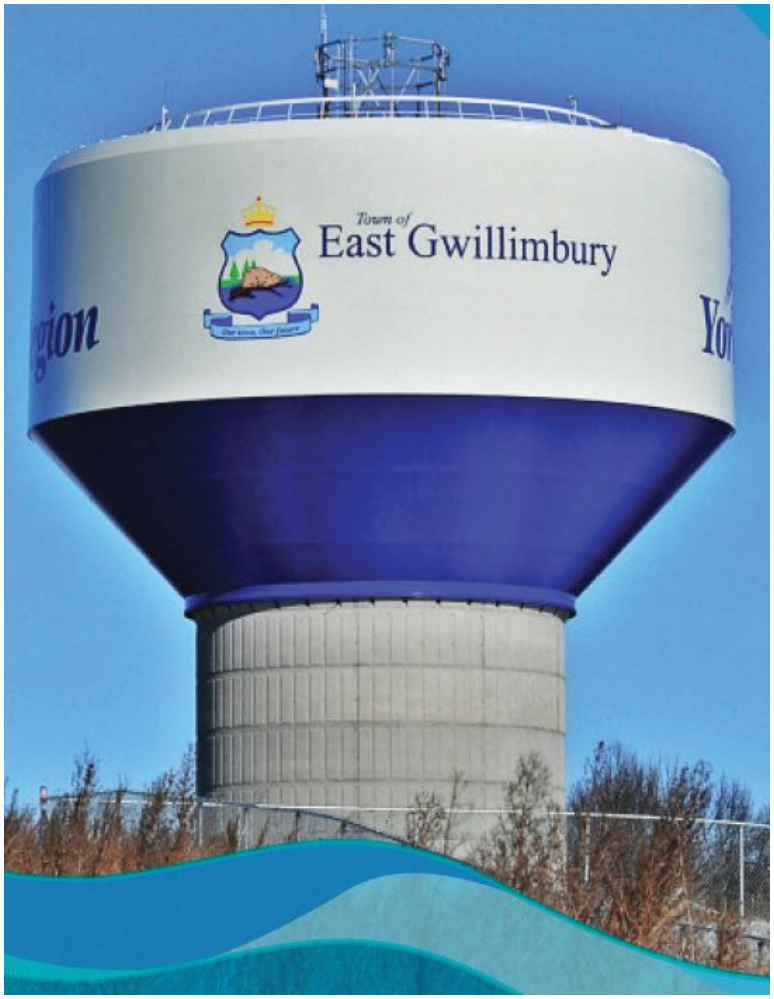
TOWN OF EAST GWILLIMBURY

2024 WATER AND WASTEWATER MASTER PLAN UPDATE

March 06, 2024



2024 WATER AND WASTEWATER MASTER PLAN UPDATE

TOWN OF EAST GWILLIMBURY

FINAL

PROJECT NO.: 171-03399-02
DATE: MARCH 2024

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March 06, 2024

Ray Wrzala, C.Tech.
Senior Engineering Technologist
Town of East Gwillimbury
19000 Leslie Street
Sharon, ON L0G 1V0

Re: Town of East Gwillimbury 2024 Water and Wastewater Master Plan Update

Dear Mr. Wrzala,

WSP Canada Inc. (WSP) is pleased to provide our Final Master Plan Report for the Town of East Gwillimbury – Water and Wastewater Master Plan Update. The study provides a 'roadmap' of water and wastewater infrastructure requirements based on existing and future capacity deficiencies identified, as well as associated cost details and recommended implementation timing.

The purpose of the Master Plan is to provide input into the Town's infrastructure project and budget decisions for the 2026 to 2051 horizons. As part of this Master Plan Update, WSP considered the projected growth up to the year of 2051 as well as the planned 70% and 100% Whitebelt Lands intensifications and provide recommendations on the water and wastewater projects that can accommodate the planned growth and provide sufficient services within the Town.

We would be happy to discuss this report with you at your convenience.

Yours sincerely,

Antoine Lahaie, P.Eng., PMP
Manager, Hydraulics & Master Plans

Encl.

cc:

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QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date				
Prepared by				
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Signature				
Authorized by				
Signature				
Project number				

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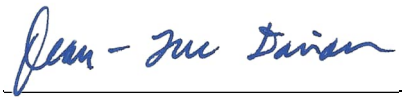

Jean-Luc Daviau, M.A.Sc., P.Eng.
Director, Hydraulics

EXECUTIVE SUMMARY

OVERVIEW

The Town of East Gwillimbury's Water and Wastewater Master Plan Update was prepared following the Municipal Class Environmental Assessment (MCEA) process. The purpose of the Master Plan was to assist with the forecasting and identification of water distribution and wastewater collection system infrastructure that is anticipated to be required to service the Town to the projected planning horizon of 2051. The growth scenarios were split into three major phases: 2016 to 2026, 2027 to 2041, and 2041 to post-2051.

The Master Plan was developed taking into account the following policies and documents: The Planning Act (1990); the Provincial Policy Statement (2014); the Places to Grow Act (2005); the Growth Plan for the Greater Golden Horseshoe (2019); the Town of East Gwillimbury Water and Wastewater Master Plan (2009); the Town of East Gwillimbury Official Plan 2031 (Consolidated 2018); East Gwillimbury Official Plan Review: Capacity Analysis And Land Needs (2020); 404 Employment Land Re-Assessment (2021); and, the Regional Municipality of York (York Region) Water and Wastewater Master Plan (2022). WSP also consulted with the Town's planning, transportation, and engineering departments while also being completed in parallel to the Town's latest Transportation Master Plan Update.

This Master Plan includes:

- An assessment of the Study Area including its boundaries, its Natural Heritage Features (NHFs), its archeological and heritage components, and its population forecast to the 2051 horizon.
- An assessment of the existing conditions of the water and wastewater systems, with the development of recommended capital projects for the ultimate water and wastewater systems required to service the projected growth and support development within the Town. Growth considered as part of the update include the Central Growth Areas and the Whitebelt Lands identified as developable lands in the Town's most recent Official Plan
- Evaluating project alternatives (where applicable) using pre-defined criteria to determine the preferred alternative for projects; and,
- Consultation with the public and relevant stakeholders to ensure a comprehensive assessment of the water and wastewater servicing needs and impacts.

STUDY AREA

The study area is comprised of the Town's Central Growth Area (CGA), Mount Albert, and the Whitebelt Lands. The CGA is made up of the Holland Landing, Sharon, Queensville, and Green Lane West areas and was the primary focus of the Master Plan as it is projected to contain most of the forecasted growth. Although minor population growth is expected to occur in the rural areas, these are not forecasted to be serviced by the Town's municipal infrastructure.

The Whitebelt Lands areas are located within the CGA and between the outer edges of the approved settlement area (i.e., Delineated Built-up Area and Designated Greenfield Area). The Region has identified approximately 999 net hectares of developable Whitebelt Lands. The growth within the Whitebelt Lands will be served by the extension of the major water and wastewater infrastructure required to serve the CGA.

NHFs within the study area were documented and the potential impacts of development were considered. NHFs present in the Town includes significant fish habitat; habitat of endangered or threatened species; Areas of Natural and Scientific Interest (ANSIs); wetlands; wildlife habitat; woodlands; and, valley lands. Archaeological and Heritage components in the Town's study area were documented, and archaeological sites requiring further investigation were identified.

These studies on the NHFs and archeological and heritage components were used as inputs during project alternatives evaluation to ensure minimal impacts on sensitive sites.

WATER & WASTEWATER SERVICING

The existing conditions of the water system were analyzed by developing a new all-pipe InfoWater Pro model and defining pressure district boundaries to reflect the conditions of the current water distribution network. The existing wastewater collection and pumping systems were analysed by developing a new all-pipe model using PC-SWMM.

The population forecasts for the study area were developed using York Region's population projections for both residential and employment growth according to the Town's 2020 Official Plan. These high-level forecasts were fragmented using Census data in order to obtain more granular demands for loading the models.

The water and wastewater model runs for the ultimate buildout scenario provided information about the existing infrastructure that needed to be upgraded to meet the projected growth. Information from the Town's planning department provided information about where future development was planned to guide the requirement and placement of new infrastructure. Where alternatives already existed or were created for servicing, an evaluation methodology was created and applied to select the preferred alternative.

For the water system, a total of eighty (80) capital plan projects were identified, sixty-eight (68) of which were identified as being growth-driven, and the other twelve (12) that support growth and strengthen existing areas. Six (6) additional projects were identified as falling under the jurisdiction of York Region. Operationally, seven (7) infrastructure projects will define District Metered Areas (DMAs) to support water loss reduction, strengthen the distribution system and pay for itself within the Master Plan horizon.

For the wastewater system, a total of seventy-one (71) capital plan projects were identified, all of which were assigned as being growth driven. Two (2) additional projects falling under the Region of York's jurisdiction were also identified, and the design capacity for the Region's Sanitary Pump Station needs to be re-assessed in 2051 planning horizon. A total of ten (10) operation and maintenance projects were recommended to be implemented in the existing Queensville and Holland Landing areas. These would involve limiting the Infiltration and Inflow (I/I) to 50% of the design allowance in order to prevent more costly sewer upgrades.

CONSULTATIONS

As part of the Municipal Class EA process, the progress of the Master Plan was accompanied by consultation with the public and relevant stakeholders. Stakeholders consulted as part of this process included: York Region, Staff and Council of the Town of East Gwillimbury, First Nation Groups (e.g., Alderville, Beausoleil, Chippewas of Georgina Island, Curve Lake, Hiawatha, Huron Wendat, Iroquois Confederacy, Kawartha-Nishnawbe First Nation of Burleigh Falls, Metis Nation of Ontario, Mississauga of Scugog Island, Mohawks of the Bay of Quinte, Moose Deer Point, Six Nations of the Grand River, and Williams Treaties), Town residents, the Town's development community and the Ministry of Transportation.

A total of three (3) Public Information Centres (PICs) were held throughout the entire Water and Wastewater Master Plan – two (2) as part of the 2019 Master Plan and one (1) as part of the 2023 Master Plan Update. The first PIC introduced the project to the public, while the second PIC presented the preliminary results of the Master Plan as well as the recommended projects to ensure accommodation of the expected population of developments to increase to the year 2041. The third PIC presented the recommended water and wastewater projects identified as part of the Master Plan Update and focused on projects generated from the Whitebelt Lands developable areas. A Council Workshop and Community Open House were held on Oct 8, 2019, to collect and address the comments from the community. Further consultations with stakeholders were held in January 2023 to review the impacts of the Whitebelt additions to the Master Plan study area. Comments were sought from the public and all relevant stakeholders during these consultations and incorporated into the final document.

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Town of East Gwillimbury is projected to experience significant population and employment growth over the next thirty years. As a result of this growth, safe, efficient, and reliable supply of water and wastewater services to the Town will become increasingly important and challenging and the Town's water and wastewater systems will need to be expanded as necessary to accommodate this growth.

WSP was retained by the Town of East Gwillimbury in 2017 to complete an update required for the Town's Water and Wastewater Master Plan to ensure accommodation of the expected population of developments to increase to the year of 2041. This study is being further updated to address the water and wastewater needs to 2051. The need for an update is not only due to the recommended update under the municipal Class EA process (every five years) but is also largely driven by the expectation that residential and employment populations will significantly increase as per planning projections to the year 2051. The Master Plan encompasses a review of the relevant background documentation and data, water and wastewater system models and its analysis to determine system gaps, constraints and opportunities, an alternative servicing solutions development and evaluation process, and finally, provision of recommended infrastructure projects, associated cost details, and implementation timing suggestions for servicing the Town to the 2051 growth scenario.

1.2 STUDY OBJECTIVES

The objective of this Water and Wastewater Master Plan Update is to update both the water and wastewater servicing strategies by assessing the future infrastructure requirements within the Town of East Gwillimbury. The assessment is based on the state of the existing infrastructures, the environment, and the servicing requirements for new growth and developments. The analysis focuses on identifying the water and wastewater infrastructure projects required over the next 30 years, to 2051.

The objectives of the Town's current Water and Wastewater Master Plan are as follows:

- Complete a comprehensive review of background documentation and key relevant studies.
- Review and update the Town's current water and wastewater model to reflect the future population forecast in 2051 planning horizon.
- Identify system opportunities and constraints based on hydraulic modelling of future growth scenarios.
- Develop alternative water and wastewater servicing solutions for future growth scenarios.
- Evaluate the alternatives, using a set of criteria determined as part of the Master Plan, to arrive at preferred water and wastewater servicing solutions; and,
- Prepare cost details and implementation timing for recommended servicing strategies.

With the submission of this Master Plan Report, WSP and the Town understands that the Region of York is finalizing their approach for the York Durham Sewage System (YDSS) solution. While this approach may have an impact on the outfall of specific projects, it is not anticipated that the forecasted cost and timing of projects will be significantly impacted by the YDSS solution. Once the subsequent Regional Master Plan is updated, to reflect the YDSS solution, the Town's future Master Plan will reflect these changes.

1.3 CLASS ENVIRONMENTAL ASSESSMENT PROCESS

1.3.1 ENVIRONMENTAL ASSESSMENT ACT

The Ontario Environmental Assessment Act (EAA) and the associated Codes of Practice require proponents to examine and document the environmental effects that might result from major projects or activities.

The Act defines the environment broadly as:

1. Air, land, or water.
2. Plant and animal life, including human life.
3. The social, economic, and cultural conditions that influence the life of humans, or a community.
4. Any building, structure, machine or other device or thing made by humans.
5. Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities; and,
6. Any part or combination of the foregoing and the interrelationships between any two or more of them.

The purpose of the Act is the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation, and wise management of the environment in the Province (RSO1990, c. 18, s.2).

1.3.2 PRINCIPLES OF ENVIRONMENTAL PLANNING

The Act sets a framework for a systematic, rational, and replicable environmental planning process that is based on five key principles, as follows:

— Consultation with affected parties - Consultation with the public and government review agencies is an integral part of the planning process. Consultation allows the proponent to identify and address concerns cooperatively before final decisions are made. Consultation should begin as early as possible in the planning process.

— Consideration of a reasonable range of alternatives - Alternatives to include functionally different solutions to the proposed undertaking as well as alternative methods of implementing the preferred solution. The “do nothing” alternative must also be considered.

— Identification and consideration of the effects of each alternative on all aspects of the environment - This includes the natural, social, cultural, technical, and economic environments.

— Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects - The evaluation shall increase in the level of detail as the study moves from the evaluation of alternatives to the proposed undertaking to the evaluation of alternative methods.

— Provision of clean and complete documentation of the planning process followed – This will allow traceability of decision-making with respect to the project. The planning process must be documented in such a way that it may be repeated with similar results.

1.3.3 MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

To meet the requirements of the EAA, this project is being conducted in accordance with the Class Environmental Assessment (EA) process. The requirements for undertaking a Class EA are described in the Municipal Class Environmental Assessment (MCEA) document (October 2000, as amended in 2007, 2011, 2015 and 2023) developed by the Municipal Engineers Association (MEA).

The Class EA planning process requires the integration of sound engineering judgement, prudent long-term planning, and protection of all aspects of the environment (natural, social, economic, and cultural). This includes consultation with the public and affected agencies to obtain comments and input and to ensure regulatory compliance and ultimately achieve acceptance for the preferred alternative.

The overall result of the Class EA process is the identification of a preferred solution which results in minimal impact on the environment.

Class EAs were approved by the Minister of the Environment in 1987 for municipal projects having predictable and preventable impacts. The Class EA streamlines the planning and approvals process for municipal infrastructure projects (including water and wastewater projects) which display the following important characteristics in common:

— Recurring.

— Similar in nature.

— Usually limited in scale.

— Predictable range of environmental effects; and,

— Responsive to mitigation measures

The Class EA document applies to a group of projects which are approved under the Environmental Assessment Act, provided they are planned for according to the requirements of the Class EA. The specific requirements of the Class EA document depend on the type of project, its complexity, and the significance of potential environmental impacts.

The MCEA document, prepared by the MEA, outlines the procedures to be followed to satisfy EA requirements for water, wastewater, and road projects. The process includes five phases:

— Phase 1: Problem Definition

— Phase 2: Identification and Evaluation of Alternative Solutions to Determine a Preferred Solution

— Phase 3: Examination of Alternative Methods of Implementation of the Preferred Solution

— Phase 4: Documentation of the Planning, Design and Consultation Process

— Phase 5: Implementation and Monitoring

Public and agency consultation are integral to the Class EA planning process. Projects subject to the Class EA process are classified into four possible “Schedules” depending on the degree of expected impacts. It is important to note that the Schedule assigned to a particular project is proponent-driven. For example, if a project has been designated as Schedule A, the proponent can decide to comply with the requirements of a Schedule B or C of the class EA process based on the magnitude of anticipated impacts or the special public and agency consultation requirements specific to that particular project.

Agreements made or commitments given by the proponent to affected agencies or the public during the course of the screening process must be followed through and implemented, otherwise the EA approval will not be granted. If an affected agency or the public has a concern that cannot be resolved by discussion and negotiation with the proponent, then they can request a proponent to comply with Part II of the EA Act. Through issuance of a Part II Order, Schedule “B” and Schedule “C” projects may be elevated to an individual EA, requiring the proponent to comply with Part II of the EA Act. Schedule “B” projects could also be elevated to a Schedule “C”.

The Class EA process flowchart is provided in Figure 1-1 below.

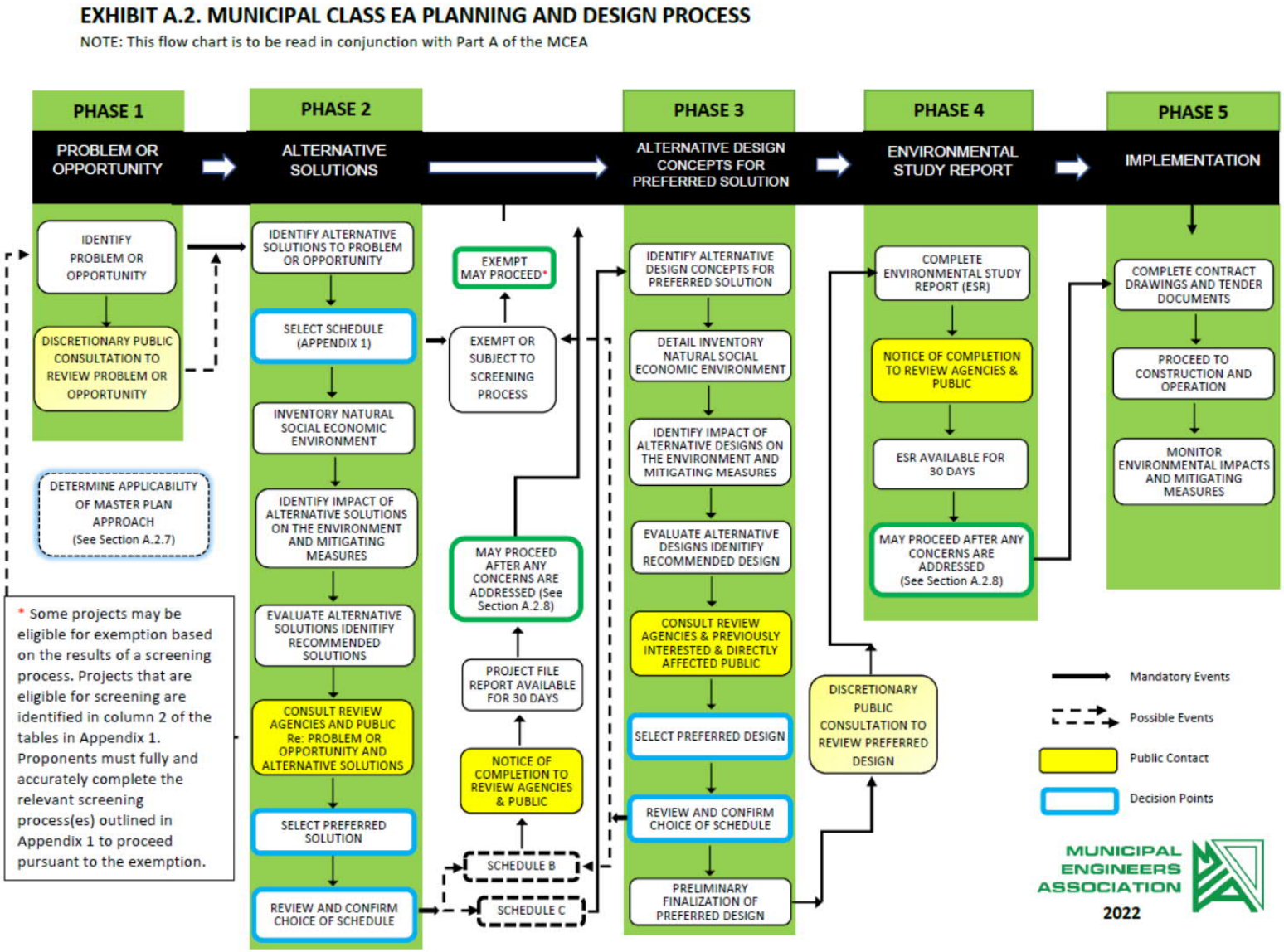

Figure 1-1 Municipal Class EA Process (Municipal Class EA Document, October 2000, as amended in 2023)

SCHEDULE A PROJECTS

Schedule A projects are minor, operational and maintenance activities and are pre-approved without the need for further assessment. Projects with this designation are typically limited in scale and have minimal adverse environmental impacts. Examples of Schedule A projects include expansion of waterworks to connect to an existing system. This type of project is pre-approved, and the proponent may proceed without following the procedures set out in any other part of the Class EA process.

SCHEDULE A+ PROJECTS

Schedule A+ projects were introduced by MEA in 2007. Similar to Schedule A, these projects are also pre-approved. However, the main difference is that for Schedule A+ projects, the public must be advised prior to the project implementation. Examples of Schedule A+ projects include upgrades to a water treatment plant up to its existing rated capacity where no land acquisition is required; and the establishment, extension or enlargement of a sewage collection system and all necessary works to connect the system to an existing sewage or natural drainage outlet, provided all such facilities are in either an existing road allowance or an existing utility corridor, including the use of trenchless technology for water crossings.

SCHEDULE B PROJECTS

Schedule B projects generally include improvements and minor expansions to existing facilities where there is potential for some adverse environmental impacts. These projects require screening of alternatives for their environmental impacts and completion of Phases 1 and 2 of the Class EA planning processes. If outstanding issues remain after the public review period, any party may request that the Minister of the Environment consider a Part II Order (also known as elevating the project to a Schedule C or an Individual EA). Provided no significant impacts are identified and no requests for a Part II order to a Schedule C or Individual Environmental Assessment are received, Schedule B projects are approved and may proceed directly to implementation. Examples include construction of new water storage facilities and water/wastewater conveyance facilities (pumping stations), among others.

SCHEDULE C PROJECTS

Schedule C projects generally include the construction of new facilities and major expansions to existing facilities. These projects are typically more complex and have the potential for significant environmental effects. As a result, they proceed under full planning and documentation procedures and satisfy all five phases of the Class EA planning process. Phase 3 involves the assessment of alternative methods of carrying out the project, as well as public consultation on the preferred conceptual design. Phase 4 normally includes the preparation of an Environmental Study Report which is filed for public review. Provided no significant impacts are identified and no requests for Part II Order or elevating to an Individual Environmental Assessment are received, Schedule C projects are then approved and may proceed to Phase 5: implementation. Some examples of a Schedule C projects are construction of a new water system including water supply and distribution system and expansion of a wastewater treatment facility.

1.3.4 MASTER PLAN PROCESS

While the planning and design process described above is a process by which municipalities may plan municipal works on a project-by-project basis, the MCEA process allows for cases when it is beneficial to begin the planning process by considering a group of related projects, or an overall system, e.g., water, wastewater and/or roads network, or a number of integrated systems, e.g., infrastructure master plan, prior to dealing with project specific issues. By planning in this way, the need and justification for individual projects and the associated broader context are better defined.

Master Plans are long range plans which examine infrastructure systems or groups of related projects to outline a framework for planning of subsequent projects and/or developments.

The following are distinguishing features of Master Plans:

a) Their scope is broad and usually includes a system-level analysis to outline a framework for future works. Master Plans are typically not focused on a site-specific problem.

b) Master Plans typically recommend a set of works which are distributed geographically throughout the study area and which are to be implemented over an extended period of time.

c) Master Plans provide the context for the implementation of specific projects which make up the plan and satisfy, as a minimum, Phases 1 and 2 of the Class EA process. Notwithstanding that these works may be implemented as separate projects, collectively these works are part of a larger management system. Master Plan studies in essence conclude with a set of preferred alternatives and, therefore, by their nature, Master Plans limit the scope of alternatives which can be considered at the implementation stage.

The MCEA document outlines several approaches to conducting Master Plans.

Approach # 1 was adopted for the completion of this Master Plan. This process involves the preparation of a Master Plan document at the end of Phases 1 and 2 of the MCEA process and is done at a level of detail which would require more investigation at the project-specific level to fulfill the requirements for the specific Schedule B and C projects identified within the Master Plan. The Master Plan document is made available for public comment prior to being approved by the municipality.

The Master Plan will become the basis for future investigations for specific Schedule B and C projects identified within it. Schedule B projects would require the filing of a Project File for review while Schedule C projects would have to fulfill Phases 3 and 4 prior to filing an Environmental Study Report for public review.

2 BACKGROUND DOCUMENTATION REVIEW

The following documents were reviewed for pertinent information during the development of the Master Plan.

2.1 THE PLANNING ACT (1990)

The Planning Act establishes the mechanisms and rules for land use planning in Ontario, outlining how land uses may be controlled, and who may control them. The Act sets the basis for the preparation of official plans and planning policies for future development, and it provides municipalities with local autonomy to make decisions and streamline the planning process. The Act empowers local citizens to provide their input to their municipal council and, where permitted, to appeal decisions to the Ontario Municipal Board.

2.2 PROVINCIAL POLICY STATEMENT (2020)

The Provincial Policy Statement (PPS) is a key component of Ontario's planning system as it sets policy direction on matters of provincial interest related to land use planning, growth management, environmental protection, and public health and safety; and aims to provide a stronger policy framework that guides communities in Ontario toward a higher quality of life and a better long-term future.

The PPS establishes the various municipalities' roles in planning for growth, intensification, and redevelopment. New settlement area policies will only permit expansions where it is demonstrated that opportunities for growth are not available through intensification, redevelopment or in designated areas. The PPS also requires municipalities to co-ordinate and provide direction on policies with cross municipal boundaries, such as natural heritage systems and resource management. The PPS provides the basis or context for all Provincial Plans and Municipal Official Plans. The Province issued a new PPS on February 24, 2014, which came into effect on April 30, 2014.

2.3 PLACES TO GROW ACT (2020)

The Places to Grow Act was developed by Ontario's government to enable the development of regional growth plans that guide government investments and land use planning policies. More specifically, the Act enables and promotes decisions about growth to be made in such a way that they consider the economy, the communities, the environment, the existing infrastructure, coordination of growth policies among all levels of government, a broad geographical perspective, and a long-term vision.

2.4 GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE (2020)

The Greater Golden Horseshoe (GGH) is a secondary region of Southern Ontario lying at the western end of Lake Ontario. It is one of the most dynamic and fast-growing regions in North America, generating over 25% of Canada's Gross Domestic Product. The area of the GGH encompasses the Town of East Gwillimbury. The Growth Plan for the Greater Golden Horseshoe was introduced under the Places to Grow Act in 2005, and enacted in 2006, with the latest revision published in May 2019. It provides a framework for managing growth in Ontario, by determining where and how the region will grow and providing long-term guidance to cities, suburbs, towns, and villages on how to manage this growth. Since its introduction, the GGH has seen a shift to more compact development patterns, a larger variety of housing options, and a

greater integration of transit and land use planning. The Places to Grow Act and the Growth Plan for the Greater Golden Horseshoe are meant to be read in conjunction with the PPS which provided their foundation. In case of conflict, unless otherwise noted the policies of the Act and the Growth Plan take precedence over those of the PPS as they are more specific on land-use planning.

2.5 THE SAFE DRIKING WATER ACT (2002)

This legislation was introduced in Ontario to ensure the safety and quality of drinking water within the province. It outlines regulations and requirements for the treatment, testing, and distribution of drinking water to protect public health and the environment. The Safe Drinking Water Act, 2002, established the framework for source protection, testing, and treatment of drinking water systems, and it also established the role of the Ontario Ministry of the Environment, Conservation and Parks (now the Ministry of the Environment, Conservation and Parks) in regulating and enforcing these provisions. The act also created a system of source protection regions and source protection committees to help safeguard the sources of drinking water.

2.6 CLEAN WATER ACT (2006)

The Clean Water Act, 2006, aimed at protecting the province's water resources. It is a provincial law designed to ensure the quality and sustainability of Ontario's water supply. The act focuses on source water protection, which involves safeguarding the sources of drinking water, such as lakes, rivers, and groundwater, to maintain water quality and availability for both human and environmental needs. Key elements and objectives of the Clean Water Act, 2006, include:

1. Source Water Protection: The act establishes source protection regions and source protection committees responsible for assessing and protecting drinking water sources within their regions. They develop source protection plans to address potential threats and contamination risks to these sources.
2. Risk Assessment: The act requires the identification and assessment of potential risks to drinking water sources, including pollution sources and land use activities that could affect water quality.
3. Risk Management: Based on the assessment, risk management measures are put in place to mitigate identified risks and protect drinking water sources. These measures may include land use restrictions, monitoring, and other protective actions.
4. Public Participation: The Clean Water Act emphasizes public participation in the source protection planning process to ensure transparency and involvement of local communities and stakeholders.
5. Enforcement: It outlines the responsibilities and regulatory measures to enforce source protection plans and ensure compliance with the law.

2.7 THE ONTARIO WATER RESOURCE ACT

The Ontario Water Resources Act, R.S.O. 1990, relates to the management and protection of water resources. It has undergone several amendments and revisions over the years to address various aspects of water quality, quantity, and management. Key aspects and objectives of the Ontario Water Resources Act may include:

1. Water Quality and Quantity: The act addresses the quality and quantity of water resources in Ontario, aiming to maintain and protect them for various uses, including drinking water, industrial purposes, and environmental conservation.
2. Regulatory Framework: It provides the legal framework for regulating water pollution and controlling the release of contaminants into water bodies. This includes requirements for permits and approvals for activities that may impact water quality.

3. Permitting and Compliance: The act establishes a system for permitting and compliance to ensure that water users, including industrial facilities and municipalities, adhere to water quality and quantity standards and regulations.
4. Environmental Protection: It includes provisions related to the protection of the natural environment, aquatic ecosystems, and wildlife habitats.
5. Conservation and Sustainability: The act may include measures to promote the efficient use and conservation of water resources, especially during times of water scarcity.
6. Enforcement: It outlines enforcement mechanisms and penalties for violations of water quality and quantity regulations.

2.8 TOWN OF EAST GWILLIMBURY RELATED STUDIES

2.8.1 TOWN OF EAST GWILLIMBURY WATER AND WASTEWATER MASTER PLAN (GENIVAR, 2009)

WSP, formerly GENIVAR, completed the Town of East Gwillimbury Water and Wastewater Master Plan in 2009. The purpose of the Study was to develop infrastructure recommendations to service the Town to an ultimate buildout growth scenario and to identify system responsibility between the Regional Municipality of York (York Region) and the Town. Population projections were used to develop water and wastewater rates for modeling existing and future scenarios.

The study area considered for the purposes of the 2009 Master Plan did not include the entire Town of East Gwillimbury. The areas covered were the CGA and Mount Albert. The CGA included the communities of Holland Landing, Sharon, Queensville, Green Lane West, and the Whitebelt lands. Rural and non-developable areas such as lands within the Oak Ridges Moraine and the Provincial Greenbelt areas were excluded.

WATER SYSTEMS

The following was identified in the 2009 Master Plan Update as the preferred servicing solution for the Town's water system to service growth to 2031.

Flows would be redirected from the existing Queensville well supply from the Town of Newmarket back to East Gwillimbury. This could be achieved by supplying Newmarket with water from Lake Ontario. It was anticipated that additional water supply would be provided by increasing the volume of water supplied from Lake Ontario via the Region's water system to the south. Additional Lake Ontario water would be supplied to the existing three pressure districts via appropriate corresponding pressure district systems that exist in Newmarket and by extension of transmission mains to East Gwillimbury.

More specifically, the East Pressure District would get additional supply from the Newmarket East Pressure District via a change from the existing southerly flow to a northerly direction in the existing 600mm transmission main on Leslie St; the installation of a new 300mm to 500mm transmission main on Woodbine Ave; the addition of pressure-reducing valves to form minor sub-district East "A". The Central Pressure District would get additional supply from: the connection of the East Pressure District 600mm transmission main on Leslie St to a proposed 500mm watermain on Green Lane; the installation of a new 500mm watermain on Yonge St extending from the existing Regional London Rd elevated water storage tank in Newmarket to the proposed 500mm diameter watermain on Green Lane. The West Pressure District would get supply from the installation of a new 500mm watermain on Bathurst St in Newmarket to connect to an existing 400mm main west of Yonge St. In addition, the Region would need to meet the Town's increased storage needs through elevated storage tanks, in-ground storage facilities with pumping, or a combination of both methods. In summary, the total Central Growth Area (CGA) will be supplied partially by the existing Queensvillle and Holland Landing wells, and partially by the York Region system conveying Lake Ontario water.

WASTEWATER SYSTEMS

The following was identified in the 2009 Master Plan Update as the preferred servicing solution for the Town's wastewater system to service growth to 2031.

The Town of East Gwillimbury's wastewater collection system is intended to entirely service the Town at ultimate buildout except for the rural population which would remain on private systems. The CGA was divided into eleven (11) major drainage areas. These addressed all existing and potential developed areas, the Official Plan Amendment approved lands, and accommodated the ultimate projected residential and employment populations. The facilities analysed involved the trunk facilities only, due to the planning details not being sufficiently developed to address the system at the local level. The Mount Albert area was expected to experience a limited amount of growth and would consequently, not require new trunk wastewater mains. The major trunk systems were planned so that the use of gravity systems will be employed while minimizing the use of pumping facilities. Locations in which deep gravity sewers were planned included: Woodbine Avenue, 500m south of Green Lane; Woodbine Avenue, 600m north of Green Lane; Mount Albert Road, 200m west of Leslie Street; a new subdivision area west of North/South Collector Road west of Leslie Street and south of Mount Albert Road if the Sharon trunk does not follow the existing Hydro Corridor in the area.

In addition, a significantly sized pump station, forcemain, and trunk sewer combination were proposed to direct wastewater flows from east of Highway 404 in the Mount Albert Road area to the York-Durham Sanitary Sewer (YDSS) Extension. It was indicated that wastewater flows east of Highway 404 and south from Doane Road would be directed to PS2 located on Woodbine Avenue. Flow from PS2 would be carried by a forcemain across Highway 404 to connect to a gravity system directing flows to the YDSS Extension. The YDSS Extension would consist of a pumping station constructed in the area of the Holland River at 2nd Concession, and another one located in the general area of Queensville Sideroad and the future Highway 404.

2.8.2 TOWN OF EAST GWILLIMBURY OFFICIAL PLAN 2051 (2022)

The Town of East Gwillimbury's Official Plan was adopted by Town Council on June, 2022.

Schedules 3A, 3B, and 3C identify the Land Use Designations for Holland Landing, Queensville, and Sharon. The predominant land use designation in these areas was identified as low density residential. Schedule 3D identifies the predominant land use designation in Green Lane Corridor as a mixture of residential and population-related employment uses. Schedule 3E identifies the Land Use Designation for Mount Albert. The predominant land use designation in Mount Albert was identified as low density residential and a strip of community commercial along Centre Street.

Several areas have been designated as employment areas including the following:

- Holland Landing employment area, bound by Highway 11 and Holland Landing Road; and
- 404 employment area between Woodbine Avenue and Highway 404; and
- Mount Albert West employment area, north-east of Highway 48 and Mount Albert Road.

Natural heritage systems were identified in the Town's boundaries. These include the Greenbelt, Oak Ridges Moraine, wetlands, woodlands, and Areas of Natural and Scientific Interest. Many of these areas are identified as non-developable.

2.8.3 EAST GWILLIMBURY OFFICIAL PLAN REVIEW: CAPACITY ANALYSIS AND LAND NEEDS (N. BARRY LYON CONSULTANTS LTD, 2020)

N. Barry Lyon Consultants Ltd. (NBLC) completed a Capacity Analysis and Land Needs Assessment to evaluate the assumptions related to growth in East Gwillimbury from York Region's most recent Municipal Comprehensive Review, and to estimate the capacity of the Town's Designated Greenfield Area (DGA) and Whitebelt Lands upon full build-out. The Region's density assumptions related to the growth over the 2016 to 2041 growth timeline were deemed reasonable. A portion of the Whitebelt Lands will need to be added to the urban boundary after 2036, along with the Town's existing

DGA, to accommodate the forecasted growth up to this period. Much of the remaining Whitebelt Lands are likely to be added to the DGA as part of an urban boundary expansion for the extended 2051 growth timeline.

2.8.4 2022 TO 2026 STRATEGIC PLAN

The Strategic Plan guides the next four years of our Town to ensure we continue to provide programs and services that will support a sustainable future where residents and businesses can thrive. The Plan is made up of five strategic priorities with corresponding key deliverables that ensure East Gwillimbury remains well-planned, well-managed, and resilient.

The Plan was developed based on the feedback shared with Council while campaigning for the 2022 Municipal Election. Your feedback has helped us develop a draft Plan, which will guide our growing community for the next four years.

EG is working towards a sustainable future. Sustainability means supporting the ability of current and future generations to thrive, while ensuring a balance between economic growth, environmental stewardship, and social well-being. Our efforts are focused on finding ways to improve, enhance, and do better.

2.8.5 404 EMPLOYMENT LAND RE-ASSESSMENT (2021)

WSP had completed a study of the Employment Lands Corridor to re-assess the proposed Master Plan projects and the overall servicing strategies for the subject site located northwest of the Green Lane and Woodbine intersection. As part of the re-assessment, WSP recommended the following adjustments to the Master Plan Projects:

- WW-29: Wastewater Lift Station would be re-located to the intersection of Mount Albert Rd. and Woodbine Ave. This lift station would convey all the wastewater loads from the Woodbine Ave. corridor (from Davis Dr. to Queensville Side Rd.) to the Sharon Trunk sewer on Leslie.
- WW-27: gravity sewers would start just north of Davis Dr., continue north along Woodbine Ave. and convey flow by gravity to the relocated WW-29 Wastewater Lift Station at the intersection of Woodbine Ave. and Mount Albert Rd.
- WW-23: gravity sewer along Green Lane would be separated into two short stretches to avoid crossing at Highway 404. One would tie into Woodbine Ave., while the other one would tie into Leslie St.
- WW-05: Wastewater Lift Station will remain at the same location; however, the new forcemain alignment will convey flow south along Woodbine Ave. and connect to the Woodbine gravity sewer at the high elevation point. From there, the flow will be conveyed to the relocated WW-29 Wastewater Lift Station.
- WW-30: forcemain alignment was modified due to the relocation of the WW-29 Wastewater Lift Station. It will convey flow westwards along Mount Albert Rd. and tie into the Leslie trunk sewer at the intersection of Mount Albert Rd./Farr Ave. and Leslie St.

2.9 REGIONAL PLANNING DOCUMENTS

2.9.1 YORK REGION WATER AND WASTEWATER MASTER PLAN (2022)

The York Region completed its 2022 Water and Wastewater Master Plan to document the projected growth within the Region and guide water and wastewater investments to 2051. The Region's Master Plan focused on the broader supply of water and collection of wastewaters for the growing communities within the Region, including the Town of East Gwillimbury.

The Region's Master Plan identified the Lake Simcoe Servicing Strategy as the key servicing strategy for East Gwillimbury and Newmarket. The Lake Simcoe Servicing Strategy permits flexibility of supplying a small portion of the incremental water demand forecasted with Lake Simcoe water, while much of the supply for East Gwillimbury and Newmarket would

continue to be from Lake Ontario and from groundwater (e.g., East Gwillimbury is serviced by groundwater from Queensville / Holland Landing wells and that from Newmarket/Aurora to some extent).

East Gwillimbury and a part of Newmarket was initially identified to have wastewater servicing by the proposed Water Reclamation Centre as recommended under the Upper York Sewage Solutions Individual Environmental Assessment; however, this is no longer valid due to the existing high levels of pollutants in Lake Simcoe. An alternative solution from York and Durham Region is underway at the time of this Master Plan Update. The remainder of York Region will be serviced by the York Durham Sewage System and several stand-alone systems.

Major capital projects within the Town of East Gwillimbury include:

- Water
    - Project W20 - Green Lane Leslie Street Watermain: install a new transmission main along Green Lane to service growth and allow connection to Newmarket and East Gwillimbury delivery systems; and install a new transmission main along Leslie Street to bring additional Lake Ontario supply as demand increases in the northeast parts of the system.
    - Project W21 – East Gwillimbury Water Servicing: install a new transmission main to accommodate growth along Woodbine Avenue corridor; and install a new transmission main along Queensville Sideroad to provide additional supply to Holland Landing.
    - Project W22 – Queensville Elevated Tank No.2: construct a new elevated tank and connecting watermain to accommodate growth in Queensville and Sharon and allow replacement of the Newmarket East Elevated Tank.
    - Project W23 – Holland Landing Storage Expansion: install a new elevated tank and connecting watermain to accommodate growth in Holland Landing and allow replacement of existing Holland Landing East Elevated Tank.
- Wastewater
    - Project WW18 – East Gwillimbury Sewage Pumping Station Expansions: Increase capacity of West Queensville, Second Concession and Holland Landing Sewage Pumping Stations to service growth. Works are expected to be accommodated within the original building footprint. From the 2016 York Region Master Plan, the capacity for the West Queensville, Second Concession and Holland Landing Sewage Pumping Stations was increased from 99 L/s to 405 L/s, 354 L/s to 1200 L/s, and 158 L/s to 258 L/s, respectively.
    - Project WW19 – Holland Landing Lagoon Decommissioning: Decommission Holland Landing Lagoons following commissioning of the new Water Reclamation Centre.
    - Project WW20 – East Queensville Sewage Pumping Station and Forcemain: Construct a new sewage pumping station just south of Queensville Sideroad and west of Highway 404 along with forcemain connecting to the West Queensville Sewage Pumping Station to service growth in parts of Queensville. The 2016 York Region Master Plan stated the design capacity for the new station (previously Project WW-16) to be 140 L/s.
    - Project WW21 – Upper York Water Reclamation Centre: Construct a new Water Reclamation Centre in East Gwillimbury to accommodate growth and allow decommissioning of Holland Landing Lagoons as recommended in the Individual Class Environmental Assessment completed in 2014 (pending approval). This project will provide an overall benefit to the Lake Simcoe watershed through the integral phosphorus offsetting program component of Upper York Sewage Solutions. The design capacity for the Plant was increased from 40 MLD to 60 MLD as indicated in the 2016 York Region Master Plan (previously Project WW-17); However, this project is no longer valid due to the existing high levels of pollutants in Lake Simcoe. An alternative solution from York and Durham Region is underway at the time of this Master Plan Update.
    - Project WW22 – Upper York Servicing Infrastructure Expansions 1 and 2: Expand the Water Reclamation Centre subject to a future Class Environmental Study to accommodate growth in East Gwillimbury and

Newmarket. Similarly, this project is not longer valid, and an alternative solution from York Region and Durham Region is currently underway.

2.9.2 YORK REGION OFFICIAL PLAN

The 2022 Regional Official Plan (the Plan) sets the direction for growth and development across nine local municipalities impacting how your community grows and changes now, and in years to come. It addresses provincially mandated growth for York Region being sensitive to important priorities, key opportunities, and challenges facing our communities and residents. It focuses on sustainability, protection of the natural environment, economic growth, and success, while working to meet the needs of and deliver important human services to residents. It does this through policies that set out planning goals which meet the vision and direction set through Provincial and Regional planning documents.

2.9.3 YORK REGION WASTEWATER ACT (2021)

The Regional Municipality of York's Upper York Sewage Solutions Environmental Assessment Report dated July 2014, which includes a water reclamation centre, a project-specific phosphorous off-setting program, and modifications to the existing York Durham Sewage System, which was proposed to accommodate population and development growth in the Upper York wastewater service area, including the towns of Aurora, East Gwillimbury and Newmarket. The Minister's decision-making on the Upper York Sewage Solutions Undertaking is suspended and all actions by the Regional Municipality of York related to that undertaking are prohibited.

2.9.4 NEW COMMUNITIES GUIDELINES (2013)

The New Communities Guidelines have been created to assist local municipalities and the development industry in successfully implementing the sustainable building and new community areas policies in the York Region Official Plan. The guidelines serve several purposes:

- as an educational tool to further explain Regional Official Plan policy intent (such as density targets and housing mix)
- informing local secondary planning processes applicable in new community areas
- informing local planning approvals as they relate sustainable buildings across York Region
- informing development within employment areas throughout the Region
- providing detailed requirements necessary to achieve mandatory targets (such as 10% water conservation)
- providing information on best practices to implement encourage policies (such as urban heat island reduction)
- where appropriate, providing guidance to development on other lands within the designated greenfield areas

3 STUDY AREA

The study area for this Water and Wastewater Master Plan Update includes the Town's Central Growth Area (CGA) and Mount Albert Area, with the focuses on the Whitebelt Lands and 404 Employment Lands. The Town is bound by the Town of Georgina to the north, Region of Durham to the east, Town of Whitchurch-Stouffville and Town of Newmarket to the south, and the Township of King to the west. The study area does not encompass the entire land area of the Town of East Gwillimbury as a considerable component of the Town is located within the Oak Ridges Moraine and the Provincial Greenbelt areas and thus, are not available for growth. The CGA (e.g., including the Whitebelt Lands and 404 Employment Lands) and Mount Albert are the areas that will be serviced by the water and wastewater system. The rural areas will not be provided with municipal services and will remain on private systems; thus, they are not included in this study.

3.1 DEVELOPMENT AREAS

3.1.1 CENTRAL GROWTH AREA (CGA)

A CGA has been identified by the Town that includes the major areas within the Town that are available for urban growth and that are outside of the Moraine and Greenbelt zones. The CGA is the major focus of the Master Plan as it will contain the majority of the growth expected to occur within the Town. The study area also considers potential future servicing of some Greenbelt lands along Woodbine Avenue.

The CGA Area is generally bounded by the Town of Newmarket to the south, Woodbine Avenue to the east, the future Bradford Bypass highway location to the north and Regional Road No. 1 (Yonge Street) and Bathurst Street to the west. There are also minor areas located beyond the described general CGA boundaries and an illustration of the CGA is presented in Figure 3-1.

3.1.2 MOUNT ALBERT

There will also be limited growth occurring within the Mount Albert community area. This growth will not be served by the major water and wastewater infrastructure required to serve the CGA but will be addressed locally. An illustration of the Mount Albert area is presented in Figure 3-1.

3.1.3 WHITEBELT LANDS

The Whitebelt Lands Area contain the lands between the outer edges of the approved settlement area (i.e., Delineated Built-up Area and Designated Greenfield Area). The Region has identified approximately 999 net hectares of developable Whitebelt Land (NBLC, December 2020). The growth within the Whitebelt Lands will be served by the extension of the major water and wastewater infrastructure required to serve the CGA. An illustration of the Whitebelt Lands is presented in Figure 3-1.

3.1.4 404 EMPLOYMENT LANDS

The Highway 404 Employment Secondary Plan Area (404 Employment Land) is located within the CGA of the Town. The 404 Employment Land is bounded by Green Lane East and Herald Road to the south, Woodbine Ave. to the east, Mount Albert Road to the north, and Highway 404 to the west, and a small portion of land between Highway 404 and Leslie Street is also included. The future 404 Employment Land will be developed to support a complete range of offices and industrial uses as well as retail uses. An illustration of the 404 Employment Land Corridor is presented in Figure 3-1.

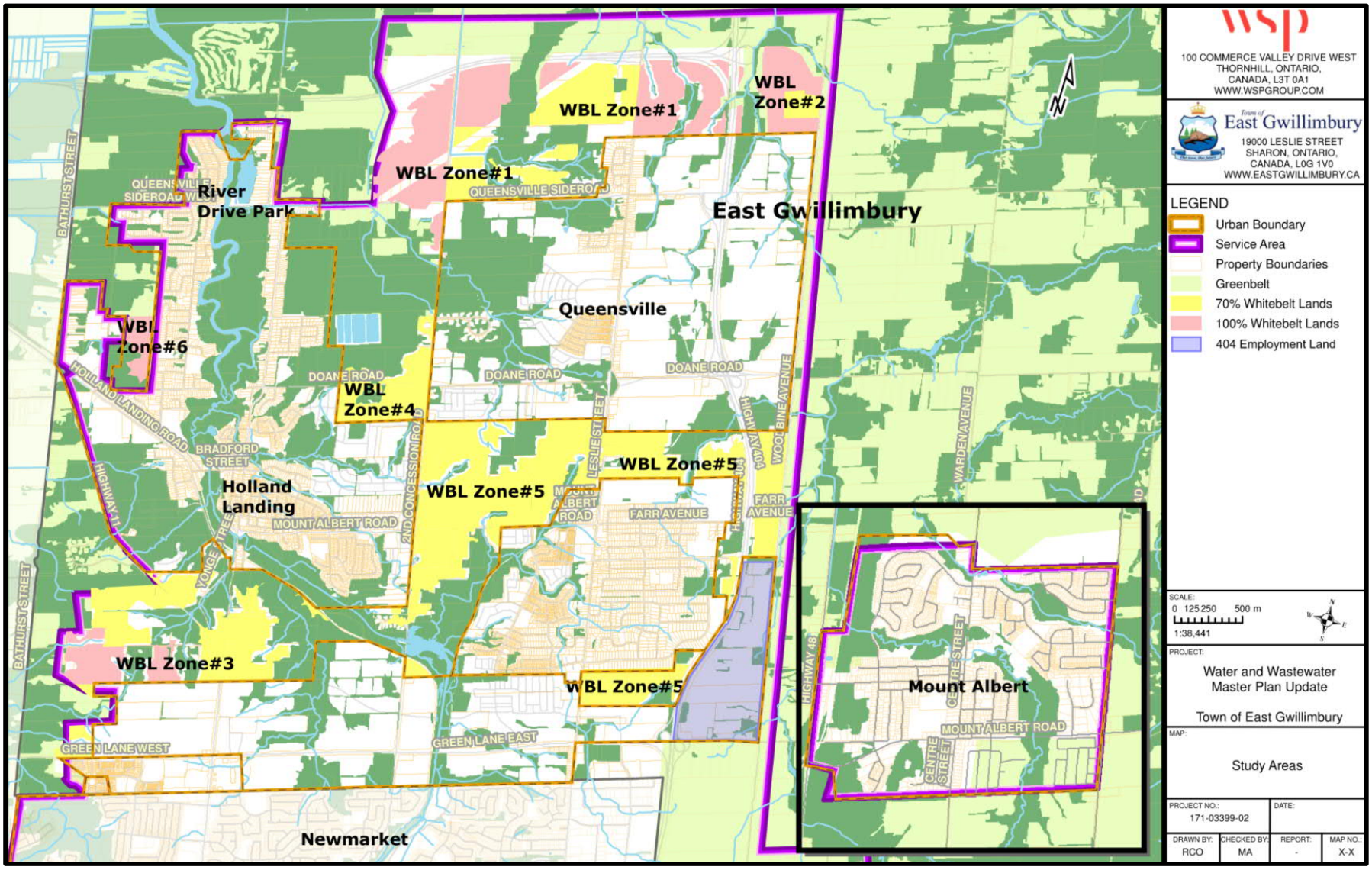

Figure 3-1: Study Area Map– 70% and 100% Whitebelt Lands Identified

3.2 NATURAL HERITAGE FEATURES

Natural Heritage Features (NHF) are defined and afforded protections within the Provincial Policy Statement (PPS). The PPS governs development within the Province of Ontario. It requires that the diversity and connectivity of all NHFs and the long-term ecological function of natural heritage systems be maintained, restored, or improved where possible. The Town is specifically located in Ecoregion 6E. Under this designation, development or site alteration may be allowed adjacent to NHFs provided the adjacent lands have been evaluated and it has been demonstrated that there will be no negative impacts to these NHFs or their ecological functions.

In addition to the PPS, the NHFs are further refined by Regional policies. The Town of East Gwillimbury includes four primary policies to protect the NHFs in the area. These are the Greenbelt Plan (GP), the Oak Ridges Moraine Conservation Plan (ORM), the Lake Simcoe Protection Plan (LSSP), and the Town's Official Plan. They all require a Vegetation Protection Zone (VPZ), or vegetated protection buffer, from each of the NHFs.

The Town is dominated largely by rural, agricultural properties, woodlands, and settlement areas. A variety of watercourses and wetland features also occur throughout the Study Area. The southeastern quadrant of the Study Area occurs within the Oak Ridges Moraine (ORM) planning area. It is dominated by both Natural Core and Countryside areas, with some areas of Natural Linkage, and a single settlement area associated with the Hamlet of Holt. The southwestern quadrant occurs within the Greenbelt. The Town's Urban Planning Area occurs within the remaining area. Figure 3-2 provides a key map of the Study Area, and further details on maps 1 to 4 as depicted in this Figure can be found in Appendix A.

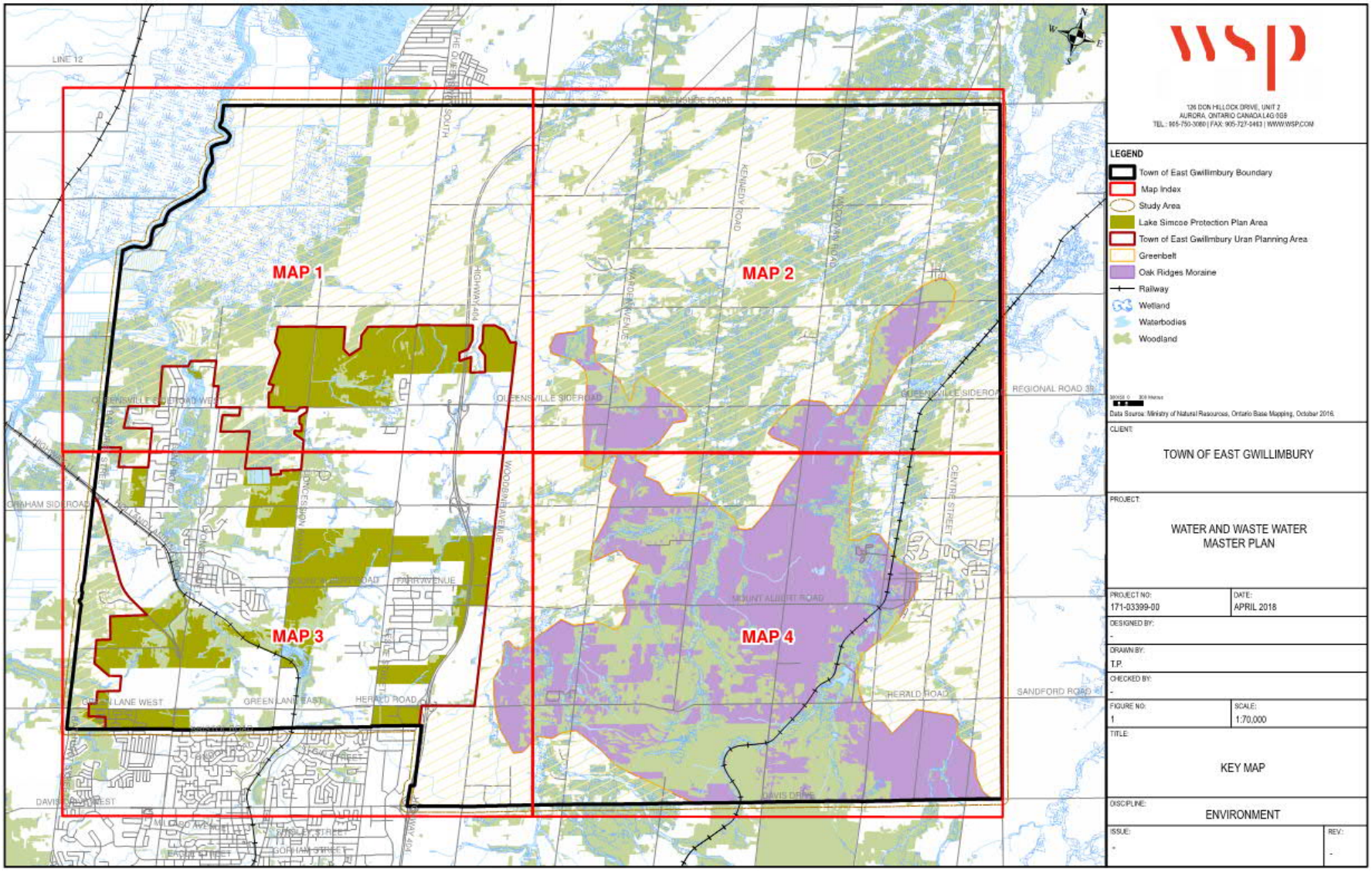

Figure 3-2 Study Area divided into quadrants for the Natural Heritage Features study

The following are a summary of NHFs that occur throughout the Study Area, in addition to development constraints and opportunity considerations:

- Fish habitat includes the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. Fish habitat occurs throughout the Study Area. The Ministry of Natural Resources and Forestry (MNRF) recommends a 30 m VPZ from fish habitat, as measured from the high-water mark. This 30-m offset may be reduced upon completion of an impact assessment.
- The significant habitat of endangered or threatened species corresponds to the habitat (as approved by the MNRF) that is necessary for the maintenance, survival and/or the recovery of a naturally occurring or reintroduced population of Endangered or Threatened Species. The MNRF Natural Heritage Information Centre database, the Ontario Breeding Bird Atlas, the Ontario Reptile and Amphibian Atlas, and the Ontario Butterfly Atlas were consulted to determine if there was a presence of any Threatened or Endangered species in the Study Area. A summary of identified threatened and endangered species, including four (4) bat species that were recently added to the Endangered Species Act, was compiled. However, no specific mapping or areas have been identified. Generally, naturalized habitats as well as altered habitats have potential to support habitat of threatened and endangered species.
- Significant Areas of Natural and Scientific Interest (ANSIs) are defined as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study, or education. Two (2) ANSI features were mapped, the Holland River Marsh Life Science, and the Holland Landing Prairie. Both occur in the northwest quadrant of the Study Area. A minimum 30 m VPZ from ANSIs is required.
- Significant wetlands are defined as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. It is the duty of the MNRF to identify and classify wetlands as significant based on provincial evaluation procedures. Three (3) types of wetlands occur in the Study Area, and they include Provincially Significant, Locally Significant, and unevaluated wetlands. A minimum 30 m VPZ is required from the edge of a wetland.
- Significant wildlife habitat is defined as areas where plants, animals, and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their population. A wildlife habitat is referred to as significant if it is ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Information pertaining to Significant Wildlife Habitat (SWH) is typically limited and is included as part of field investigations. In the Study Area, it is anticipated that Environmental Protection Areas and Significant features may also hold a SWH designation. In addition, Deer Winter Area, a type of SWH, is scattered throughout the Study Area. A summary of confirmed Species of Special Concern was compiled; however, no specific mapping or areas have been identified. Generally, naturalized habitats have potential to support habitat of Species of Special Concern. A minimum 30 m VPZ is generally applied to SWH areas. Additional buffer zones may be recommended should a highly sensitive species occurrence or feature be discovered.
- Significant woodlands are defined as treed areas that provide environmental and economic benefits such as erosion prevention, water retention, and provision of habitat, recreation, and the sustainable harvest of woodland products. The Town's Official Plan (2014) depicts woodlands within the ORM. York Region mapping identifies both woodlands and two (2) separate areas of Regional Forest within the Study Area. A comprehensive assessment may be required for woodlands that haven't been assessed for significance. A minimum 30 m VPZ should be applied from the woodland edge.
- Significant valley lands are a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. The local planning authority identifies and evaluates their significance. Significant valley lands are not identified within the Town's Official Plan (2014). However, if present, they are expected to occur within areas currently zones as Environmental Protection by the Town or within core areas of the GP or ORM. A minimum 30 m VPZ is required from Significant valley lands.

The four (4) planning areas (ORM, GP, LSSP, Town's Official Plan) outline a provision for infrastructure development, which indicates that development is permitted in NHFs, hydrological features, and associated VPZs only when there is no

reasonable alternative. Development within 120m of a water feature or wetland may require authorization from the Lake Simcoe Region Conservation Authority (LSRCA), and development within any NHF may require authorization from the MNRF. It is expected future upgrades to the water and wastewater system in the Study Area will require below-grade features (watermains and sewers), and above-grade development (pumping stations). Based on this, it is recommended that a minimum 30 m VPZ be used from woodlands, wetlands, hydrological features, and NHFs. In addition, above-grade development should be directed to areas outside of NHFs, and below-grade development should be limited in the NHFs (preferentially using trenchless technology to minimize disturbances): infrastructure routes should occur within existing disturbed areas. Finally, a detailed-design level study should consider concerns or constraints identified by the Lake Simcoe Region Conservation Authority and the Aurora District Ministry of Natural Resources and Forestry.

3.3 ARCHAELOGICAL AND HERITAGE COMPONENTS

The Town's study area possesses sites of archaeological, and of heritage significance. Listed and designated heritage properties are features that indicate archaeological potential. For the archeological component, an Archaeological Master Plan (AMP) for East Gwillimbury was completed in 1988, followed by an AMP for York Region in 2014. For the heritage component, a total of 33 Heritage reports were completed by the Town of East Gwillimbury. A map presenting the locations of archaeological sites and heritage properties can be found in Figure 3-3.

The AMP for East Gwillimbury completed in 1988 by Archaeological services Inc (ASI), while useful, was created before the Standards and Guidelines for Consultant Archaeologists (MTCS, 2011) came into effect. Thus, it would not be considered an adequate or compliant management plan by current standards. The Town should consider an updated management plan which clearly addresses the Standards and Guidelines for Consultant Archaeologists and incorporates any sites that have been identified in the thirty-year interim.

The AMP makes recommendations specifically regarding the re-investigation of four (4) sites:

- Site BaGu-1 may correspond to a burial site. Hence, this site likely still has Cultural Heritage Value of Interest (CHVI), with a high likelihood of Indigenous Engagement being required as a consequence. It is thus recommended that this area would require further archeological investigation or avoidance.
- Site BaGu-5 was first investigated in 1978 by ASI, and again with photo documentation in 1989. The most recent 1989 visit recommended that the site has been intensively and extensively disturbed, no artifacts were noted, and that it is free of any further archeological concern.
- Site BaGu-15 was investigated by ASI in 1984 and 1985 which resulted in a recommendation that this site holds CHVI, thus warranting long-term investigation and protection or avoidance. This assessment remains currently still valid.
- Site BbGu-9 has very little information on it available through the OASD, but the 1988 AMP suggested that it possessed CHVI and should thus be investigated or avoided. As the site has most likely remained intact, this assessment remains valid.

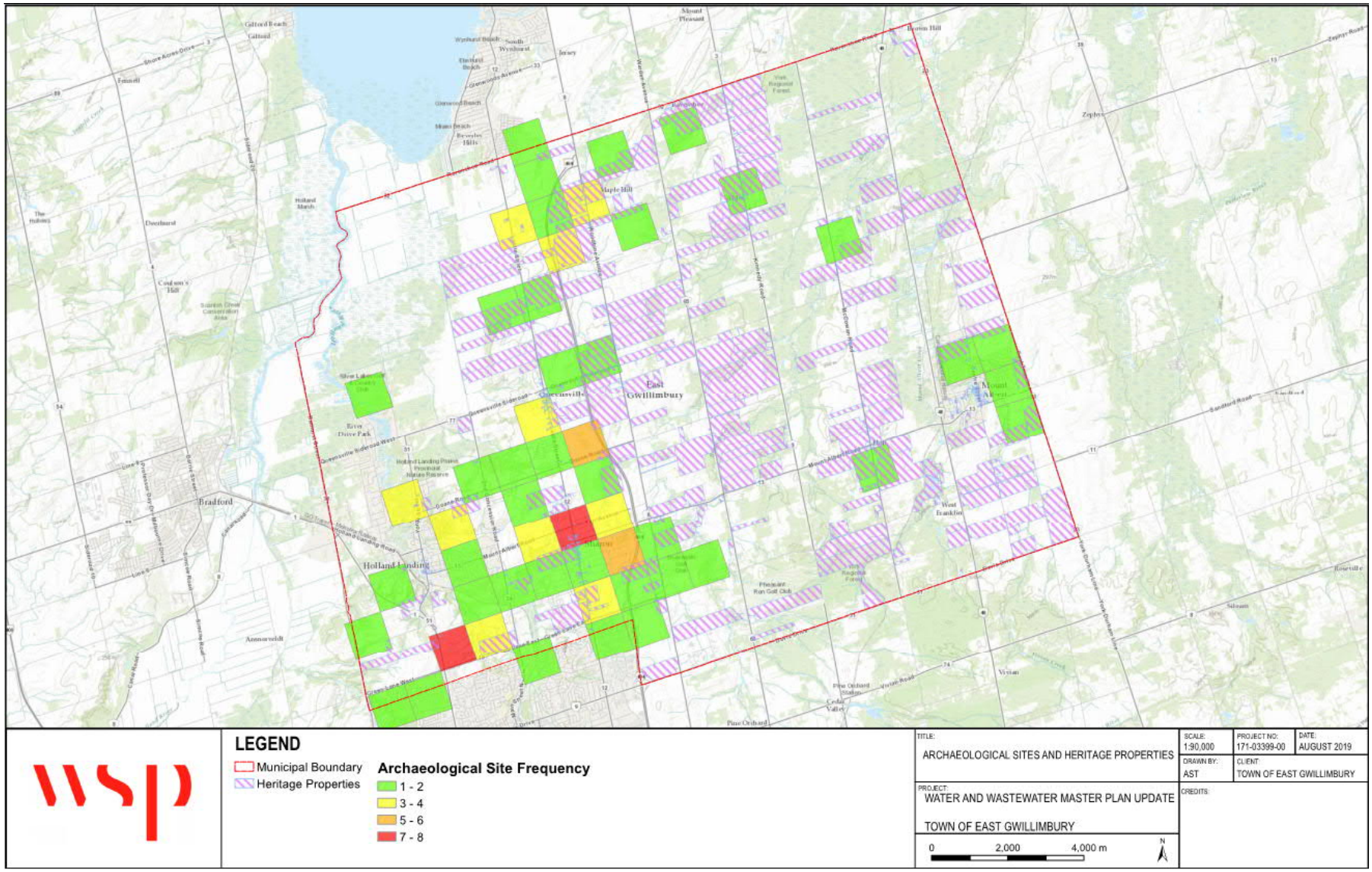

Figure 3-3 Map of the Heritage Properties in the Study Area

The 2014 AMP for York Region completed by ASI, which included East Gwillimbury, was revealed to inconsistently address the 2011 Standards and Guidelines for Consultant Archaeologists (MTCS, 2011). Some Features Indicating Archaeological Potential (FIAPs) are buffered by 100 m or 250 m instead of the required 300 m. A summary to highlight the discrepancy between the ASI AMP and what is required by the MTCS for buffering in FIAPs was compiled (see Table 2 in Appendix B). This AMP incorporates 1,453 registered archaeological sites in York Region at the time (2012-2013), with updates being required as sites are discovered, criteria evolve, and new heritage designations are made. In an effort to account for ossuaries, an important recommendation by ASI was that all village sites in York Region be buffered by 1 km and all waterways be buffered by 300 m, with the areas of overlap representing the Heightened Ossuary Potential. This could mean that any construction within those areas will have to be carefully monitored by a licensed archaeologist, and that Indigenous Engagement with First Nations communities both in the planning and construction phases will have to be considered. Additionally, the ASI 2014 AMP was unable to account for all heritage resources as the Town had not provided data for all features designated under the Ontario Heritage Act. These would need to be included in the Archaeological Management Plan to satisfy the Standards and Guidelines for Consultant Archaeologists (MTCS, 2011).

According to the OASD and the Heritage Register, the Town currently has 109 archaeological sites, and 484 Designated Heritage Properties present within the Study Area, respectively. It is recommended that a broad scope Stage 1 Archaeological Assessment for the Study Area be performed. This assessment would narrow down which of the 484 heritage properties could be impacted by the plan, as well as which of the 157 archeological reports need to be reviewed. In addition, it could be used to plan preferred and alternate infrastructure routes that have minimal impact on listed or designated heritage properties, as well as known and potential archaeological sites.

3.4 POPULATION FORECAST

Population projections considering 70% and 100% Whitebelt Lands intensification scenarios to the 2051 and post 2051 planning horizon were obtained from York Region for East Gwillimbury. However, the data developed by York Region was not granular enough to be used as a direct input for hydraulic model development, as it was organized by Regional Traffic Zones (RTZ) that are relatively too large (see Town of East Gwillimbury 2006 Traffic Zones map in Appendix C). More specifically, the planning numbers lacked in detail on geospatial distribution of population and employment numbers within the traffic zones defined (for both current and future horizons).

Final zoning maps of the different development periods are presented in Appendix C (see Land Development maps for 2021-2026, and 2041-Ultimate horizons).

3.4.1 RESIDENTIAL AREAS

Residential population projections, as obtained from York Region's 70% and 100% Whitebelt Lands intensification Scenarios, are summarized per regional traffic zone (RTZ) in Table 3.1, for the 2051 planning horizon. The table below also includes the residential population projections for the 2016, 2026, and 2041 horizons from the Town's 2019 Water and Wastewater Master Plan Update (2019). Population growth in each of these time intervals is presented in Table 3.2.

Table 3.1 Cumulative Residential Population Projections Per Regional Traffic Zone

REGIONAL TRAFFIC ZONE	2016	2026	2041	2051 – 70%	2051 – 100%
1308	325	353	597	364	364
1309	240	2,106	4,691	5,978	5978
1310	2,442	2,608	2,744	2,463	3629
1311	749	808	853	681	681

REGIONAL TRAFFIC ZONE	2016	2026	2041	2051 – 70%	2051 – 100%
1312	144	153	158	162	162
1313	270	287	297	181	2260
1314	830	895	981	1,650	1650
1315	4,959	9,216	13,118	12,639	12639
1316	32	34	5,061	5,011	5011
1317	644	5,284	19,587	18,739	18739
1318	213	4,946	5,906	12,419	12419
1319	685	5,791	13,755	13,150	13150
1320	288	305	585	3,028	3028
1321	112	119	123	130	130
1322	80	85	94	432	432
1323	169	480	9,350	9,017	9017
1324	989	2,139	6,488	7,523	7523
1325	1,688	1,832	5,237	3,787	3787
1326	0	0	0	0	0
1327	0	0	0	0	0
1328	1,207	1,281	1,327	1,301	1301
1329	1,386	1,472	1,524	1,473	1473
1330	661	703	729	767	767
1331	5,434	5,927	5,975	8,000	8000
1466	265	1,913	9,002	9,285	13884
1467	16	17	18	0	0
1468	32	34	35	0	0
1469	16	17	18	0	0
1470	16	17	18	0	0
1471	32	34	35	37	37
1472	520	553	573	492	492
1478	1,318	1,706	1,752	1,952	1952
1481	0	2,159	8,028	12,225	12225
Total	25,760	53,274	118,659	132,886	140,730

Table 3.2 Residential Population Growth Summary

YEAR	POPULATION GROWTH	CUMULATIVE POPULATION
2016	-	25,760
2017-2026	27,514	53,274
2027-2041	65,385	118,659
2041-2051	22,071	140,730

3.4.2 EMPLOYMENT AREAS

Employment population projections, as obtained from York Region's 70% and 100% Whitebelt Lands intensification Scenarios, are summarized per regional traffic zone (RTZ) in Table 3.3, for the 2051 planning horizon. The table below also includes the employment population projects for the 2016, 2026, and 2041 horizons from the Town's 2019 Water and Wastewater Master Plan Update (2019). Population growth in each of these time intervals is presented in Table 3.4.

Table 3.3 Cumulative Employment Population Projections Per Regional Traffic Zone

REGIONAL TRAFFIC ZONE	2016	2026	2041	2051 – 70%	2051 – 100%
1308	1,171	1,331	1,373	1,271	1,271
1309	667	998	1,379	1,362	1,362
1310	720	772	832	905	905
1311	104	105	108	63	63
1312	123	123	123	187	187
1313	161	221	342	139	1,798
1314	53	198	419	222	222
1315	474	949	1,398	1,432	1,432
1316	27	143	639	723	723
1317	155	781	3,811	2,987	2,987
1318	60	305	365	850	850
1319	31	654	1,416	1,231	1,231
1320	74	94	137	2,733	7,496
1321	11	11	11	11	11
1322	63	376	1,315	1,333	7,230
1323	65	390	2,444	1,679	1,679

REGIONAL TRAFFIC ZONE	2016	2026	2041	2051 – 70%	2051 – 100%
1324	406	613	1,568	2,048	2,048
1325	312	1,270	2,647	2,282	2,282
1326	966	1,056	1,056	958	958
1327	1,232	1,504	1,620	2,494	2,494
1328	205	206	209	187	187
1329	326	327	331	297	297
1330	248	248	250	205	205
1331	745	1,197	1,337	1,269	1,269
1466	82	295	825	1,986	1,986
1467	11	11	1,843	1,407	5,382
1468	3	3	6,842	6,364	6,364
1469	1	1	2,443	2,067	2,067
1470	1	1,533	4,671	4,197	4,197
1471	1	1	2	2	2
1472	422	422	424	397	397
1478	105	175	179	124	124
1481	852	1,279	2,736	3,362	3,362
Total	9,875	17,596	45,095	46,774	63,068

Table 3.4 Employment Population Growth Summary

YEAR	POPULATION GROWTH	CUMULATIVE POPULATION
2016	-	9,875
2017-2026	7,720	17,596
2027-2041	27,499	45,095
2041-2051	17,973	63,068

4 ALTERNATIVES EVALUATION METHODOLOGY & CRITERIA

4.1 OVERALL SERVICING STRATEGY

The following were considered as the four (4) general servicing strategy alternative solutions to address water and wastewater infrastructure concerns throughout the Town of East Gwillimbury:

1 Do Nothing
Due to the assigned growth from the Growth Plan, this alternative was deemed not feasible.

2 Water Efficiency/Conservation
Water efficiency/conservation can be addressed by Town policy and bylaws. For example, putting limits on the watering of lawns can increase water efficiency/conservation, but will not address the growth-related increase in demand.

3 Limit Growth
Due to the assigned growth from the Growth Plan, this alternative was deemed not feasible.

4 Upgrade and Expand the Water and Wastewater System Network
This alternative is the only one that addresses the population growth long-term. Therefore, all individual alternatives (i.e., sub-alternatives) considered in this study are related to upgrading the existing water and wastewater system network.

4.2 PROJECT IMPLEMENTATION ALTERNATIVES

As part of this Master Plan, the capacity of existing systems was assessed to determine their capability to meet future demands due to growth. If it was determined there was a gap between existing capacity and future needs, the relevant systems were recommended for expansions. Similarly, areas that previously didn't require water and wastewater servicing were re-assessed in light of future growth demands, and the corresponding systems were recommended for expansions as needed. In each case, there were expansion projects that presented several possible implementation alternatives. These alternatives are evaluated in Section 5.3.1 for Water projects and Section 6.3.1 for Wastewater Projects.

4.2.1 EVALUATION METHODOLOGY

The methodology used to determine the preferred implementation alternative for a given water or wastewater project, where relevant, to accommodate existing and future development is as follows:

5 Step 1 Determine Evaluation Criteria: Criteria upon which the alternatives were evaluated were defined at the beginning of the process. The evaluation criteria for this project include:
- Impact on the natural environment;
- Impact on the social and cultural environments;
- Technical suitability; and,
- Economic vitality.

A breakdown of the individual impacts considered under each criterion is available in Table 4.1.

6 Step 2 Create an Evaluation System: An evaluation system was created, whereby each alternative was evaluated against other alternatives. In order to be impartial, this system was developed prior to determining the potential impacts associated with each alternative. During the evaluation, each of the alternatives was assigned a colour rating associated with each criterion:

- Green for "most preferred"
- Yellow for "preferred"
- Orange for "less preferred"
- Red for "least preferred"

The colour rating reflected how the alternative performs with respect to that criterion. The evaluation criteria categories were assigned equal weighting as they were considered to have equal importance in this evaluation.

7 Step 3 Document Potential Impacts: The individual impacts associated with each alternative were determined and documented. These impacts were categorized under one (1) of the four (4) evaluation criteria described above, based on whether they impact the natural environment, social and cultural environment, the technical suitability, or cost. Matrices were created to document the impacts, weigh the alternatives qualitatively, and ultimately determine the preferred implementation. The matrices have the alternatives listed by row, and the evaluation criteria by column.

8 Step 4 Evaluate the Implementation Alternatives: Each of the alternatives was assigned a colour rating for each of the four (4) evaluation criteria using the methodology established in Step 2. The evaluation was based on a qualitative assessment of the individual impacts documented in the table created during Step 3.

Most Preferred/Low Impact	Preferred/Low to Moderate Impact	Less Preferred/Moderate Impact	Least Preferred/High Impact

The colour green rating indicates that the implementation alternative had a low impact (most preferred) with respect to that criterion. A yellow colour rating indicates a low to moderate impact (preferred). An orange colour indicates a moderate impact (less preferred). Finally, a red colour rating indicates that the alternative had a high impact (least preferred).

9 Step 5 Determine the Preferred Implementation Alternative: The servicing alternative with the least overall impact was recommended for implementation.

4.2.2 EVALUATION CRITERIA

Several water and wastewater servicing implementation alternatives were developed for some projects as part of the East Gwillimbury Water and Wastewater Master Plan Update and subsequently evaluated to determine the preferred approach to servicing the communities of the Town. Each alternative has been evaluated using the same set of criteria, developed in consideration of the natural environmental, the social and cultural environment as well as technical suitability and cost. The criteria are included in the alternatives evaluation to objectively assess the impacts of each strategy and ultimately identify the preferred implementation. A comparative assessment of alternatives, in the form of an evaluation matrix, was the method used to determine which implementation had the least overall impact. Each alternative was evaluated against a set of criteria developed as part of the Master Plan. The evaluation criteria and their breakdown are summarized in Table 4.1.

Table 4.1 Evaluation Criteria

CRITERIA	KEY CONSIDERATIONS
Natural Environment	Proximity to environmentally sensitive and designated natural areas (e.g., Oak Ridges Moraine, Greenbelt)
	Impact on existing natural environment features (e.g., Species at Risk)
	Impact on Areas of Natural and Scientific Interest (ANSI)
	Impact on watercourses and aquatic habitat
Social and Cultural	Impact to water quality, built heritage areas and areas of archaeological importance
	Aesthetic impact on existing and proposed development
	Consistency with Land Use designations, approved Development Plans, and proposed Land Use changes
	Traffic impacts during construction
Technical	Constructability, duration of construction and site access
	Ease of connection to existing infrastructure and ease of modifications required to existing infrastructure
	System reliability, redundancy, and hydraulic performance
	Maintaining or enhancing security of supply
	Additional servicing opportunities
Economic	Capital Costs
	Operations Costs
	Maintenance Costs

5 WATER AND WASTEWATER SERVICING ANALYSIS

The objective of this Master Plan Update is to review the 2051 baseline and 70% and 100% Whitebelt Lands intensification conditions for the water and wastewater servicing plan and the related capacity for the Whitebelt Lands area to provide high-level development servicing plans and cost estimates for capital water and wastewater projects within the Town.

The water and wastewater models were loaded and updated using the residential and employment population projections as displayed in Table 3.1 and Table 3.3. The associated demand was determined for the nodes and maintenance holes in the Town's water and wastewater systems that will be proposed as part of the growth. For the water model, the water consumption at the newly added nodes within the Whitebelt Lands was calculated from the projected population within the corresponding traffic zones and by the respective approved water design criteria. Wastewater production at the individual nodes in the wastewater model were calculated as a percentage of the water consumption at that node.

5.1 WATER SYSTEM ANALYSIS

5.1.1 EXISTING CONDITIONS

The Town's existing water distribution systems can be seen in Figure 5-1 for the CGA and Figure 5-2 for the Mount Albert area.

The existing water supply for the Queensville-Holland Landing-Sharon area of the CGA is provided by groundwater wells located in Queensville and Holland Landing. The Queensville well supply is delivered to the area via a 500mm and a 600mm diameter transmission main along Queensville Sideroad and Leslie Street respectively. The production from this well also supplies, and can be directed towards, the Town of Newmarket to the south; the flow direction depends on the York Region's operation settings at the supplies. There is a 450mm diameter trunk watermain on Mount Albert Road which connects to the Leslie Street transmission main and supplies water from the Queensville wells to the Holland Landing system in addition to supply from the local Holland Landing wells.

The Holland Landing and Sharon areas include relatively large local water distribution systems while the Queensville distribution system is smaller and primarily serves the localized Leslie Street and Queensville Sideroad area. The local distribution systems are generally composed of watermains sized between 150mm and 250mm in diameter and area capable of providing both domestic and fire flows to the service areas.

There are also two localized water distribution systems in the Yonge Street / Green Lane and 2nd Concession Road / Green Lane areas are presently supplied by the Town of Newmarket water distribution system as per agreements in place between Newmarket and East Gwillimbury. Existing elevated water storage facilities which are owned and operated by York Region are located within both Holland Landing and Queensville systems to provide emergency, peak flow, and fire flow to the systems. The Bales Drive area located near Woodbine Avenue / Garfield Wright Boulevard is currently supplied from York Region via the Town of Newmarket's water distribution system.

The Queensville wells and the transmission main along Queensville Sideroad and Leslie Street connecting the wells to the Town of Newmarket system are York Region infrastructure. The Mount Albert Road trunk watermain from Leslie Street to Holland Landing is also a York Region infrastructure. The remainder of the water supply and distribution system components are owned and operated by the Town.

The existing Mount Albert water system includes groundwater wells located within Mount Albert, two existing water storage facilities, and a large existing water distribution network composed of watermains sized from 150 mm to 350 mm in diameter. The wells and water storage facilities are operated by York Region while the distribution system is operated by the Town. It should be noted that the water storage facility at Hi View Drive and Cleverdon Boulevard is offline and likely to be demolished.

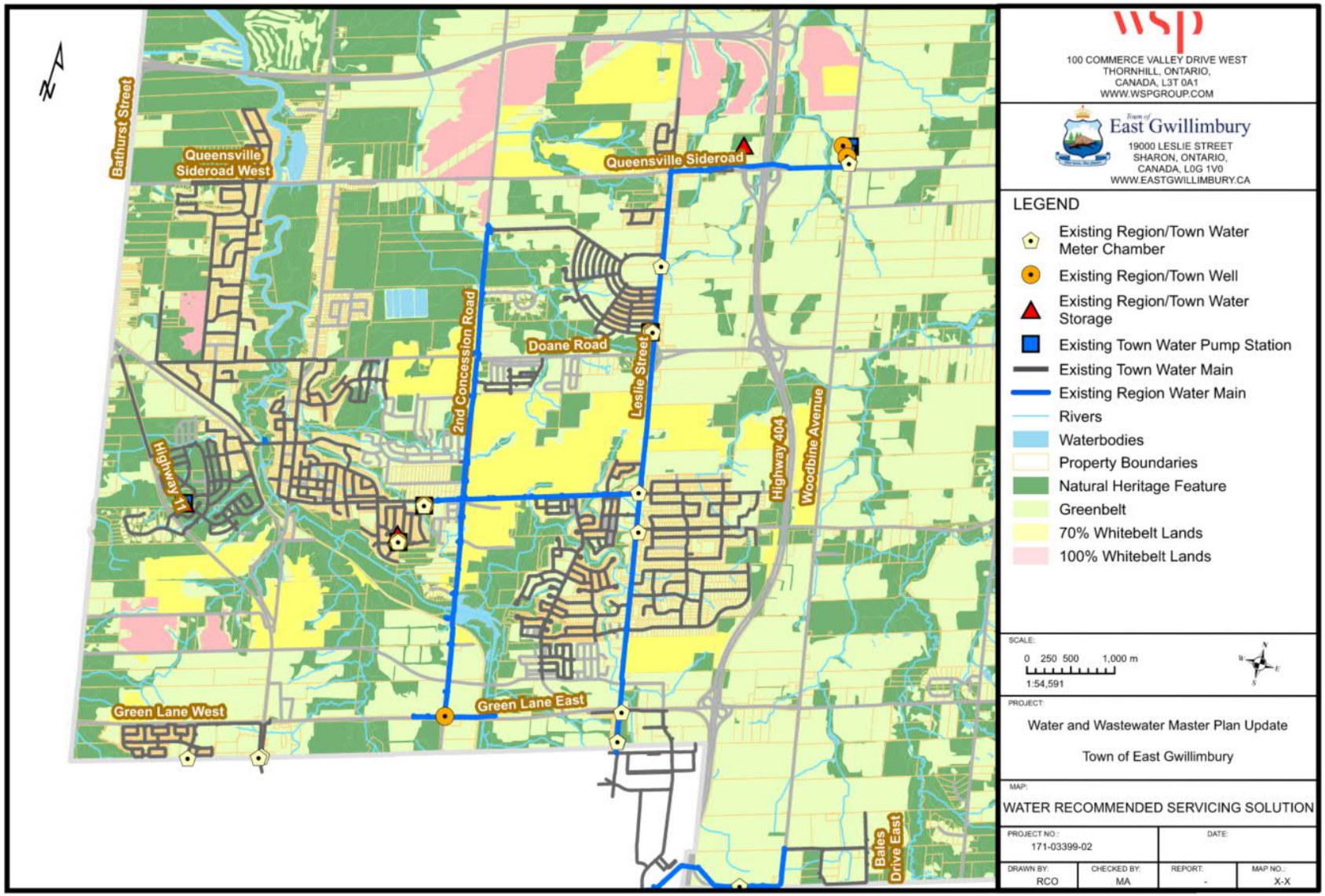

Figure 5-1 Existing Water Distribution System in the CGA

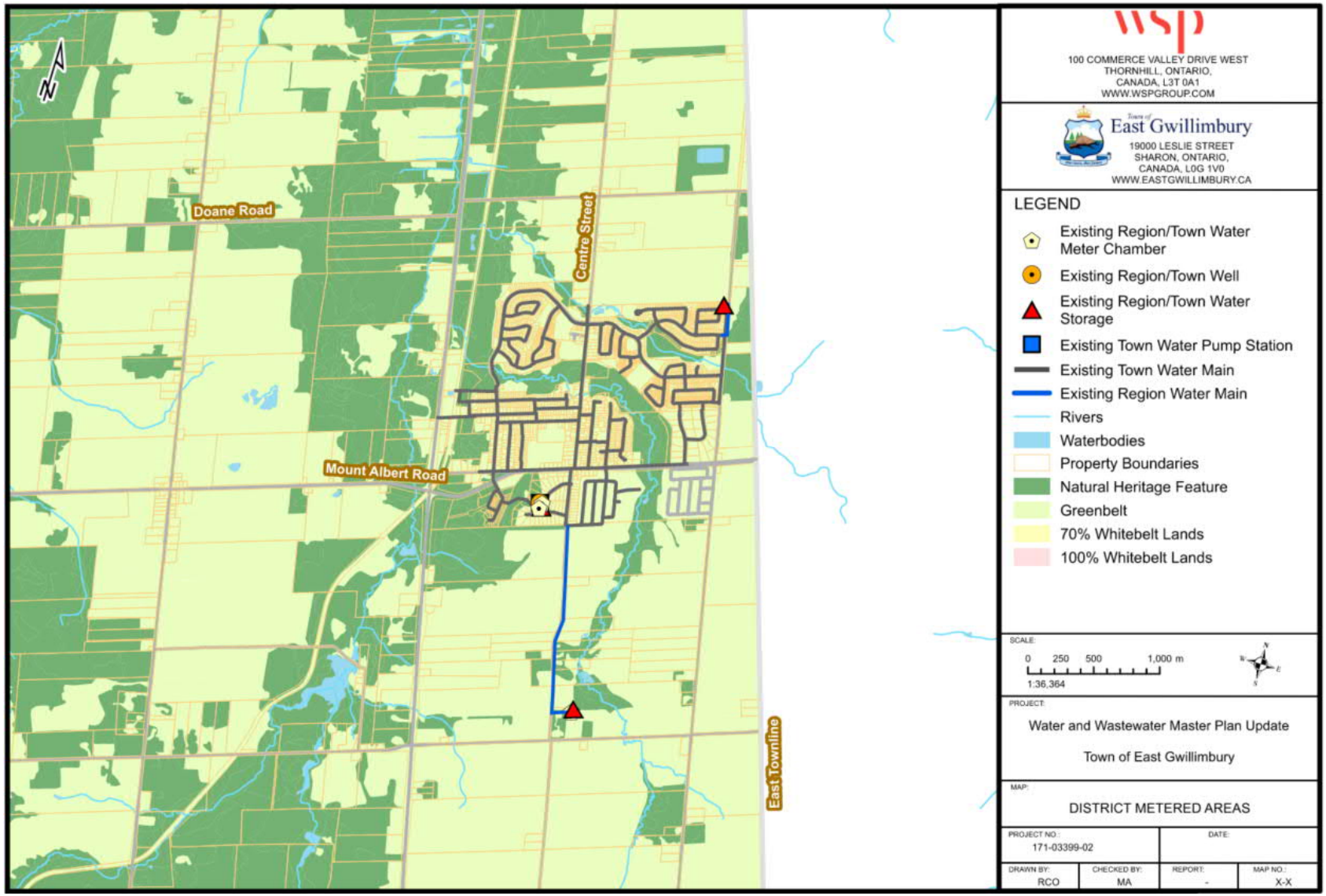

Figure 5-2 Existing Water Distribution System in the Mount Albert area

5.1.2 MODELLING APPROACH

The WaterCAD/GEMS water system model was used for the Town's 2009 Water and Wastewater Master Plan and was assessed prior to the Town's planned 2019 Water and Wastewater Master Plan Update (see East Gwillimbury Water System Gap Analysis and Status Quo technical memo in Appendix D). A comparison of several water models to assess which one best fitted the Town's needs was completed (see Hydraulic Model Comparison and Recommendation technical memorandum in Appendix D). Considering that InfoWater is already used by the York Region's water hydraulic model and this would greatly simplify the process of coordination and harmonization between the Region's and the Town's model, an all-pipe model was built in Innovyze InfoWater using the Town's updated GIS database for the analysis of 2051 growth scenarios and the Town's 2022 Water and Wastewater Master Plan Update.

5.1.3 DESIGN CRITERIA

EXISTING AND FUTURE WATER DEMAND RATES

The criteria used to calculate the projected water demands for the Town of East Gwillimbury are documented below (see Table 5.1 and Table 5.2). Further detail as to how the projected water demands were determined can be found in Appendix E (see Design Criteria for Water and Wastewater Technical Memorandum, and East Gwillimbury Water Balance & Recommendations for Unit Rates technical memorandum).

For the determination of the residential unit rates, the criteria in the Town's Engineering Design Standards were considered, however the suggested average day consumption rate of 350 L/cap/day was determined to be much higher than what would be expected in the Town. As such, the historical water production data from 2012 to 2017 was considered for the communities of Queensville-Holland Landing-Sharon, Green Lane Area, and Mount Albert. The determined unit rates along with the residential population for the respective communities were used to calculate a combined weighted average unit rate for the Town of 238.7 L/cap/day. This value is believed to be reasonable as it differs approximately 2.5% from York Region's Water and Wastewater Master Plan 2016 water design rate of 233 L/cap/day. The latest York Region's Water and Wastewater Master Plan (2022) identifies a lower 2021 water design rate of 221 L/cap/day and the calculated unit rate of 238.7 L/cap/day remains reasonable for conservative analysis.

The Industrial, Commercial, and Institutional (ICI) unit rate was determined to be 1643 L/cap/day according to MECP guidelines, compared to 182 L/cap/day in York Region's 2016 Water and Wastewater Master Plan. Compared to York Region's 2016 ICI unit rate, the Town's rate derived from the area method is over nine times higher. While it could be assumed that the building area is about a ninth of the total land use area, the lack of validating data and uncertainty in the calculated ICI land use areas makes the MECP unit rate difficult to justify. It should be noted that the latest York Region's Water and Wastewater Master Plan (i.e., released in April 2022) specifies the 2021 ICI unit rate as 161 L/cap/day. For conservative analysis, the Town's unit rate was recommended to be the same as the ICI unit rate as specified in York Region's Water and Wastewater Master Plan 2016, 182 L/cap/day.

A standard maximum day peaking factor of 2.3 was applied to all communities within the Town for demand loading. This factor is conservative enough while being representative overall of the data.

Table 5.1 Residential Water Design Criteria

	TOWN OF EAST GWILLIMBURY ENGINEERING DESIGN STANDARDS		YORK REGION 2022 MASTER PLAN[1]		MECP DESIGN CRITERIA		WSP RECOMMENDATION	
Community	Peak Unit Rate (L/cap/day)	Maximum Day Factor	Peak Unit Rate (L/cap/day)	Maximum Day Factor	Peak Unit Rate (L/cap/day)	Maximum Day Factor	Average Unit Rate (L/cap/day)	Maximum Day Factor
Queensville Holland Landing-Sharon	350	2.0	221	1.7 to 3.05	270 to 450	1.90	238.7	2.3
Green Lane Area	350	2.0	221	1.7 to 3.05	270 to 450	2.25	238.7	2.3
Mount Albert	350	2.0	221	1.7 to 3.05	270 to 450	2.00	238.7	2.3

[1]Design rates specified are for systems serving more than 25,000 employees or residents. For systems serving less than 25,000 employees or residents, average demand and maximum day peaking factor are to be based on data for the five preceding years.

Table 5.2 ICI Water Design Criteria

	TOWN OF EAST GWILLIMBURY ENGINEERING DESIGN STANDARDS		YORK REGION 2022 MASTER PLAN		MECP DESIGN CRITERIA		WSP RECOMMENDATION	
Development Type	Peak Unit Rate (m^3/ha/day)	Peaking Factor	Peak Unit Rate (L/cap/day)	Peaking Factor	Peak Unit Rate (m^3/ha/day)	Peaking Factor	Average Unit Rate (L/cap/day)	Maximum Day Factor
Industrial	35	2.0	161	1.7 to 3.05	35 to 55	N/A	182	2.3
Commercial	28	2.0	161	1.7 to 3.05	28	N/A	182	2.3
Institutional	18	2.0	161	1.7 to 3.05	28	N/A	182	2.3

FIRE FLOW DISCUSSION

The Fire Underwriters Survey is typically used to estimate required fire flows for a building or group of buildings, based on a formula. In addition, it stipulates that a fire flow shall not exceed 45,000 L/min nor be less than 2,000 L/min. It is recommended to use the Fire Underwriters Survey method to determine the required fire flows in the Town (see Table 5.3). For the model, WSP selected to use a higher fire flow value than what was recommended in the Town of East Gwillimbury Engineering Design Standards. For all future developments, it is recommended that the fire flow requirements as obtained from the Fire Underwriters Survey be used.

Table 5.3 Fire Flow Criteria

DEVELOPMENT TYPE	TOWN OF EAST GWILLIMBURY ENGINEERING DESIGN STANDARDS	YORK REGION 2016 MASTER PLAN	MECP DESIGN CRITERIA	WSP MODEL VALUE	WSP RECOMMENDATION
Residential	80 L/s Minimum	Use Fire Underwriters Survey. 10,000 L/min for 2 hrs Minimum	Use Fire Underwriters Survey.	100 L/s	Use Fire Underwriters Survey.
Employment	200 L/s Minimum	Use Fire Underwriters Survey. 17,000 L/min for 3.5 hrs Minimum	Use Fire Underwriters Survey.	250 L/s	Use Fire Underwriters Survey.

5.1.4 PRESSURE DISTRICT BOUNDARIES

The Pressure District (PD) boundary was defined as seen below in Figure 5-3 to reflect the conditions of the current water distribution network based on the InfoWater model developed by WSP. Specific areas that will require attention are also shown below, and details of these areas referred to as Detail A, Detail B, and Detail C, are shown in Figure 5-4, Figure 5-5, and Figure 5-6, respectively.

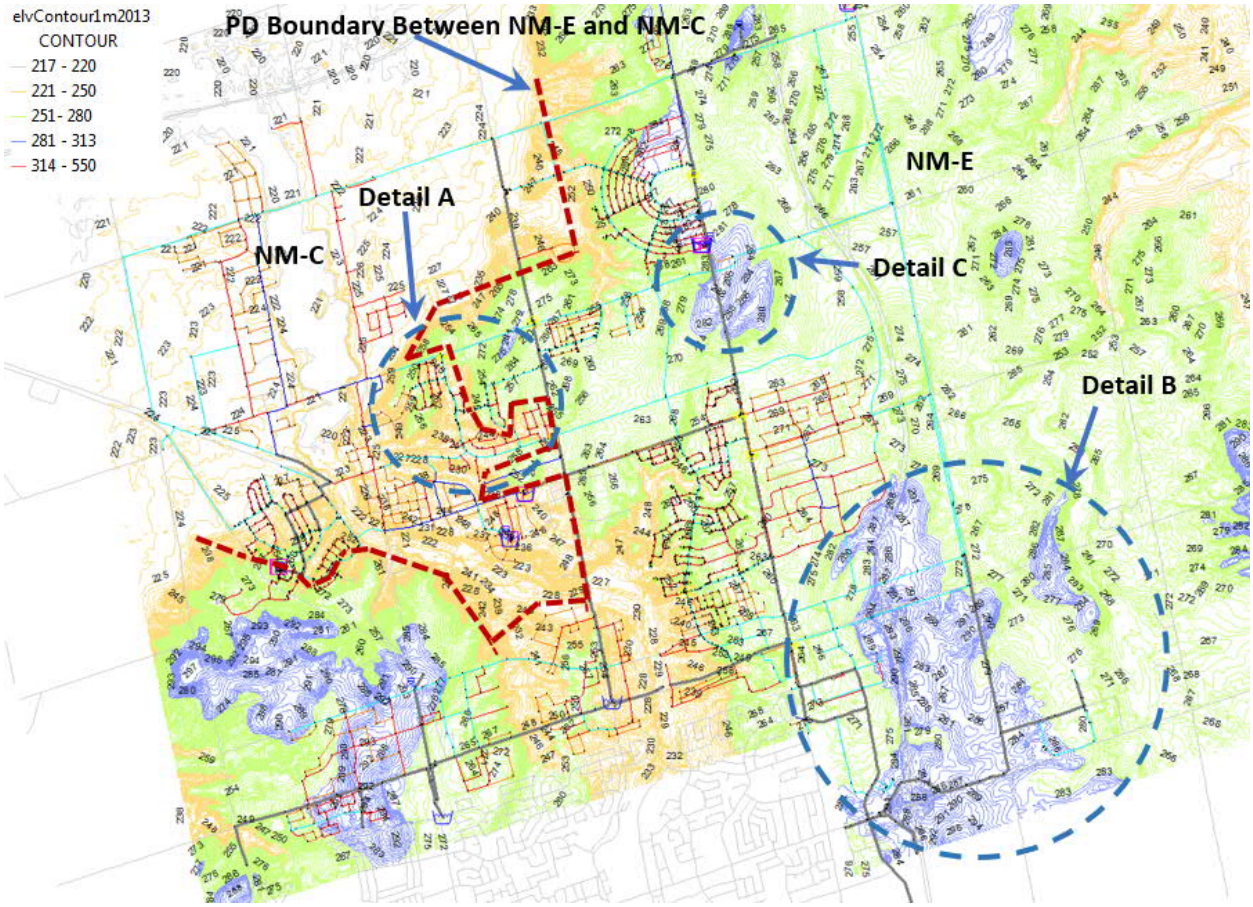

Figure 5-3 Summary map of the new pressure district boundary as well as areas that require specific attention (Detail A, Detail B, and Detail C)

Pressure-reducing valves (PRVs) are recommended to be included in the list of Projects. The PD boundary will need to traverse the contours as shown below (see Figure 5-4).

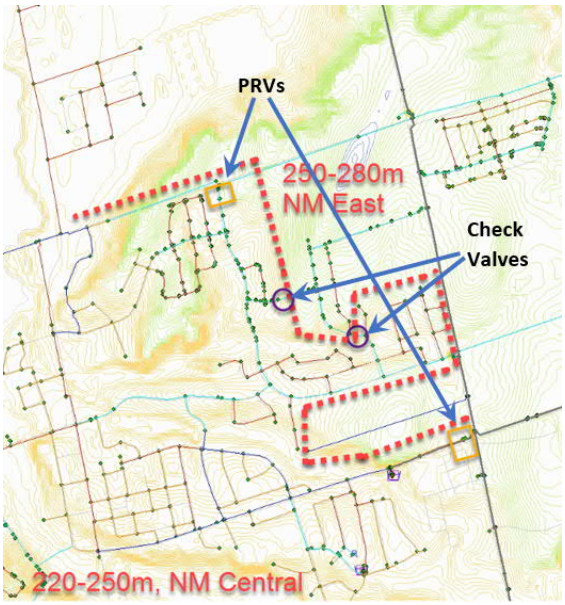

Figure 5-4 Detail A - Pressure-reducing valves and check valves along the new pressure district boundary

In Figure 5-5 below, the contours in blue show the high elevation areas. If future developments (residential or ICI) are planned in the Detail B area, then those must come under the boosted zone. In addition, they must be fed via a connection to NM-E (green contours southwest of Detail B) with the feed coming from Newmarket.

Figure 5-5 Detail B – High elevation area in NM-E in the southern end of the Town of East Gwillimbury

In Figure 5-6, the contours in blue show the high elevation areas. If the Detail C area is further developed, then it needs to be boosted for optimum service pressures and fire flows.

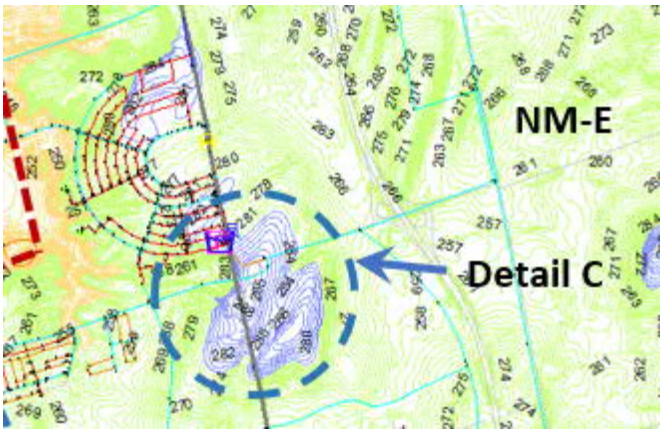

Figure 5-6 Detail C – High elevation area in NM-E in the northern end of the Town of East Gwillimbury

5.1.5 WHITEBELT LANDS SERVICING ANALYSIS

WSP developed the InfoWater model in 2019, from the WaterCAD/GEMS water system model used in the context of the 'Town of East Gwillimbury 2019 Water and Wastewater Plan Update'. The water demands for the proposed Whitebelt Lands developments were calculated based on the population growth provided by the York Region. The new watermains were added to the model based on the preferred 2051 road network provided by HDR dated September 21, 2022, and the demand values were loaded to the newly added junctions at the proposed intersections. The proposed sizes for these watermains range between 200mm to 300mm.

The simulations for the baseline, 70% and 100% Whitebelt Lands intensification conditions in the 2051 planning horizon established that, given the existing pumping status and reservoir levels in the model, the overall servicing capacity within the Town was not affected significantly with the additional demand from the Whitebelt Lands intensification. Most junctions within the study area can satisfy the pressure requirements set by the Region and the MECP. Also, these junctions have significant fire flow availability throughout the study area to meet the typical residential and ICI required fire flow that typically range between 75L/s and 250 L/s while maintaining the minimum residual pressure requirements of 20psi set by the MECP. The deficiencies in service pressures, some of which leads to the insufficiency of fire flow, were observed in the Whitebelt Lands areas near Doane Rd / 2nd Concession Rd and Queensville Sdrd / 2nd Concession Rd. This was due to the wide elevation range within the existing pressure zones and can be alleviated by proper pressure zone delineation or adjustments to the water level of appropriate corresponding elevated tanks. The simulation results remain subject to change with the delineation of pressure zones as recommended in Section 5.1.4.

5.2 WATER SYSTEM PROJECTS

5.2.1 TOWN OF EAST GWILLIMBURY'S RECOMMENDED WATER PROJECTS

CAPITAL PROJECTS WITH ALTERNATIVE SOLUTIONS

Most the Town's water capital projects presented a single option to pursue, however a few of them presented several alternatives that were assessed using evaluation criteria (see Section 4). Figure 5-7 and Figure 5-8 show the capital projects recommended in the CGA and the Mount Albert Area, respectively, including the proposed projects from the Town's 2019 Water and Wastewater Master Plan Update.

The Town's future capital projects were categorized into different groups based on the funding sources. The capital projects that are not growth-driven but benefit to the existing population (e.g., provide network looping and increase fire flow availability) are recommended to be funded by the Town (i.e., shown as "Proposed Future Town Projects") in Figure 5-7. The growth-driven capital projects are considered as either Development Charge (DC) eligible projects or developer responsibilities.

WSP reviewed the DC policy proposed in other municipalities (e.g., Region of Halton, City of Hamilton, and etc.) and the watermain up to and including the size of 400mm (e.g., in Region of Halton and 300mm in City of Hamilton) within the proposed development lands is considered as direct developers' contribution. Given the existing system capacity and the future growth projections, all the capital projects are proposed with the watermain size up to and including 300mm except for one capital project (i.e., project W-01) including watermain size of 400mm. Hence, all the water capital projects would be considered as developer responsibilities based on the DC policy from other municipalities. WSP also referenced the full future network map provided by HDR dated September 21, 2022, and considered the proposed water projects within the major collectors as DC eligible projects and the ones within the minor collectors as developer responsibilities.

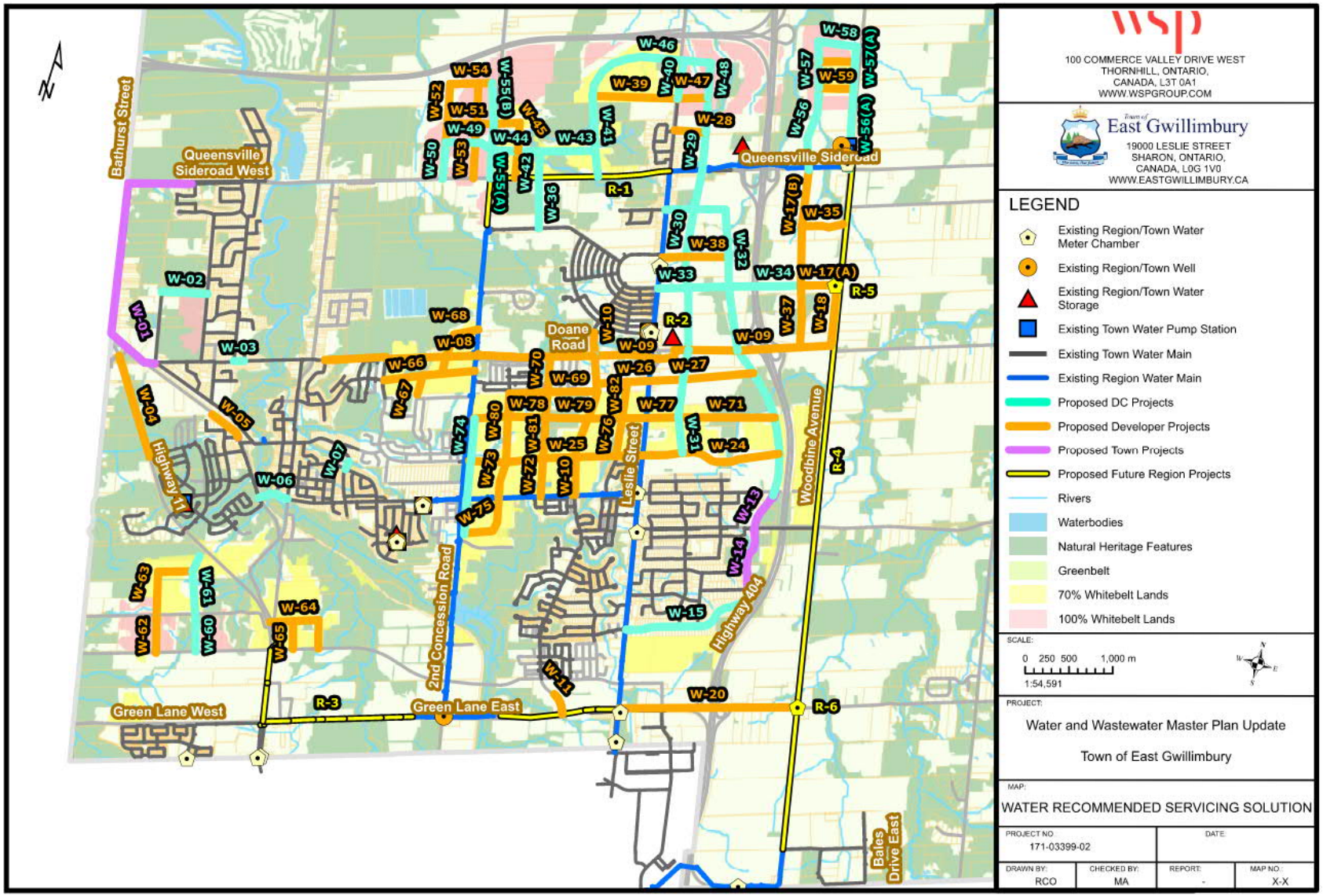

Figure 5-7 Water Projects in the CGA

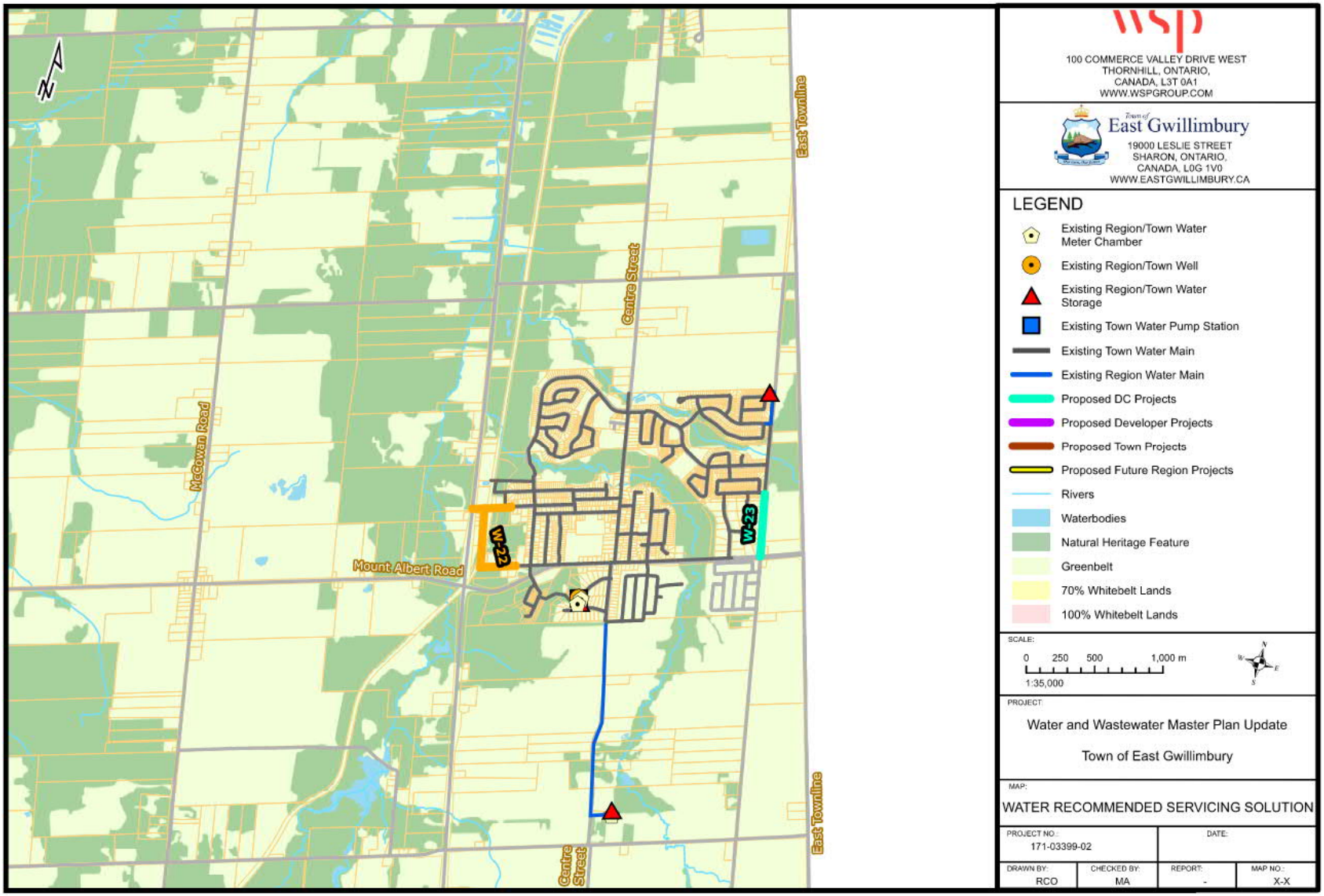

Figure 5-8 Water Projects in the Mount Albert area

ISSUE #1

The area near Queensville Sideroad and Sand Road was observed to have lower fire flows. An additional watermain loop is required to provide network looping and increase the fire flows. Two alternatives were considered as presented in Table 5.4 and Figure 5-9 below, and alternative W-01 is recommended. It exerts less of an environmental impact by being built along the ROW on Bathurst St, and it has the additional benefit of providing servicing along Bathurst St.

Table 5.4 Alternative Solutions Considered for Water Issue #1 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
W-01	Install the watermain along the existing Bathurst St Right-Of-Way (ROW). This option will also provide servicing along Bathurst St. (Recommended)				
W-01 (A)	Install the watermain directly from Sluse Road to Queensville Sideroad. This option traverses a currently undeveloped area.				

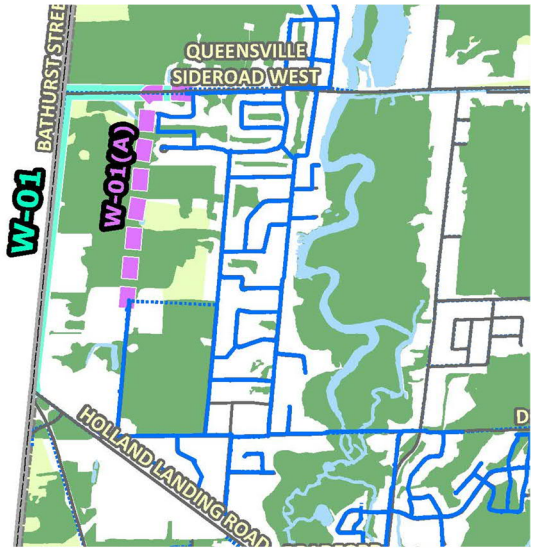

Figure 5-9 Alternative Solutions Considered for Water Issue #1

ISSUE #2

There is population growth planned for the area west of Holland Landing Road. The new subdivision coming up west of Holland Landing Rd and bounded by Highway 11 in the east currently only has one watermain connection to the rest of the network. This poses a network security risk, and a secondary supply is required from Olive Street. A secondary supply will increase fire flows, enhance water quality, and increase looping. Both alternatives will require direct drilling underneath the stream and railway crossing, which limits environmental impacts. Two alternatives were considered as presented in Table 5.5 and Figure 5-10 below, and alternative W-06 is recommended. The drilling distance for it is much shorter, thus making it a much cheaper alternative.

Table 5.5 Alternative Solutions Considered for Water Issue #2 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
W-06	Install the watermain directly from West Street to Charlotte Abby Dr. This option requires a shorter length of watermain, and horizontal direct drilling / micro-tunnelling will limit the environmental impact. (Recommended)				
W-06 (A)	Install the watermain to the south along the Yonge St ROW and then north along the Holland Landing Rd ROW. Horizontal direct drilling / micro-tunnelling will be required due to the stream and railway crossings required.				

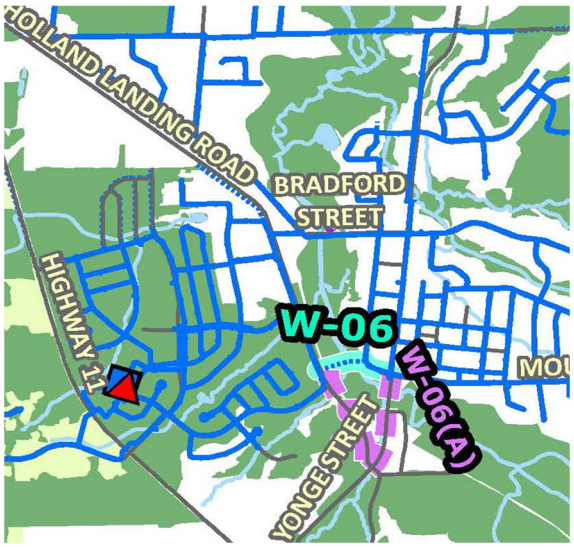

Figure 5-10 Alternative Solutions Considered for Water Issue #2

ISSUE #3

A new subdivision is planned for the southwest corner of Mount Albert Road and Ninth Line. This subdivision will connect to the existing water network from the stub at Mount Albert Road and Samuel Harper Ct. A secondary servicing is required for network security and looping. Two alternatives were considered as presented in Table 5.6 and Figure 5-11 below, and alternative W-23 is recommended. Extending the watermain on Mt Albert (primary service connection for the subdivision) would achieve looping but network security would still be an issue, which is why a separate connection was preferred.

Table 5.6 Alternative Solutions Considered for Water Issue #3 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
W-23	Extend the watermain on Ninth Line southwards from Donald Stewart Crescent to the new subdivision. (Recommended)				
W-23 (A)	Extend the primary service watermain along Mount Albert Rd and then south along Ninth Line to connect to the subdivision on Ninth Line.				

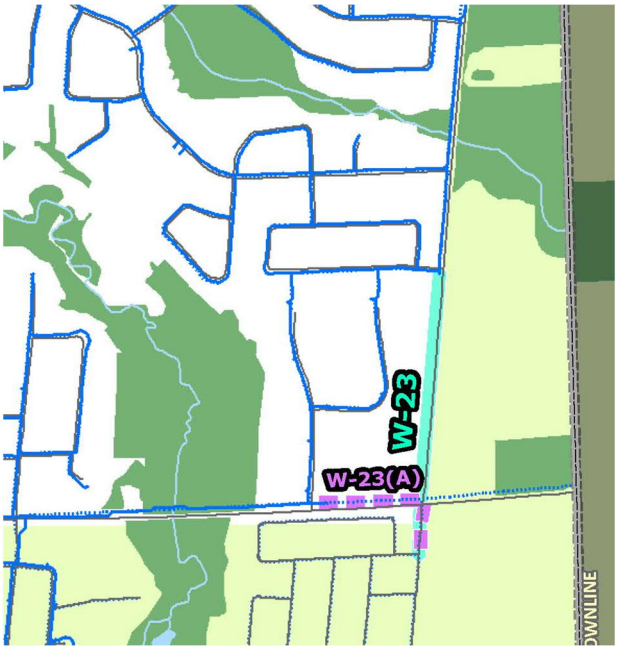

Figure 5-11 Alternative Solutions Considered for Water Issue #3

CAPITAL PROJECTS CONCEPTUAL COSTS & PROPOSED TIMING

The conceptual cost required to construct the systems to ultimate buildout of the CGA and Mount Albert will be substantial. Table 5.7 outlines the anticipated conceptual costs for the construction of the water distribution systems to ultimate buildout. The projects W-1 ~ W-38 are recommended to supply the growth following the proposed road projects from 2041 East Gwillimbury Transportation Master Plan, and W-39 ~ W-80 are exclusively for the Whitebelt Lands development to 2051 and beyond. Table 5.8 provides the estimated anticipated total conceptual costs by growth scenario for the capital projects that are recommended for this Master Plan Update. The cost estimates were based on the historical unit rates in Toronto for watermains and only considered the proposed watermains (e.g., costs for excavation, backfill, material, and etc. are not included). It is important to note that the costs indicated are order of magnitude only and, have not been subject to a rigorous cost estimation exercise. As the development proceeds and design reviews are completed at greater levels of detail, the estimated costs can be confirmed. The costs required for the significant amount of regional infrastructure necessary to facilitate the servicing of the CGA is not included within the costs presented as these facilities will be the responsibility of the Region. A 30% contingency, and 15% planning EA and engineering cost are included in the costs indicated, for a total cost of $128,300,000 for all the water projects. Specific considerations are given to the cost-share projects with an assessment of Benefit to Existing customers and demands as well as the cost difference for

watermain upsizing. The proposed timing for each of the recommended projects is estimated based on the Town's preferred specific growth timing for each parcel of developable areas as well as the priorities in expanding the existing network for future services. Additional detail regarding the cost estimates is presented in Appendix F.

Table 5.7 Conceptual Costs of the Proposed Town of East Gwillimbury Water Capital Projects

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-01	Holland Landing	400mm watermain on Bathurst Street and Queensville Sideroad: from Oriole Drive / Holland Landing Road to Queensville Sideroad West, and then east to Karissa Lane.	Two purposes of project: improve deficient fire flows on Karissa Lane, Amberglen Ct., and French Cres., and provide servicing to customers along Bathurst St. The watermain will connect to the existing network at Oriole Dr and Holland Landing Road. Tunnelling across the railway line will be required at 2 locations	2030-2034	$5,900,000	Town
W-02	Holland Landing	300mm watermain from Sluse Road, approximately 800m north of Oriole Drive, to Park Avenue.	Improves the Insufficient fire flows in the subdivision North of Oriole Dr (southern portion) and provides secondary supply and additional looping to Park Ave	2030-2034	$1,000,000	DC – Cost Shared
W-03	Holland Landing	Replace existing 200 mm watermain with 300 mm watermain along Oriole Drive from Sand Road to beyond Cotton Court.	Replaces the existing 200 mm with a 300 mm to avoid bottlenecks in flow. Provides better flows to Holland Landing West as well as better serviceability for future development along Holland Landing West	2030-2034	$400,000	DC - Cost Shared
W-04	Employment Areas	300mm watermain on Highway 11: from Bathurst Street to Crimson King Way.	Provides servicing to the future Employment lands to be located between Highway 11 and Holland Landing Road, north of the existing development.	2030-2034	$2,300,000	Developer
W-05	Employment Areas	300mm watermain on Holland Landing Road: extension to Employment Lands from north of Bradford St to 400m north.	As recommended in updated 2016 DC Study document provided by the Town. This provides an alternate feed to the Employment Lands and provides network looping	2025-2029	$700,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-06	Holland Landing	300mm watermain directly across ravine and rail line, from West St to Charlotte Abby Dr.	To provide network security to the community west of Holland Landing Rd. by providing an alternative water supply watermain. Proposed route is shortest route possible, however tunnelling under the ravine will be required. Land is assumed conservation land so no land acquisition costs are considered, however permitting will be required.	2025-2029	$2,500,000	DC
W-07	Holland Landing	Upsize existing 200 mm watermain linking Stonehill Boulevard to Colony Trail Boulevard to 300mm watermain.	Clears bottleneck along Stonehill Blvd, improves fire flows to Thompson Dr., reduces headloss downstream of the Holland Landing Pump station. Also provides better serviceability for future developments along Holland Landing Central and North	2030-2034	$200,000	DC - Cost Shared
W-08	Holland Landing	300mm watermain on Doane Road: from Anchor Court to 2nd Concession Road.	Expansion of the existing network to service future developments.	2025-2029	$2,900,000	Developer
W-09	Holland Landing	300mm watermain on Doane Road: from 2nd Concession Road to Woodbine Avenue.	Expansion of the existing network to service future developments.	2025-2029	$7,100,000	Developer
W-10	Sharon	300mm watermain on new roadway: north-south collector from Mount Albert Road to Doane Road.	Expansion of the existing network to service future developments.	2025-2029	$2,900,000	Developer
W-11	Sharon	300mm watermain on new roadway: north-south collector from Green Lane to the south limit of Official Plan.	Loop the network and close the missing link in the future development	2025-2029	$500,000	Developer
W-13	Sharon	Upsize 200mm watermain stub along Colonel Wayling Blvd from 200m South of Mount Albert Road to Farr Avenue to 300mm watermain.	Clears bottleneck along Colonel Wayling Blvd – South of Mount Albert Rd. by upsizing the existing 200 mm watermain stub to a 300 mm watermain. Also provides better serviceability for Sharon	2030-2034	$700,000	Town
W-14	Sharon	300mm watermain on Colonel Wayling Boulevard: loop south of Mount Albert Road (missing link).	Required to close the missing link in the watermain network. Across a natural heritage feature, so tunnelling will be required	2030-2034	$500,000	Town

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-15	Sharon	Upsize 200mm watermain along Colonel Wayling Boulevard between Leslie St. to beyond Ward Avenue to 300mm watermain.	Better serviceability and fire flows within Sharon (existing and future). Improved connectivity to the area between Leslie St. and the 404.	2030-2034	$3,000,000	DC – Cost Shared
W-17(A)	Employment Areas	300mm watermain on new roadway: from Woodbine Avenue, approx. 700m north of Doane Rd, to approx. 500m west.	Expansion of the existing network to service future developments.	2025-2029	$800,000	Developer
W-17(B)	Employment Areas	300mm watermain on new roadway: between Woodbine Avenue and Highway 404, running from Queensville Sideroad to approx. 1.6 km south.	Expansion of the existing network to service future developments.	2025-2029	$2,600,000	Developer
W-18	Employment Areas	300mm watermain on Woodbine Avenue: from Doane Road to 300m North.	Expansion of the existing network to service future developments.	2040-2044	$500,000	Developer
W-20	Employment Areas	300mm watermain on Green Lane: from Leslie Street to Woodbine Avenue.	Expansion of the existing network to service future developments & link existing network to Bales Drive sub-division	2040-2044	$3,300,000	Developer
W-22	Mount Albert	300mm watermain on new roadway: from Princess Street to Albert Street for West Side Water Distribution System - Mount Albert (ICI).	Expansion of the existing network to service future developments.	2025-2029	$2,400,000	Developer
W-23	Mount Albert	300mm watermain on Ninth Line: from Donald Stewart Crescent to south of Mount Albert Road.	Expansion of the existing network to provide a secondary feed to the new development at the southwest corner of Mount Albert Road and Ninth Line. The main feed will be directly from Mount Albert Road into the new subdivision. This provides true redundancy as the secondary feed is from a totally different watermain than the primary feed	2025-2029	$1,300,000	DC - Cost Shared
W-24	Sharon	300mm watermain on new roadway: from Leslie Street to Colonel Wayling Boulevard extension north of Mount Albert Road.	Expansion of the existing network to service future developments; improve east-west connectivity between Leslie Street and Colonel Wayling Boulevard extension.	2025-2029	$2,800,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-25	Sharon	300mm watermain on new roadway: from 2nd Concession Road to Leslie Street.	Expansion of the existing network to service future developments; improve east-west connectivity between 2nd Concession Road and Leslie Street.	2035-2039	$3,500,000	Developer
W-26	Sharon	300mm watermain on new roadway: link Leslie Street to north-south Collector connecting Mount Albert Rd to Doane Rd.	Expansion of the existing network to service future developments.	2025-2029	$700,000	Developer
W-27	Sharon	300mm watermain on east-west collector: link Leslie Street to Colonel Wayling Blvd. extension, north of New Leaf Lane.	Expansion of the existing network to service future developments.	2030-2034	$2,600,000	Developer
W-28	Queensville	300mm watermain on new roadway: from Leslie Street, approx. 450m north of Queensville Sideroad to approx. 360m east.	Expansion of the existing network to service future developments.	POST 2040	$600,000	Developer
W-29	Queensville	300mm watermain on new roadway: from Queensville Sideroad, approx. 360m east of Leslie Street, to approx. 450m north.	Expansion of the existing network to service future developments.	POST 2040	$800,000	DC
W-30	Queensville	300mm watermain on new roadway: north-south collector from Queensville Sideroad, approx. 360m east of Leslie Street, to approx. 800m south of Doane Road.	Expansion of the existing network to service future developments. This also provides alternative feed between Queensville and Sharon areas.	2030-2034	$5,000,000	DC
W-31	Sharon	300mm watermain on new roadway: north-south collector approx. 400m east of Leslie Street, from approx. 800m south of Doane Road to approx. 350m north of May Avenue.	Expansion of the existing network to service future developments.	2035-2039	$800,000	DC
W-32	Queensville	300mm watermain on new roadway: from Leslie Street, approx. 450m south of Queensville Sideroad, to approx. 700m east and then approx. 3.2km south to approx. 350m north of May Avenue.	Expansion of the existing network to service future developments. This also provides alternative feed between Queensville and Sharon areas.	2030-2034	$6,300,000	DC
W-33	Queensville	300mm watermain on new roadway: from Leslie Street, approx. 700m north of Doane Road, to approx. 810m east.	Expansion of the existing network to service future developments.	2030-2034	$1,400,000	DC

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-34	Queensville	300mm watermain on new roadway: east-west collector approx. 700m north of Doane Road, from approx. 810m east of Leslie Street to approx. 400m west of Woodbine Avenue.	Expansion of the existing network to service future developments.	2035-2039	$1,500,000	DC
W-35	Employment Areas	300mm watermain on new roadway: from Woodbine Avenue, approx. 650m south of Queensville Sideroad, to approx. 480m west.	Expansion of the existing network to service future developments.	2035-2039	$900,000	Developer
W-36	Queensville	300mm watermain on new roadway: from Queensville Sideroad, approx. 550m east of 2nd Concession Road, to Evans Farm Blvd.	Expansion of the existing network to service future developments; provide better serviceability to the existing Queensville Area	2025-2029	$1,100,000	DC
W-37	Employment Area	300mm watermain on new roadway: from Doane Road, approx. 360m west of Woodbine Avenue, to approx. 710m north.	Expansion of the existing network to service future developments.	2035-2039	$1,300,000	Developer
W-38	Queensville	300mm watermain on new roadway: from Leslie Street, approx. 960m south of Queensville Sideroad, to approx. 800m east.	Expansion of the existing network to service future developments.	2030-2034	$1,400,000	Developer
W-39	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: from east limit of 70% Whitebelt Lands along Leslie Street, approx. 850m north of Queensville Sideroad to approx. 980m west	Expansion of the existing network to service future developments.	2045-2050	$1,500,000	Developer
W-40	Queensville / Whitebelt - Zone 1	250mm watermain on Leslie Street: from approx. 850m north of Queensville Sideroad, extending approx. 450m further north	Expansion of the existing network to service future developments.	2045-2050	$800,000	DC
W-41	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 820m west of Leslie Street to approx. 930m north	Expansion of the existing network to service future developments.	2040-2044	$1,700,000	DC
W-42	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 550m east of 2nd Concession Road to approx. 300m north	Expansion of the existing network to service future developments.	2040-2044	$600,000	DC

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-43	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 300m north of Queensville Sideroad, from approx. 820m west of Leslie Street to approx. 890m further west	Expansion of the existing network to service future developments.	2040-2044	$1,600,000	DC
W-44	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: approx. 300m north of Queensville Sideroad, from approx. 300m east of 2nd Concession Road to the west limit of 70% Whitebelt Lands	Expansion of the existing network to service future developments.	2040-2044	$500,000	DC
W-45	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 300m east of 2nd Concession Road to approx. 630m north and then west to 2nd Concession Road	Expansion of the existing network to service future developments.	2040-2044	$1,700,000	Developer
W-46	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Leslie Street, approx. 1.3km north of Queensville Sideroad, to approx. 1.3km southwest	Expansion of the existing network to service future developments.	2045-2050	$2,300,000	DC
W-47	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: from Leslie Street, approx. 850m north of Queensville Sideroad to approx. 350m east	Expansion of the existing network to service future developments.	POST 2051	$600,000	Developer
W-48	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 350m west of Leslie Street, from approx. 440m north of Queensville Sideroad to approx. 800m further north and then west to Leslie Street	Expansion of the existing network to service future developments.	POST 2051	$2,000,000	DC
W-49	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: approx. 400m north of Queensville Sideroad, from the west limit of 70% Whitebelt Lands to approx. 480m west	Expansion of the existing network to service future developments.	POST 2051	$900,000	DC
W-50	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 540m west of 2nd Concession Road, from Queensville Sideroad to approx. 450m north	Expansion of the existing network to service future developments.	POST 2051	$800,000	DC
W-51	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 620m north of Queensville Sideroad, from the west limit of 70% Whitebelt Lands to approx. 530m west	Expansion of the existing network to service future developments.	POST 2051	$1,000,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-52	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 540m west of 2nd Concession Road, from approx. 450m north of Queensville Sideroad to 700m further north	Expansion of the existing network to service future developments.	POST 2051	$1,200,000	Developer
W-53	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 195m west of 2nd Concession Road, from Queensville Sideroad to approx. 1.1km north	Expansion of the existing network to service future developments.	POST 2051	$1,900,000	Developer
W-54	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 1.1km north of Queensville Sideroad, from approx. 550m west of 2nd Concession Road to 2nd Concession Road	Expansion of the existing network to service future developments.	POST 2051	$800,000	Developer
W-55(A)	Queensville / Whitebelt - Zone 1	300mm watermain on 2nd Concession Road: from Queensville Road to approx. 620m north	Expansion of the existing network to service the future developments; better serviceability and fire flow ability	2040-2044	$1,100,000	DC
W-55(B)	Queensville / Whitebelt - Zone 1	300mm watermain on 2nd Concession Road: from approx. 620m north of Queensville Sideroad to approx. 500m further north	Expansion of the existing network to service the future developments; better serviceability and fire flow ability	POST 2051	$900,000	DC
W-56[1]	Queensville / Whitebelt - Zone 2	300mm watermain on new roadway: approx. 420m west of Woodbine Ave, from Queensville Sideroad to the south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$1,700,000	DC
W-56(A)[1]	Queensville / Whitebelt - Zone 2	300mm watermain on Woodbine Avenue: from Queensville Sideroad to the south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$1,600,000	DC
W-57	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: along the west limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$500,000	DC
W-57 (A)	Queensville / Whitebelt - Zone 2	200mm watermain on Woodbine Ave: along the east limit of 70% Whitebelt Land and extend further north to the north limit of 100% of Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$700,000	DC

[1] These projects are recommended to be built ahead of the 100% Whitebelt Lands being brought into the urban boundary to supply the 70% Whitebelt Land.

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-58	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: approx. 410m west of Woodbine Avenue, from the north limit of 70% Whitebelt Lands to approx. 230m north and then east to Woodbine Avenue	Expansion of the existing network to service future developments.	POST 2051	$700,000	DC
W-59	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: along the north and south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	POST 2051	$1,300,000	Developer
W-60[1]	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 780m west of Yonge Street, from 820m north of Green Lane to Morning Sideroad	Expansion of the existing network to service future developments.	2035-2039	$700,000	DC
W-61	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 780m west of Yonge Street, from Morning Sideroad to Highway 11	Expansion of the existing network to service future developments.	2035-2039	$1,300,000	DC
W-62[1]	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 1.25km west of Yonge Street, from Green Lane to Morning Sideroad	Expansion of the existing network to service future developments.	2035-2039	$700,000	Developer
W-63	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 1.25km west of Yonge Street, from Morning Sideroad to approx. 540m north and then approx. 400m east	Expansion of the existing network to service future developments.	2035-2039	$1,700,000	Developer
W-64	Green Ln W / Whitebelt - Zone 3	300mm watermain on new roadway: approx. 550m east of Yonge Street, from 820m north of Green Land to approx. 330m north and then approx. 550m west	Expansion of the existing network to service future developments.	2035-2039	$1,600,000	Developer
W-65	Green Ln W / Whitebelt - Zone 3	300mm watermain on new roadway: approx. 260m east of Yonge Street, from 820m north of Green Lane to approx. 330m north	Expansion of the existing network to service future developments.	2035-2039	$600,000	Developer
W-66	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: approx. 190m south of Doane Road, from 2nd Concession Road to Silk Twist Drive	Expansion of the existing network to service future developments.	2040-2044	$1,900,000	Developer
W-67	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: N-S collector approx. 600m west of 2nd Concession Road	Expansion of the existing network to service future developments.	2040-2044	$400,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-68	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: from 2nd Concession Road, approx. 300m north of Doane Road, to approx. 290m west and then approx. 470m south	Expansion of the existing network to service future developments.	2040-2044	$1,400,000	Developer
W-69	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: E-W collector approx. 400m south of Doane Road, from 420m east of 2nd Concession Rd to 1km east	Expansion of the existing network to service future developments.	2025-2029	$1,500,000	Developer
W-70	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 870m east of 2nd Concession Road, from Doane Road to approx. 400m south	Expansion of the existing network to service future developments.	2025-2029	$600,000	Developer
W-71	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector between Leslie Street and Highway 404, approx. 340m south of Doane Road	Expansion of the existing network to service future developments.	2030-2034	$2,000,000	Developer
W-72	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 870m east of 2nd Concession Road, from Mount Albert Road to approx. 910m north	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-73	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 450m east of 2nd Concession Road, from Mount Albert Road to approx. 950m north	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-74	Sharon / Whitebelt - Zone 5	300mm watermain on 2nd Concession Road: from approx. 910m north of Mount Albert Road and to approx. 410m south of Mount Albert Road	Expansion of the existing network to service future developments and provide better serviceability via additional looping.	2035-2039	$2,300,000	DC
W-75	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: from Mount Albert Road to the south and then east to 2nd Concession Road	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-76	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 300m west of Leslie Street, from 460m north of Mount Albert Road to 500m further north	Expansion of the existing network to service future developments.	2035-2039	$800,000	Developer
W-77	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector approx. 860m north of Mount Albert Road from 300m west of Leslie Street o 350m east of Leslie Street	Expansion of the existing network to service future developments.	2035-2039	$1,200,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-78	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: from 2nd Concession Road, approx. 670m south of Doane Road, to approx. 860m east	Expansion of the existing network to service future developments.	2035-2039	$1,500,000	Developer
W-79	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector approx. 860m north of Mount Albert Road, from approx. 290m west of Leslie Street to approx. 870m further west	Expansion of the existing network to service future developments.	2040-2044	$1,600,000	Developer
W-80	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: approx. 420m east of 2nd Concession Rd from the south limit of York Minster Boulevard to approx. 270m south	Expansion of the existing network to service future developments.	2040-2044	$400,000	Developer
W-81	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 870m east of 2nd Concession Road, from 400m south of Doane Road to 300m further south	Expansion of the existing network to service future developments.	2040-2044	$500,000	Developer
W-82	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 260m west of Leslie Street, from 300m south of Doane Road to 500m further south	Expansion of the existing network to service future developments.	2040-2044	$800,000	Developer

Table 5.8 Total Conceptual Costs of the Proposed Town of East Gwillimbury Water Capital Projects by Growth Scenario

GROWTH SCENARIO	TOTAL CONCEPTUAL COSTS (C$)
2025-2029	$30,400,000
2030-2034	$32,700,000
2035-2039	$24,600,000
2040-2044	$18,000,000
2045-2050	$9,100,000
POST 2040	$1,400,000
POST 2051	$12,100,000
Total	$128,300,000

CAPITAL PROJECTS DRIVEN BY GROWTH

The majority of the trunk water collection projects identified via the Master Plan are facilities that will serve growth-related populations (some the existing populations as well); are located within the existing Town/Region road allowances; will serve multiple property ownerships; could be considered as being of Town-wide significance; are of a significant size; and/or, serve a significant amount of population. The capital projects driven by growth are W-04, W-08 to W-12, W-17 to W-38, and the projects within the Whitebelt Lands. The projects are mapped in Figure 5-12 for the CGA and Figure 5-13 for the Mount Albert area.

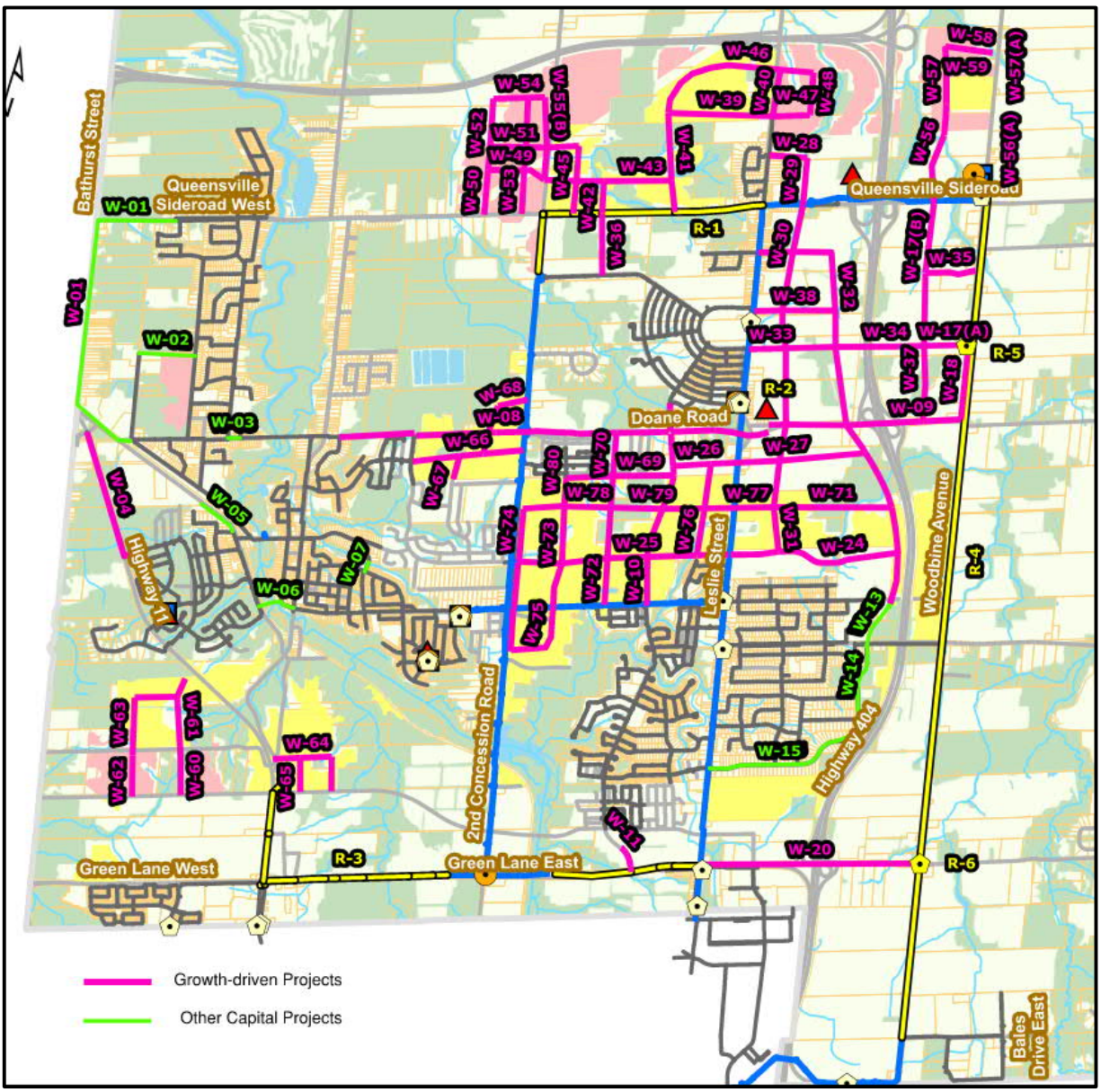

Figure 5-12 Water Capital Projects Driven by Growth in the CGA

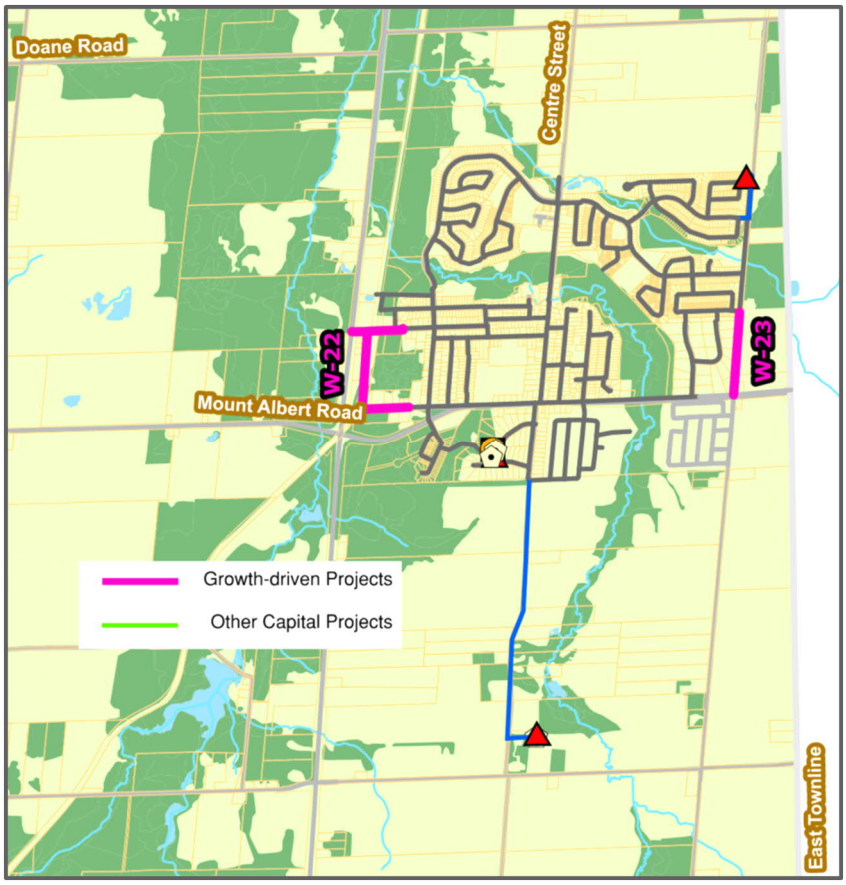

Figure 5-13 Water Capital Projects Driven by Growth in the Mount Albert Area

WHITEBELT LANDS ZONE #1

To service the future development within the Whitebelt Lands Zone #1, the following projects were considered as presented in Table 5.9 and Figure 5-14 below. Two projects for better serviceability and fire flow availability, W-54 (A) and W-54 (B) are also included.

Table 5.9 Water Capital Projects within Whitebelt Lands Zone #1

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-39	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: from east limit of 70% Whitebelt Lands along Leslie Street, approx. 850m north of Queensville Sideroad to approx. 980m west	Expansion of the existing network to service future developments.	2045-2050	$1,500,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-40	Queensville / Whitebelt - Zone 1	250mm watermain on Leslie Street: from approx. 850m north of Queensville Sideroad, extending approx. 450m further north	Expansion of the existing network to service future developments.	2045-2050	$800,000	DC
W-41	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 820m west of Leslie Street to approx. 930m north	Expansion of the existing network to service future developments.	2040-2044	$1,700,000	DC
W-42	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 550m east of 2nd Concession Road to approx. 300m north	Expansion of the existing network to service future developments.	2040-2044	$600,000	DC
W-43	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 300m north of Queensville Sideroad, from approx. 820m west of Leslie Street to approx. 890m further west	Expansion of the existing network to service future developments.	2040-2044	$1,600,000	DC
W-44	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: approx. 300m north of Queensville Sideroad, from approx. 300m east of 2nd Concession Road to the west limit of 70% Whitebelt Lands	Expansion of the existing network to service future developments.	2040-2044	$500,000	DC
W-45	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Queensville Sideroad, approx. 300m east of 2nd Concession Road to approx. 630m north and then west to 2nd Concession Road	Expansion of the existing network to service future developments.	2040-2044	$1,700,000	Developer
W-46	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: from Leslie Street, approx. 1.3km north of Queensville Sideroad, to approx. 1.3km southwest	Expansion of the existing network to service future developments.	2045-2050	$2,300,000	DC
W-47	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: from Leslie Street, approx. 850m north of Queensville Sideroad to approx. 350m east	Expansion of the existing network to service future developments.	POST 2051	$600,000	Developer
W-48	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 350m west of Leslie Street, from approx. 440m north of Queensville Sideroad to approx. 800m further north and then west to Leslie Street	Expansion of the existing network to service future developments.	POST 2051	$2,000,000	DC

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-49	Queensville / Whitebelt - Zone 1	200mm watermain on new roadway: approx. 400m north of Queensville Sideroad, from the west limit of 70% Whitebelt Lands to approx. 480m west	Expansion of the existing network to service future developments.	POST 2051	$900,000	DC
W-50	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 540m west of 2nd Concession Road, from Queensville Sideroad to approx. 450m north	Expansion of the existing network to service future developments.	POST 2051	$800,000	DC
W-51	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 620m north of Queensville Sideroad, from the west limit of 70% Whitebelt Lands to approx. 530m west	Expansion of the existing network to service future developments.	POST 2051	$1,000,000	Developer
W-52	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 540m west of 2nd Concession Road, from approx. 450m north of Queensville Sideroad to 700m further north	Expansion of the existing network to service future developments.	POST 2051	$1,200,000	Developer
W-53	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 195m west of 2nd Concession Road, from Queensville Sideroad to approx. 1.1km north	Expansion of the existing network to service future developments.	POST 2051	$1,900,000	Developer
W-54	Queensville / Whitebelt - Zone 1	300mm watermain on new roadway: approx. 1.1km north of Queensville Sideroad, from approx. 550m west of 2nd Concession Road to 2nd Concession Road	Expansion of the existing network to service future developments.	POST 2051	$800,000	Developer
W-55(A)	Queensville / Whitebelt - Zone 1	300mm watermain on 2nd Concession Road: from Queensville Road to approx. 620m north	Expansion of the existing network to service the future developments; better serviceability and fire flow ability	2040-2044	$1,100,000	DC
W-55(B)	Queensville / Whitebelt - Zone 1	300mm watermain on 2nd Concession Road: from approx. 620m north of Queensville Sideroad to approx. 500m further north	Expansion of the existing network to service the future developments; better serviceability and fire flow ability	POST 2051	$900,000	DC

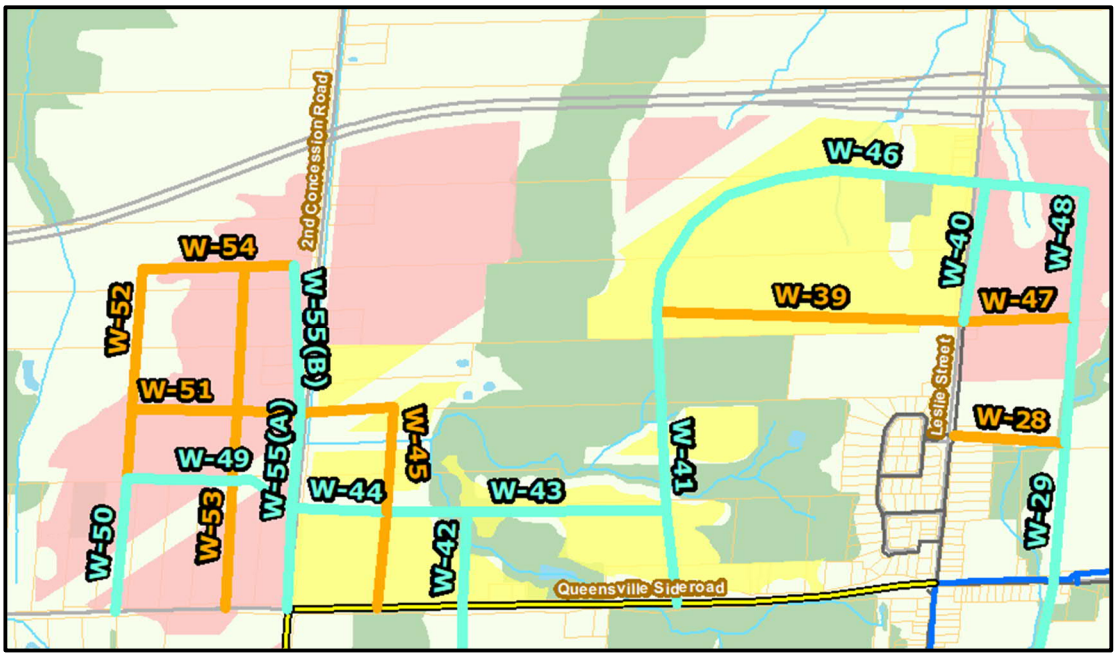

Figure 5-14 Water Capital Projects in Whitebelt Lands Zone #1

WHITEBELT LANDS ZONE #2

To service the future development within the Whitebelt Lands Zone #2, the following projects were considered as presented in Table 5.10 and Figure 5-15 below. Alternatives W-17 (A) and W-19 (A) for better serviceability and fire flow availability are also included.

Table 5.10 Water Capital Projects within Whitebelt Lands Zone #2

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-56*	Queensville / Whitebelt - Zone 2	300mm watermain on new roadway: approx. 420m west of Woodbine Ave, from Queensville Sideroad to the south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$1,700,000	DC
W-56(A)*	Queensville / Whitebelt - Zone 2	300mm watermain on Woodbine Avenue: from Queensville Sideroad to the south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$1,600,000	DC
W-57	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: along the west limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$500,000	DC

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-57 (A)	Queensville / Whitebelt - Zone 2	200mm watermain on Woodbine Ave: along the east limit of 70% Whitebelt Land and extend further north to the north limit of 100% of Whitebelt Land	Expansion of the existing network to service future developments.	2045-2050	$700,000	DC
W-58	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: approx. 410m west of Woodbine Avenue, from the north limit of 70% Whitebelt Lands to approx. 230m north and then east to Woodbine Avenue	Expansion of the existing network to service future developments.	POST 2051	$700,000	DC
W-59	Queensville / Whitebelt - Zone 2	200mm watermain on new roadway: along the north and south limit of 70% Whitebelt Land	Expansion of the existing network to service future developments.	POST 2051	$1,300,000	Developer

* These projects are recommended to be built ahead of the 100% Whitebelt Lands being brought into the urban boundary to supply the 70% Whitebelt Land.

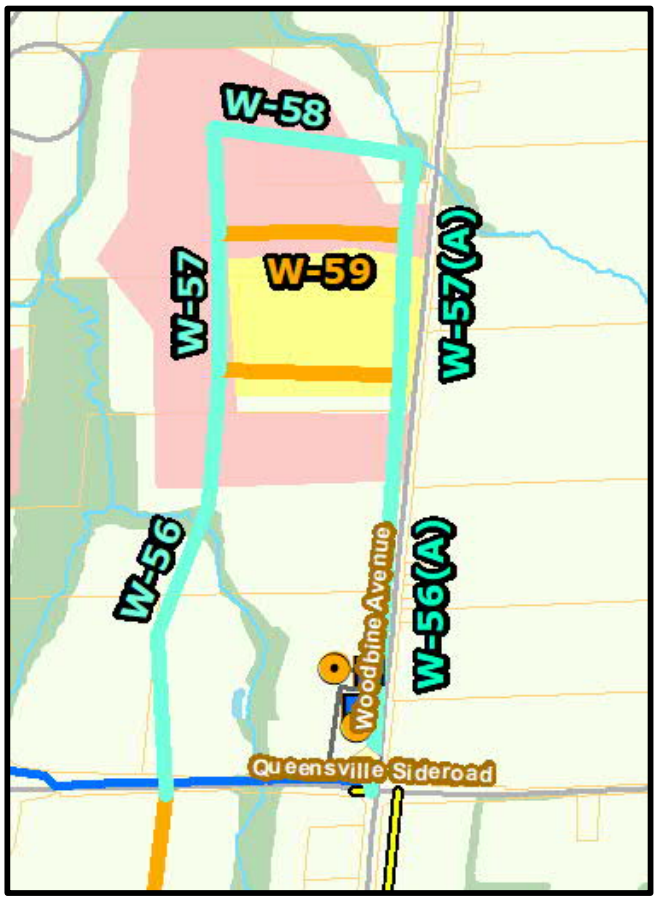

Figure 5-15 Water Capital Projects in Whitebelt Lands Zone #2

WHITEBELT LANDS ZONE #3

To service the future development within the Whitebelt Lands Zone #3, the following projects were considered as presented in Table 5.10 and Figure 5-15 below.

Table 5.11 Water Capital Projects within Whitebelt Lands Zone #3

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-60*	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 780m west of Yonge Street, from 820m north of Green Lane to Morning Sideroad	Expansion of the existing network to service future developments.	2035-2039	$700,000	DC
W-61	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 780m west of Yonge Street, from Morning Sideroad to Highway 11	Expansion of the existing network to service future developments.	2035-2039	$1,300,000	DC
W-62*	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 1.25km west of Yonge Street, from Green Lane to Morning Sideroad	Expansion of the existing network to service future developments.	2035-2039	$700,000	Developer
W-63	Green Ln W / Whitebelt - Zone 3	300mm on new roadway: approx. 1.25km west of Yonge Street, from Morning Sideroad to approx. 540m north and then approx. 400m east	Expansion of the existing network to service future developments.	2035-2039	$1,700,000	Developer
W-64	Green Ln W / Whitebelt - Zone 3	300mm watermain on new roadway: approx. 550m east of Yonge Street, from 820m north of Green Land to approx. 330m north and then approx. 550m west	Expansion of the existing network to service future developments.	2035-2039	$1,600,000	Developer
W-65	Green Ln W / Whitebelt - Zone 3	300mm watermain on new roadway: approx. 260m east of Yonge Street, from 820m north of Green Lane to approx. 330m north	Expansion of the existing network to service future developments.	2035-2039	$600,000	Developer

* These projects are recommended to be built ahead of the 100% Whitebelt Lands being brought into the urban boundary to supply the 70% Whitebelt Land.

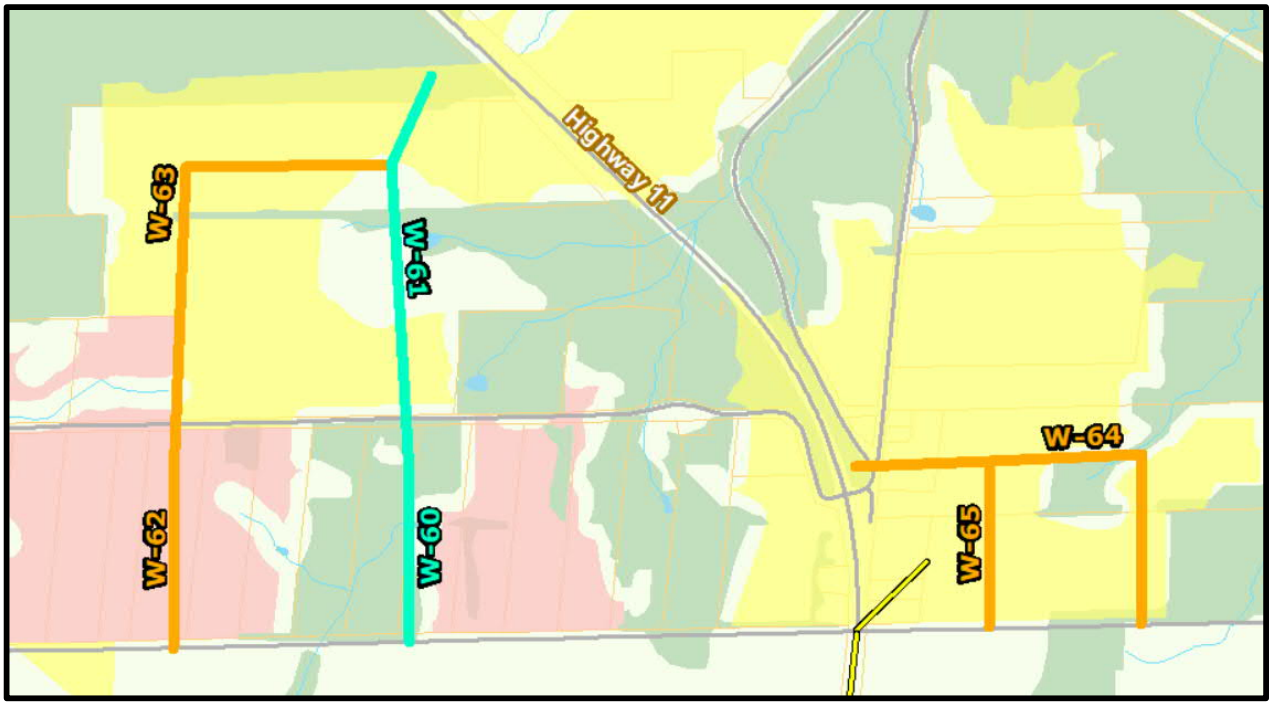

Figure 5-16 Water Capital Projects within Whitebelt Lands Zone #3

WHITEBELT LANDS ZONE #4

To service the future development within the Whitebelt Lands Zone #3, the following projects were considered as presented in Table 5.10 and Figure 5-15 below.

Table 5.12 Water Capital Projects within Whitebelt Lands Zone #4

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-66	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: approx. 190m south of Doane Road, from 2nd Concession Road to Silk Twist Drive	Expansion of the existing network to service future developments.	2040-2044	$1,900,000	Developer
W-67	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: N-S collector approx. 600m west of 2nd Concession Road	Expansion of the existing network to service future developments.	2040-2044	$400,000	Developer
W-68	Holland Landing / Whitebelt - Zone 4	300mm watermain on new roadway: from 2nd Concession Road, approx. 300m north of Doane Road, to approx. 290m west and then approx. 470m south	Expansion of the existing network to service future developments.	2040-2044	$1,400,000	Developer

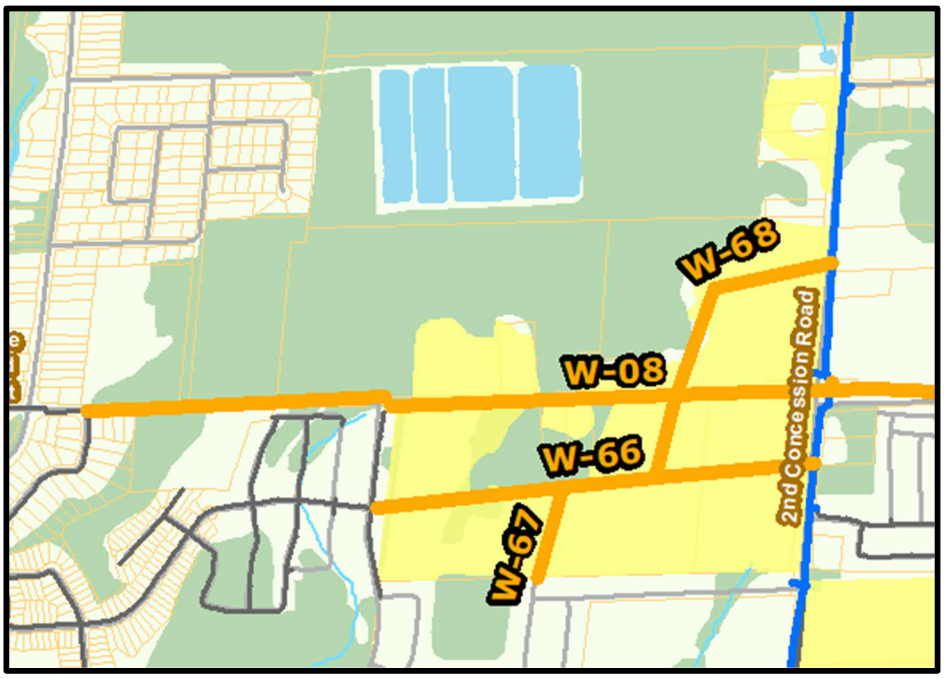

Figure 5-17 Water Capital Projects within Whitebelt Lands Zone #4

WHITEBELT LANDS ZONE #5

To service the future development within the Whitebelt Lands Zone #3, the following projects were considered as presented in Table 5.10 and Figure 5-15 below.

Table 5.13 Water Capital Projects within Whitebelt Lands Zone #5

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-69	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: E-W collector approx. 400m south of Doane Road, from 420m east of 2nd Concession Rd to 1km east	Expansion of the existing network to service future developments.	2025-2029	$1,500,000	Developer
W-70	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 870m east of 2nd Concession Road, from Doane Road to approx. 400m south	Expansion of the existing network to service future developments.	2025-2029	$600,000	Developer
W-71	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector between Leslie Street and Highway 404, approx. 340m south of Doane Road	Expansion of the existing network to service future developments.	2030-2034	$2,000,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-72	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 870m east of 2nd Concession Road, from Mount Albert Road to approx. 910m north	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-73	Sharon / Whitebelt - Zone 5	200mm watermain on new roadway: approx. 450m east of 2nd Concession Road, from Mount Albert Road to approx. 950m north	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-74	Sharon / Whitebelt - Zone 5	300mm watermain on 2nd Concession Road: from approx. 910m north of Mount Albert Road and to approx. 410m south of Mount Albert Road	Expansion of the existing network to service future developments and provide better serviceability via additional looping.	2035-2039	$2,300,000	DC
W-75	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: from Mount Albert Road to the south and then east to 2nd Concession Road	Expansion of the existing network to service future developments.	2035-2039	$1,400,000	Developer
W-76	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 300m west of Leslie Street, from 460m north of Mount Albert Road to 500m further north	Expansion of the existing network to service future developments.	2035-2039	$800,000	Developer
W-77	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector approx. 860m north of Mount Albert Road from 300m west of Leslie Street o 350m east of Leslie Street	Expansion of the existing network to service future developments.	2035-2039	$1,200,000	Developer
W-78	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: from 2nd Concession Road, approx. 670m south of Doane Road, to approx. 860m east	Expansion of the existing network to service future developments.	2035-2039	$1,500,000	Developer
W-79	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: E-W collector approx. 860m north of Mount Albert Road, from approx. 290m west of Leslie Street to approx. 870m further west	Expansion of the existing network to service future developments.	2040-2044	$1,600,000	Developer
W-80	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: approx. 420m east of 2nd Concession Rd from the south limit of York Minster Boulevard to approx. 270m south	Expansion of the existing network to service future developments.	2040-2044	$400,000	Developer

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING	CONCEPTUAL COST (C$)	FUNDING SOURCE
W-81	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 870m east of 2nd Concession Road, from 400m south of Doane Road to 300m further south	Expansion of the existing network to service future developments.	2040-2044	$500,000	Developer
W-82	Sharon / Whitebelt - Zone 5	300mm watermain on new roadway: N-S collector approx. 260m west of Leslie Street, from 300m south of Doane Road to 500m further south	Expansion of the existing network to service future developments.	2040-2044	$800,000	Developer

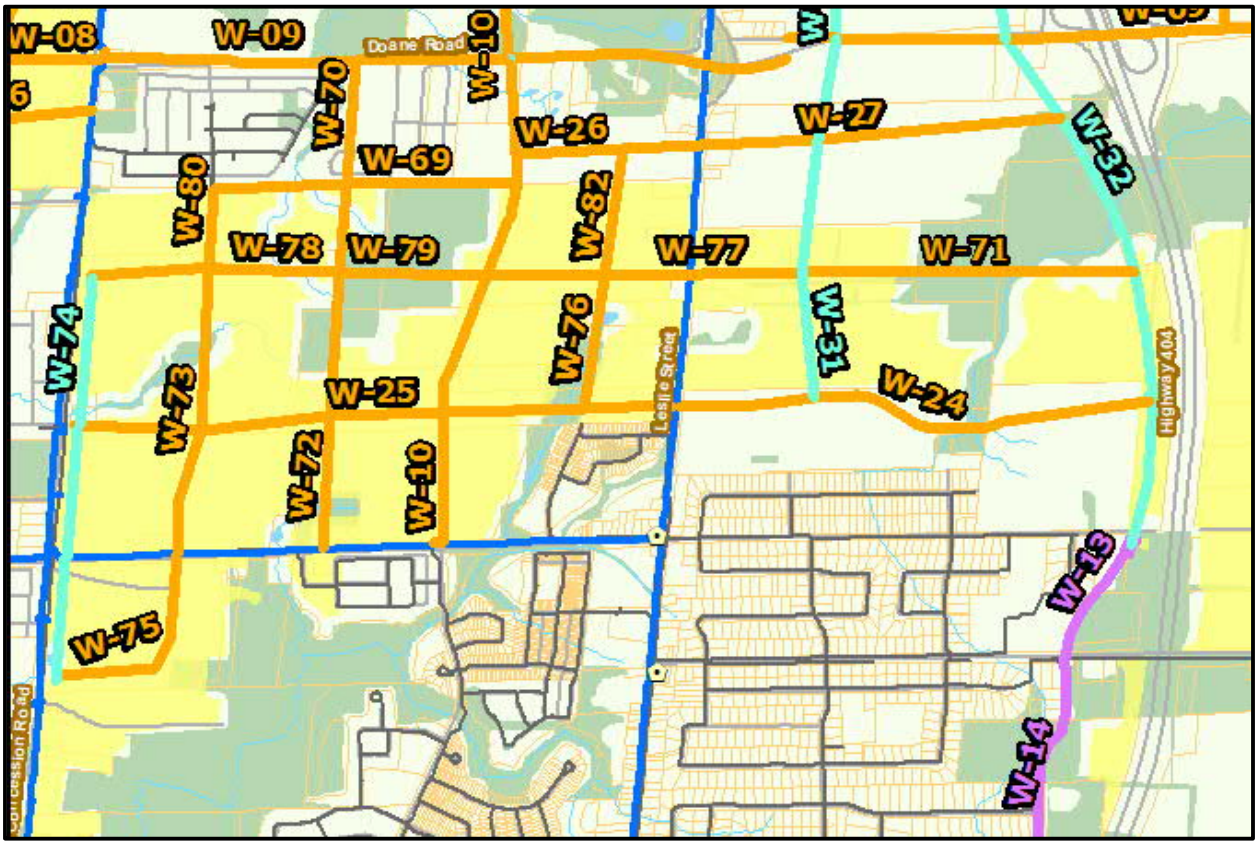

Figure 5-18 Water Capital Projects within Whitebelt Lands Zone #5

WHITEBELT LANDS ZONE #6

There is no collector road proposed for Whitebelt Lands Zone #6 in the 2051 planning horizon. The simulation results indicate that the existing 200mm and 300mm dia. watermains surrounding the Zone #6 land are sufficient in satisfying the service pressure requirements and have significant fire flow ability for the future population projection. Hence, no water linear infrastructure is proposed for the future growth in this area.

5.2.2 YORK REGION'S CAPITAL PROJECTS

Several components of the water trunk systems identified for the Town of East Gwillimbury fit within the description of Regional infrastructure and thus, are the responsibility of the York Region. Below in Table 5.14 is a listing of the facilities expected to be the responsibility of the York Region. The projects are mapped in Figure 5-7.

Table 5.14 Proposed York Region's Water Capital Projects

PROJECT ID	LOCATION	PROJECT DESCRIPTION
R-1	Queensville	New Watermain linking Leslie St. and 2nd Concession Rd.
R-2	Queensville	New Elevated Tank located at Leslie and Doane + 0.2 km watermain (300 mm)
R-3	Queensville	New Elevated Tank located south of Yonge Street, north of Green Lane + 1.1 km watermain (400 mm)
R-4	Employment Areas	New Watermain from Queensville Sideroad to Davis Dr. distributing water to the Town
R-5	Queensville	New Flowmeter chamber (Region-Town flow measurement) along Woodbine Ave. (400 m north of Doane Rd.)
R-6	Queensville	New Flowmeter chamber (Region-Town flow measurement) along Green Lane

5.2.3 OPERATION & MAINTENANCE PROJECTS

DISTRICT METERED AREAS

A District Metered Area (DMA) is a discrete area of a water distribution network, created by closing boundary valves or permanently disconnecting pipes to neighbouring areas. The flow of water that enters a given DMA is checked against a theoretical flow of water. If a significant discrepancy is detected, a targeted investigation is undertaken to find the leaks that may be the source of this difference. Recommended projects to implement DMAs along with proposed monitoring chambers can be seen below in Table 5.15. Project DMAs are mapped in Figure 5-19 for the CGA and Figure 5-20 for the Mount Albert area.

The phasing plan for implementing the DMAs has four (4) phases. In Phase 1, the Mount Albert and Queensville DMAs are to be implemented first in 2020. In Phase 2, Holland Landing East DMAs are to be implemented starting the following year in 2021, with water loss reduction and system optimization occurring between 2022 to 2024. In Phase 3, the Holland Landing West DMAs are to be implemented in 2022. Finally, in Phase 4 the Sharon and Green Lane areas are to be implemented in 2024.

Table 5.15 Proposed District Metered Areas Capital Projects

PROJECT ID	DMA ID & COMMUNITY	PROJECT RATIONALE	PHASE	PHASING	CONCEPTUAL COST (C$)
W-11-DMA	DMA-1 Holland Landing	7 areas defined covering all the parts of the Town: Holland Landing, Sharon, Queensville, Green Lane Area & Mt. Albert	3	2025-2029	$600,000
	DMA-2 Holland Landing		2	2025-2029	
	DMA-3 Queensville		1	2025-2029	
	DMA-4 Holland Landing		2	2025-2029	
	DMA-5 Sharon		4	2030-2034	
	DMA-6 Green Lane Area		4	2030-2034	
	DMA-7 Mount Albert		1	2025-2029	

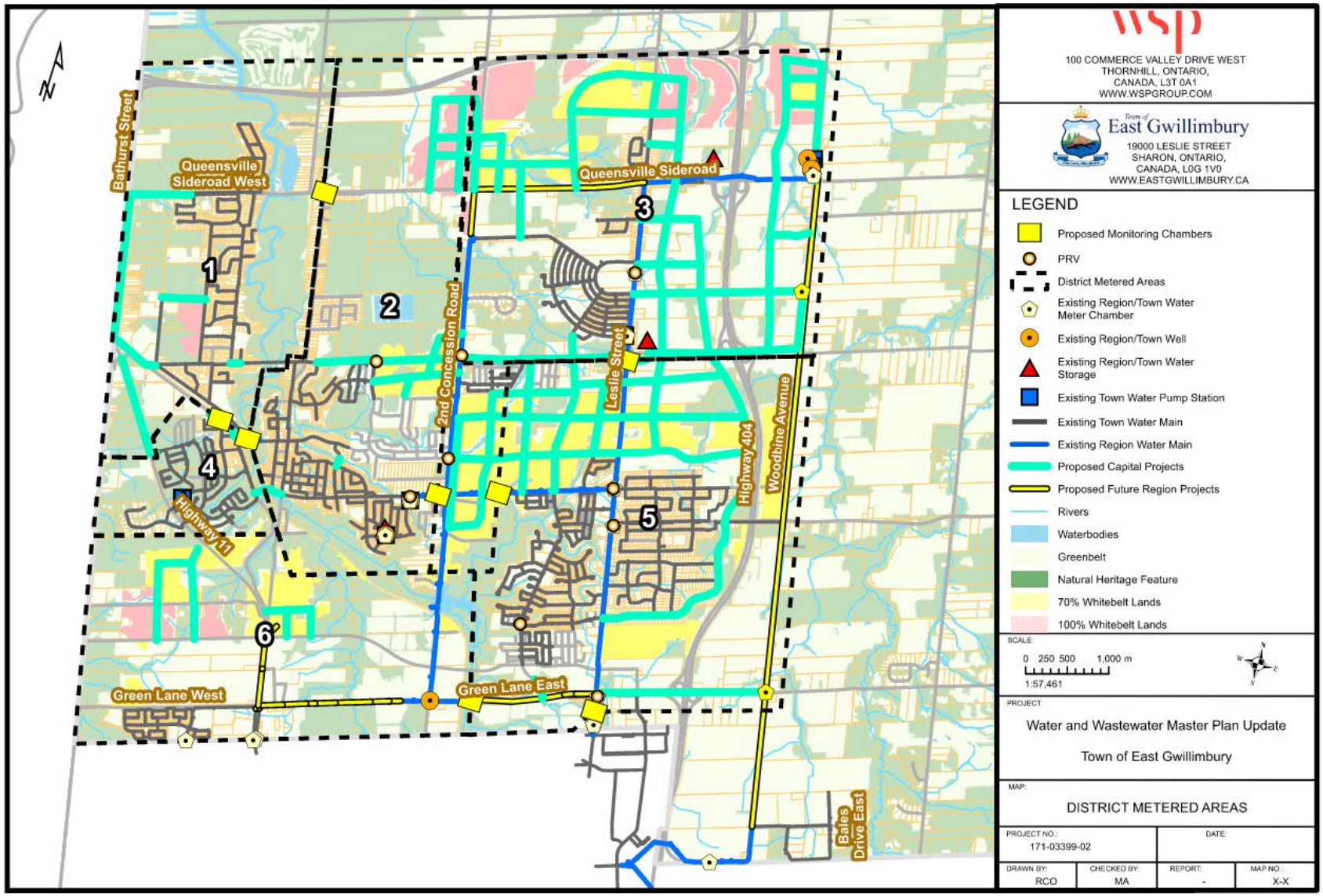

Figure 5-19 DMAs and Proposed Monitoring Chambers in the CGA

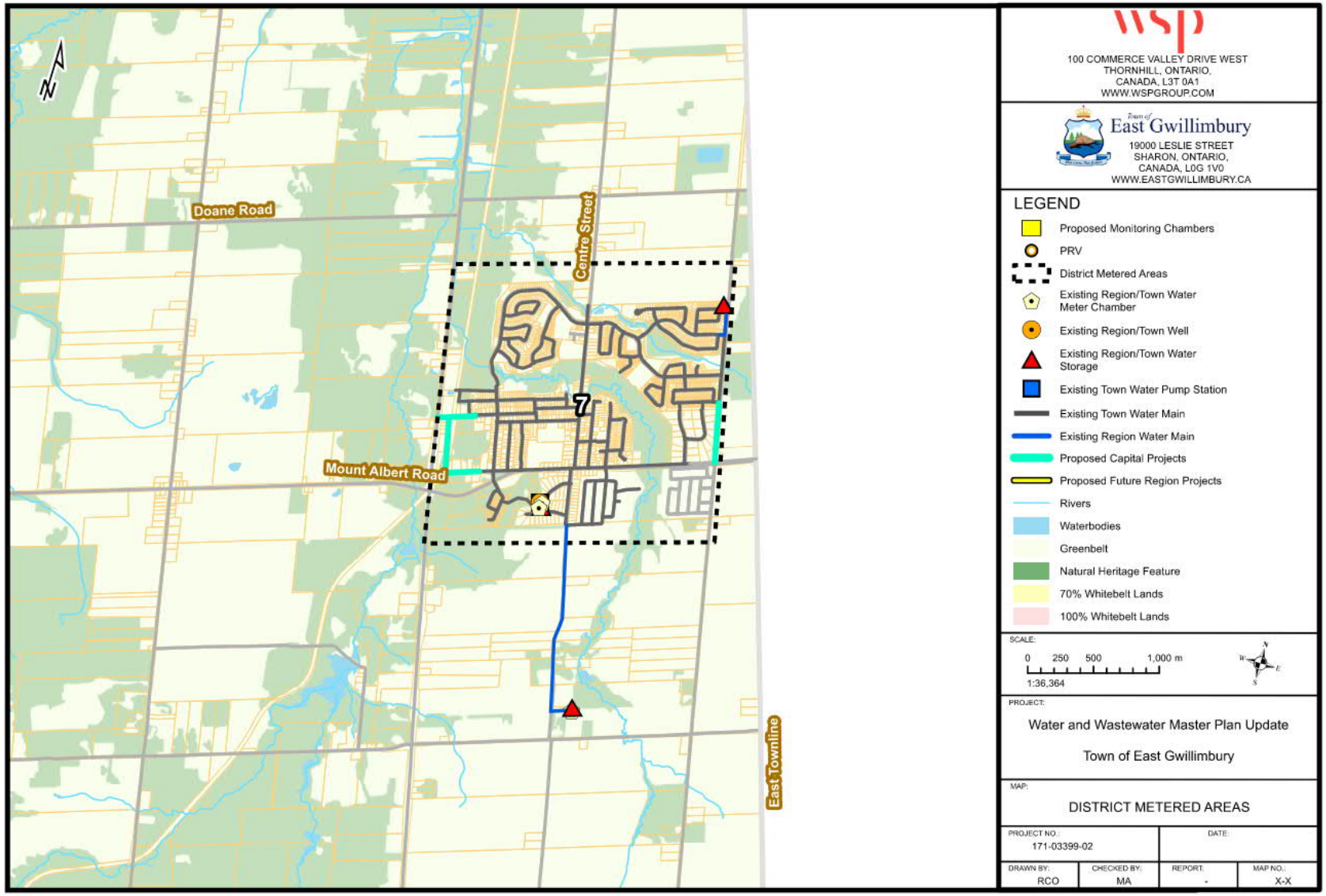

Figure 5-20 DMAs in the Mount Albert Area

5.3 WASTEWATER SYSTEM ANALYSIS

5.3.1 EXISTING CONDITIONS

The existing wastewater collection system for the Town of East Gwillimbury can be seen in Figure 5-21 for the CGA and Figure 5-22 for the Mount Albert area.

The existing wastewater collection facilities in the CGA are limited to the Holland Landing system and two localized systems in the Yonge Street, Green Lane, and Leslie Street areas. The Yonge Street area and a portion of the Green Lane area is served by the York Region trunk sewer on Green Lane. The Leslie Street area and the remainder of the Green Lane are served by the Town of Newmarket.

The Holland Landing system directs flow to a central York Region pumping station located on Bradford Street at the Holland River. The station pumps through a forcemain to lagoons that are located north of Doane Road and east of Yonge Street for treatment.

The existing Green Lane trunk sewer and the Bradford Street pumping station, forcemain and treatment lagoons in Holland Landing are York Region facilities. The remaining wastewater collection system components are owned by the Town of East Gwillimbury including sewers sized from 150 mm to 375 mm in diameter and small wastewater pumping station servicing localized areas of Holland Landing.

The remainder of the CGA's existing population is serviced by private wastewater systems.

In Mount Albert, existing development is served via a local wastewater treatment plant and a sewer collection system that ranges in diameter from 200 mm to 300 mm. The wastewater treatment plant is owned by York Region and the wastewater collection systems are owned by the Town of East Gwillimbury.

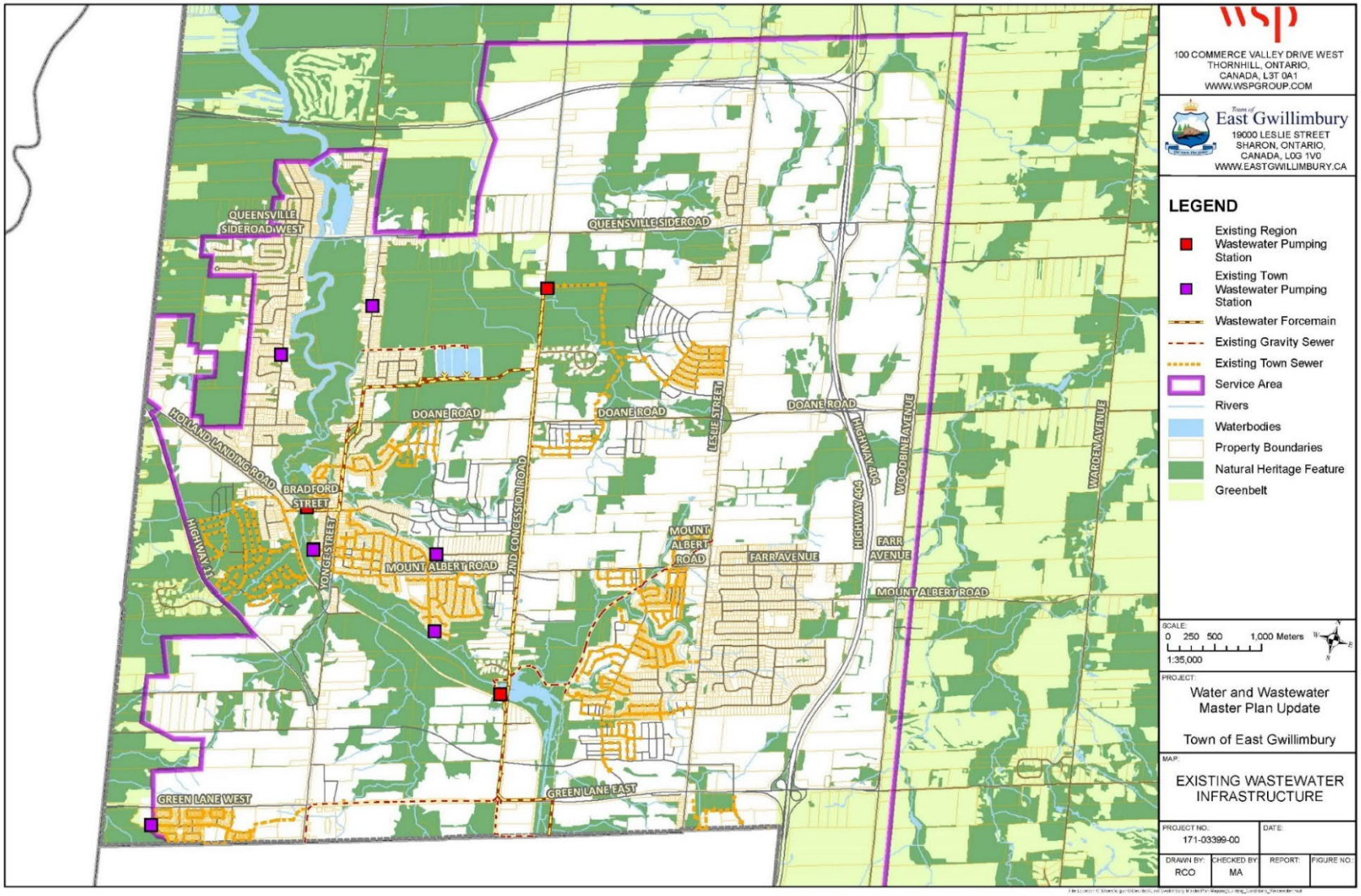

Figure 5-21 Existing Wastewater Distribution System in the CGA

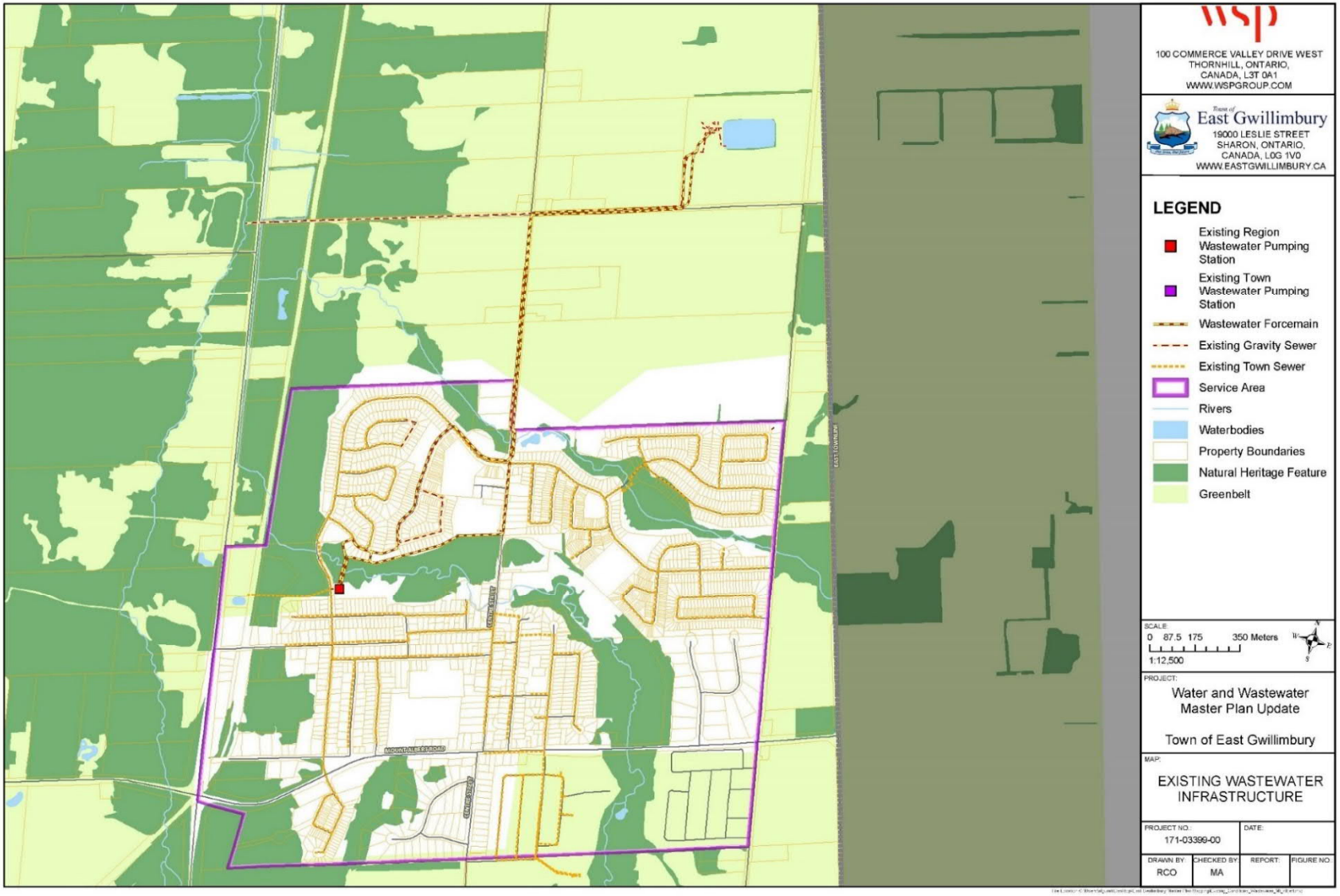

Figure 5-22 Existing Wastewater Distribution System in the Mount Albert area

5.3.2 MODELLING APPROACH

RECOMMENDATION

The Town previously only had an Excel sewer model, and WSP undertook a comparison of several sewer models to assess which one best fits the Town's needs (see Appendix D). The sewer models offered by major vendors include InfoSewer/SWMM by Innovyze, and SewerCAD/GEMS by Bentley. Both of these software either use or can import/export to the SWMM sewer model engine developed by the EPA. The EPA-SWMM software is the most universally used storm/sanitary sewer model, with continuous support, and downloadable for free from the EPA website. The Town could also opt for the Canadian-developed and supported interface, PC-SWMM, from Computational Hydraulics International (CHI) which is based near Guelph University, Ontario.

The major vendor software presented above presented different levels of investment in terms of time and cost. InfoSewer/SWMM and SewerCAD/GEMS are costly to acquire and maintain them annually. This investment could only be justified if the Town staff were to use the model on a near-continuous basis. Based on WSP's experience this will not be required by the Town in the next several years, if ever. On the other hand, PC-SWMM costs a fraction of the models by the major vendors and has annual maintenance costs below $1,000. Developer submissions provided as MECP-format spreadsheets or computer models can be exported to PC-SWMM after being reviewed by a trusted third party. For these reasons, WSP recommended that the Town's sewer model be developed in PC-SWMM.

5.3.3 DESIGN CRITERIA

WASTEWATER FLOW RATES

The criteria used to calculate the projected wastewater demands for the Town of East Gwillimbury are documented below (see Table 5.16 and Table 5.17). Further detail as to how the projected wastewater demands were determined can be found in Appendix E (see Design Criteria for Water and Wastewater Technical Memorandum).

For the determination of residential unit rates, historical wastewater data was only available for Mount Albert. The recommended residential unit rate for the Mount Albert community was 250 L/cap/day, which was estimated to be close to the expected wastewater unit rate. For the Green Lane Area and Queensville-Holland Landing-Sharon communities, the recommendation was 350 L/cap/day, which was based on the criteria in the Town's Engineering Design Standards. The Town indicated this unit rate may be too high. Therefore, in order to ensure that all the pipes are not undersized in the future for the Mount Albert community, and that the unit rates for the other communities are not overestimated, WSP suggested using a unit rate of 290 L/cap/day for all communities in East Gwillimbury. This value is based on the historical wastewater per capita rates seen in Mount Albert while also considering future population growth within the Town.

The Industrial, Commercial, and Institutional (ICI) peak unit rates in the Town's Engineering Design Manual were found to be reasonable and conservative at:

- Industrial: 35 m^3/ha/d
- Commercial: 28 m^3/ha/d
- Institutional: 18 m^3/ha/d

Table 5.16 Residential Wastewater Design Criteria

	TOWN OF EAST GWILLIMBURY ENGINEERING DESIGN STANDARDS		YORK REGION 2016 MASTER PLAN		MECP DESIGN CRITERIA		WSP RECOMMENDATION	
Community	Peak Unit Rate (L/cap/day)	Harmon Peaking Factor	Peak Unit Rate (L/cap/day)	Harmon Peaking Factor	Peak Unit Rate (L/cap/day)	Harmon Peaking Factor	Peak Unit Rate (L/cap/day)	Harmon Peaking Factor
Queensville Holland Landing-Sharon	350	1.1	Based on Wet Weather Flow	N/A	225 to 450	2.0 Minimum	290	1.84
Green Lane Area	350	1.3	Based on Wet Weather Flow	N/A	225 to 450	2.0 Minimum	290	1.84
Mount Albert	350	1.2	Based on Wet Weather Flow	N/A	225 to 450	2.0 Minimum	290	1.84

Table 5.17 ICI Wastewater Design Criteria

	TOWN OF EAST GWILLIMBURY ENGINEERING DESIGN STANDARDS		YORK REGION 2016 MASTER PLAN		MECP DESIGN CRITERIA		WSP RECOMMENDATION	
Development Type	Peak Unit Rate (m^3/ha/day)	Peaking Factor	Peak Unit Rate (m^3/ha/day)	Peaking Factor	Peak Unit Rate (m^3/ha/day)	Peaking Factor	Peak Unit Rate (m^3/ha/day)	Harmon Peaking Factor
Industrial	35	N/A	Based on Wet Weather Flow	N/A	28 Minimum	Same as Water Demand	18	1.84
Commercial	28	N/A	Based on Wet Weather Flow	N/A	28 Minimum	Same as Water Demand	28	1.84
Institutional	18	N/A	Based on Wet Weather Flow	N/A	28 Minimum	Same as Water Demand	35	1.84

5.3.4 WHITEBELT LANDS WASTEWATER MODELLING ANALYSIS

WSP analysed the wastewater network in context of the Whitebelt Lands development to assess the impact of the proposed design flow on the Town's wastewater network. This analysis required using the PCSWMM model, built by WSP in 2019 in the context of the Town's Water & Wastewater Servicing Master Plan update, considering the 2051 planning horizon. The design sewage flows for the proposed Whitebelt Lands developments were calculated based on the forecasted population provided by the York Region. The new gravity mains were added to the model based on the transportation plan provided by HDR dated May 30, 2022, and the design wastewater loads were added to the proposed sewer system. The proposed sizes for these sewers range between 250mm to 525mm.

Conclusions and recommendations for the proposed sewer system was based on the ratio of Actual Sewer Flow vs. Theoretical Sewer Capacity (q/Q) criteria in these models and of Depth of Flow to Sewer Diameter (d/D). With these criteria, WSP's proposed linear infrastructure in the Study Area that can effectively convey the sewage from the study area to the sanitary pump stations (SPS). When considering constraints from the existing vertical infrastructure, the wastewater loadings exceeded the design capacity for the Holland Landing SPS and Queensville SPS. Where applicable, infrastructure upgrades or improvements for existing and/or Regional planned sewers need to be further reviewed to accommodate the population growth within the Town. This includes but is not limited to increasing the sizes of some sewers and/or increasing the design capacity of the Thompson SPS and Queensville SPS.

5.4 WASTEWATER SYSTEM PROJECTS

5.4.1 TOWN OF EAST GWILLIMBURY'S RECOMMENDED PROJECTS

CAPITAL PROJECTS WITH ALTERNATIVE SOLUTIONS

Most of the Town of East Gwillimbury's wastewater capital projects presented a single option to pursue, however a few of them presented several alternatives that were assessed using evaluation criteria (see Section 4). All capital projects can be found mapped in Figure 5-23 for the CGA and Figure 5-24 for the Mount Albert area.

The Town's future capital projects were categorized into different groups based on the funding sources. The capital projects that are not growth-driven but benefit to the existing population (e.g., provide network looping and increase fire flow availability) are recommended to be funded by the Town (i.e., shown as "Proposed Future Town Projects" in Figure 5-7. The growth-driven capital projects are considered as either Development Charge (DC) eligible projects or developer responsibilities.

WSP reviewed the DC policy proposed in other municipalities (e.g., Region of Halton, City of Hamilton, and etc.) and the sanitary sewers up to and including the size of 450mm within the proposed development lands is considered as direct developers' contribution. Given the existing system capacity and the future growth projections, all the capital projects are proposed with the sewer mains size up to and including 450mm. Hence, all the wastewater capital projects would be considered as developer responsibilities based on the DC policy from other municipalities. WSP also referenced the full future system map provided by HDR dated July 19, 2022, and considered the proposed wastewater projects within the major collectors as DC eligible projects and the ones within the minor collectors as developer responsibilities.

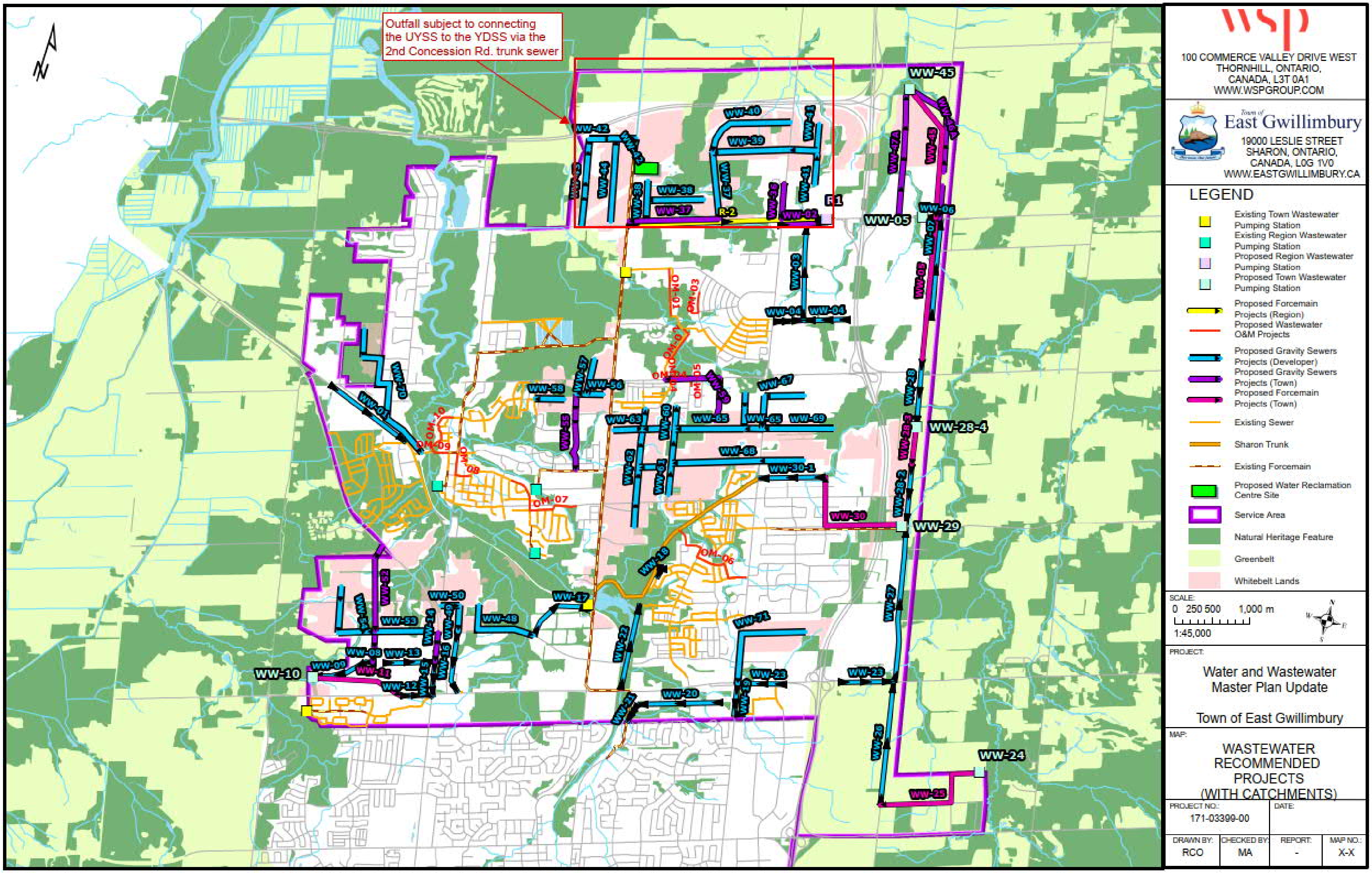

Figure 5-23 Wastewater Capital Projects in the CGA

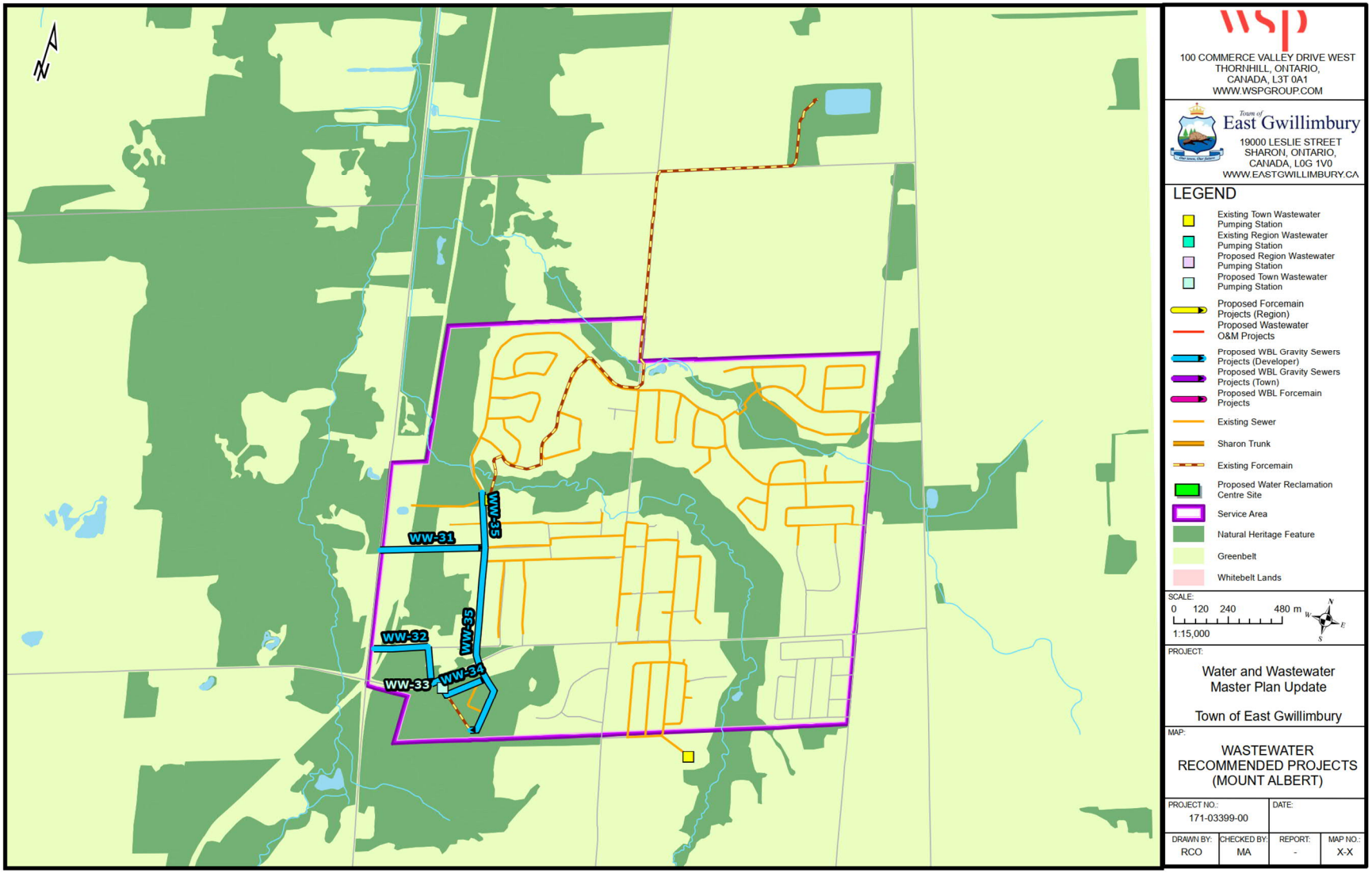

Figure 5-24 Wastewater Capital Projects in the Mount Albert Area

ISSUE #1

A new station (PS-2) is being constructed on Woodbine Avenue to service the Employment Area east of Highway 404 between Doane Road and Green Lane. A final discharge location is required for the pumping station. Two alternatives were considered as presented in Table 5.18 and Figure 5-25 below. Both routes proposed eventually discharge the wastewater to 2nd Concession Rd pumping station. Between the two options, discharging through the Sharon trunk presents a shorter forcemain length from PS-2. The Sharon Trunk has sufficient capacity to accommodate the additional flows and the shorter forcemain reduces pumping costs. Hence, WW-30 is the preferred alternative.

Table 5.18 Alternative Solutions Considered for Wastewater Issue #1 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
WW-30	Install a forcemain directly across Highway 404 and tie into the Sharon trunk sewer. This option requires a shorter forcemain. (Recommended)				
WW-30 (A)	Install a forcemain south along Woodbine Avenue to Green Lane. This option requires a significantly longer forcemain.				

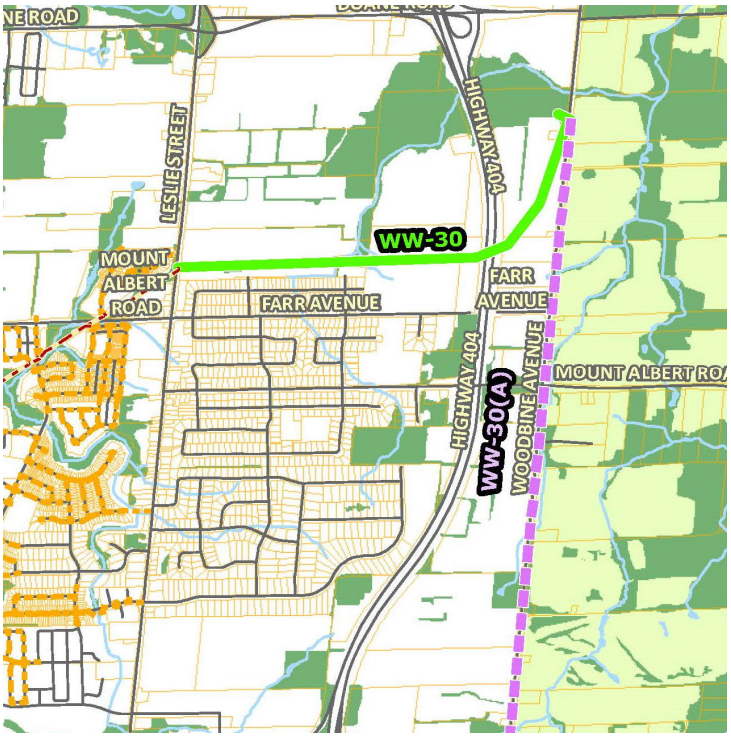

Figure 5-25 Alternative Solutions Considered for Wastewater Issue #1

ISSUE #2

A new pumping station (PS-1) is being constructed on Bales Drive to service the Employment Area east of Highway 404. Several options for the length of the forcemain from the pumping station before discharge into a gravity system were considered and are presented in Table 5.19 and Figure 5-26 below. The topography in this area favors construction of forcemains over gravity sewers. Gravity sewers are possible but would be quite deep at certain locations to be able to achieve the required slope gradients. The increased capital costs would however be compensated by lower operations and maintenance costs due to less pumping required. Based on the evaluation criteria, alternative WW-26 was recommended.

Table 5.19 Alternative Solutions Considered for Wastewater Issue #2 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
WW-26 (FM)/ 23 (FM)	Extend the forcemain from Garfield Wright Blvd all the way to the gravity sewer beyond the 404 on Green Lane. Forcemains have lower capital costs, but higher operational costs over time.				
WW-26 (FM)/ 23 (GS)	Extend the forcemain from Garfield Wright Blvd to Woodbine/Green Lane, and a gravity sewer along Green Lane to beyond the 404.				
WW-26 (GS)/ 23 (GS)	Install gravity sewers from Garfield Wright Blvd to beyond the 404 on Green Lane. Gravity sewers are installed at a greater depth and have higher capital costs, but lower operational costs over time. (Recommended)				

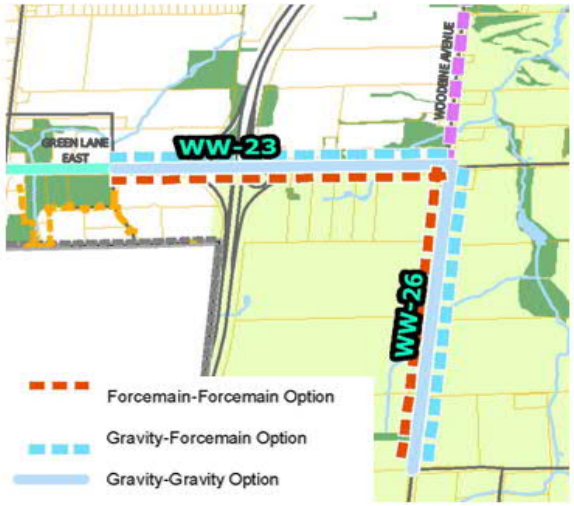

Figure 5-26 Alternative Solutions Considered for Wastewater Issue #2

ISSUE #3

A gravity sewer is required along Green Lane to service the Employment Area east of Highway 404. There were two alternatives considered to determine the location of the proposed sewer as presented in Table 5.20 and Figure 5-27 below. There were no capacity limitations identified for sewers on 2nd Concession Rd so both options were noted to be technically feasible. The invert at 2nd Concession Rd is lower than the invert at the Hydro Corridor/Green Lane, however there is a river and railway track to be crossed along Green Lane and an inverted siphon would be required. Additionally, York Region indicated that the intersection of Green Lane and 2nd Concession was congested with buried infrastructure and another connection would be difficult. Thus, the longer sewer length required in alternative WW-22(A) is outweighed in terms of technical difficulty by the railway and river crossing needed in alternative WW-22. Hence, alternative WW-22(A) was recommended.

Table 5.20 Alternative Solutions Considered for Wastewater Issue #3 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
WW-22	The gravity sewer will follow the existing ROW along Green Lane and terminate at 2nd Concession Road. This option requires a shorter sewer.				
WW-22 (A)	The gravity sewer will run north from Green Lane along the hydro corridor to connect to the Sharon sewer. (Recommended)				

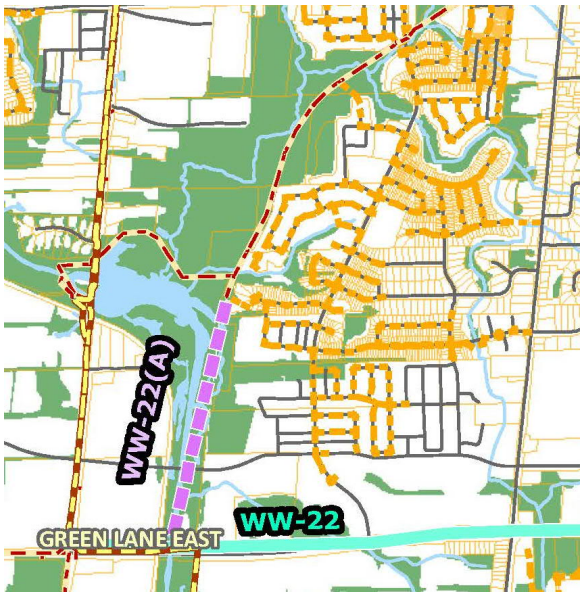

Figure 5-27 Alternative Solutions Considered for Wastewater Issue #3

ISSUE #4

A new sewage pumping station is required to service the South Service area designated within the Mount Albert West ICI lands. There were three alternatives considered for where this pumping station can discharge to as presented in Table 5.21 and Figure 5-28 below. WW-34 was the recommended alternative as it presented the shortest forcemain to the existing residential sewer system, which would reduce the capital as well as the operational costs of the pumping station. In addition, the wastewater model indicated that the existing network could handle additional flows at the upstream location without any upgrades required.

Table 5.21 Alternative Solutions Considered for Wastewater Issue #4 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
WW-34	The forcemain will discharge to the residential sewer on Don Rose Blvd which in turn discharges to the south end of King St. (Recommended)				
WW-34 (A)	A longer forcemain will run northwards and discharge to the Princess St sewer.				
WW-34 (B)	A longer forcemain will run northwards and discharge into the IGA sewer.				

Figure 5-28 Alternative Solutions Considered for Wastewater Issue #4

ISSUE #5

The Whitebelt Lands located north of Queensville and bounded by the Woodbine Ave. and Highway 404 require servicing and present a topography that slopes northward. Having a southward gravity sewer along Woodbine Ave. and the future

roadway west of Woodbine Ave. was deemed to be difficult due to the large difference in elevation of about 20 to 30m between the two endpoints. Upon consulting with the Town, having a gravity sewer northward connecting to the future pumping station at the low point was the recommended alternative Option A upon consulting with the Town.

Table 5.22 Alternative Solutions Considered for Wastewater Issue #5 with Evaluation Criteria

Project Alternative ID	Alternatives	Evaluation Criteria			
		Natural Env.	Social/Cultural	Technical	Economic
WW-46 (A) & WW-47 (A)	Gravity Sewer northward as supported by topography, connecting to a future Pumping Station north of Queensville Sideroad at low point (Recommended).				
WW-46 (B) & WW – 47 (B)	Gravity sewer southwards against topography, connecting to the Pumping Station (WW-05).				

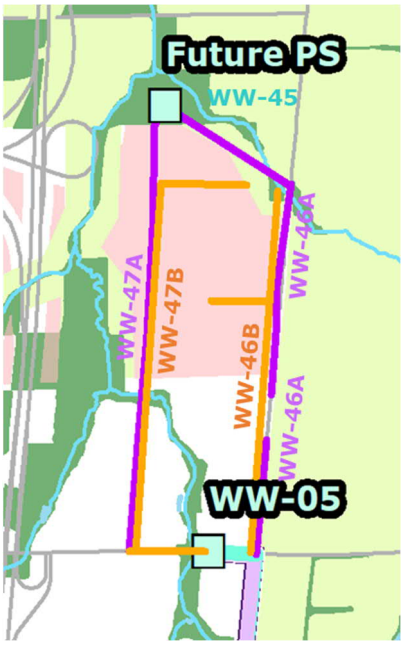

Figure 5-29 Alternative Solutions Considered for Wastewater Issue #6

CAPITAL PROJECTS CONCEPTUAL COSTS

The conceptual cost required to construct the systems to ultimate buildout of the CGA and Mount Albert to accommodate the growth to post 2051 will be substantial. We have provided in Table 5.23, the anticipated conceptual costs for the construction of the wastewater collection systems to ultimate buildout. Table 5.24 provides the anticipated total conceptual costs by growth scenario. It is important to note that the costs indicated are order of magnitude only and, have not been subject to a rigorous cost estimation exercise. As the development proceeds and design reviews are completed at

greater levels of detail, the estimated costs can be confirmed. The costs required for the significant amount of regional infrastructure necessary to facilitate the servicing of the CGA is not included within the costs presented as these facilities will be the responsibility of the Region. We have included a 30% contingency, and a 15% for planning EA and engineering in the costs indicated, for a total cost of $270,010,000 for all the wastewater projects. The proposed timing for each of the recommended projects is estimated based on the Town's preferred specific growth timing for each parcel of developable areas as well as the priorities in expanding the existing network for future services. Additional details regarding the cost estimates are presented in Appendix F.

Table 5.23 Conceptual Costs of the Proposed Town of East Gwillimbury Wastewater Capital Projects

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-01	Holland Landing	Holland Landing Rd Sewer Extension North to Employment Lands	As recommended in the DC Study. Required for Servicing of future employment lands between Holland Landing Rd. and Highway 11	2025-2029	$1,600,000	Developer
WW-02	Queensville	Queensville Side Rd Trunk Sewer: Leslie St to Region PS-5	Servicing of the existing development on Leslie Street, north of Queensville Sideroad	2040-2044	$3,100,000	Town
WW-03	Queensville	Gravity sewer located east of Leslie St. flowing northwards to PS 5 on Queensville Sideroad	Servicing of new developments east of Leslie St. and south of Queensville Sideroad.	2025-2029	$3,400,000	Developer
WW-04	Queensville	Gravity collection sewer feeding into the trunk sewer that conveys wastewater to PS 4	Servicing of new developments east of Leslie St. and north of Doane Rd.	2025-2029	$1,300,000	Developer
WW-05	Queensville	PS 5: North of Queensville Side Rd, west of Woodbine, including forcemain to Regional Pumping Station R1	Point of collection for sewers east of 404 and conveyance of wastewater across Highway 404 to the Regional Pumping station R1	2040-2044	$7,300,000	Developer
WW-06	Queensville	Queensville Side Rd Trunk Sewer: Woodbine Ave to PS 4	Conveyance of flow from Woodbine sewers to PS 4	2030-2034	$700,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-07	Queensville	Gravity sewer northwards along Woodbine Ave to PS 4 on Queensville Sideroad, located east of the 404.	Servicing of the developments along Woodbine Ave. to Queensville Sideroad.	2025-2029	$3,400,000	Developer
WW-08	Green Lane	Feeder gravity sewer into trunk sewer which leads to PS 9	Servicing of the development north of Green Ln. and west of Yonge St.	2025-2029	$600,000	Developer
WW-09	Green Lane	Gravity sewer westwards towards PS9 (located north of Green Lane and West of Yonge St.)	Servicing of the development north of Green Ln. and west of Yonge St.	2025-2029	$1,500,000	Developer
WW-10	Green Lane	PS 9: North of Green Lane, West of Yonge St	Wastewater collection for the development north of Green Ln. and west of Yonge St.,	2030-2034	$6,300,000	Developer
WW-11	Green Lane	Forcemain eastwards from Pumping station PS 9 and then southeast to Green ln.	Conveyance of wastewater from PS 9 servicing the development north of Green Ln. and west of Yonge St. towards Green Lane	2025-2029	$1,600,000	Developer
WW-12	Green Lane	Gravity trunk sewer eastwards along Green Ln. towards Yonge St.	Conveyance of flow from the forcemain along Green Lane	2025-2029	$1,000,000	Developer
WW-13	Green Lane	Gravity collector sewer eastwards towards Yonge St. (located north of Green Ln.)	Servicing of the development north of Green Ln. and west of Yonge St.	2025-2029	$1,000,000	Developer
WW-14	Green Lane	Gravity collector sewer southwards along Yonge St. to Green Ln.	Conveyance of flows southwards along Yonge Street towards WW-13	2025-2029	$800,000	Developer
WW-15	Green Lane	Gravity collector sewer southwards along Yonge St.	Conveyance of flows southwards along Yonge Street towards Green Lane (from WW-13 and WW-14)	2025-2029	$600,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-16	Green Lane	N/S Trunk Sewer: East of Yonge St, North of Green Lane	Servicing of the development north of Green Ln. and east of Yonge St.	2030-2034	$1,300,000	Developer
WW-17	Green Lane	Cove Farm to Pick to 2nd Concession Pumping Station	Servicing of the development west of 2nd Concession Road	2025-2029	$1,900,000	Developer
WW-18	Green Lane	Pumping Station: South of Green Lane, East of 2nd Concession (Incl. Forcemain)	-	2030-2034	$12,900,000	Developer
WW-19	Green Lane	Leslie Street Gravity Trunk Sewer: Green Lane to the Newmarket Boundary North to Green Lane	Redirecting of flows from Green Lanes Southwards to the Harry Walker Network	2030-2034	$800,000	Developer
WW-20	Green Lane	East-West Sewer south of Green Lane: Carratuck Lands to River	-	2030-2034	$2,100,000	Developer
WW-21	Green Lane	North-South Sewer: Limit of Ladyfield to Newmarket PS	-	2030-2034	$700,000	Developer
WW-22	Green Lane	South Sharon Collector Trunk Sewer: Sharon West Limit South to Green Lane & East to Leslie St	-	2025-2029	$7,800,000	Developer
WW-23	Green Lane	Green Lane gravity Sewers: One ties into Woodbine Ave., while the other ties into Leslie	Servicing of the 404 employment lands along Green Land.	2025-2029	$18,600,000	Developer
WW-24	Employment Areas	Pumping Station PS-1: Bales Drive	Collection of wastewater via local sewers in the Woodbine Ave./Davis Dr. area and pumping via forcemain to discharge location on Woodbine Ave.	2040-2044	$13,600,000	Cost Share

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-25	Employment Areas	Forcemain from Bales Dr PS to Woodbine Ave	Conveyance of pumped flows from PS 1 to Woodbine Ave. gravity sewer at Garfield Wright Blvd.	2040-2044	$3,000,000	Cost Share
WW-26	Employment Areas	Woodbine Ave Trunk Sewer: Garfield Wright Blvd. to Green Lane	Conveyance of wastewater from Garfield Wright Blvd. towards Green Lane along Woodbine Ave.	2040-2044	$5,300,000	Developer
WW-27	Employment Areas	Woodbine Ave Trunk Sewer: Green Lane to PS-2	Servicing of 404 employment lands along Woodbine Ave. (south of PS-2)	2025-2029	$34,000,000	Developer
WW-28	Employment Areas	Trunk Sewer: North of Doane Rd. to Woodbine PS	Servicing of 404 employment lands along Woodbine Ave. (north of PS-2)	2040-2044	$1,200,000	Developer
WW-28-2	Employment Areas	Northeast Sharon Trunk Sewer: North of Doane Rd. to PS-2	Servicing of 404 employment lands along Woodbine Ave. (north of PS-2)	2040-2044	$800,000	Developer
WW-28-3	Employment Areas	Forcemain from Woodbine PS	Servicing of 404 employment lands along Woodbine Ave. (north of PS-2)	2040-2044	$300,000	Developer
WW-28-4	Employment Areas	Pumping Station: Woodbine Road (South of Doane)	Servicing of 404 employment lands along Woodbine Ave. (north of PS-2)	2040-2044	$11,300,000	Developer
WW-29	Employment Areas	PS-2: Intersection of Woodbine Ave. and Mount Albert Rd. (1st Phase of PS-2)	Collection of wastewater from 404 Employment Lands and pumping via forcemain to discharge location on Sharon Trunk	2025-2029	$10,300,000	Developer
WW-30	Employment Areas	Forcemain from PS-2 to Sharon Trunk	Conveyance of pumped flows from PS 2 to Sharon Trunk	2025-2029	$2,600,000	Developer
WW-30-1	Employment Areas	Gravity sewer from PS-2 forcemain to Sharon Trunk	Conveyance of pumped flows from PS 2 to Sharon Trunk	2025-2029	$1,700,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-31	Mt. Albert	Gravity collection sewer to service the North Service Area and feeding into the Princess Street Sewer	Servicing of new Mount Albert West Employment lands	2025-2029	$400,000	Developer
WW-32	Mt. Albert	Gravity collection sewer to service the South Service Area and feeding into the new pumping station	Servicing of new Mount Albert West Employment lands	2025-2029	$800,000	Developer
WW-33	Mt. Albert	Pumping station in Mount Albert West (ICI)	Collection of wastewater from Mount Albert West Employment Lands and pumping via forcemain to discharge location on Don Rose Blvd.	2025-2029	$11,300,000	Developer
WW-34	Mt. Albert	Forcemain from new Mt Albert West Pumping Station to Don Rose Boulevard	Conveyance of pumped flows from Mount Albert West PS to Don Rose Boulevard	2025-2029	$500,000	Developer
WW-35	Mt/ Albert	Upsizing of gravity sewer along King St	Accommodate flows coming from ICI lands in the Mount Albert area	2025-2029	$2,400,000	Developer
WW-36	Whitebelt Zone 1	N/S gravity sewer connecting to the trunk sewer on Queensville Sideroad that conveys wastewater to the future Water Reclamation Plant	DC project to service the future developments within the Whitebelt Land located north of Queensville Sideroad	2030-2034	$1,200,000	DC
WW-37	Whitebelt Zone 1	N/S collection sewer within the 70% Whitebelt Land north of Queensville Sideroad	Servicing of new developments within the 70% Whitebelt Land located north of Queensville Sideroad and east of Second Concession Rd.	2040-2044	$4,000,000	DC

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
	Whitebelt Zone 1	Sewer to be upsized to service the 100% Whitebelt Land Development	Sewer to be upsized to service the 100% Whitebelt Land Development	Post 2051	$2,500,000	DC
WW-38	Whitebelt Zone 1	Gravity sewer within the 70% Whitebelt Land north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Land located north of Queensville Sideroad and east of Second Concession Rd.	2040-2044	$3,200,000	Developer
	Whitebelt Zone 1	Sewer to be upsized to service the 100% Whitebelt Land Development	Servicing of new developments within the 100% Whitebelt Land	Post 2051	$900,000	Developer
WW-39	Whitebelt Zone 1	W/E gravity sewer within the 70% Whitebelt Land north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Land located north of Queensville Sideroad and east of Second Concession Rd.	2045-2050	$2,500,000	Developer
	Whitebelt Zone 1	Sewer to be upsized to service the 100% Whitebelt Land Development	Servicing of new developments within the 100% Whitebelt Land	Post 2051	$2,700,000	Developer
WW-40	Whitebelt Zone 1	Gravity sewer within the 70% Whitebelt Land north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Land located north of Queensville Sideroad and east of Second Concession Rd.	2045-2050	$3,400,000	Developer
	Whitebelt Zone 1	Sewer to be upsized to service the 100% Whitebelt Land Development	Servicing of new developments within the 100% Whitebelt Land	Post 2051	$400,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-41	Whitebelt Zone 1	Gravity collection sewer within the 100% Whitebelt Land, connecting to the proposed sewer network in the 70% Whitebelt Land, north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Land located north of Queensville Sideroad and east of Second Concession Rd.	Post 2051	$2,700,000	Developer
WW-42	Whitebelt Zone 1	Gravity sewer within the 100% Whitebelt Land conveying wastewater to the future Water Reclamation Plant	Servicing of new developments within the 100% Whitebelt Land located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,300,000	Developer
WW-43	Whitebelt Zone 1	S/N gravity sewer within the 100% Whitebelt Land north of Queensville Sideroad and west of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Land located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,100,000	Developer
WW-44	Whitebelt Zone 1	S/N gravity sewer within the 100% Whitebelt Land north of Queensville Sideroad and west of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Land located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,100,000	Developer
WW-45	Whitebelt Zone 2	Future PS north of Queensville Sideroad and west of Woodbine Ave.	Collection of wastewater from the Whitebelt Land and pumping via forcemain to the Woodbine trunk sewer.	2045-2050	$10,300,000	DC
WW-46A	Whitebelt Zone 2	N/S gravity collection sewer on Woodbine Ave., north of Queensville Sideroad.	DC project to service the Whitebelt Land developments west of Woodbine Ave. and north of Queensville Sideroad.	2045-2050	$4,300,000	DC

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-47A	Whitebelt Zone 2	N/S gravity collection sewer west of Woodbine Ave., north of Queensville Sideroad., connecting to WW-45	DC project to service the Whitebelt Land developments west of Woodbine Ave. and north of Queensville Sideroad.	2045-2050	$4,100,000	DC
WW-48	Whitebelt Zone 3	Gravity sewer feeding to the trunk sewer on Second Concession Rd. that conveys wastewater to the Second Concession SPS	Servicing of new developments within the 70% Whitebelt Land located north of Green Ln. and east of Yonge St.	2025-2029	$1,900,000	Developer
WW-49	Whitebelt Zone 3	Gravity sewer within the 70% Whitebelt Land located north of Green Ln. and east of Yonge St.	Servicing of new developments within the 70% Whitebelt Land located north of Green Ln. and east of Yonge St.	2025-2029	$500,000	Developer
WW-50	Whitebelt Zone 3	Gravity sewer within the 70% Whitebelt Land located north of Green Ln. and east of Yonge St.	Servicing of new developments within the 70% Whitebelt Land located north of Green Ln. and east of Yonge St.	2035-2039	$1,000,000	Developer
WW-51	Whitebelt Zone 3	Gravity sewer extending north on Yonge St., north of Green Ln.	DC project to service the future developments within the Whitebelt Land located north of Green Ln.	2025-2029	$1,000,000	DC
WW-52	Whitebelt Zone 3	N/S gravity sewer feeding into the trunk sewer that conveys wastewater to the future PS5.	Servicing of new developments within the Whitebelt Land located north of Green Ln. and east of Yonge St.	2035-2039	$2,600,000	DC
WW-53	Whitebelt Zone 3	E/W gravity sewer within the 100% Whitebelt Land north of Green Ln. and west of Yonge St.	Servicing of new developments within the 100% Whitebelt Land located north of Green Ln. and west of Yonge St.	2035-2039	$2,000,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-54	Whitebelt Zone 3	Gravity sewer within the Whitebelt Land north of Green Ln. and west of Yonge St.	Servicing of new developments within the Whitebelt Land located north of Green Ln. and west of Yonge St.	2035-2039	$2,400,000	Developer
WW-55	Whitebelt Zone 4	Gravity sewer south of Doane Rd. and west of Second Concession Rd., connecting to the Holland Landing network	DC project to service the future developments in the 70% Whitebelt Land located west of Second Concession Rd.	2025-2029	$1,300,000	DC
WW-56	Whitebelt Zone 4	Gravity sewer within the 70% Whitebelt Land located west of Second Concession Rd. and south of Doane Rd.	Servicing of new developments within the 70% Whitebelt Land located west of Second Concession Rd. and south of Doane Rd.	2040-2044	$1,100,000	Developer
WW-57	Whitebelt Zone 4	Gravity sewer within the 70% Whitebelt Land located west of Second Concession Rd. and south of Doane Rd.	Servicing of new developments within the 70% Whitebelt Land located west of Second Concession Rd. in Holland Landing	2040-2044	$1,400,000	Developer
WW-58	Whitebelt Zone 4	Gravity sewer within the 70% Whitebelt Land tieing into the Holland Landing network on Beckett Ave.	Servicing of new developments within the 70% Whitebelt Land located west of Second Concession Rd. in Holland Landing	2040-2044	$1,000,000	Developer
WW-59	Whitebelt Zone 5	Gravity sewer south of Doane Rd. and east of Second Concession Rd., tieing into the Queensville network on Doane Rd.	Servicing of new developments within the 70% Whitebelt Land located west of Leslie St. and south of Doane Rd.	2025-2029	$2,500,000	DC

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-60	Whitebelt Zone 5	S/N gravity sewer within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd., tieing into the Queensville Village network	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2025-2029	$1,200,000	Developer
WW-61	Whitebelt Zone 5	S/N gravity sewer extension within the 70% Whitebelt Land located west of Second Concession Rd. and south of Doane Rd., connecting to Project WW-60	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. between Doane Rd. and Mount Albert Rd.	2035-2039	$1,800,000	Developer
WW-62	Whitebelt Zone 5	S/N gravity collection sewer within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd., tieing into the Queensville Village network at the intersection of York Minister Blvd. and Leaden Hall Dr.	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. between Doane Rd. and Mount Albert Rd.	2035-2039	$3,700,000	Developer
WW-63	Whitebelt Zone 5	Gravity sewers within the 70% Whitebelt land, connecting to WW-62	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$1,800,000	Developer
WW-64	Whitebelt Zone 5	Gravity sewer within the 70% Whitebelt land, connecting to WW-62	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$900,000	Developer

Project ID	Location	Project Description	Project Rationale	Phasing	Conceptual Cost (C$)	Funding Source
WW-65	Whitebelt Zone 5	E/W gravity collection sewer within the 70% Whitebelt Land between Second Concession Rd. and Highway 404, connecting to the future Queensville Village network	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2030-2034	$2,900,000	Developer
WW-66	Whitebelt Zone 5	Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$1,500,000	Developer
WW-67	Whitebelt Zone 5	Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2030-2034	$2,400,000	Developer
WW-68	Whitebelt Zone 5	Gravity sewer within the Whitebelt Land, connecting to WW-61	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$4,100,000	Developer
WW-69	Whitebelt Zone 5	E/W Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Land located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$2,200,000	Developer
WW-70	Whitebelt Zone 6	Gravity sewer west of Park Ave., connecting to the N/S gravity collection sewer along Park Ave. at Sunrise St.	Servicing of new developments within the 70% Whitebelt Land located west of Park Ave.	Post 2051	$1,500,000	Developer
WW-71	Whitebelt Zone 5	Gravity sewer east of Leslie and along Leslie, connecting to the E/W future gravity collection sewer WW-23 along Green Lane.	Servicing of new developments within the 70% Whitebelt Land located east of Leslie St.	2030-2034	$3,700,000	Developer

Table 5.24 Total Conceptual Costs of the Proposed Town of East Gwillimbury Wastewater Capital Projects by Growth Scenario

GROWTH SCENARIO	TOTAL CONCEPTUAL COSTS (C$)
2025-2029	$ 117,500,000.00
2030-2034	$ 35,000,000.00
2035-2039	$ 24,000,000.00
2040-2044	$ 56,600,000.00
2045-2050	$ 24,600,000.00
POST 2051	$ 20,200,000.00
Total	$ 277,900,000.00

CAPITAL PROJECTS DRIVEN BY GROWTH

The majority of the trunk wastewater collection projects identified via the Master Plan are facilities that will serve growth-related populations (some the existing populations as well); are located within existing Town/Regional Road allowances; will serve multiple property ownerships; could be considered as being of Town-wide significance; are of a significant size; and/or, serve a significant amount of population. All the capital projects are driven by growth. The projects are mapped in Figure 5-30 for the CGA and Figure 5-31 for the Mount Albert area.

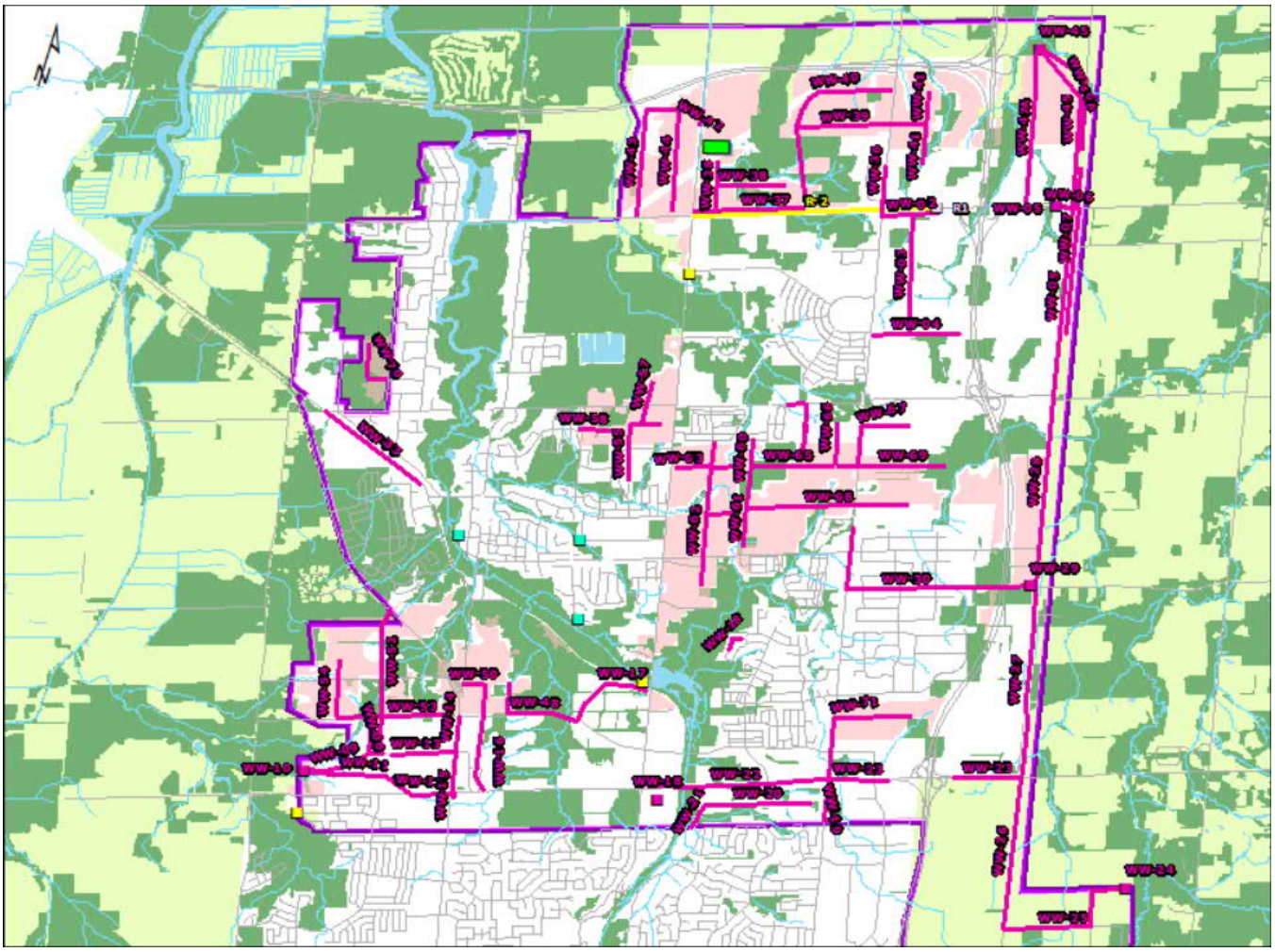

Figure 5-30 Wastewater Capital Projects Driven by Growth in the CGA

WHITEBELT LANDS ZONE 1

To service the future Whitebelt Lands Zone 1, the following projects were considered as presented in Table 5.25 and Figure 5-31.

Table 5.25 Wastewater Capital Projects within Whitebelt Lands Zone 1

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-36	N/S gravity sewer connecting to the trunk sewer on Queensville Sideroad that conveys wastewater to the future Water Reclamation Plant	DC project to service the future developments within the Whitebelt Lands located north of Queensville Sideroad	2030-2034	$1,200,000	Town

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-37	N/S collection sewer within the 70% Whitebelt Lands north of Queensville Sideroad and along Queensville Sideroad to 2nd Concession Road	Servicing of new developments within the 70% Whitebelt Lands located north of Queensville Sideroad and east of Second Concession Rd.	2040-2044	$4,000,000	Developer
	Sewer to be upsized to service the 100% Whitebelt Lands Development	Sewer to be upsized to service the 100% Whitebelt Lands Development	Post 2051	$2,500,000	Developer
WW-38	Gravity sewer within the 70% Whitebelt Lands north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Lands located north of Queensville Sideroad and east of Second Concession Rd.	2040-2044	$3,200,000	Developer
	Sewer to be upsized to service the 100% Whitebelt Lands Development	Servicing of new developments within the 100% Whitebelt Lands	Post 2051	$900,000	Developer
WW-39	W/E gravity sewer within the 70% Whitebelt Lands north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Lands located north of Queensville Sideroad and east of Second Concession Rd.	2045-2050	$2,500,000	Developer
	Sewer to be upsized to service the 100% Whitebelt Lands Development	Servicing of new developments within the 100% Whitebelt Lands	Post 2051	$2,700,000	Developer
WW-40	Gravity sewer within the 70% Whitebelt Lands north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 70% Whitebelt Lands located north of Queensville Sideroad and east of Second Concession Rd.	2045-2050	$3,400,000	Developer

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
	Sewer to be upsized to service the 100% Whitebelt Lands Development	Servicing of new developments within the 100% Whitebelt Lands	Post 2051	$400,000	Developer
WW-41	Gravity collection sewer within the 100% Whitebelt Land, connecting to the proposed sewer network in the 70% Whitebelt Land, north of Queensville Sideroad and east of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Lands located north of Queensville Sideroad and east of Second Concession Rd.	Post 2051	$2,700,000	Developer
WW-42	Gravity sewer within the 100% Whitebelt Lands conveying wastewater to the future Water Reclamation Plant	Servicing of new developments within the 100% Whitebelt Lands located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,300,000	Developer
WW-43	S/N gravity sewer within the 100% Whitebelt Lands north of Queensville Sideroad and west of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Lands located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,100,000	Developer
WW-44	S/N gravity sewer within the 100% Whitebelt Lands north of Queensville Sideroad and west of Second Concession Rd.	Servicing of new developments within the 100% Whitebelt Lands located north of Queensville Sideroad and west of Second Concession Rd.	Post 2051	$3,100,000	Developer

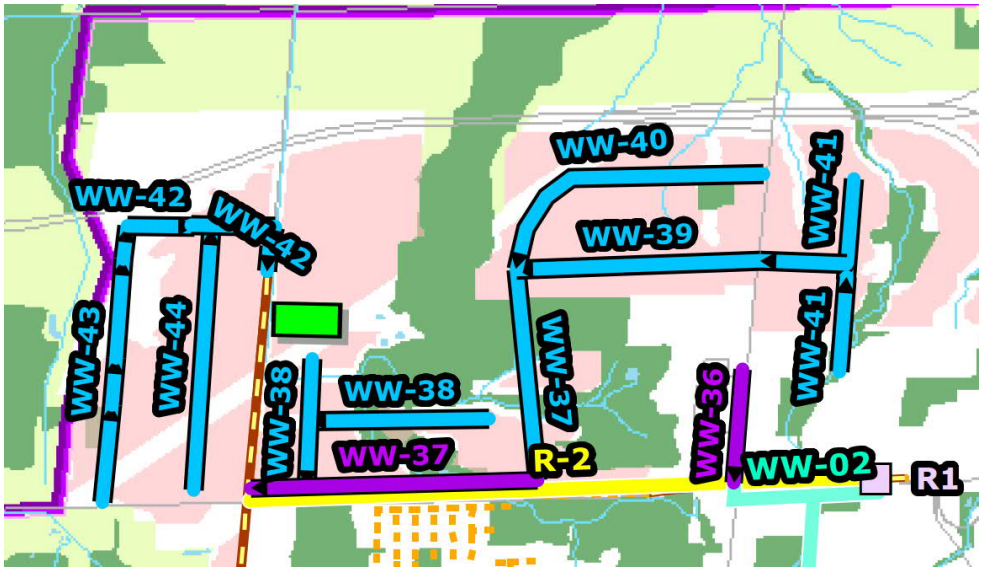

Figure 5-31 Wastewater Capital Projects in the Whitebelt Lands Zone 1

WHITEBELT LANDS ZONE 2

To service the future Whitebelt Lands Zone 2, the following projects were considered as presented in Table 5.26 and Figure 5-32. Upon consulting with the Town, Option A is the preferable alternative, and the following section considers Option A as the recommended alternative for the Whitebelt Land Zone 2.

Table 5.26 Wastewater Capital Projects within Whitebelt Lands Zone 2

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-45	Future PS north of Queensville Sideroad and west of Woodbine Ave.	Collection of wastewater from the Whitebelt Land and pumping via forcemain to the Woodbine trunk sewer.	2045 - 2050	$10,300,000	Town
WW-46A	N/S gravity collection sewer on Woodbine Ave., north of Queensville Sideroad.	DC project to service the Whitebelt Land developments west of Woodbine Ave. and north of Queensville Sideroad.	2045 - 2050	$4,300,000	Town
WW-47A	N/S gravity collection sewer west of Woodbine Ave., north of Queensville Sideroad., connecting to WW-45	DC project to service the Whitebelt Land developments west of Woodbine Ave. and north of Queensville Sideroad.	2045 - 2050	$4,100,000	Town

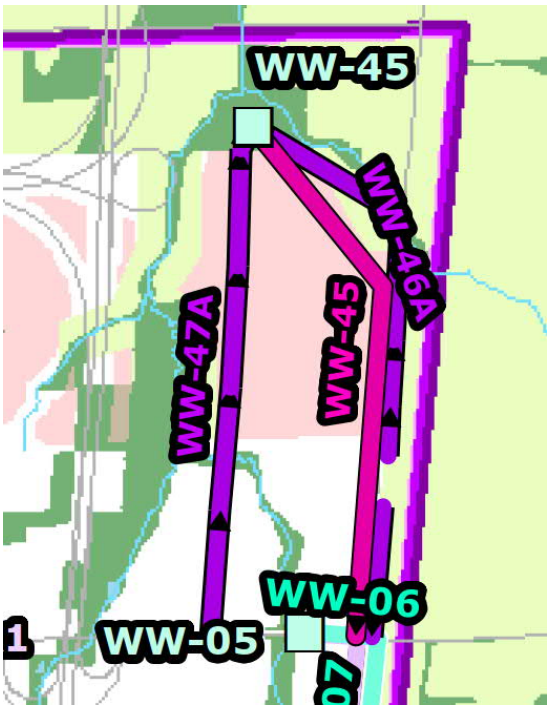

Figure 5-32 Wastewater Capital Projects in the Whitebelt Lands Zone 2

WHITEBELT LANDS ZONE 3

To service the future Whitebelt Lands Zone 3, the following projects were considered as presented in Table 5.27 and Figure 5-33.

Table 5.27 Wastewater Capital Projects within Whitebelt Lands Zone 3

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-48	Gravity sewer feeding to the trunk sewer on Second Concession Rd. that conveys wastewater to the Second Concession SPS	Servicing of new developments within the 70% Whitebelt Lands located north of Green Ln. and east of Yonge St.	2025-2029	$1,900,000	Developer
WW-49	Gravity sewer within the 70% Whitebelt Lands located north of Green Ln. and east of Yonge St.	Servicing of new developments within the 70% Whitebelt Lands located north of Green Ln. and east of Yonge St.	2025-2029	$500,000	Developer

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-50	Gravity sewer within the 70% Whitebelt Lands located north of Green Ln. and east of Yonge St.	Servicing of new developments within the 70% Whitebelt Lands located north of Green Ln. and east of Yonge St.	2035-2039	$1,000,000	Developer
WW-51	Gravity sewer extending north on Yonge St., north of Green Ln.	DC project to service the future developments within the Whitebelt Lands located north of Green Ln.	2025-2029	$1,000,000	Town
WW-52*	N/S gravity sewer feeding into the trunk sewer that conveys wastewater to the future PS5.	Servicing of new developments within the Whitebelt Lands located north of Green Ln. and east of Yonge St.	2035-2039	$2,600,000	Developer
WW-53	E/W gravity sewer within the 100% Whitebelt Lands north of Green Ln. and west of Yonge St.	Servicing of new developments within the 100% Whitebelt Lands located north of Green Ln. and west of Yonge St.	2035-2039	$2,000,000	Developer
WW-54*	Gravity sewer within the Whitebelt Lands north of Green Ln. and west of Yonge St.	Servicing of new developments within the Whitebelt Lands located north of Green Ln. and west of Yonge St.	2035-2039	$2,400,000	Developer

*NOTE: PART OF THE PROPOSED SEWER IS LOCATED WITHIN THE 100% WHITEBELT LANDS WHICH IS PLANNED TO BE DEVELOPED POST 2051; HOWEVER, THE PROPOSED LINEAR INFRASTRUCTURE UNDER PROJECT WW-17 AND WW-19 WILL NEED TO BE BUILT IN ADVANCE TO SERVICE THE 70% WHITEBELT LAND.

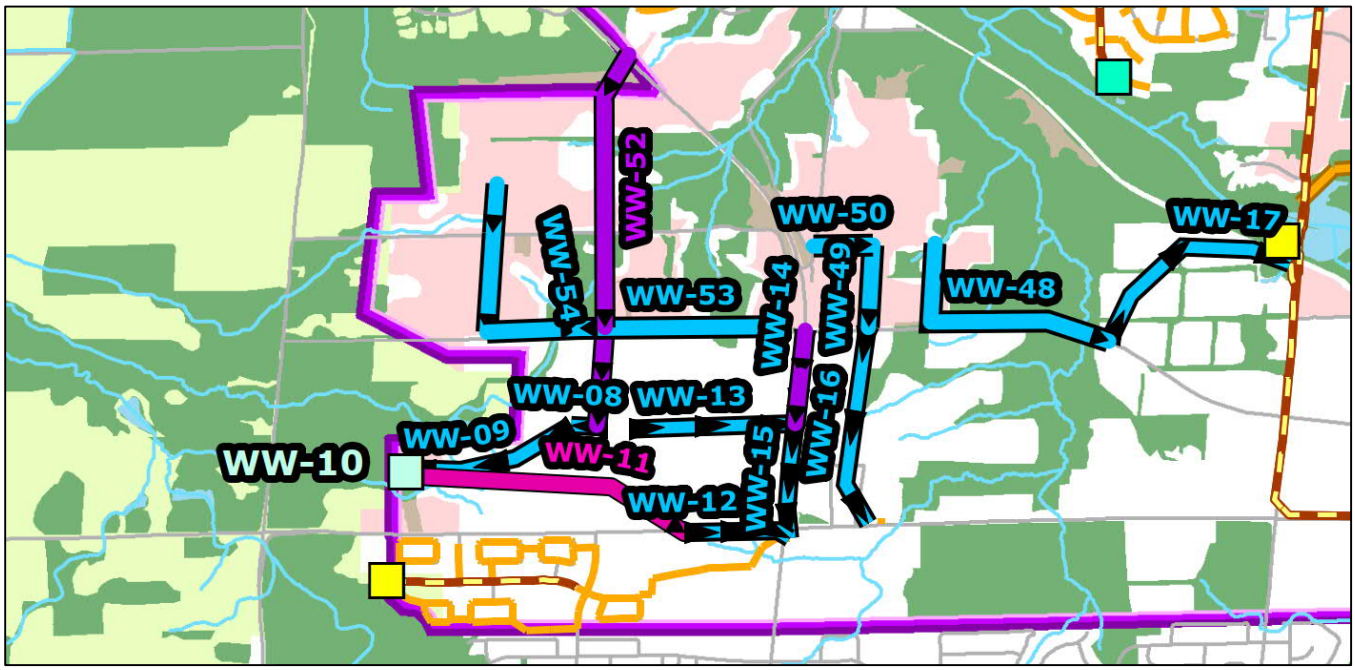

Figure 5-33 Wastewater Capital Projects in the Whitebelt Lands Zone 3

WHITEBELT LANDS ZONE 4

To service the future Whitebelt Lands Zone 4, the following projects were considered as presented in Table 5.28 and Figure 5-34.

Table 5.28 Wastewater Capital Projects within Whitebelt Lands Zone 4

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-55	Gravity sewer south of Doane Rd. and west of Second Concession Rd., connecting to the Holland Landing network	DC project to service the future developments in the 70% Whitebelt Lands located west of Second Concession Rd.	2025-2029	$1,300,000	Town
WW-56	Gravity sewer within the 70% Whitebelt Lands located west of Second Concession Rd. and south of Doane Rd.	Servicing of new developments within the 70% Whitebelt Lands located west of Second Concession Rd. and south of Doane Rd.	2040-2044	$1,100,000	Developer

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-57	Gravity sewer within the 70% Whitebelt Lands located west of Second Concession Rd. and south of Doane Rd.	Servicing of new developments within the 70% Whitebelt Lands located west of Second Concession Rd. in Holland Landing	2040-2044	$1,400,000	Developer
WW-58	Gravity sewer within the 70% Whitebelt Lands tying into the Holland Landing network on Beckett Ave.	Servicing of new developments within the 70% Whitebelt Lands located west of Second Concession Rd. in Holland Landing	2040-2044	$1,000,000	Developer

Figure 5-34 Wastewater Capital Projects within Whitebelt Lands Zone 4

WHITEBELT LANDS ZONE 5

To service the future Whitebelt Lands Zone 5, the following projects were considered as presented in Table 5.29 and Figure 5-35.

Table 5.29 Wastewater Capital Projects within Whitebelt Lands Zone 5

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-59	Gravity sewer south of Doane Rd. and east of Second Concession Rd., tying into the Queensville network on Doane Rd.	Servicing of new developments within the 70% Whitebelt Lands located west of Leslie St. and south of Doane Rd.	2025-2029	$2,500,000	Town
WW-60	S/N gravity sewer within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd., tying into the Queensville Village network	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2025-2029	$1,200,000	Developer
WW-61	S/N gravity sewer extension within the 70% Whitebelt Lands located west of Second Concession Rd. and south of Doane Rd., connecting to Project WW-60	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. between Doane Rd. and Mount Albert Rd.	2035-2039	$1,800,000	Developer
WW-62	S/N gravity collection sewer within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd., tying into the Queensville Village network at the intersection of York Minister Blvd. and Leaden Hall Dr.	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. between Doane Rd. and Mount Albert Rd.	2035-2039	$3,700,000	Developer

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-63	Gravity sewers within the 70% Whitebelt land, connecting to WW-62	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$1,800,000	Developer
WW-64	Gravity sewer within the 70% Whitebelt land, connecting to WW-62	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$900,000	Developer
WW-65	E/W gravity collection sewer within the 70% Whitebelt Lands between Second Concession Rd. and Highway 404, connecting to the future Queensville Village network	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2030-2034	$2,900,000	Developer
WW-66	Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$1,500,000	Developer
WW-67	Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2030-2034	$2,400,000	Developer

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-68	Gravity sewer within the Whitebelt Land, connecting to WW-61	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$4,100,000	Developer
WW-69	E/W Gravity sewer within the Whitebelt Land, connecting to WW-65	Servicing of new developments within the 70% Whitebelt Lands located east of Second Concession Rd. and south of Doane Rd.	2035-2039	$2,200,000	Developer
WW-71	Gravity sewer east of Leslie and along Leslie, connecting to the E/W future gravity collection sewer WW-23 along Green Lane.	Servicing of new developments within the 70% Whitebelt Land located east of Leslie St.	2030-2034	$3,700,000	Developer

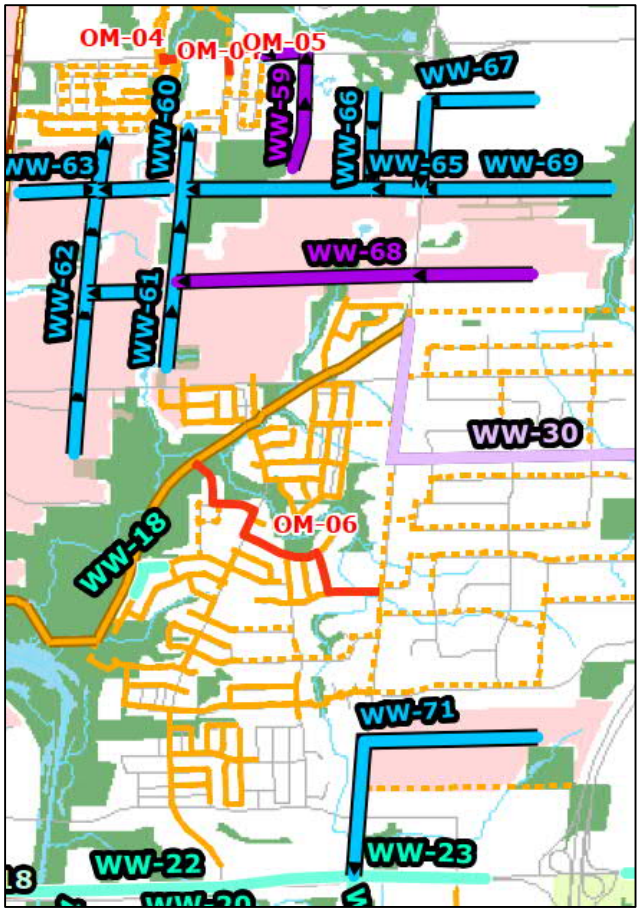

Figure 5-35 Wastewater Capital Projects within Whitebelt Lands Zone 5

WHITEBELT LANDS ZONE 6

To service the future Whitebelt Lands Zone 5, the following projects were considered as presented in Table 5.30 and Figure 5-36.

Table 5.30 Wastewater Capital Projects within Whitebelt Lands Zone 6

PROJECT ID	PROJECT DESCRIPTION	PROJECT RATIONAL	PHASING AND TIMING	CONCEPTUAL COST (C$)	FUNDING SOURCE
WW-70	Gravity sewer west of Park Ave., connecting to the N/S gravity collection sewer along Park Ave. at Sunrise St.	Servicing of new developments within the 70% Whitebelt Lands located west of Park Ave.	Post 2051	$1,500,000	Developer

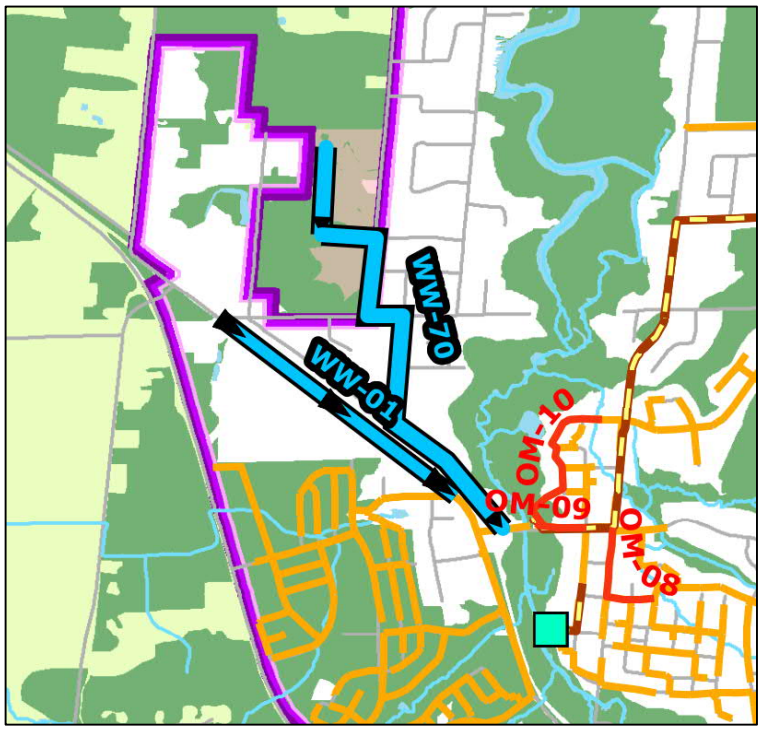

Figure 5-36 Wastewater Capital Projects within Whitebelt Lands Zone 6

5.4.2 YORK REGION'S CAPITAL PROJECTS

Several components of the wastewater trunk systems identified for the Town of East Gwillimbury fit within the description of the regional infrastructure and thus, are the responsibility of the York Region. Below in Table 5.31 and Table 5.32 is a listing of the facilities expected to be the responsibility of the York Region.

Table 5.31 Conceptual Costs of the Proposed York Region's Wastewater Capital Projects

PROJECT ID	LOCATION	PROJECT DESCRIPTION
R-1	Queensville	New 140 L/s Pumping Station PS 4: Queensville Side Rd, West of Woodbine
R-2	Queensville	New Forcemain from Region Pumping Station PS 4 to 2nd Concession Rd.

In addition to the proposed linear wastewater projects, the following vertical projects are proposed to increase firm sewage pump station capacity at existing facilities, assuming pump upgrades and building envelope expansions (if any) fit on the existing land parcels. The hydraulic model indicates no new forcemains are required. These projects are shown in the table below and their Class D capital cost estimates sum to $31,000,000.

Table 5.32 Conceptual Costs of the Proposed York Region's Wastewater Capital Projects Reviewed as Part of the Whitebelt Lands Analysis

PUMP STATION	DESIGN CAPACITY (BASED ON 2016 YORK REGION MP)	TOTAL WW LOADINGS (INCLUDED FLOW FROM WHITEBELT LAND)	PERCENT FLOW INCREASE	CLASS D COST ESTIMATE FOR SEWAGE PUMP STATION CAPACITY
2nd Concession SPS	1200 L/s	1224 L/s (272 L/s)	2% (small)	$0.0M
Queensville SPS	405 L/s	473 L/s (101 L/s)	~ 20%	$3.5M
Holland Landing/Thompson SPS	258 L/s	482 L/s (8 L/s)	~ 100% (double)	$15.0M
Planned SPS (WW16)	140 L/s	210 L/s (0 L/s)	~ 50%	$12.5M

York Region has not been contacted to check whether these rates may rise to cover future Capital projects by York Region on their regional sewer transfers or treatment infrastructure.

5.4.3 OPERATION & MAINTENANCE PROJECTS

Several existing components of the Town of East Gwillimbury wastewater infrastructure were identified as being potentially problematic to the Town in the future but being able to be remedied through operation and maintenance (O&M) procedures as described in Table 5.33 below. Locations of the O&M projects can be found mapped in Figure 5-37.

Table 5.33 Conceptual Costs of the Proposed York Region's Wastewater Capital Projects

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING
OM-01	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_790 and SAN_SL_789, located north of Doane Rd. and east of 2nd Concession Rd.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-02	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_1418, SAN_SL_1419, SAN_SL_1405, SAN_SL_783, located north of Doane Rd. and east of 2nd Concession Rd.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING
OM-03	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_1722, SAN_SL_1739, SAN_SL_1731, SAN_SL_1665, SAN_SL_1740, SAN_SL_1641, located north of Doane Rd. and east of 2nd Concession Rd.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-04	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_1411, SAN_SL_1412, SAN_SL_1404, located south of Doane Rd. and west of Leslie St.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-05	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe ID: SAN_SL_1796, located south of Doane Rd. and west of Leslie St.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-06	Queensville	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_1200, SAN_SL_1201, SAN_SL_1202, SAN_SL_1303: located west of Leslie St. and south of Mt. Albert Rd.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-07	Holland Landing	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_38, located along Olive St. and Dutch Settler's Ct. to Thompson SPS	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029

PROJECT ID	LOCATION	PROJECT DESCRIPTION	PROJECT RATIONALE	PHASING
OM-08	Holland Landing	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_1366, SAN_SL_1364, SAN_SL_1364B, SAN_SL_1362, located along Colony Trail Blvd., Peggs Crescent and Mt. Albert Rd.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-09	Holland Landing	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: SAN_SL_184, SAN_SL_183, SAN_SL_185, located along Kitching Dr. towards Yonge St. and the sewer north of Walker Rd. along Yonge St.	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029
OM-10	Holland Landing	O&M: Flushing, and Limit I/I to 50% of design allowance to avoid surcharge of sewer Pipe IDs: located along Bradford St. westwards from Yonge St. towards Thompson SPS	Avoid surcharge of sewer or potential requirement to upsize sewer	2025-2029

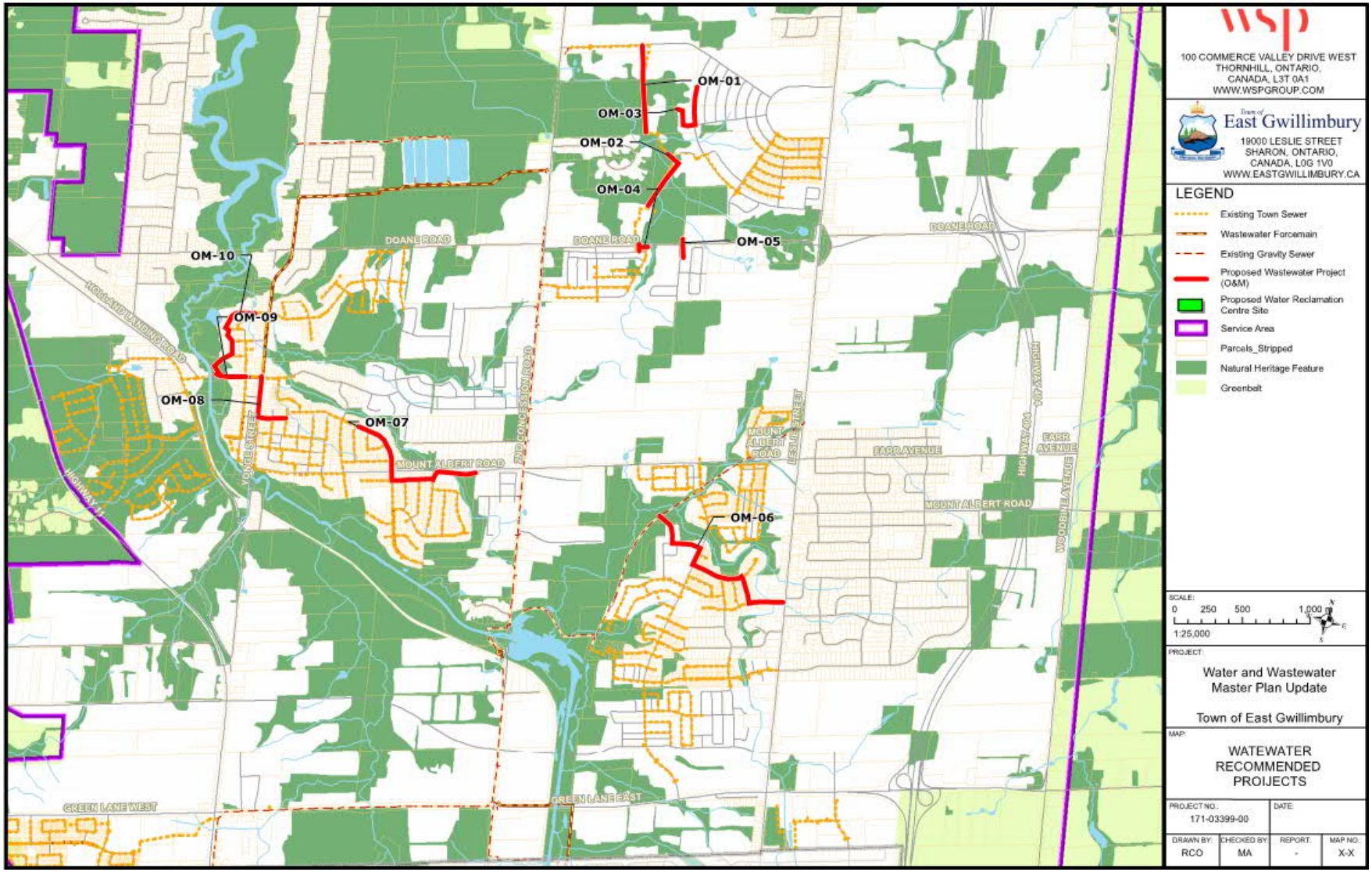

Figure 5-37 Operation and Maintenance Projects in the Wastewater System

6 CONSULTATION

Consultation with the public, stakeholders, interested parties and government review agencies, is a necessary and important component of the Municipal Class Environmental Assessment (Class EA) process. To meet the Class EA consultation requirements for this study, all stakeholders were informed of the study and given the opportunity to provide input (both written and verbal) on the assessment and evaluation process for the Master Plan. The following section provides a summary of the key points of contact that were undertaken throughout the course of the project.

It is required that two mandatory points of public consultation are carried out to satisfy the requirements of the MEA Class EA process. The public consultation process included:

— Issuance of a Notice of Study Commencement
— Holding of two Public Information Centres (PICs) to present the Master Planning process, the alternative servicing solutions and evaluation, the recommended servicing solutions, and to request public input
— Issuance of a Notice of Study Completion

In addition to the PICs, communication and meetings with all stakeholders were undertaken to receive input and to proactively deal with issues and concerns. Detailed consultation activities for each item are described further below.

6.1 STAKEHOLDER CONTACT LIST

In order to ensure all necessary Agencies, public, and stakeholders were made aware of consultation efforts throughout the Master Plan, a stakeholder contact list was created. The list was updated on a regular basis to ensure all necessary stakeholders were being made aware of the steps throughout the Master Plan. Examples of stakeholders relevant to the current Town of East Gwillimbury Water and Wastewater Master Plan include, but are not limited to:

- Lake Simcoe Region Conservation Authority,
- The development community,
- Neighbouring municipalities,
- York Region,
- Town Council,
- First Nation Groups (e.g., Alderville, Beausoleil, Chippewas of Georgina Island, Curve Lake, Hiawatha, Huron Wendat, Iroquois Confederacy, Kawartha-Nishnawbe First Nation of Burleigh Falls, Metis Nation of Ontario, Mississauga of Scugog Island, Mohawks of the Bay of Quinte, Moose Deer Point, Six Nations of the Grand River, and Williams Treaties),
- Town of East Gwillimbury residents,
- Several provincial ministries including the Ministry of Transportation, and the Ministry of the Environment, Conservation and Parks.

6.2 NOTICE OF STUDY COMMENCEMENT

The Notice of Study Commencement for 2019 Town of East Gwillimbury Water and Wastewater Master Plan Update was published on December 4th, 2017, and sent by mail to all parties listed on the Stakeholder List. The Notice of Study Commencement was re-issued on February 9th, 2023 for 2022 Town of East Gwillimbury Water and Wastewater Master Plan Update including WBL intensification. Both notices can be found in Appendix G.

6.3 PUBLIC INFORMATION CENTRE 1

The purpose of the Public Information Centre (PIC) #1 was to introduce the Master Plan to the public and relevant stakeholders and to address any concerns they may have. Notices for the PIC #1 were mailed to all applicable stakeholders on the contact list. Stakeholders remained on the mailing list for the duration of the project unless they requested to be removed. Individuals attending the PIC were asked to identify themselves on the sign-in sheet. A copy of the Notice of PIC #1 is included in Appendix G.

PIC #1 was held on March 22nd, 2018, in the East Gwillimbury Sports Complex. The PIC consisted of display boards that presented an overview of the Master Plan's purpose and background and the evaluation criteria that would be used later in the project to determine the recommended servicing solutions. Information was presented on display boards, and staff from both the Town and WSP were available to present the information and answer any questions from the public. A comment sheet was provided for attendees to provide written feedback. A copy of the PIC #1 sign-in sheet, comment sheets, and display boards is included in Appendix G.

6.4 PUBLIC INFORMATION CENTRE 2

The purpose of PIC #2 was to present to the public and relevant stakeholders the status and findings of the Master Plan and to address any concerns they may have. Notices for the PIC #2 were mailed to all applicable stakeholders on the contact list. As was the case in PIC #1, individuals attending were asked to identify themselves on the sign-in sheet. A copy of the Notice of PIC #2 is included in Appendix G.

PIC #2 was held on April 10th, 2019, at the East Gwillimbury Civic Centre in Sharon. The PIC consisted of display boards that presented an overview of the Master Plan's purpose and background, the alternative and recommended servicing solutions, and the evaluation criteria use to determine the recommended servicing solutions. Staff from both the Town and WSP were available to present the information and answer any questions from the public. A comment sheet was provided for attendees to provide written feedback. A copy of the PIC #2 sign-in sheets, comment sheets, and display boards is included in Appendix G.

6.5 PUBLIC INFORMATION CENTRE 3

The purpose of PIC #3 was to present to the public and relevant stakeholders the status and findings of the Master Plan and to address any concerns they may have. Notices for the PIC #3 were mailed to all applicable stakeholders on the contact list. As was the case in PIC #1 and #2, individuals attending were asked to identify themselves on the sign-in sheet. A copy of the Notice of PIC #3 is included in Appendix G.

PIC #3 was held on April 26th, 2023, at the East Gwillimbury Civic Centre in Sharon. The PIC consisted of display boards that presented an overview of the Master Plan's purpose and background and the recommended capital projects. Staff from both the Town and WSP were available to present the information and answer any questions from the public. A comment sheet was provided for attendees to provide written feedback. A copy of the PIC #3 sign-in sheets, comment sheets, and display boards is included in Appendix G.

6.6 COUNCIL WORKSHOP AND COMMUNITY OPEN HOUSE

The purpose of the Council Workshop and Community Open House was to present to the public and relevant stakeholders the status and to address any concerns they may have. The Council Workshop and Community Open House was held on October 8th, 2019, at the East Gwillimbury Civic Centre in Sharon. The PIC consisted of display boards that presented an overview of the Master Plan's purpose and background, the alternative and recommended servicing solutions, and the evaluation criteria use to determine the recommended servicing solutions. Staff from both the Town and WSP were

available to present the information and answer any questions from the public. A comment sheet was provided for attendees to provide written feedback. A copy of the council presentation is included in Appendix G.

6.7 NOTICE OF STUDY COMPLETION

The Notice of Study Completion is filed with the finalized Master Plan Document. This notice informs the public, agencies, and stakeholder of the outcome of the Study, where the Study can be reviewed during the viewing period and the manner in which public comment can be received.

The Notice will be mailed to all applicable parties on the stakeholder contact list. Additionally, it will be published in the Town's website.

6.8 FIRST NATION CONSULTATION

As part of the Master Plan's consultation efforts, it was important to consider any Métis and First Nations groups which may be affected by the Study. The following initiatives were undertaken to coordinate the engagement of Aboriginal peoples in the Master Planning process:

1. Developed a stakeholders list of First Nations and Métis communities with existing or asserted rights or claims within the Study Area.
2. Reviewed the list with information received from the Ministry of Indigenous Relations and Reconciliation to confirm that no First Nation groups were overlooked.
3. Notified these communities of the Master Plan that is underway as well as any consultation activities (e.g., Public Information Centres) that were being held regarding the Study.
4. Followed up with the community contacts to ensure that they had received the Notices regarding the Master Plan, and to confirm whether or not they had any issues or comments on the project.

A key group consulted throughout the Master Planning process was the Chippewas of Georgina Island First Nation, as they were the closest First Nation community to the Town. Two stakeholder meetings were completed with the Chippewas of Georgina Island First Nation. The first one was on April 4th, 2018, and the second one was on July 18th, 2019. Sign-in records of the meetings can be found in Appendix G.

6.9 DEVELOPERS

Specific to the Town of East Gwillimbury Water and Wastewater Master Plan, an integral stakeholder that required engagement was the development community. Due to the expectation that the Town will significantly increase in population and development in the next 30 years (a horizon encompassing this undertaking of the Master Plan), consultation with the development community was vital to ensure that the Master Plan planned development strategies were aligned. A meeting was held on July 18th, 2019, with the development community to present the proposed water and wastewater servicing strategies and highlight projects that were growth-driven.

7 CONCLUSIONS

The Master Plan identifies projects to address the servicing needs of planned growth and development within the Town of East Gwillimbury in the 2051 planning horizon. Background reports and relevant legislation/regulations were reviewed as part of this process. The study area is comprised of the Town's CGA, Mount Albert, Whitebelt Lands, and East Industrial Lands (i.e., 404 Rice Employment Lands).

The population forecasts for the study area were developed using York Region's population projections for both residential and employment growth; according to the Region's Official Plan and approved 70% and 100% Whitebelt Lands expansion scenarios. The water model runs for the ultimate buildout scenario in the 2051 planning horizon provided information about existing infrastructure that needed to be upgraded to meet the projected growth.

7.1 WATER SYSTEM CONCLUSIONS

The existing conditions of the water system were analysed by developing a new all-pipe WaterCAD/GEMS model and defining pressure district boundaries to reflect the conditions of the current water distribution network. Based on the recommendations and discussion with the Town, an InfoWater model was developed and used for the analysis of the Town's growth scenarios to the 2051 planning horizon.

The majority of the study area can satisfy the pressure requirements set by the Region and the Ministry of Environment Conservation and Parks (MECP) and have significant fire flow availability to meet the typical residential and ICI required fire flow that typically range between 75L/s and 250 L/s while maintaining the minimum residual pressure requirements of 20psi set by the MECP. The high elevation areas were identified near Woodbine Avenue / Davis Drive and near Leslie Street / Doane Road, while low elevation areas were observed near 2nd Concession Road / Green Lane. The service pressures above and below the requirements are observed in these areas and are expected to be alleviated by proper pressure zone delineation or adjustments to the water level of appropriate corresponding elevated tanks. Given the existing pumping status and boundary condition reservoir levels, the overall servicing capacity within the Town will not be affected significantly with the additional demand from the Whitebelt Lands intensification. For the support of future development applications and local decisions, it is recommended to refer to the District Model (the Region's model) with additional looping and facilities within Town of Newmarket and Town of Aurora.

7.2 WASTEWATER SYSTEM CONCLUSIONS

The existing condition of the wastewater system in the Town was analysed through a detailed water and wastewater servicing study. The existing conditions were evaluated to gain an understanding of the Town's wastewater system. A PCSWMM model was developed and validated to reflect the existing sewer infrastructures and pumping station operations.

For the purpose of this update, the model was updated to reflect the projected population growth in 2051 planning horizon. New sewers were added in the model as required to service the planned developments, and they were sized based on the simulated ratio of Actual Sewer Flow vs. Theoretical Sewer Capacity (q/Q) criteria and the Depth of Flow to Sewer Diameter (d/D) in the wastewater model. With these criteria, WSP's proposed linear infrastructure in the Study Area that can effectively convey the sewage from the study area to the sanitary pump stations (SPS).

Model runs were completed under Wet Weather condition to identify potential system constraints and provide recommendations for system improvements to accommodate the future growth within the Town. With the addition of the future flow, several existing trunk sewers in Queensville, Holland Landing, and Sharon were simulated with surcharge, and O&M projects were proposed as part of this master plan to avoid surcharge in sewers or potential requirement to upsize sewer significantly. When considering constraints from the existing vertical infrastructure, the wastewater loadings exceeded the design capacity for the Holland Landing SPS and Queensville SPS. Where applicable, infrastructure upgrades or improvements for existing and/or Regional planned sewers need to be further reviewed to accommodate the population growth within the Town. This includes but is not limited to increasing the sizes of some sewers and/or increasing the design capacity of the Thompson SPS and Queensville SPS.

8 RECOMMENDATIONS

8.1 WATER SYSTEM RECOMMENDATIONS

The Town's Water and Wastewater Master Plan has identified a total of 82 Capital Plan projects, of which 73 projects are to service the future development (e.g., growth-driven) and 9 projects are to strengthen the existing distribution network. The overall conceptual cost for the total of 82 Capital Plan projects is $128,300,000 including a 30% contingency and 15% for planning EA and engineering and is recommended to be split up into different growth scenarios based on the Town's preferred specific timing.

It is important to note that the costs indicated are order of magnitude only and, have not been subject to a rigorous cost estimation exercise. As the development proceeds and design reviews are completed at greater levels of detail, the estimated costs can be confirmed.

Six (6) additional projects were identified as falling under the jurisdiction of York Region. The costs required for the significant amount of regional infrastructure necessary to facilitate the servicing of the Central Growth Area is not included within the costs presented as these facilities will be the responsibility of the Region.

Operationally, seven (7) infrastructure projects worth $600,000 will define District Metered Areas (DMAs) to support water loss reduction, strengthen the distribution system and pay for itself within the Master Plan horizon.

8.2 WASTEWATER SYSTEM RECOMMENDATIONS

The Town's Water and Wastewater Master Plan has identified a total of 71 Capital Plan projects to service the future developments with a total conceptual cost of $ 277,900,000 considering a 30% contingency, and a 15% for planning EA and engineering, and all of which were identified as growth-driven and is recommended to be split up into different phases.

It is important to note that the costs indicated are order of magnitude only and, have not been subject to a rigorous cost estimation exercise. As the development proceeds and design reviews are completed at greater levels of detail, the estimated costs can be confirmed.

Two (2) additional projects falling under the jurisdiction of York Region were also identified, and the design capacity for the Region's Sanitary Pump Station needs to be re-assessed in 2051 planning horizon. The conceptual cost for the pump station upgrades is determined to be $31,000,000, considering a 30% contingency, and a 15% for planning EA and engineering.

Finally, A total of ten (10) operation and maintenance projects were recommended to be implemented in the existing Queensville and Holland Landing areas. These would involve flushing the pipes and limiting the Infiltration and Inflow (I/I) to 50% of the design allowance in order to prevent more costly sewer upgrades.

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