Welcome

Township of Mapleton

Water/Wastewater Master Plan

Public Information Centre
October 12, 2022

Objectives of this Public Information Centre

- To present:
  - Background project information
  - Drivers for water and wastewater servicing strategies
  - Key water and wastewater servicing constraints and opportunities
  - Preliminary preferred water and wastewater servicing strategies
- To receive comments from the public and interested review agencies about the preliminary preferred servicing strategies

Drayton Elevated Tank

What is this Study About?

- The Township of Mapleton is developing a Water and Wastewater Master Plan to ensure that the Township can continue to deliver high quality and sustainable drinking water and wastewater services to meet the needs of the community now and into the future.
- The Water and Wastewater Master Plan will identify the preferred water and wastewater servicing strategies necessary to support existing and future growth needs to 2051
- Key aspects of this analysis will include:
  - Review of growth trends and current development pressures
  - Development of overall servicing strategies for planned growth areas
  - Development of a detailed schedule for facility upgrade requirements, including property, expansion needs and other upgrades
  - Addressing system reliability, effective operational capacities and energy efficiency

What is a Water and Wastewater Master Plan

- Master Plans are long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles.
- Master Plans address infrastructure requirements on a community scale. Local servicing plans for individual developments is considered through Planning Act approvals – i.e., Plans of Subdivision, Site Plans, etc.
- Key objectives of a Master Plan include:
  - Development of an overall servicing strategy for the planning horizon, based on updated growth projections.
  - Develop a list of specific projects to best meet the overall system needs.
  - Provide a capital implementation program for the preferred servicing strategies.
  - Follow key principles of successful environmental planning, as per the Municipal Class Environmental Assessment process.

Study Process and Timelines

The Master Plan process is being undertaken in accordance with the **Municipal Class Environmental Assessment** (Class EA) – Approach 2 process for Master Plans.

Public participation is an integral part of the Class EA process. This meeting provides an opportunity for the public to participate in the process.

Public, agency, stakeholder and Indigenous Community consultation is embedded throughout this process and around key milestones.

EA Phase 1 Problem and Opportunity

- Initiate the Master Plan
- Review existing conditions, growth projections, future needs
- Identify and describe the problem and opportunities

EA Phase 2 Alternative Solutions

- Evaluate alternative strategies to address the needs
- Identify a preferred strategy
- Consult with public, stakeholders, agencies and Indigenous Communities

EA Documentation – Approach 2

- Finalize the Master Plan
- Document all aspects of decision-making and public feedback
- Minimum 30-day public review period

Design and Implementation (Future)

- Complete the design of solutions recommended in the Master Plan
- Property acquisition and utility relocation as needed
- Initiate construction

Continuous Consultation

- Notice of Study Commencement **August 2021**
- Online Project Information Package August 2022
- Public Information Centre October 2022
- Notice of Study Completion December 2022

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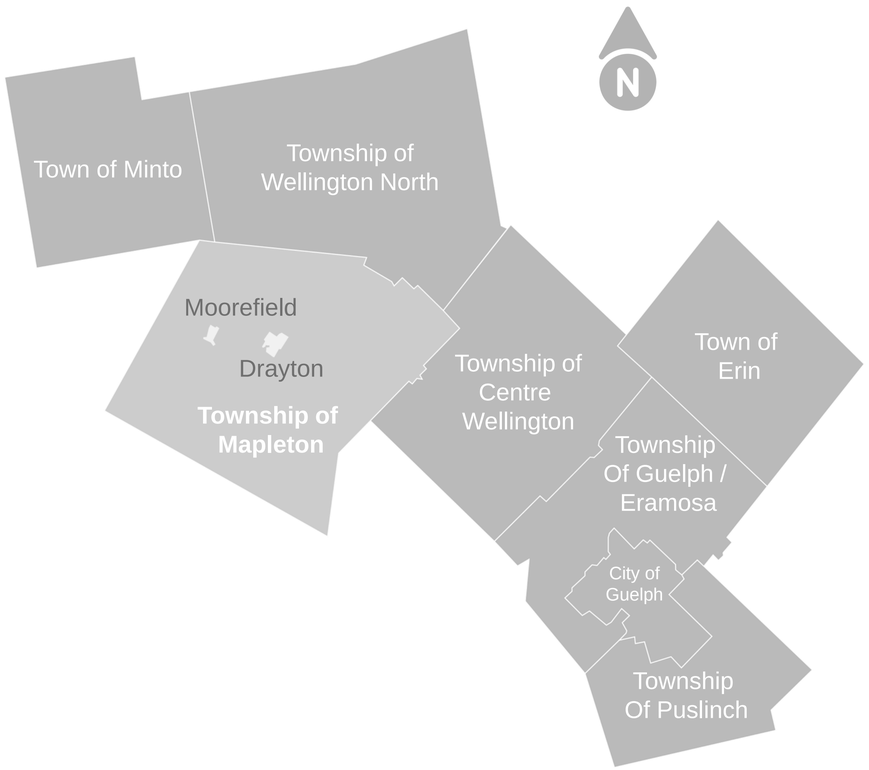
Community Context and Growth Projections



The Master Planning process will document baseline population and growth projections to 2051. These projections and land use planning are critical to the development of efficient and cost-effective water and wastewater servicing strategies.

- According to the Official Plan for the County of Wellington, population is projected to grow in the County from 95,805 persons to 140,000 persons by 2041.
- 82% of this growth will be focused in 14 urban centres, including Drayton and Moorefield
- Wellington County's policies for growth relevant to the Mapleton Water and Wastewater Master Plan include:

Provide the infrastructure for growth in an environmentally and fiscally responsible manner

Encourage growth to urban areas and in particular to those with municipal sewer and water services

Promote intensification while preserving historic streetscapes

Encourage increased densities in designated Greenfield areas of urban centres

Within the County of Wellington land area of approximately 535.6 km^2

Mapleton	Dayton	Moorefield
10,839	2,569	620

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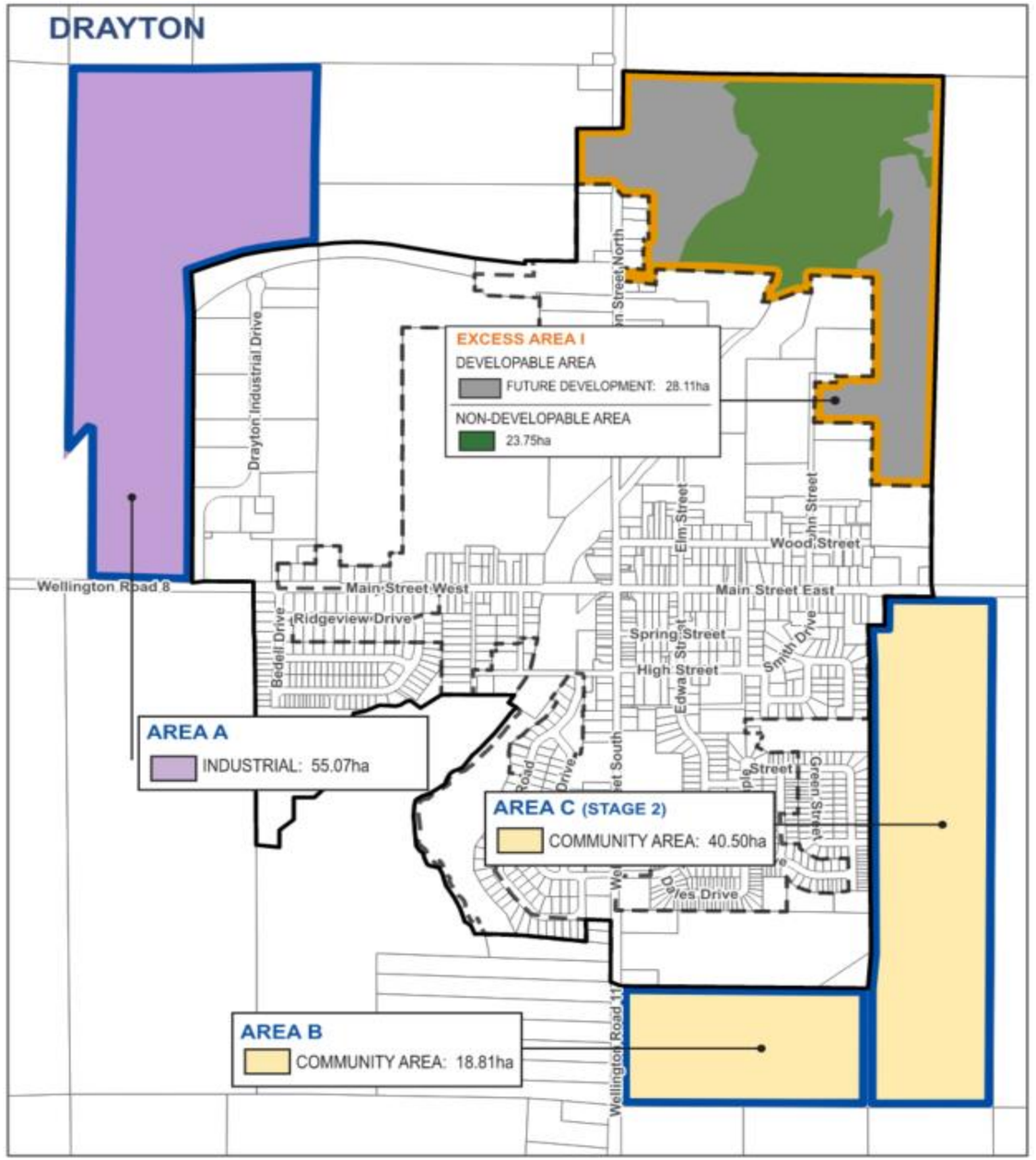
Community Context and Growth Areas

The Township's Planned Growth Areas for Drayton are shown on the adjacent Figure.

Note that the Growth Management Study approved by the Township identified the "Excess Area" is removed from development consideration for Drayton and Area's A, B and C will be added to accommodate employment and residential growth.

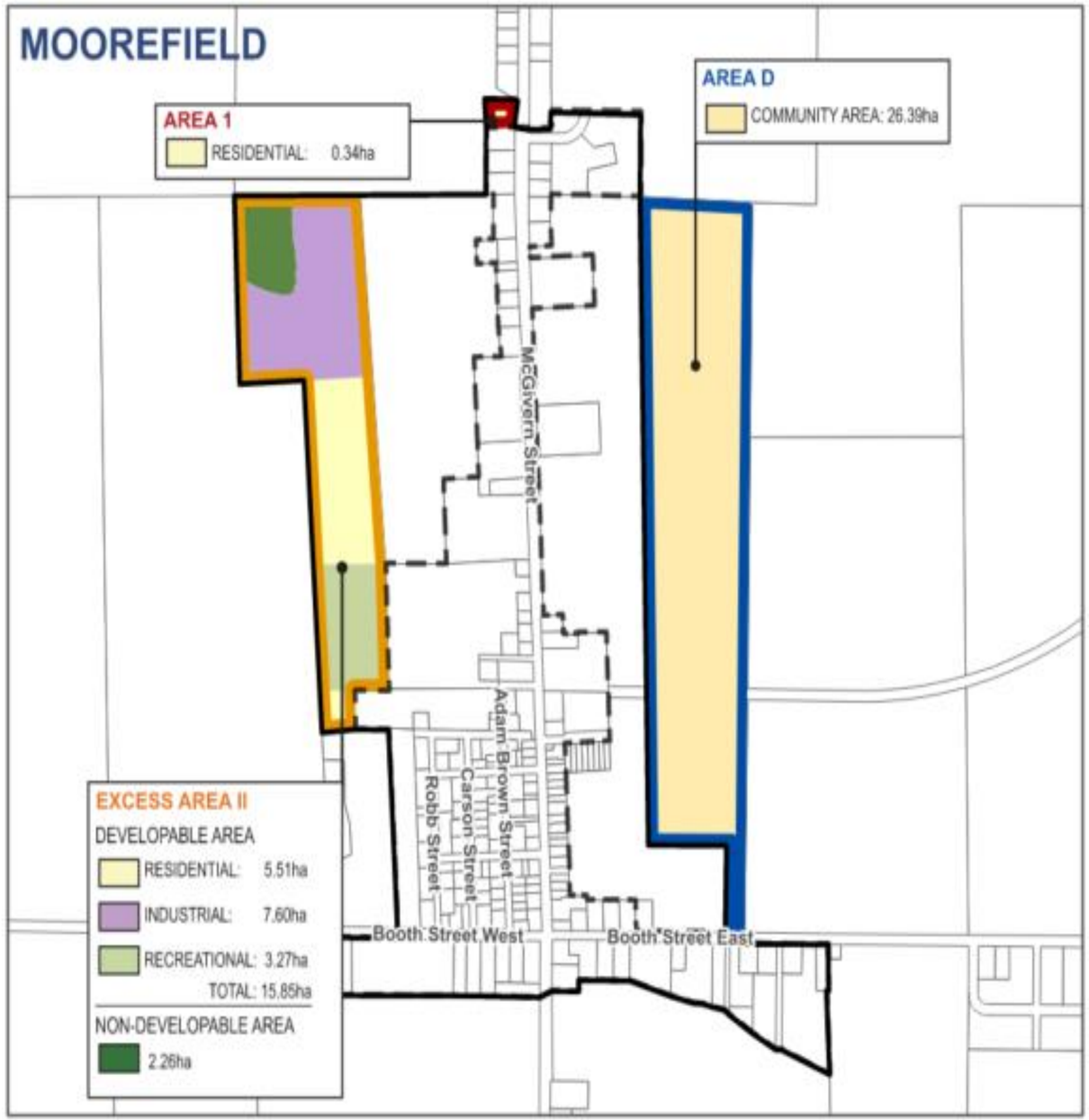


Mapping Source: GSP Group. (2022). Township of Mapleton Growth Management Summary - Final Report. Township of Mapleton.

Community Context and Growth Areas

The Growth Management Study identified Area's 1, D and an excess area 2 be added to accommodate employment and residential growth in Moorefield.

Planned Growth Areas are shown on the adjacent Figure.

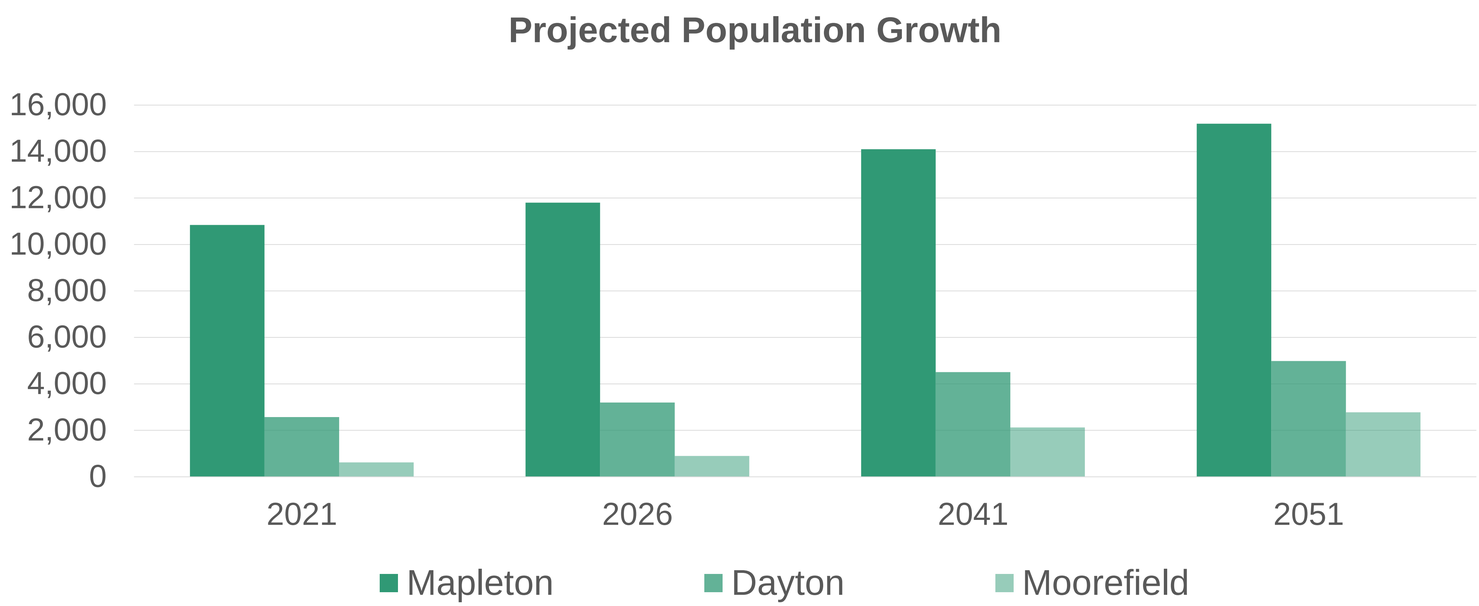


Mapping Source: GSP Group. (2022). Township of Mapleton Growth Management Summary - Final Report. Township of Mapleton.

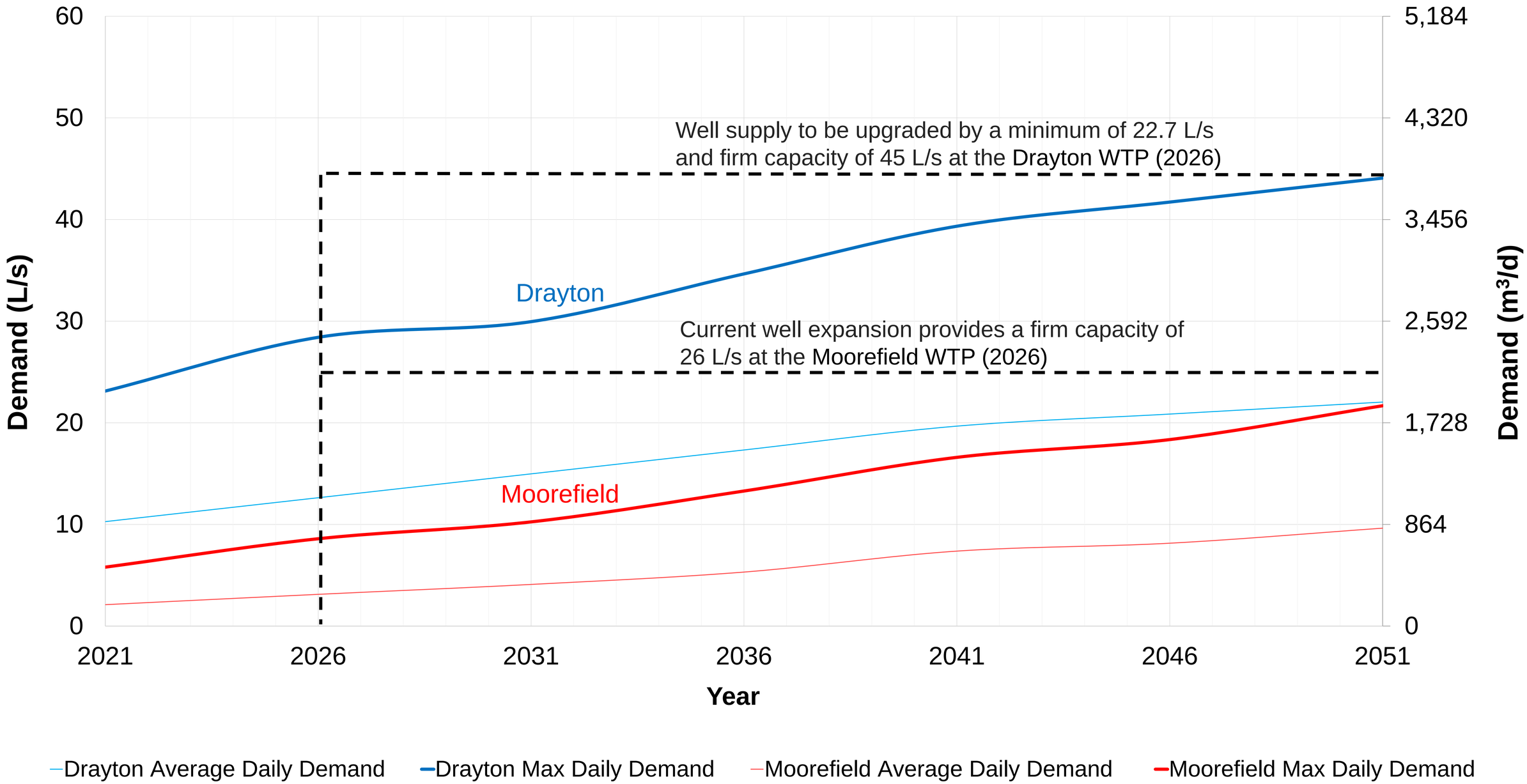
Growth Projections

	Existing Population (2021)	Projected Population (2026)	Projected Population (2041)	Projected Population (2051)
Drayton	2,569	3,200	4,507	4,983
Moorefield	620	900	2,125	2,775
Sub-Total – Urban Areas	3,189	4,100	6,632	7,758
Rural and Hamlet Areas	7,650	7,700	7,468	7,442
Total – Township	10,839	11,800	14,100	15,200

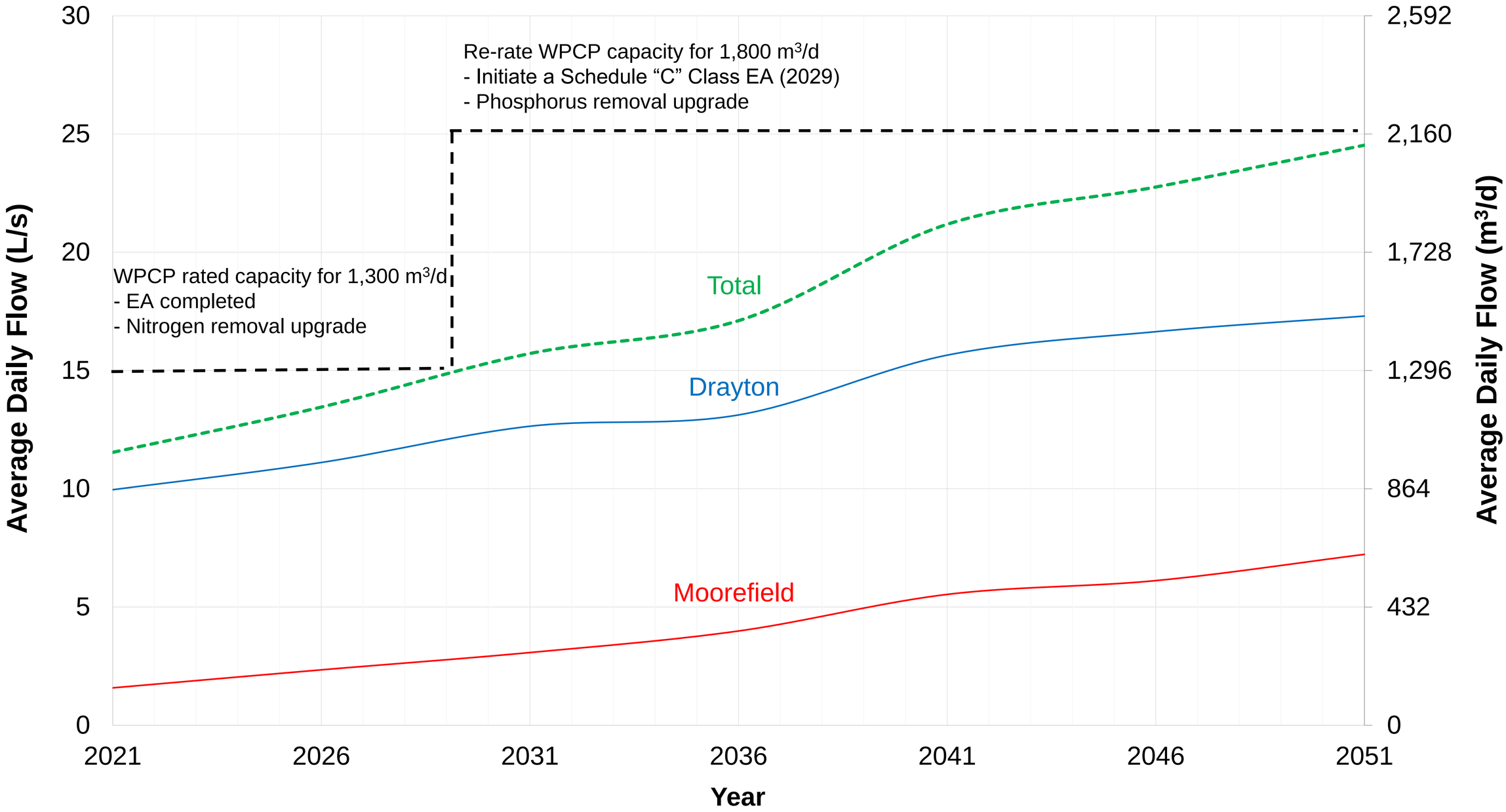
Note: Growth Projections taken from Township of Mapleton Growth Management Study – Final Report (GSP Group, 2022), and vary slightly from the County Official Plan estimates.



Water Demand Projections - Drayton & Moorefield



Wastewater Flow Projections - Drayton & Moorefield



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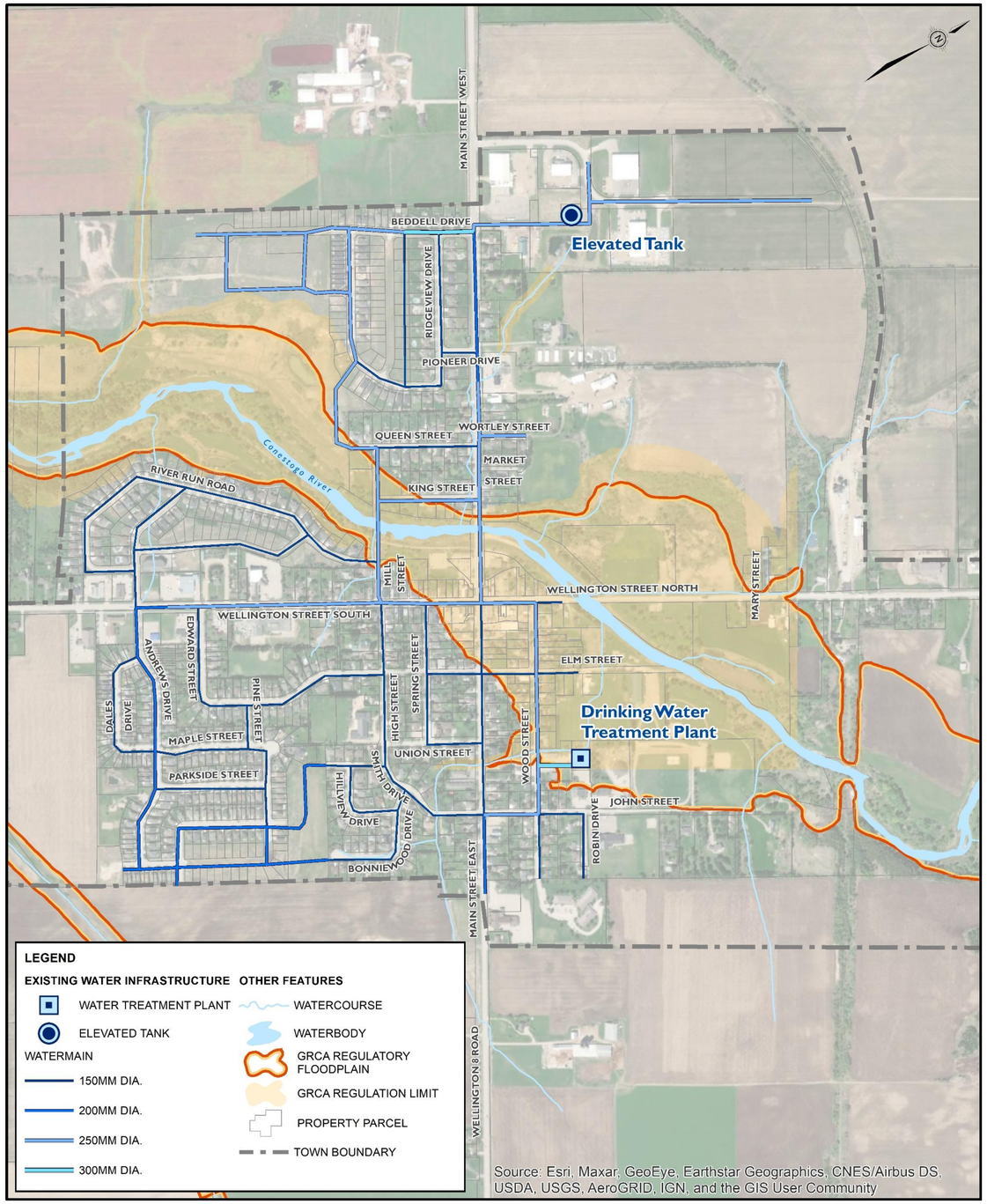
Existing Drinking Water System - Drayton

- Drayton is supplied with drinking water from the Drayton Water Treatment Plant (WTP) located at 60 Wood Street. The WTP consists of two (2) raw water wells, with iron sequestration, chlorine disinfection and high-lift pump station connected to the distribution system.
- The Drinking Water Distribution System consists of approximately 12.4 km of PVC watermains ranging in size from 150mm to 300mm diameter, along with associated appurtenances and service connections
- The Drayton Water Distribution System was designed and constructed to provide Fire protection throughout the community
- The Township is currently constructing a new 2,400 m^3 elevated storage tank at 29 Drayton Industrial Drive to address the shortfall in available storage within the system. The Elevated Tank is expected to be in service in the fall of 2022.



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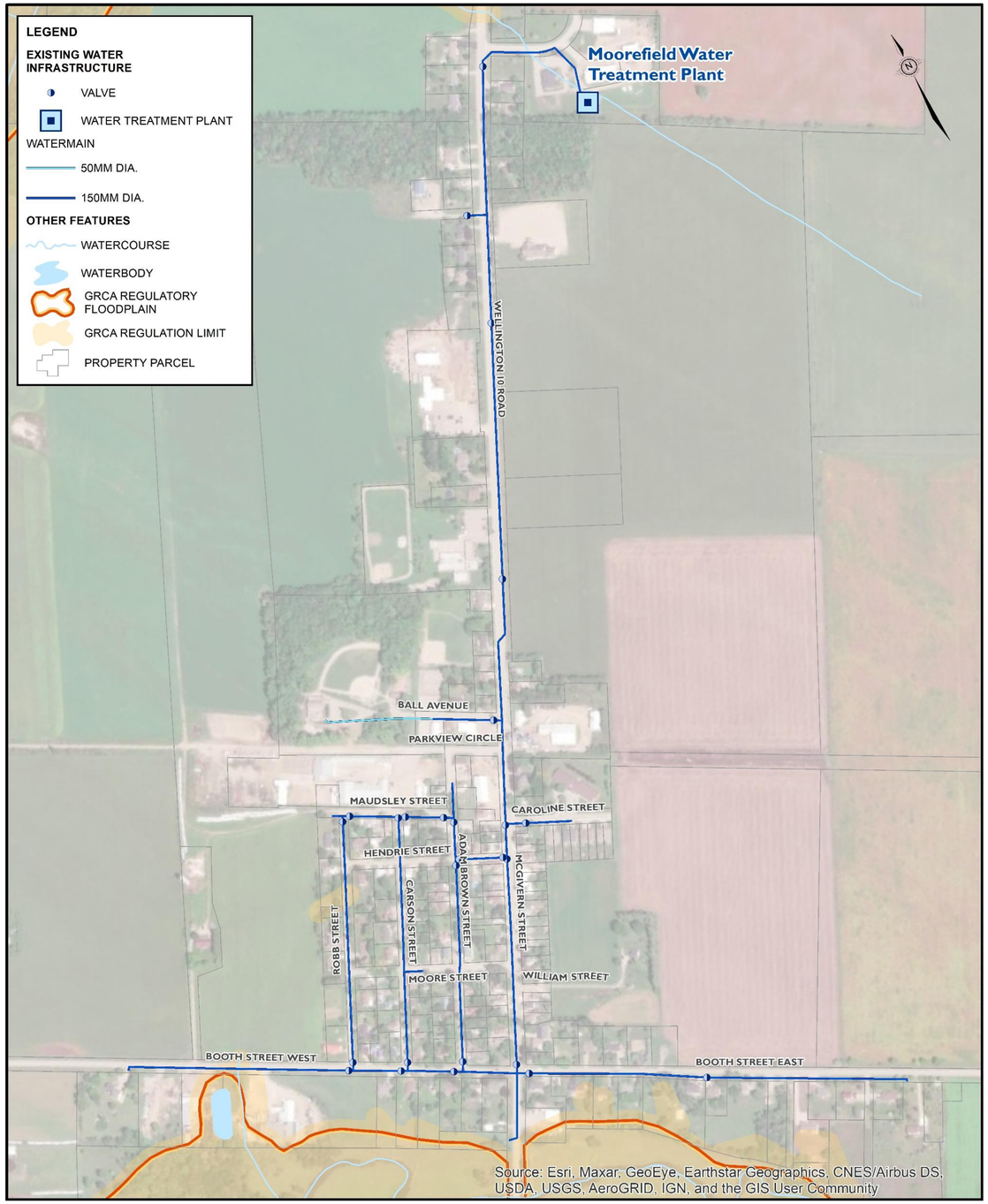
Existing Drinking Water System - Moorefield

- Moorefield is supplied with drinking water from the Moorefield Water Treatment Plant (WTP) located at 5 Hillwood Drive in Moorefield. The WTP currently consists of two (2) raw water wells, high-lift pumping station, and a 387 m^3 storage facility for chlorine contact and equalization storage.
- The Township is currently in the process of upgrading the WTP to address the shortfall in supply capacity and equalization storage within the system. Construction of an additional well and rehabilitation of an existing well will be completed. In addition, a new 400 m^3 standpipe will be constructed, and process modifications will be completed within the pumphouse. The upgraded facility is expected to be in service by 2026.
- The Moorefield Water Distribution System consists of approximately 4.7 km of PVC watermains ranging in size from 50mm to 150mm diameter, along with associated appurtenances and service connections. Fire protection is not provided through the municipal drinking water system.



Water Servicing Constraints and Opportunities

Constraints

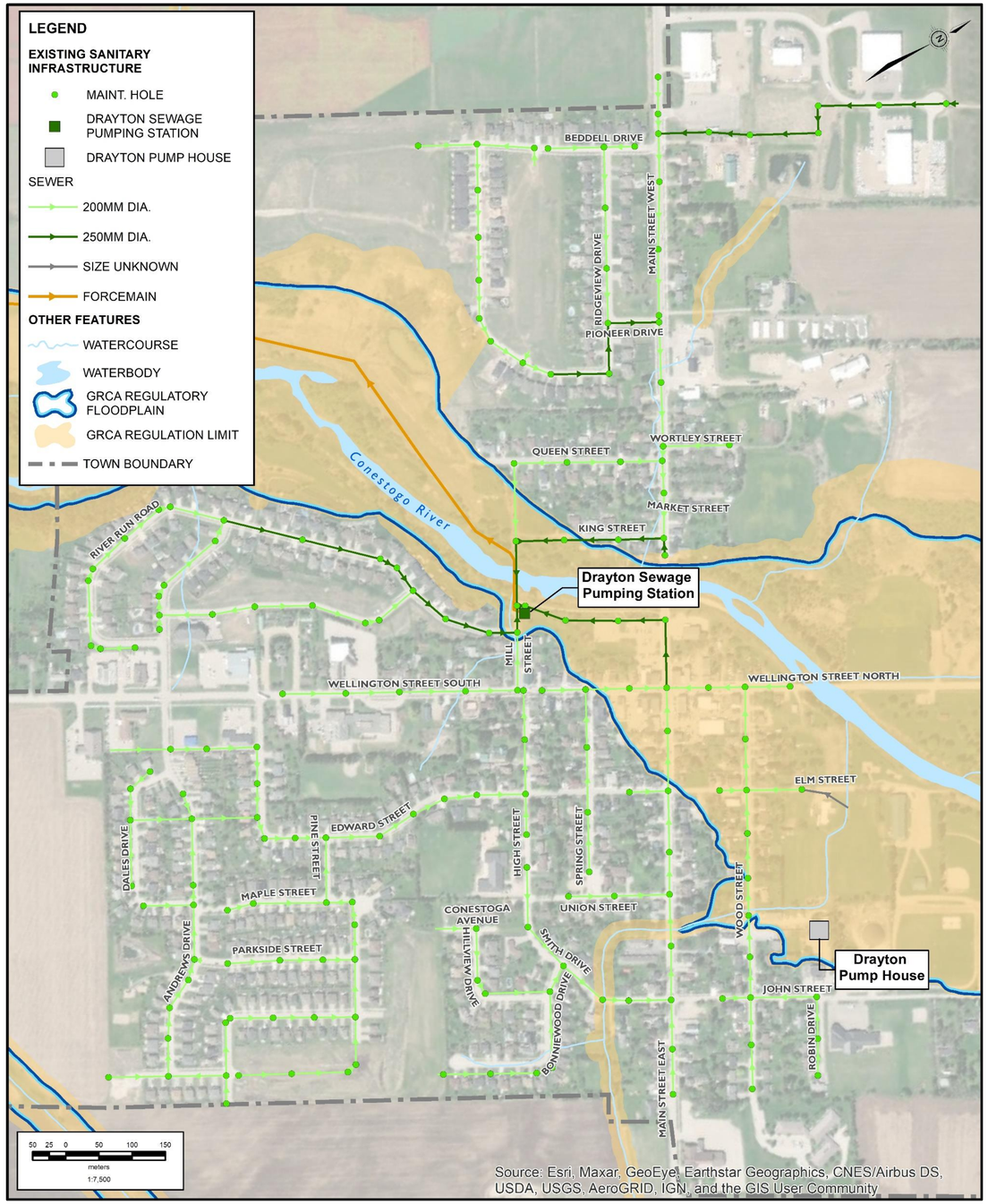
- The existing Drinking Water Supply System in Drayton does not have sufficient capacity to meet future demands.
- Growth areas in A, B and C in Drayton have no direct access to the drinking water distribution system.

Opportunities

- Completion of the Drayton Elevated Tank will help regulate the distribution system pressures.
- Construct a new well in the area of the existing Drayton WTP when maximum day demands approach 28 L/s to increase water supply capacity.
- Watermain extensions on County Road 8 and County Road 11 will provide direct drinking water to Growth Areas A, B and C.
- The Moorefield Drinking Water System will have sufficient capacity to accommodate growth.

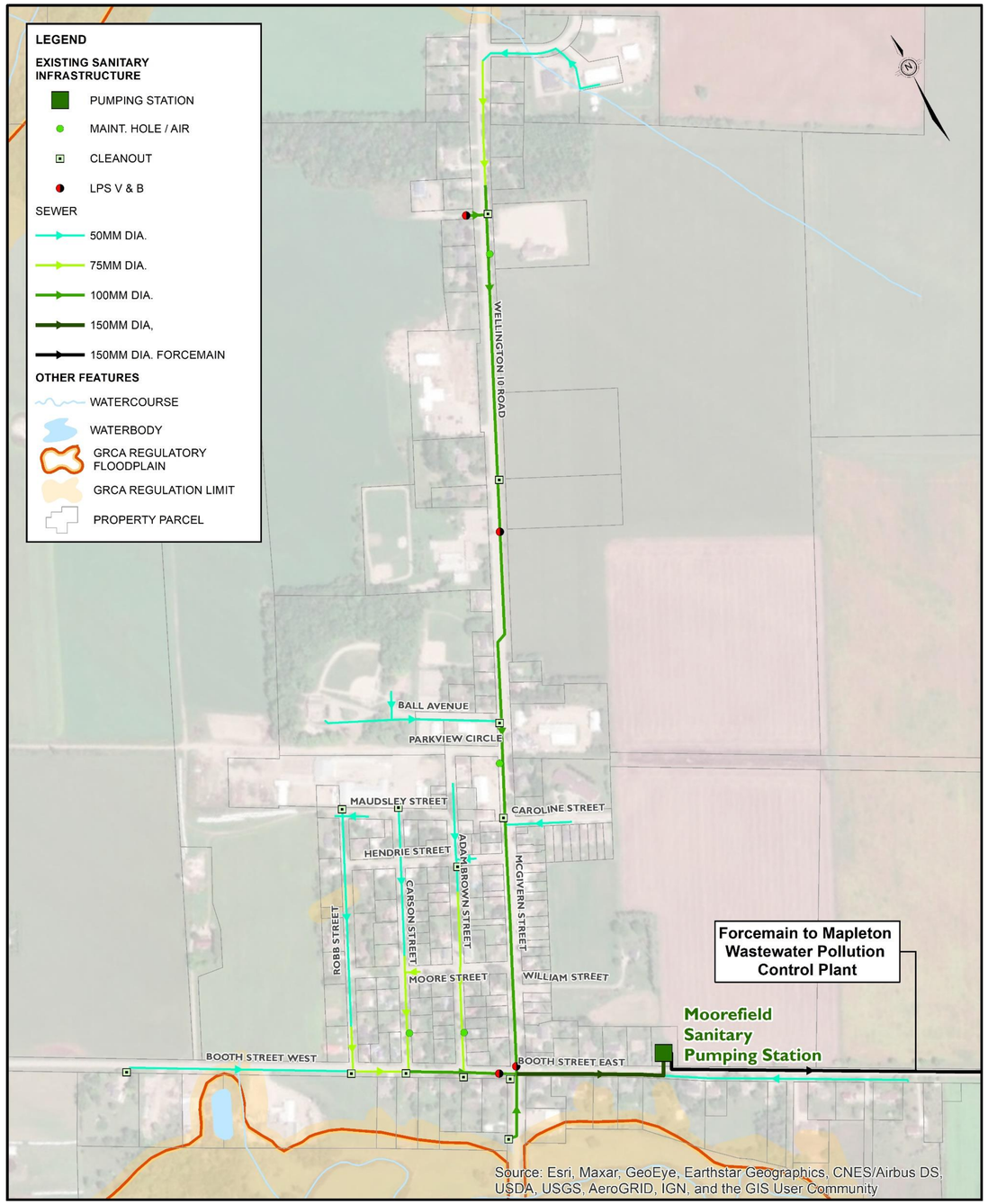
Existing Wastewater Collection System - Drayton

- Drayton is serviced with a conventional gravity collection system that conveys wastewater from each serviced property to a centralized sewage pumping station located at 20 Mill Street.
- The Drayton Sewage Pumping Station (SPS) was originally constructed in 1984 as a duplex submersible station with a rated capacity of 34 L/s. The SPS is currently in good to fair condition.
- The Drayton SPS discharges raw sewage to the Mapleton WWTP through a 1,600 m long 200mm diameter forcemain.
- The existing sewage pumping station occasionally experiences high inflow rates, and requires by-pass pumping and trucking of sewage to prevent raw sewage discharge directly to Conestogo Creek.



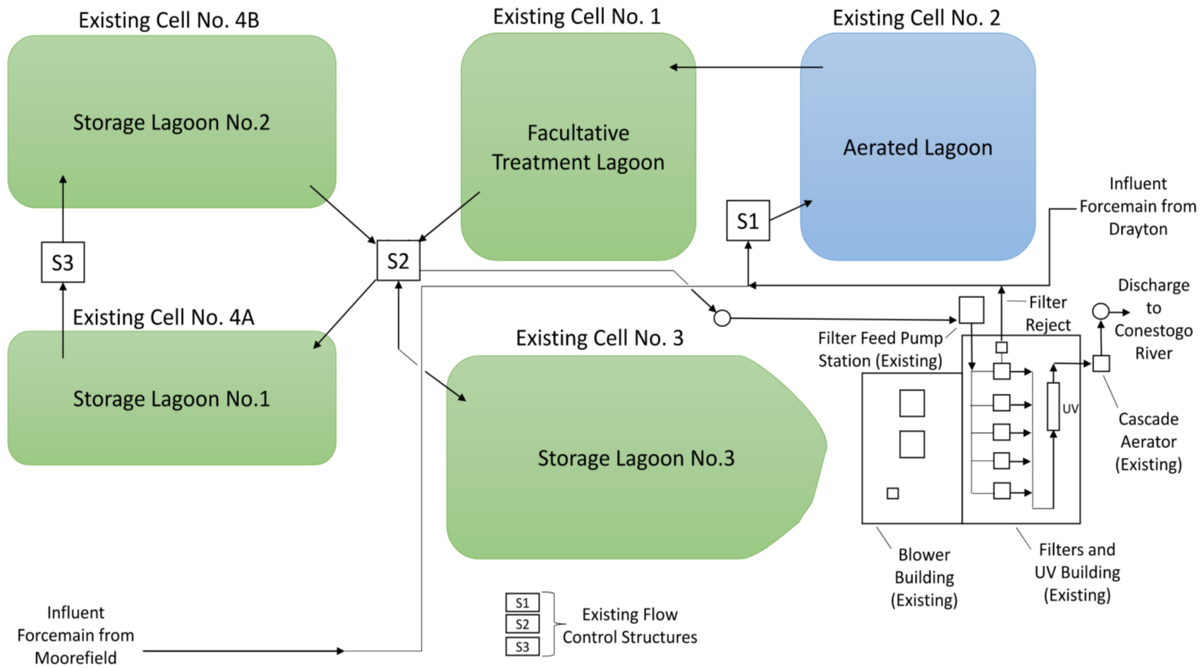
Existing Wastewater Collection System - Moorefield

- Moorefield is serviced with a low-pressure sewer system that conveys wastewater from each serviced property to a centralized sewage pumping station located at 20 Booth Street.
- Each serviced property has an individual grinder pump that conveys the raw sewage through small diameter sewers (forcemains).
- The existing Moorefield Sewage Pumping Station (SPS) was constructed in as a duplex submersible station. Raw sewage is conveyed to the Mapleton WPCP through a 5,000 m long 150 mm diameter forcemain. The SPS is currently in fair condition.



Existing Wastewater Treatment System

- Wastewater from both Drayton and Moorefield is conveyed to a seasonal discharge lagoon treatment plant
- In 2017, the Township completed an Environmental Assessment for the expansion of the Mapleton Water Pollution Control Plant (WPCP) that reviewed options to address capacity constraints at the Mapleton WPCP and identify alternative treatment options for the plant
- In 2018, the Mapleton WPCP was re-rated to a capacity of 900 m^3/d



Wastewater Servicing Constraints and Opportunities

Constraints

- Projected wastewater flows are anticipated to exceed the rated capacity of the Drayton SPS by 2026.
- The existing Drayton SPS is in poor condition with some mechanical components being inoperable, resulting in operational risks for the Township.
- The Drayton collection system experiences rapid inflow resulting in excessive flows to the Drayton SPS. Bypass pumping and haulage to the WPCP have occurred over the past few years.
- The existing low-pressure sewer system in Moorefield has adequate conveyance capacity to accommodate planned growth within the Planning Horizon. However, ongoing maintenance of the individual grinder pump stations represents a significant cost to the Township.
- The wastewater facility has capacity limitations that impacts its discharge schedule.

Opportunities

- Construction of a new or upgraded Drayton SPS will provide long term capacity for wastewater servicing.
- Construction of emergency overflow storage at the Drayton SPS will reduce the risks of spills to the environment.
- Conducting an Inflow and Infiltration Reduction Study will assist in identification of sources of inflow into the system, which may then be addressed to restore available conveyance capacity in the system.
- Transfer maintenance obligations for all existing grinder pump stations to the beneficiary user(s).
- Planned upgrade of wastewater treatment facility to 1,300 m^3/d capacity
- Future upgrade of wastewater treatment facility to 1,800 m^3/d capacity

Water Servicing Objectives

- Provide adequate flow and pressure to water customers
- Provide adequate water storage, pumping capacity and standby power to meet emergency conditions
- Maintain adequate water quality throughout the distribution system
- Promote water conservation
- Utilize reasonable planning design and costing criteria for establishing and evaluating servicing scenarios
- Develop routing for new watermain extension within existing road allowance/utility corridors, or coordinate watermain routing through development applications

In addition, for the community of Drayton:

- Provide adequate fire flows, reliability and security throughout the distribution system

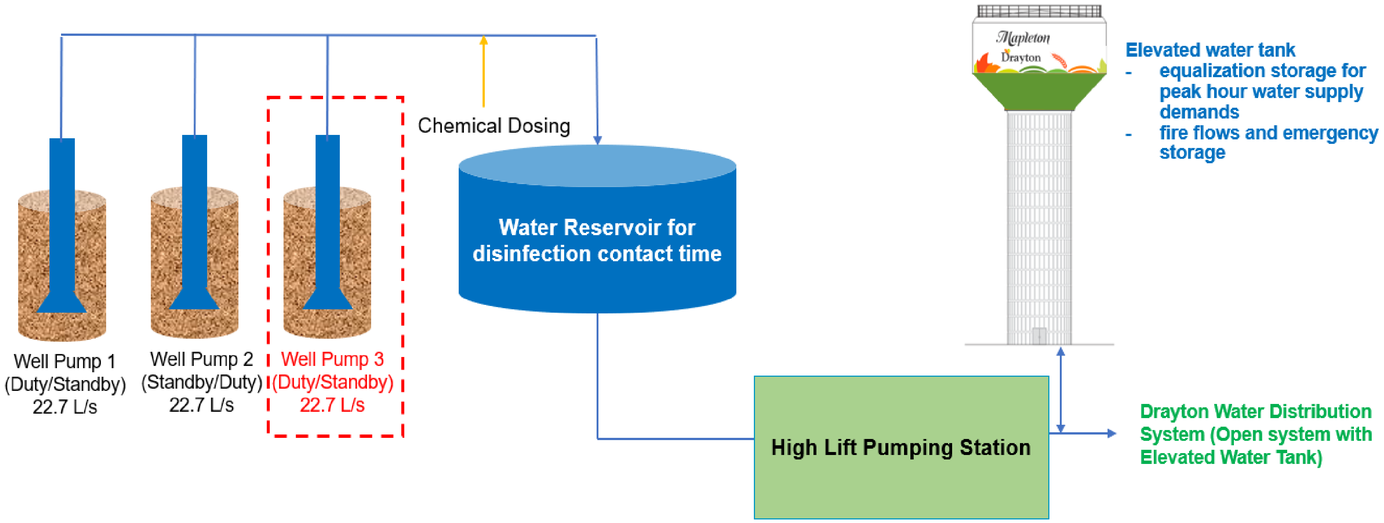
Wastewater Servicing Objectives

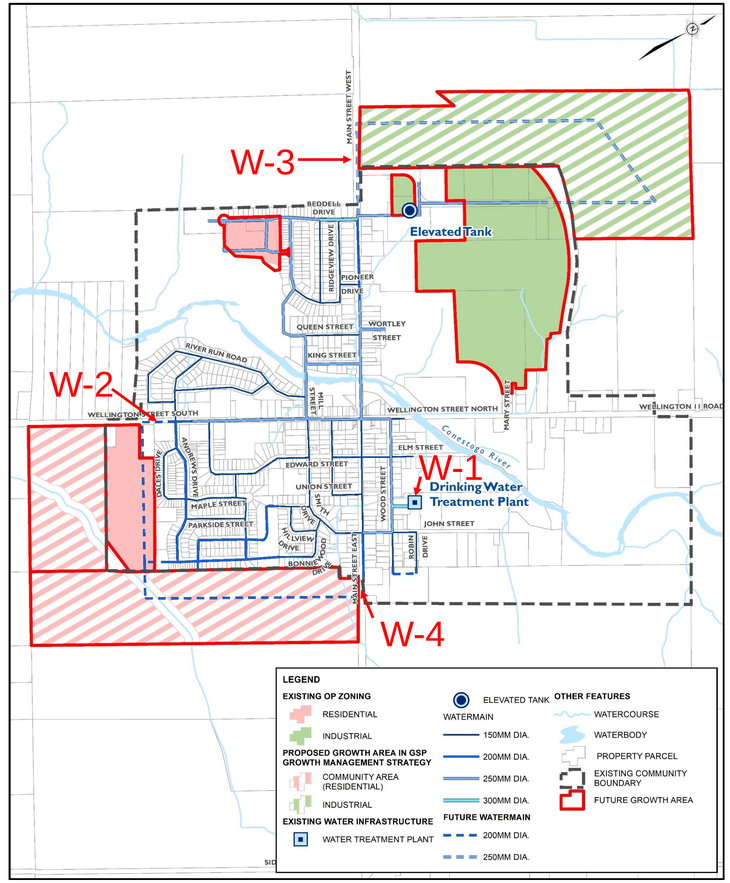
- Provide reliable collection systems for conveyance of wastewater
- Provide adequate peak flow storage, pumping capacity and standby power to meet emergency conditions
- Optimize the treatment facility for planned growth and projected flows
- Maintain adequate treated water quality
- Utilize reasonable planning design and costing criteria for establishing and evaluating servicing scenarios.

Evaluation Criteria

Factor Area	Consideration
Natural Environment	• Potential impacts to existing natural environment • Potential temporary and permanent effects on surface water and groundwater quantity / quality • Resiliency to extreme conditions and ability to minimize greenhouse gas emissions • Protects wildlife and species at risk • Minimize contribution to climate change and maximize resiliency to extreme conditions
Socio-Cultural	• Minimize potential impact of health and safety of operation staff and potential risks to public • Potential short-term disruption during construction (i.e., noise, dust, visual, truck traffic, access to property) • Potential long-term visual, noise and air quality impacts on adjacent residents and local users from new infrastructure and activities related to operation of facilities • Minimizes short-term and long-term impacts to business sector • Minimizes impact to cultural heritage features • Minimizes impact to archaeological features
Technical/Operational	• Able to meet existing and future demands and aligns with existing and planned infrastructure • Provides reliability, security, and robustness • Ease of construction and integration with existing system(s) • Improve operational efficiencies and operational and monitoring requirements • Aligns with existing and planned infrastructure • Aligns with existing and planned land use • Ease of permits and approvals
Economic	• Life cycle cost

Water Servicing Strategy - Drayton





Water Supply Alternative

- Build a new well at the existing DWS site to increase water supply capacity and redundancy

Water Distribution Strategy

- Construct water main extensions to the projected growth areas:
  - Wellington Street South
  - Main Street West, near Drayton Industrial Drive
  - Main Street East

Water Servicing Strategy - Capital Program

Project ID	Project Name	Years in Service	Location	Class EA Schedule	Cost ($ Million)
W-1	Install new well at the existing DWS site to increase capacity	1-5	Drayton	Schedule B	$1.44
W-2	Water distribution extension at Wellington Street South	5-10	Drayton	Schedule A+	$0.20
W-3	Water distribution extension at Main Street West, near Drayton Industrial Drive	5-10	Drayton	Schedule A+	$0.69
W-4	Water distribution extension at Main Street East	5-10	Drayton	Schedule A+	$0.13

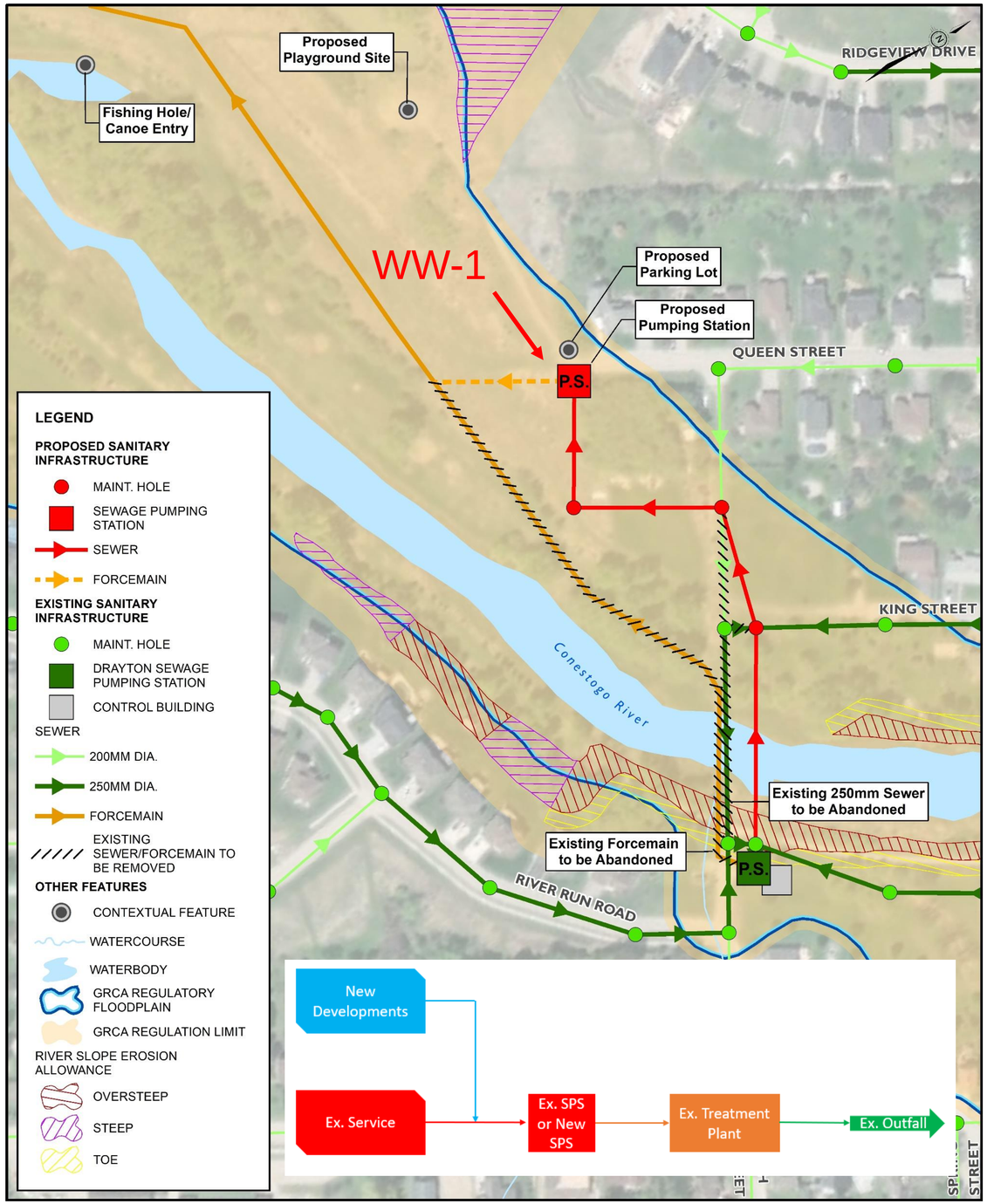
Wastewater Servicing Strategy - Drayton

Drayton Sewage Pump Station (SPS) Alternative

- Construct a new SPS across the Conestoga River near Queen Street
- New SPS to include emergency storage volume to suppress peak flow events

Drayton Inflow/Infiltration (I&I) Monitoring Program

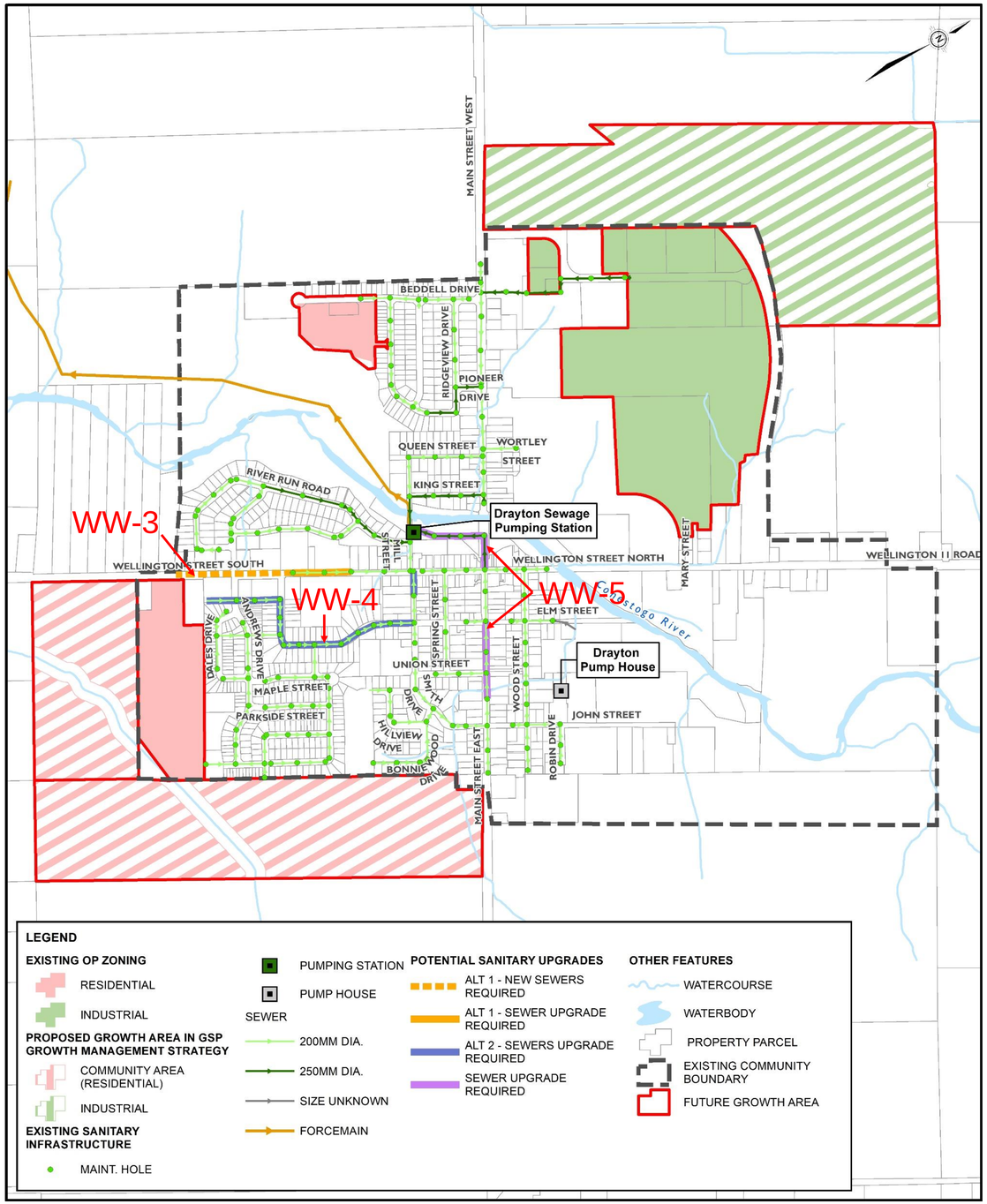
- Install flow monitoring equipment to access I&I sources for 5 years



Wastewater Servicing Strategy - Drayton

Drayton Collection System and Forcemain Alternative

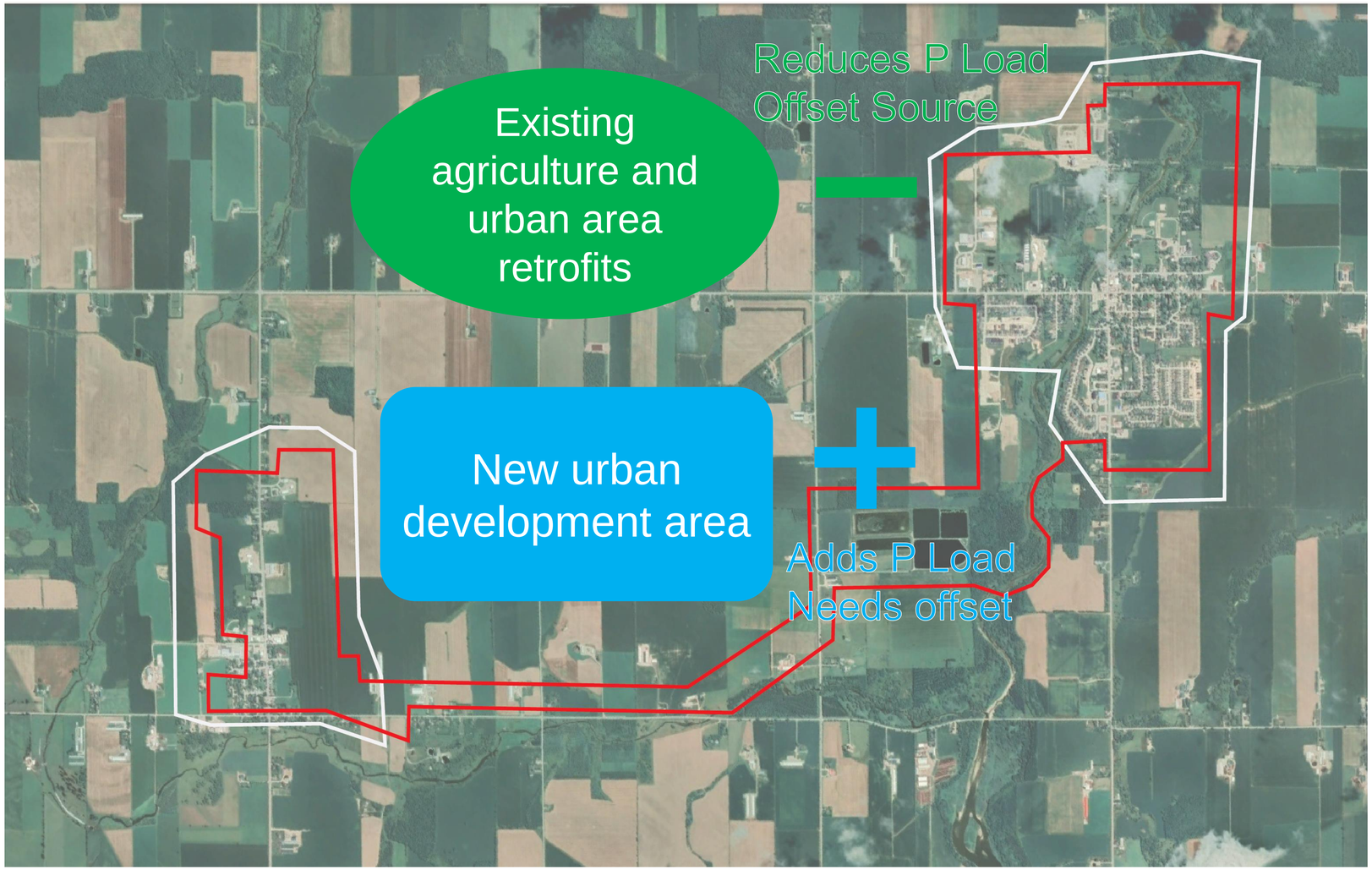
- Upgrade the existing collection system
  - Wellington Street South
  - Edward Street
  - Main Street East



Wastewater Servicing Strategy - Drayton

Wastewater Treatment

- The EA completed by the Town in 2017 concluded that the nitrogen removal upgrades be implemented for the WPCP to increase rated capacity to 1,300 m^3/d
- A Schedule “C” EA study should be competed prior to 2029 to access phosphorus removal upgrades and increase capacity beyond 1,300 m^3/d



Phosphorus off-setting concept

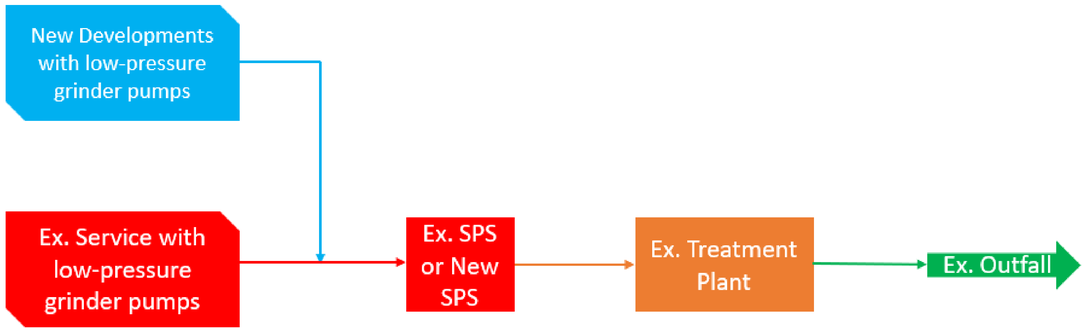
Wastewater Servicing Strategy - Moorefield

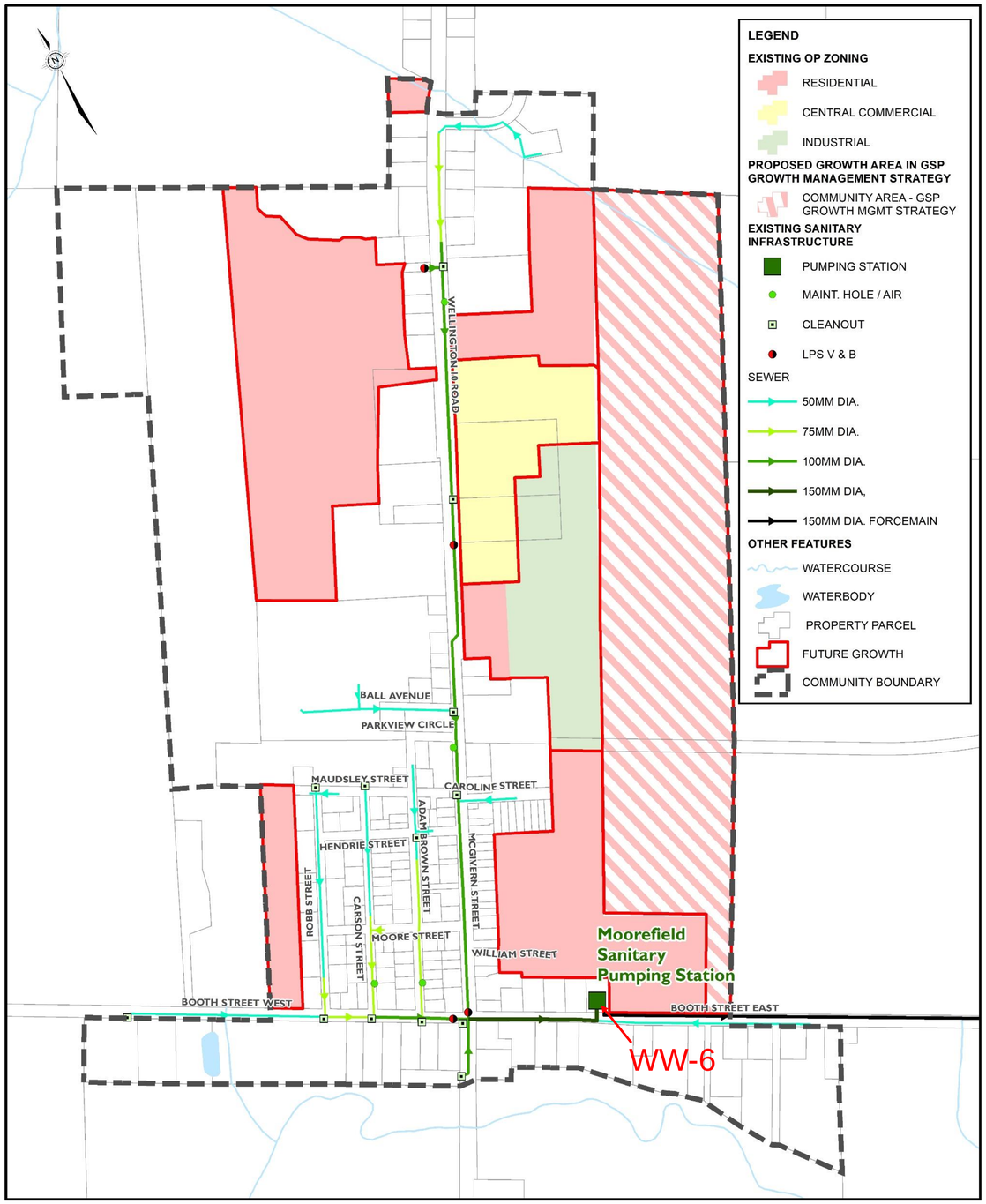
Moorefield Collection System and Forcemain Alternative

- Continue to expand the low-pressure sewer system
- Investigate forcemain headloss and potential upgrades

Moorefield SPS Alternative

- Upgrade the existing SPS to meet future wastewater flows
- Further investigation into the forcemain upgrades and emergency storage





Wastewater Servicing Strategy - Capital Program

Project ID	Project Name	Years in Service	Location	Class EA Schedule	Cost ($ Million)
WW-1	New SPS with onsite emergency storage	1-5	Drayton	Schedule B	$4.37
WW-2	Inflow/Infiltration monitoring program	1-5	Drayton	N/A	$0.38
WW-3	Collection System Alternative 1 – upgrade gravity sewers on Wellington Street South	5-10	Drayton	Schedule A+	$0.70
WW-4	Collection System Alternative 2 – upgrade gravity sewers on Edward Street	5-10	Drayton	Schedule A+	$1.21
WW-5	Upgrade gravity sewers on Main Street East	5-10	Drayton	Schedule A+	$0.75
WW-6	Upgrade the existing SPS	1-5	Moorefield	Schedule B	$0.96

Next Steps and How to Stay Involved

Next Steps

- Compile information and comments received from you and other stakeholders
- Confirm and finalize the preferred servicing strategies
- Respond to other questions and comments we receive
- Document the water and wastewater servicing strategy update and public consultation process
- File the documentation on the public record for a 30-day review period

How to Participate

Review project updates

These displays along with other project updates will be posted on the project webpage:

https://mapleton.ca/services/reports-and-studies/water-and-wastewater-master-plan

Talk to us

Town staff and project team members are here today to chat about the project and answer questions. Come and say hello!

Complete a comment sheet

To provide feedback on the displayed material

Contact us directly

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Thank You!

we appreciate your time and interest in this project