel on July 23rd and 30th, 2020; and,
- Posting on the King Township website (http://king.ca/WaterMasterPlans).

The Notice of Study Completion is provided in **Appendix H**.

In the wake of COVID-19 restrictions the Project File Report has been made available through King Township website. If a printed copy is required, individuals could contact the Township to coordinate a curb-side pick-up of a printed copy at one of the following locations:

Table 11-1 Project File Pick-Up Locations

Municipality	Location	Review Hours
King City	**King Township** 2585 King Road, King City	*By Appointment only*
Nobleton	**Nobleton Library** 8 Sheardown Dr., Nobleton	*By Appointment only*
Schomberg	**Schomberg Library** 77 Main St., Schomberg	*By Appointment only*

The comment review period was established as July 23rd, through August, 31st, 2020:

11.5 Summary of Class EA Milestone Dates

The schedule of the Class EA Milestones is provided in **Table 11-2**.

Table 11-2 Schedule of Class EA Milestones

Milestone	Date
Notice of Commencement	March 6, 2014
Phase I Public Consultation Centre	May 13, 2014
Technical Advisory Committee Meeting	June 23, 2015
Phase II Public Consultation Centres	July 15, 2015 (Schomberg, ON) July 16, 2015 (King City, ON) July 21, 2015 (Nobleton, ON)
Public Information Update (remote broadcast)	May 25, 2020
Notice of Study Completion	July 23, 2020

12 RESOURCES

Municipal Class Environmental Assessment, Municipal Engineers Association, 2000, as amended in 2007 and 2011

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Ontario Ministry of Municipal Affairs and Housing, 2017

Greenbelt Plan, Ontario Ministry of Municipal Affairs and Housing, 2017

Oak Ridges Moraine Conservation Plan, Ontario Ministry of Municipal Affairs and Housing, 2017

King City Community Plan, Township of King, January 2000

Nobleton Community Plan, Township of King, February 2005

Schomberg Community Plan, McDermott and Associates Limited, November 1998

Design Criteria and Standard Detail Drawings, Township of King, 1993

Design Guidelines, York Region (Transportation and Works Department), 2006

Design Guidelines for Sewage Works, Ontario Ministry of the Environment, 2008

Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment, 2008

Housing & Residential Intensification Study, Township of King, 2011

York Region 2016 Water and Wastewater Master Plan, July 2016

Stormwater Management Criteria, Toronto and Region Conservation for the Living City, August 2012

LSRCA Technical Guidelines for Stormwater Management Submissions, Lake Simcoe Region Conservation Authority, April 26, 2013

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APPENDIX A

Community Land Use Budgets

APPENDIX B

Water and Wastewater Master Plan Project Maps

APPENDIX C

Water and Wastewater Master Plan Project Technical Memorandum

APPENDIX D

Natural Environment Report (Savanta Inc, July 2015)

APPENDIX E

Geotechnical Desktop Study Report

(Golder Associates, May 2015)

APPENDIX F

Hydrogeological Desktop Study Report

(Golder Associates, May 2015)

APPENDIX G

Archaeological Assessment

(Golder Associates, March 2015)

APPENDIX H

Public and Agency Consultation