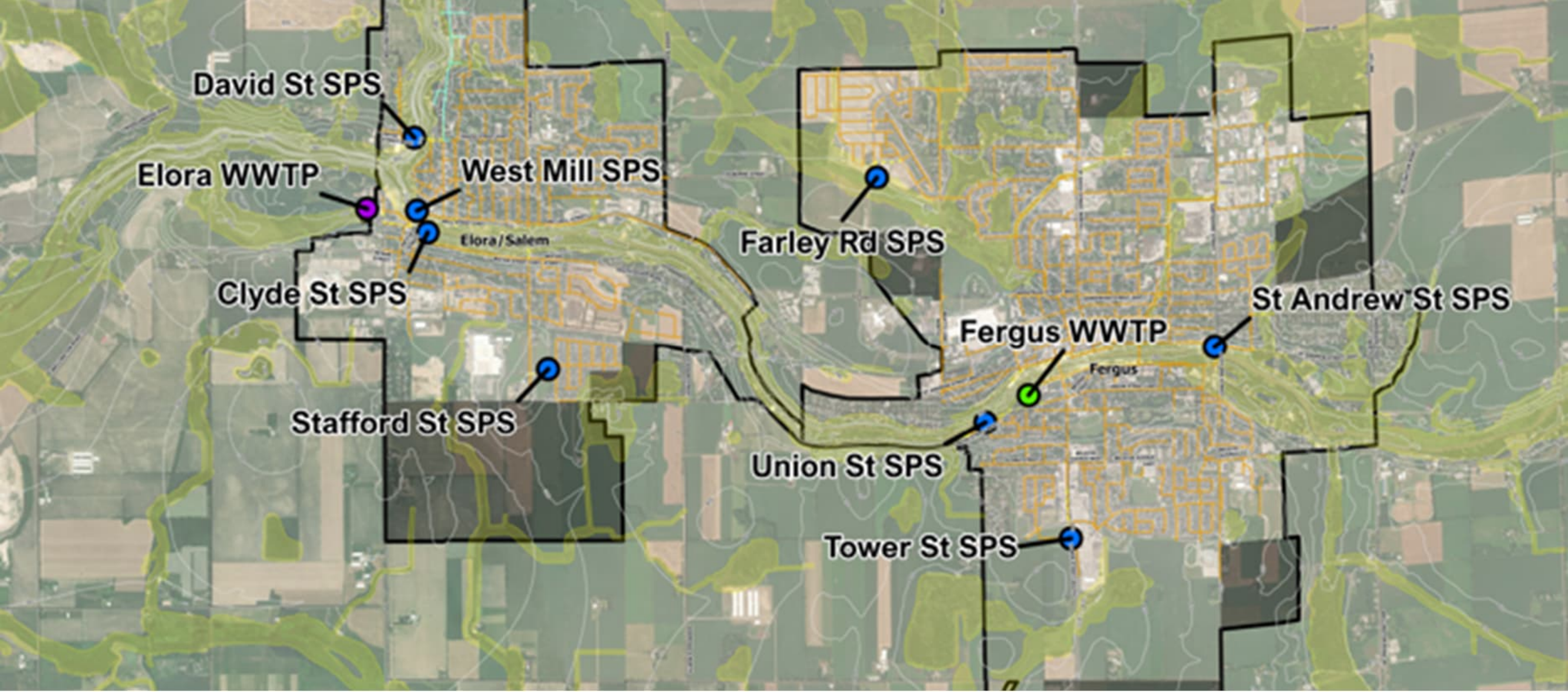

TOWNSHIP OF CENTRE WELLINGTON

Water and Wastewater Servicing Master Plan

Centre Wellington

Master Plan Report

June 30, 2025

RVA
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557 Southdale Road East, Suite 200
London ON N6E 1A2 Canada
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RVA 237318

June 30, 2025

Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B 1S0

Attention: Mr. Ryan Maiden, P.Eng., Project Manager, Engineering
Dear Sir:

Re: Water and Wastewater Servicing Master Plan, Master Plan Report

The Township of Centre Wellington (Township) retained R.V. Anderson Associates Limited (RVA) to complete a Water and Wastewater Servicing Master Plan (WWSMP) for the current Official Plan boundary (OPA126) of the Elora/Salem and Fergus settlement areas. The planning horizon for this study is 2051. The WWSMP follows the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans per Approach # 1. The WWSMP has undertaken Phases 1 and 2 of the Class EA process.

The WWSMP reflects the current status of the project including Council endorsement on June 30, 2025, as well as public and agency comments that have been received to date. This report is intended for the Township to publish with the issuance of a Notice of Completion for this project in order to allow for the review of the public and agencies.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

LICENSED PROFESSIONAL ENGINEER
J.W. TYRRELL
90375124
June 30, 2025
PROVINCE OF ONTARIO

John Tyrrell, M.Sc.(Eng.), P.Eng.
Principal
Tel: 519-681-9916 ext. 5038
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WATER AND WASTEWATER SERVICING MASTER PLAN

MASTER PLAN REPORT

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EXECUTIVE SUMMARY

Introduction

The Township of Centre Wellington (Township) is undertaking a Water and Wastewater Servicing Master Plan (WWSMP) which R.V. Anderson Associates Limited (RVA) was retained by the Township to complete. The current WWSMP is being prepared in accordance with the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans. The 2025 WWSMP will cover Phases 1 and 2 of the Class EA process.

Setting

The Township had a 2023 estimated population of 33,107 of which 9,040 are residents of the Elora/Salem settlement area and 19,500 are residents of the Fergus settlement area. Centre Wellington's employment lands are located predominantly in these two communities as is most of its residential population. Figure ES-1 is a map of the project study area which corresponds to the current Official Plan boundary or the Elora/Salem and Fergus settlement boundary, OPA126. The map also shows areas (labelled ER1 to 2 in Elora, and FE1 to 5 in Fergus) that were included within the boundaries of Elora and Fergus in 2024.

Municipal Drinking Water System

Centre Wellington's potable water system and distribution network consists of:

- 121 km of Watermain;
- 1,229 Water Valves;
- 742 Hydrants;
- 6 Air Release Valves;
- 2 Pressure Reducing Chambers;
- 9 Municipal Wells;
- 4 Water Towers; and
- 1 Booster Pumping Station (BPS).

Elora has a singular pressure zone, while Fergus is split into a high and low pressure zones. Both Elora/Salem and Fergus's Drinking Water Systems (DWS's) are connected via the BPS, allowing for water sharing between the two communities. The combined system is henceforth labelled as Centre Wellington DWS.

Municipal Wastewater System

Centre Wellington's wastewater treatment and collection network consists of:

- 105 km of Gravity Mains;
- 2.4 km of Pressure Mains;
- 5.3 km of Low Pressure Main;
- 1570 Maintenance Holes;
- 6 Low Pressure System (LPS) Air Release Valves;
- 53 LPS Cleanout Valves;
- 223 LPS Shutoff Valves;
- 7 Sewage Pumping Station (SPS)s;
- 2 Wastewater Treatment Plant (WWTPs);
- 2 Sewer Bridge Crossings of River; and
- 2 Siphon Crossings of River.

Given the geographic separation Elora/Salem and Fergus have separate collection systems and WWTPs. The Elora WWTP is a Class III facility built in 1963, followed by an expansion and re-rating in 1980 and new facility in 2014. The facility is an Extended Aeration treatment plant with a rated average day flow (ADF) capacity of 5,000 m^3/d and comprises of preliminary treatment provided by a screening and grit removal system, biological treatment by plug flow-type extended aeration tanks, solid-liquid separation by secondary clarifiers, tertiary filtration via sand beds, disinfection via UV system and sludge stabilization via Lystek.

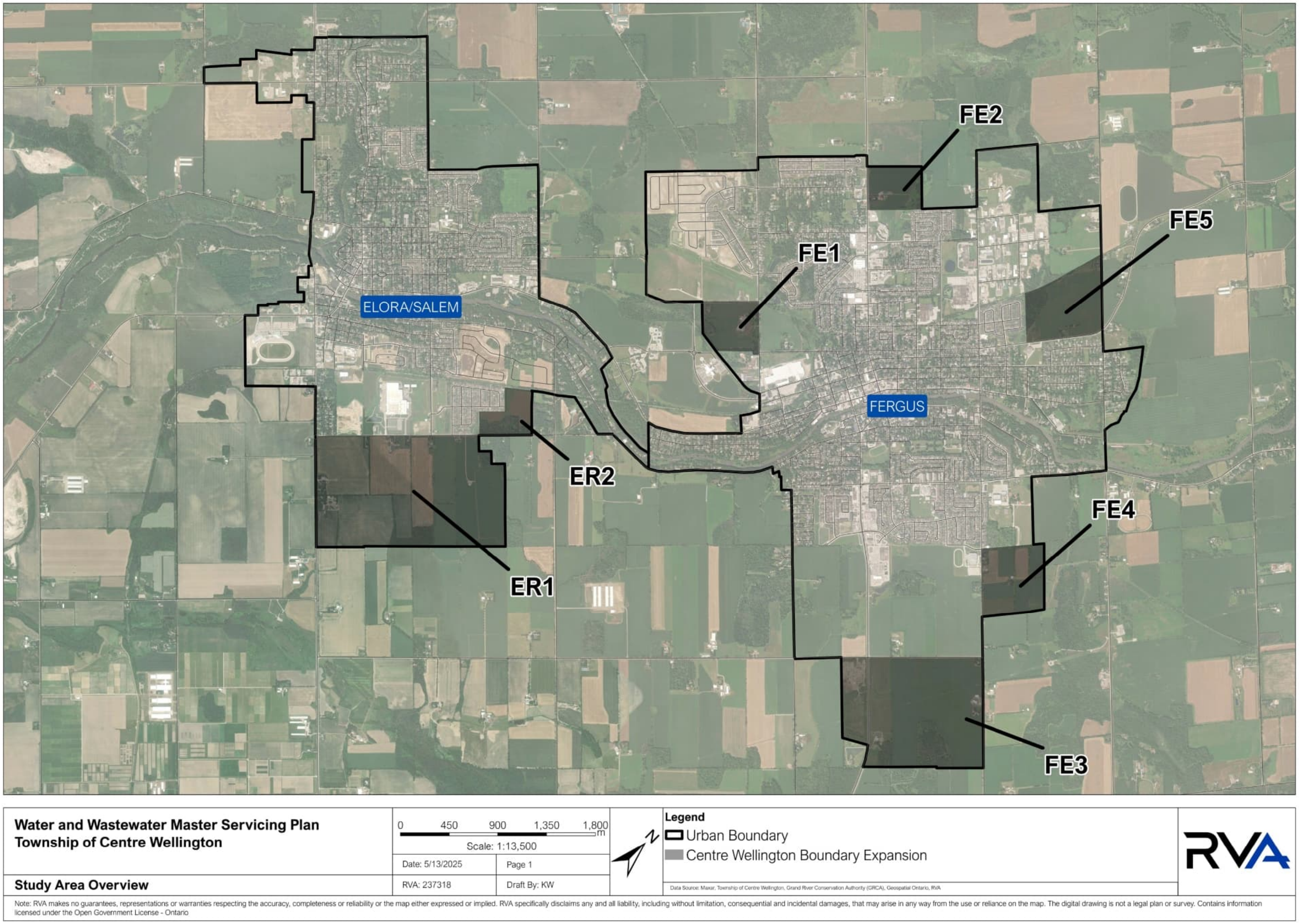

Figure ES-1 Project Study Area

The Fergus WWTP is a Class IV facility and was built in 1961. The facility is a Conventional Activated Sludge (CAS) plant with a rated ADF capacity of 8,000 m^3/d, and is comprised of a preliminary treatment system via a screening and grit removal system, followed by two treatment trains including:

- Primary treatment via clarifiers with raw sludge and scum removal;
- Biological treatment in aeration tanks and solid – liquid separation in secondary clarifiers;
- Tertiary filtration via sand filters and disinfection via UV system; and
- Sludge stabilization via digestors.

Master Plan Approach Through Municipal Class Environmental Assessment Process

This WWSMP is being undertaken in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) March 2023. The Master Plan Process provides the basis for developing a long-range plan which integrates infrastructure requirements for existing and future land use. The WWSMP has been developed following Approach #1, of the MEA Class EA, which involves a broad scope and a low level of assessment of the projects identified in the Master Plan.

As the first step in Phase 1 of the Class EA process, the proponent (the Township) must identify and describe the problem or opportunity that the project is intended to address. In essence, the Problem Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study. The Township has chosen the following as its statement of the problem/opportunity to be addressed by the Master Plan:

"The Township is attracting many new residents and businesses. To meet the future needs of the community, solutions to grow the water and wastewater servicing infrastructure need to be evaluated."

The consultation process is an integral component of the MCEA process. As the Township is required to undertake two mandatory contact points to inform, engage and consult with public representatives. As such, public, stakeholder, and staff engagement was a key component and consideration when developing the WWSMP. The input and information gathered from the various parties who participated in the consultation were reviewed by the Project Team and used to develop the WWSMP. Public consultation is documented in the Master Plan report.

Anticipated Population Growth

Table ES.1 summarizes the population projections up to 2051 for Elora/Salem and Fergus, respectively.

Table ES.1 Elora and Fergus Population Projections

Urban Centre	2023	2051		
Total Population	Residential	Residential	ELE	Total
Elora/Salem	9,040	14,100	985	15,085
Fergus	19,500	36,300	985	37,285
Drinking Water System	Residential	Residential	ELE	Total
Elora/Salem Serviced Population	6,820	11,880	985	12,865
Fergus Serviced Population	17,174	33,974	985	34,959
Wastewater System	Residential	Residential	ELE	Total
Elora/Salem Serviced Population	6,785	11,745	985	12,830
Fergus Serviced Population	16,893	33,693	985	34,678

Water Servicing Requirements

The Water Supply Master Plan (AECOM, 2019) was completed in 2019 and provides water demand projections, water supply capacity requirements to 2041, and an assessment of water supply alternatives. The following strategies were recommended for servicing growth:

- Replacement of existing wells F2 and F5 and development of four new wells external to the settlement area (Areas 3, 5, and 7 as well as the recently acquired Middlebrook Well); and
- Implement water conservation and efficiency initiatives.

Table ES.2 provides the projected water demand to year 2051 for the Centre Wellington DWS. It also provides the future firm capacity post implementation of the four future wells. It should be noted that future wells from areas 3,5, and 7 will not be able to fully supply the anticipated 2051 firm capacity supply.

Table ES.2 Centre Wellington 2051 Water Supply Requirements

Parameter	Units	Total
MDD	m^3/day	21,330
Current System Firm Capacity	m^3/day	13,066
Current Surplus (+)/Deficit (-)	m^3/day	-8,335
Future System Firm Capacity1	m^3/day	20,214
Future Surplus (+)/Deficit (-)	m^3/day	-1,187
1: Includes Capacities of Future Wells in Areas 3, 5, and 7, no details provided in the Middlebrook Well capacity at present		

Table ES.3 shows the projected required water storage capacity to 2051. Additional storage volume will be required by 2035.

Table ES.3 Centre Wellington 2051 Water Storage Requirements

Parameter	Units	Total
Fire Flow Storage Volume	m^3	8,165
Equalization Storage Volume	m^3	5,350
Emergency Storage Volume	m^3	3,379
Required Storage Capacity	m^3	16,894
Available Storage Capacity	m^3	11,820
Remaining Available Storage Capacity	m^3	-5,074

Regarding the water distribution system, there are two aspects to address for the planned growth to 2051. These are:

- What are the impacts to the existing distribution system based on the requirement to service population growth within the current boundaries of Elora-Salem and Fergus; and
- What are the new components of the distribution system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing distribution system, with results showing that although the existing distribution network does not need upsized to meet future flow and pressure requirements from growth to the current settlement boundary.

Water Solutions to Address Storage and Distribution Requirements

Water Storage

Based on the above requirements, the following three alternative locations as shown in Figure ES-2 were proposed and reviewed per the established evaluation criteria:

- Alternative 1 – New Reservoir Bordering on Northwest Fergus Settlement Boundary;
- Alternative 2 – New Reservoir on Township Property within North Fergus Settlement Area; and
- Alternative 3 – Build a New Reservoir Near the Existing Booster Pumping Station.

Based on the evaluation undertaken, Alternative 1 – New Reservoir Bordering on Northwest Fergus Settlement Boundary is preferred. The reservoir facility would include two sets of booster pumps each dedicated to the Fergus high pressure and low-pressure zones. As the Fergus low-pressure zone is connected to the Elora system, the reservoir will provide the water to the entire settlement area.

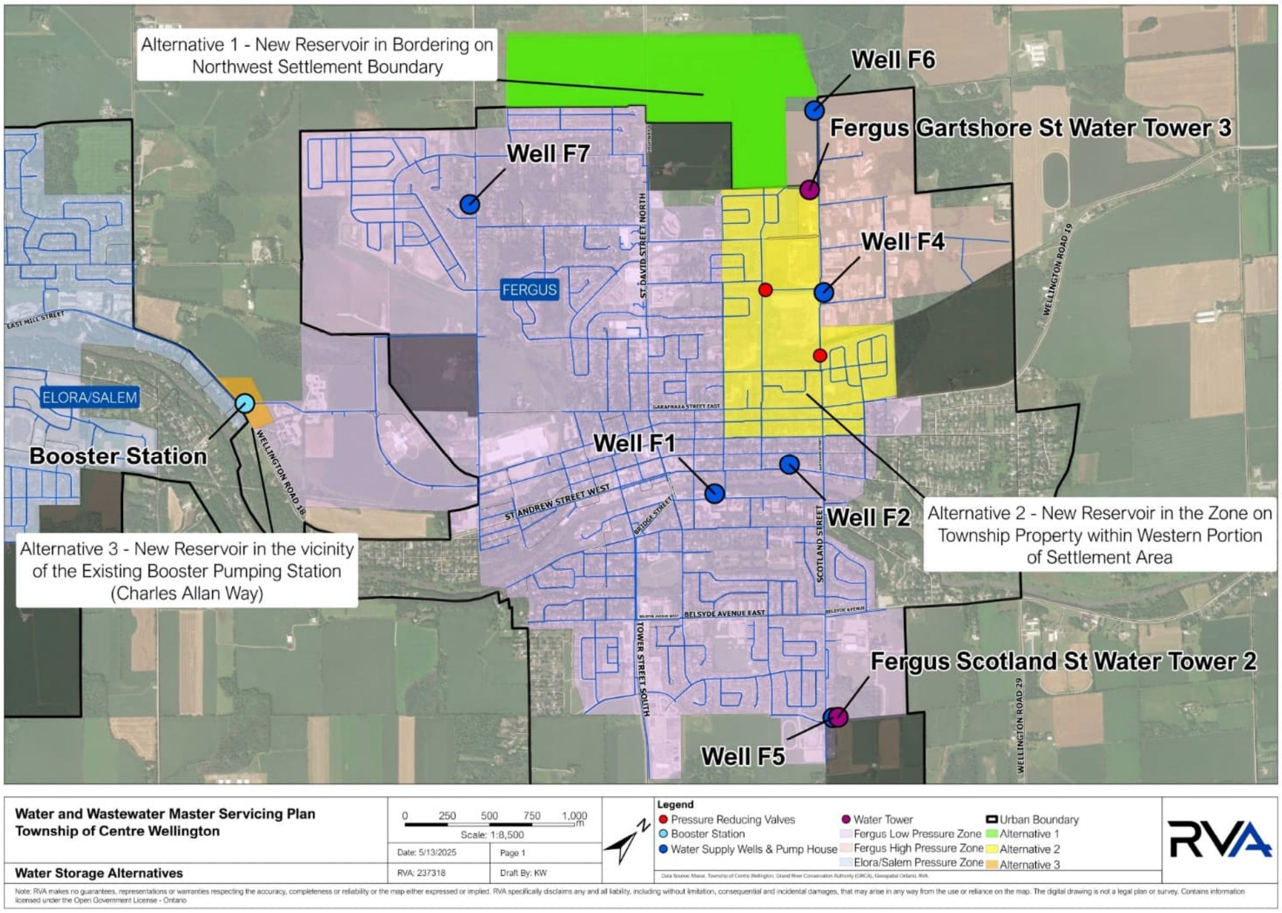

Figure ES-2 Water Storage Alternatives

Water Distribution

There is a need to provide watermain connections from the planned new wells to the distribution system as well as to extend the distribution system to the new areas brought into the 2024 growth boundary, the following watermain projects have been identified in Table ES.4. Standard practice is to run watermains along existing road rights of way or other municipality owned rights of way. The water distribution projects are summarized in Table ES.4 and shown in Figure ES-3.

Table ES.4 Water Distribution Projects Identified

Project Number	Community	Description	Project Number	Community	Description
W-S-L	Elora-Salem and Fergus	Connection of New Reservoir to Low	W-F-1	Fergus	New Watermain on HWY 6 from FE3 to Second Line

Project Number	Community	Description	Project Number	Community	Description
		Pressure Zone in Fergus			
W-S-H	Fergus	Connection of New Reservoir to High Pressure Zone in Fergus	W-F-2	Fergus	New Watermain on Jones Baseline from FE3 to Second Line
W-E-1	Elora-Salem	New Watermain on First Line at Wellington Rd 7	W-F-3	Fergus	New Watermain on Second Line from Jones Baseline to HWY 6
W-E-2	Elora-Salem	New Watermain on Wellington Rd 7 from First Line to ER1	W-F-4	Fergus	New Watermain on Second Line from HWY 6 to Guelph St.
W-E-3	Elora-Salem	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W	W-F-5	Fergus	New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S
W-E-4	Elora-Salem	New Watermain on East limits of existing Main on First Line	W-F-6	Fergus	New Watermain on HWY 6 from Second Line to existing main
W-E-5	Elora-Salem	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.	W-F-7	Fergus	New Watermain on Scotland St from Second Line to existing main
W-E-6	Elora-Salem	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5	W-F-8	Fergus	New Watermain connecting McQueen Blvd to Guelph St.
W-E-7	Elora-Salem	New Watermain on Irvine St from Bricker Ave to Woolwich St.	W-F-9	Fergus	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.
W-E-8	Elora-Salem	New Watermain on Woolwich St. E from Irvine St to James St.	W-F-10	Fergus	New Watermain on St. George St. W from

Project Number	Community	Description	Project Number	Community	Description
					Maple St. to Beatty Line
W-E-9	Elora-Salem	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3	W-F-11	Fergus	New Watermain on East limit of existing watermain on Garafraxa St. to FE5
W-E-10	Elora-Salem	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd	W-F-12	Fergus	New Watermain on Sideroad 18 from Vincent St. to Steele St.
W-E-11	Elora-Salem	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location	W-F-13	Fergus	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15
			W-F-14	Fergus	New Watermain on Sideroad 15 from Beatty Line to New Well 7

To manage the water distribution system, it is recommended that the Township update the water hydraulic model every five years over the Master Plan period and that new development areas have flow monitoring (District Meters) installed as part of the surveillance to address system water loss.

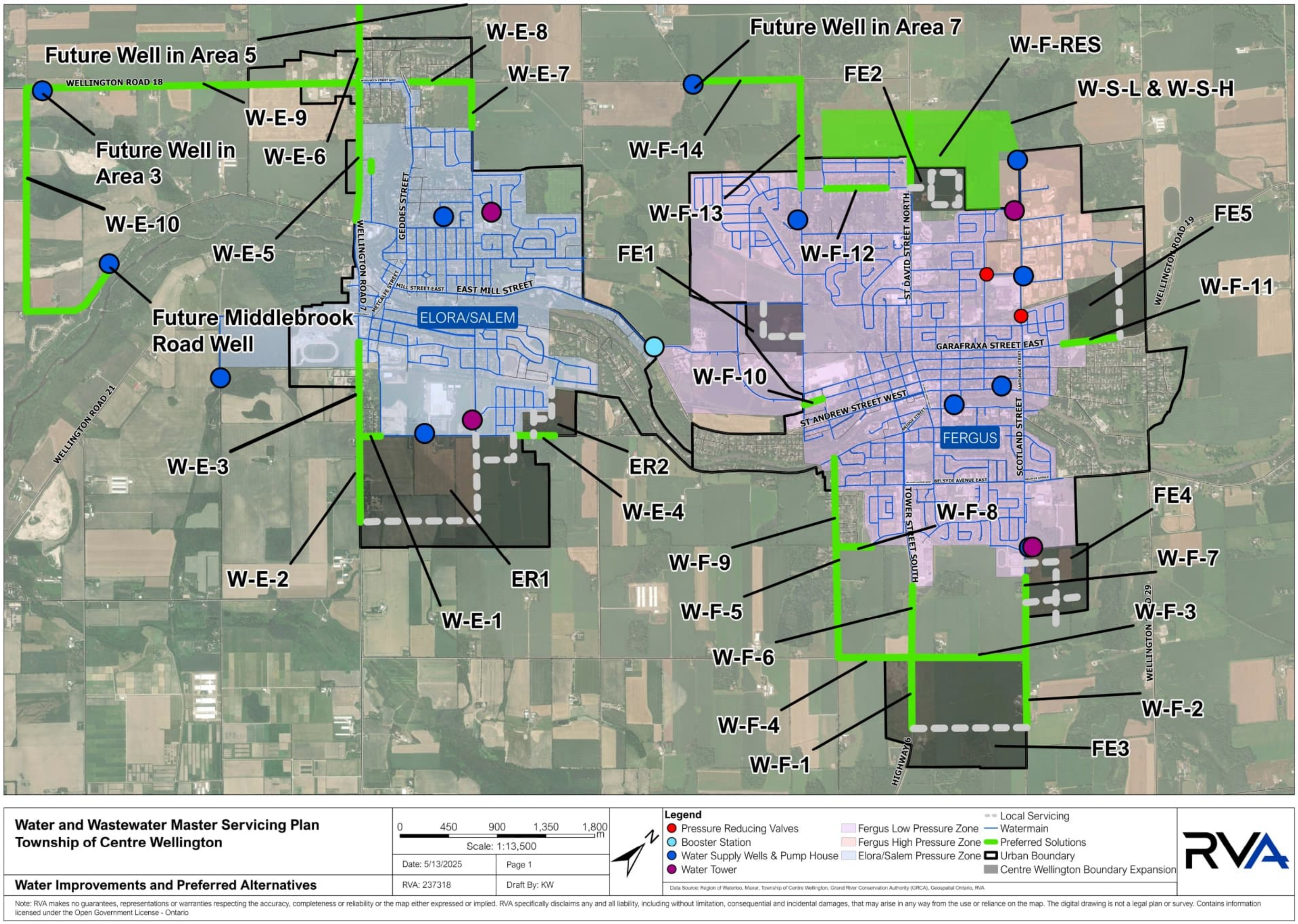

Figure ES-3 Proposed Watermains for Servicing to 2051

Wastewater Servicing Requirements

Table ES.5 provides the projected wastewater flows to year 2051 for both Elora/Salem and Fergus WWTPs.

Table ES.5 Centre Wellington WWTPs Projected Wastewater Flows to 2051

2051 Parameter	Units	Elora/Salem	Fergus
ADF	m^3/day	3,660	9,383
Plant Rated Capacity	m^3/day	5,000	8,000
ADF % of Plant Rated Capacity	%	73%	115%

Wastewater Treatment Solutions

A high level review was made to determine if flows from the Fergus community could be sent to the Elora WWTP. Diversion of flows to the Elora WWTP was not considered a viable option as it would result in upgrading both WWTPs by 2051.

The following two treatment options were identified as shortlisted options to expand Fergus WWTP's capacity:

- Option 1: Retain Fergus WWTP as a Conventional Activated Sludge (CAS) facility and expand capacity via a new 3rd Liquid Train; or
- Option 2: Convert Fergus WWTP to a Membrane Bio-Reactor (MBR) facility.

The options were evaluated per the MCEA criteria, and the preferred strategy was determined to be Option 1. A conceptual site layout of the expanded WWTP is shown in Figure ES-4.

Sanitary Collection System Upgrades

With regard to the wastewater collection system, there are two aspects to address for planned growth to 2051. These are:

- What are the impacts to the existing collection system based on the requirement to service population growth within the current boundaries of Elora/Salem and Fergus; and
- What are the new components of the collection system that are required to provide for servicing of the new areas.

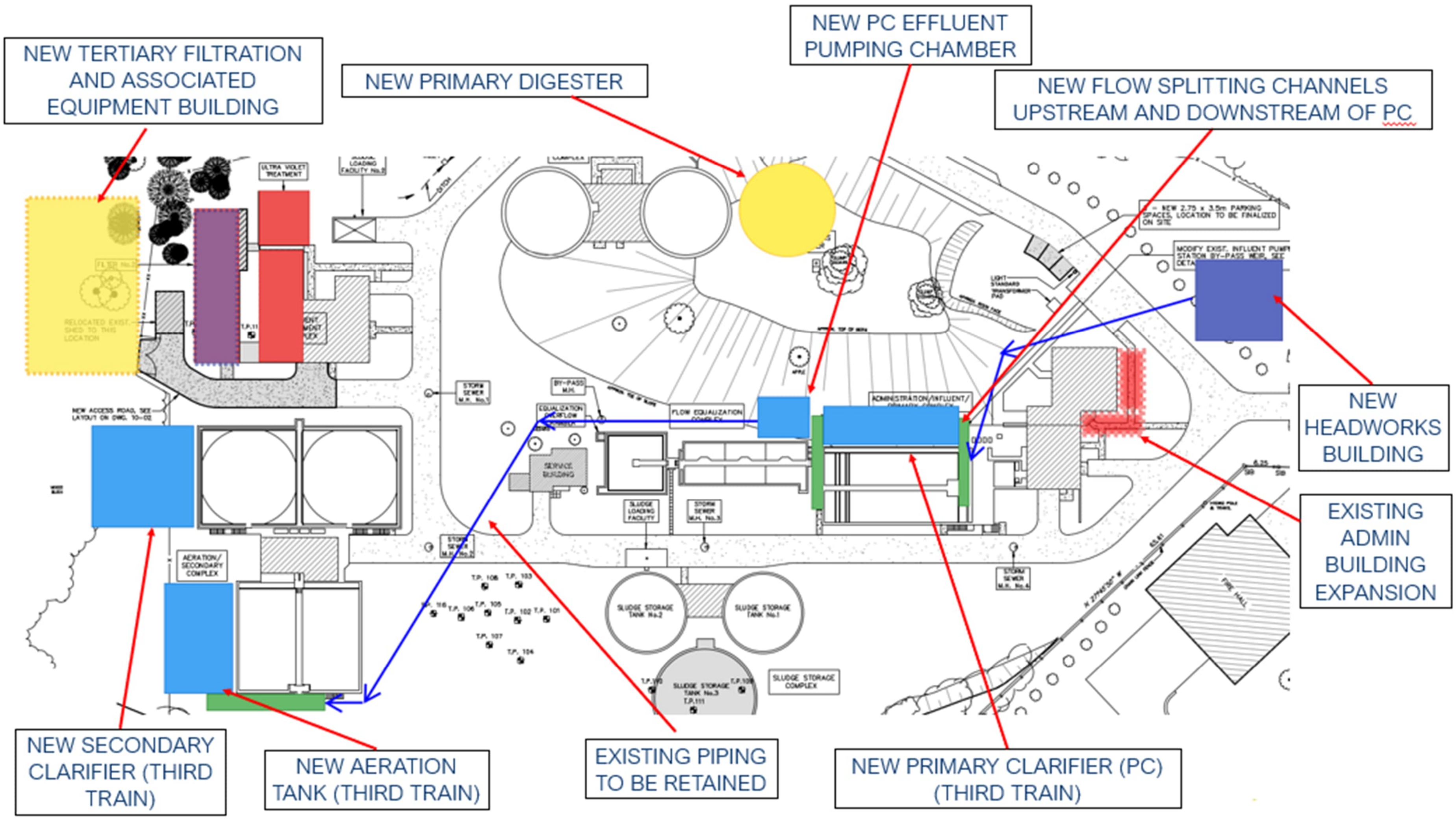

Figure ES-4 CAS Facility Expansion Layout

Hydraulic modeling was used to review and confirm impacts to the existing sanitary collection system of growth and to develop options to route additional sewage flows to the Elora and Fergus WWTPs.

To provide sanitary servicing to the new areas brought into the 2024 growth boundary, options were evaluated for each of these areas and a recommended solution was determined. The sanitary collection projects are summarized in Table ES.6 and shown in Figure ES-5.

Table ES.6 Wastewater Collection Projects Identified

Project Number	Community	Description
WW-SE SPS	Elora-Salem	New South Elora SPS
WW-E-LIFT	Elora-Salem	New lift station at the Elora WWTP
WW-F-SPS	Fergus	New South Fergus SPS
WW-FE 3 SPS	Fergus	New Area FE 3 SPS
WW-E-1	Elora-Salem	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line
WW-E-2	Elora-Salem	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP
WW-E-3	Elora-Salem	Geddes St. Sanitary Sewer Replacement
WW-F-1	Fergus	New Forcemain on Guelph St from New SPS to Union St.
WW-F-2	Fergus	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP
WW-F-3	Fergus	New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands
WW-F-4	Fergus	Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS
WW-F-5	Fergus	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St
WW-F-6	Fergus	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W
WW-F-7	Fergus	Upgrading gravity main on Holman Cres. and Perry St.

To manage the wastewater collection system, it is recommended that the Township update the wastewater hydraulic model every five years over the Master Plan period and undertake flow monitoring of sewers to better define infiltration issues.

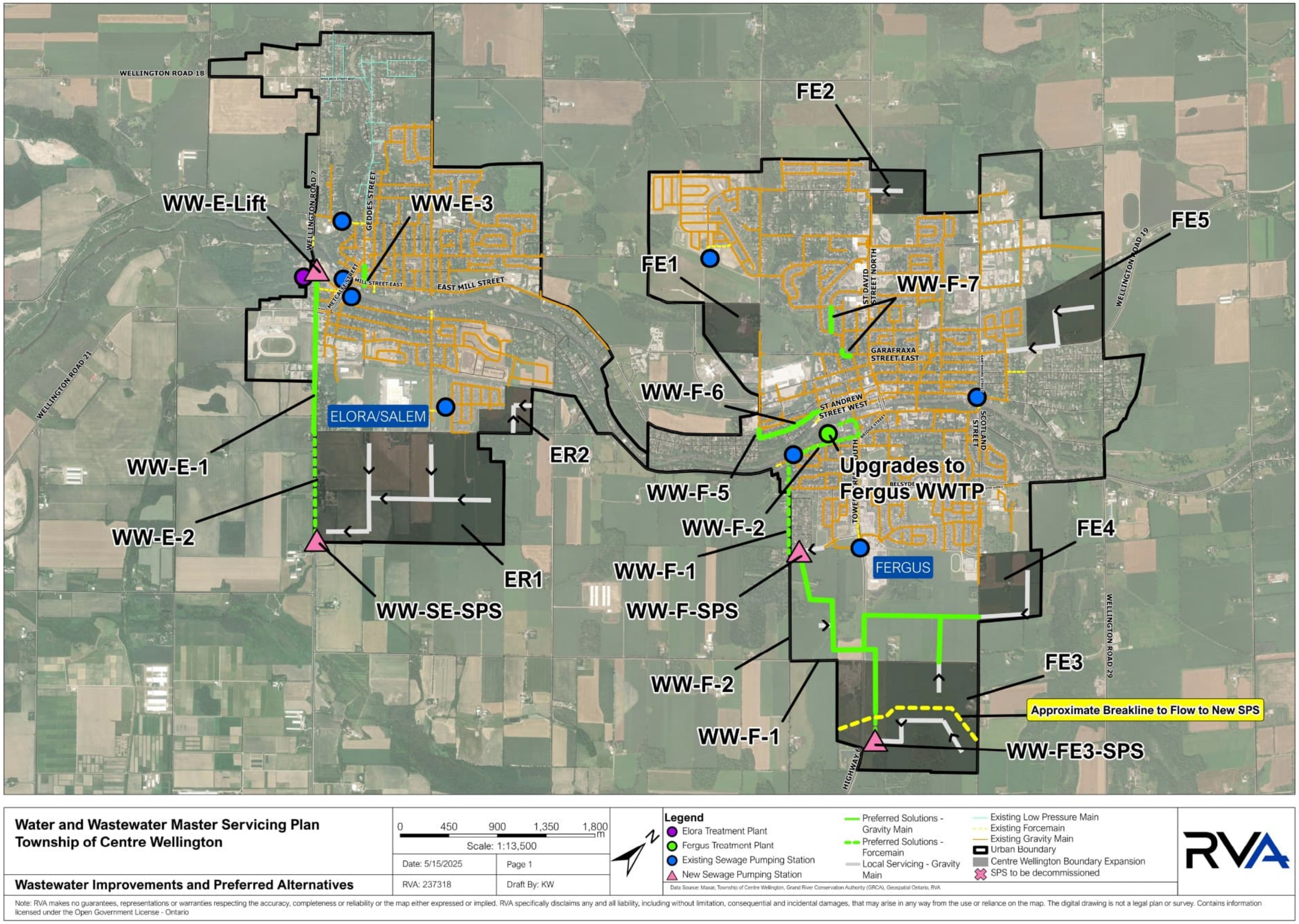

Figure ES-5 Proposed Collection System Upgrades for Servicing to 2051

Capital Program

Costing Presented in the Master Plan

ASTM E 2516 (Standard Classification for Cost Estimate Classification System) provides a five-level classification system based on several characteristics, with the primary characteristic being the level of project definition (i.e., percentage of design completion). The ASTM standard, shown in Table ES.7 illustrates the typical accuracy ranges that may be associated with the general building industries.

Table ES.7 ASTM E2516 Accuracy Range of Cost Opinions for General Building Industries

Cost Estimate Class	Expressed as % of Design Completion	Anticipated Accuracy Range as % of Actual Cost
5	0-2	-30 to +50
4	1-15	-20 to +30
3	10-40	-15 to +20
2	30-70	-10 to +15
1	50-100	-5 to +10

The cost estimates developed in this report would be best described as a Class 5 Cost Estimate which is typically used for high level study project. Cost opinions provided in this Master Plan are in 2025 dollars.

Capital Cost for Recommended Projects

Table ES.8 summarizes the costs for the recommended water and wastewater projects that have been identified in this Master Plan.

Table ES.8 Cost of Recommended Capital Works Projects

Project (s)	Capital Cost
Water	
New Water Reservoir and connections	$17,800,000
Elora-Salem - watermains	$27,900,000
Fergus -watermains	$23,150,000
Total	$68,850,000
Wastewater	
Fergus WWTP Expansion	$71,280,000
South Elora SPS	$8,300,000

Project (s)	Capital Cost
Low-Lift PS at Elora WWTP	$7,250,000
South Fergus SPS	$19,670,000
WW-FE 3 SPS	$5,810,000
Elora-Salem - sewers	$6,060,000
Fergus -sewers	$12,850,000
Total	$131,590,000
TOTAL	$200,440,000

Table ES.9 summarizes the costs for the recommended study and investigation projects that have been identified in this Master Plan.

Table ES.9 Recommended Studies and Investigations

Component	Total Cost	Comment
Wastewater System Hydraulic Model Updates	$173,000	Five Year Model Update (current value $75,000 per study), present value
Siphon Investigation	$204,000	$100,000 per siphon for camera work and report, assumed done in next few years
Annual Storm Drainage Disconnection Grant Program	$865,000	$60,000 per year for 25 years, present value
Water System Hydraulic Model Updates	$346,000	Five Year Study including flow monitoring (current value $150,000 per study), present value
TOTAL	$1,588,000	

Master Plan Implementation

As shown in Figure ES-6, the Township will monitor the various project drivers and implement recommended projects when the appropriate trigger point is reached.

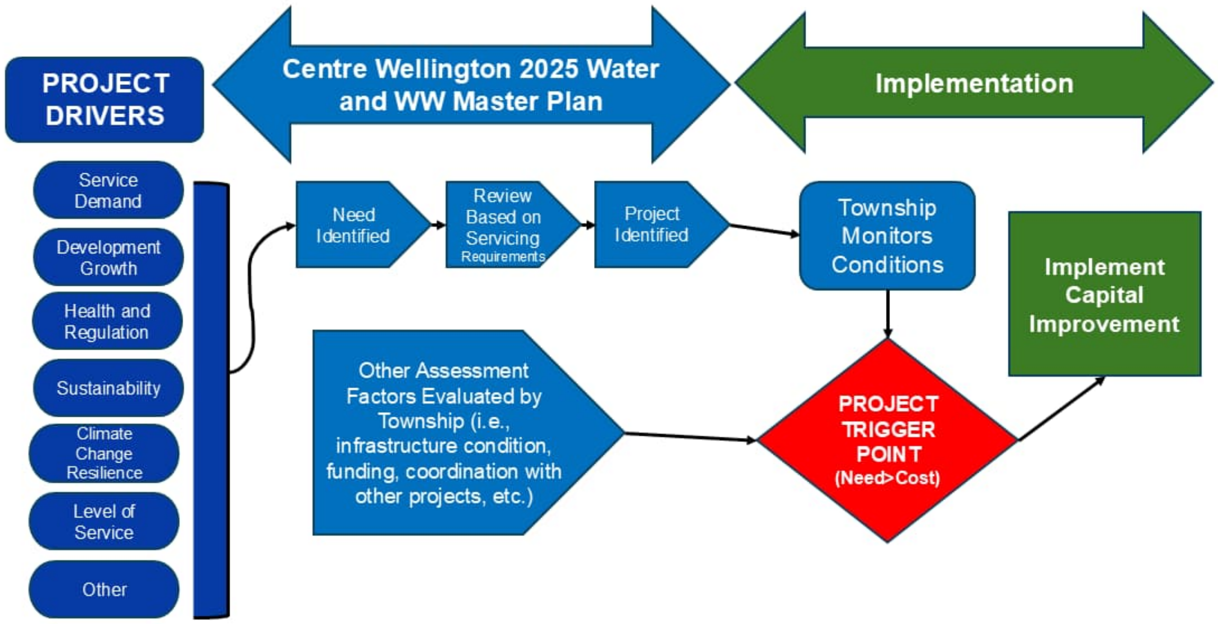

Figure ES-6 Master Plan Implementation

1.0 INTRODUCTION

1.1 Background

1.1.1 Study Introduction

The Township of Centre Wellington (Township) is undertaking a Water and Wastewater Servicing Master Plan (WWSMP) which R.V. Anderson Associates Limited (RVA) was retained by Centre Wellington to complete. The current WWSMP is being prepared in accordance with the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans. The 2025 WWSMP will cover Phases 1 and 2 of the Class EA process. The WWSMP will be carried out under Approach #1 as described in Section 4.4 of the MEA Class EA document.

1.1.2 Geographical Location

The Township of Centre Wellington is in south-central Ontario and encompasses the historic towns of Fergus, Elora and Salem. Centre Wellington is in Wellington County, an upper-tier municipality that also includes six other municipalities. The Township is west of the Greater Toronto area, just north of Guelph. Centre Wellington has a mix of industrial, commercial and residential sectors. Centre Wellington's predominant sectors today are agriculture and manufacturing, as well as local arts and tourism. Key attractions include the Elora Gorge Conservation Area, the Elora Mill Inn and Spa, The Grand River Raceway, the Elora Quarry, and various festivals and events.

1.1.3 Socio Economic Environment

The Township had a 2023 estimated population of 33,107 of which 9,040 are residents of the Elora/Salem settlement area and 19,500 are residents of the Fergus settlement area. Centre Wellington's employment lands are located predominantly in these two communities as is most of its residential population. Figure 1-2 shows the project study area which corresponds to the current Official Plan boundary or the Elora/Salem and Fergus settlement boundary, OPA126.

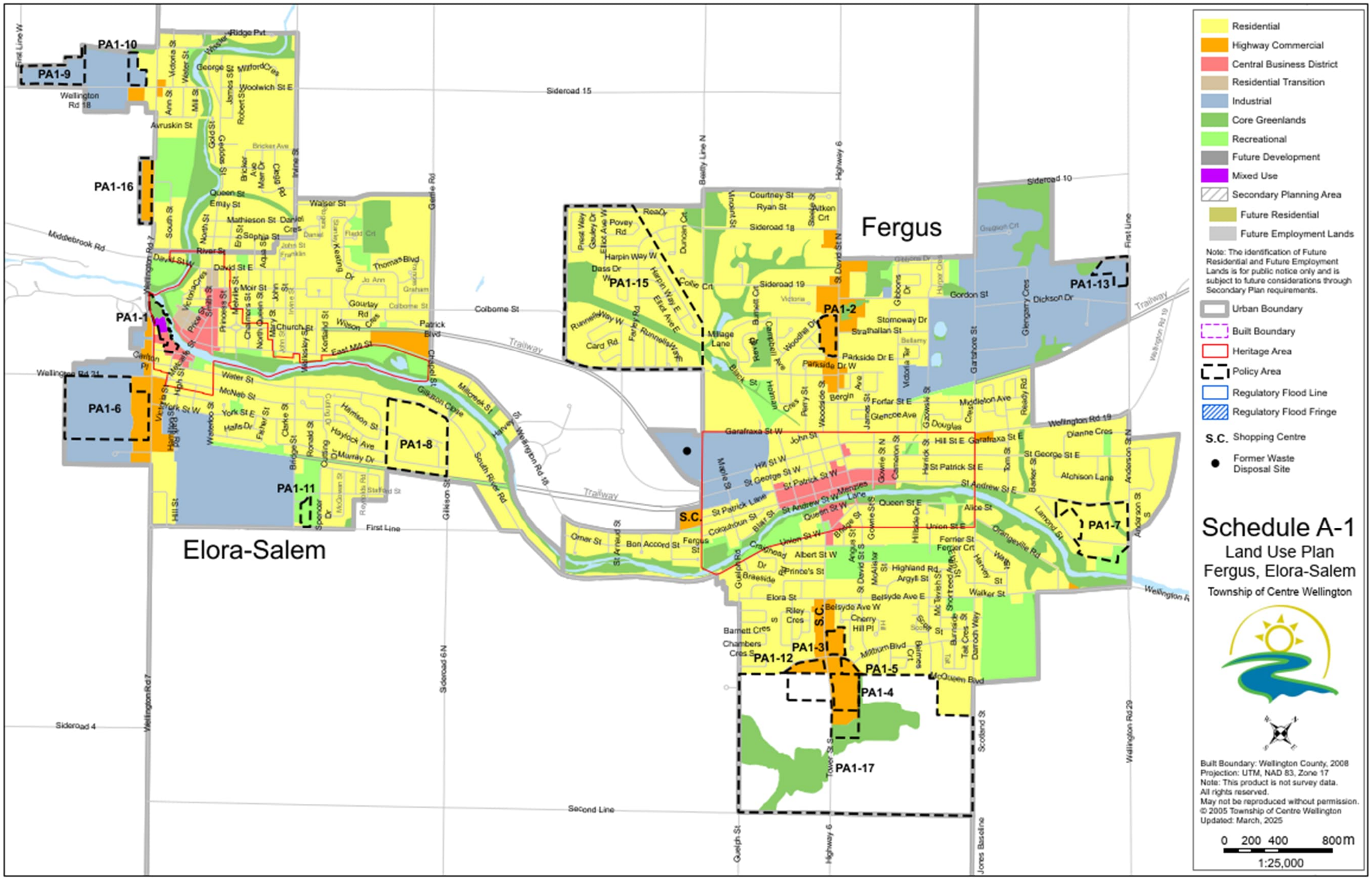

Figure 1-1 – Township's Official Plan land use designations (2024)

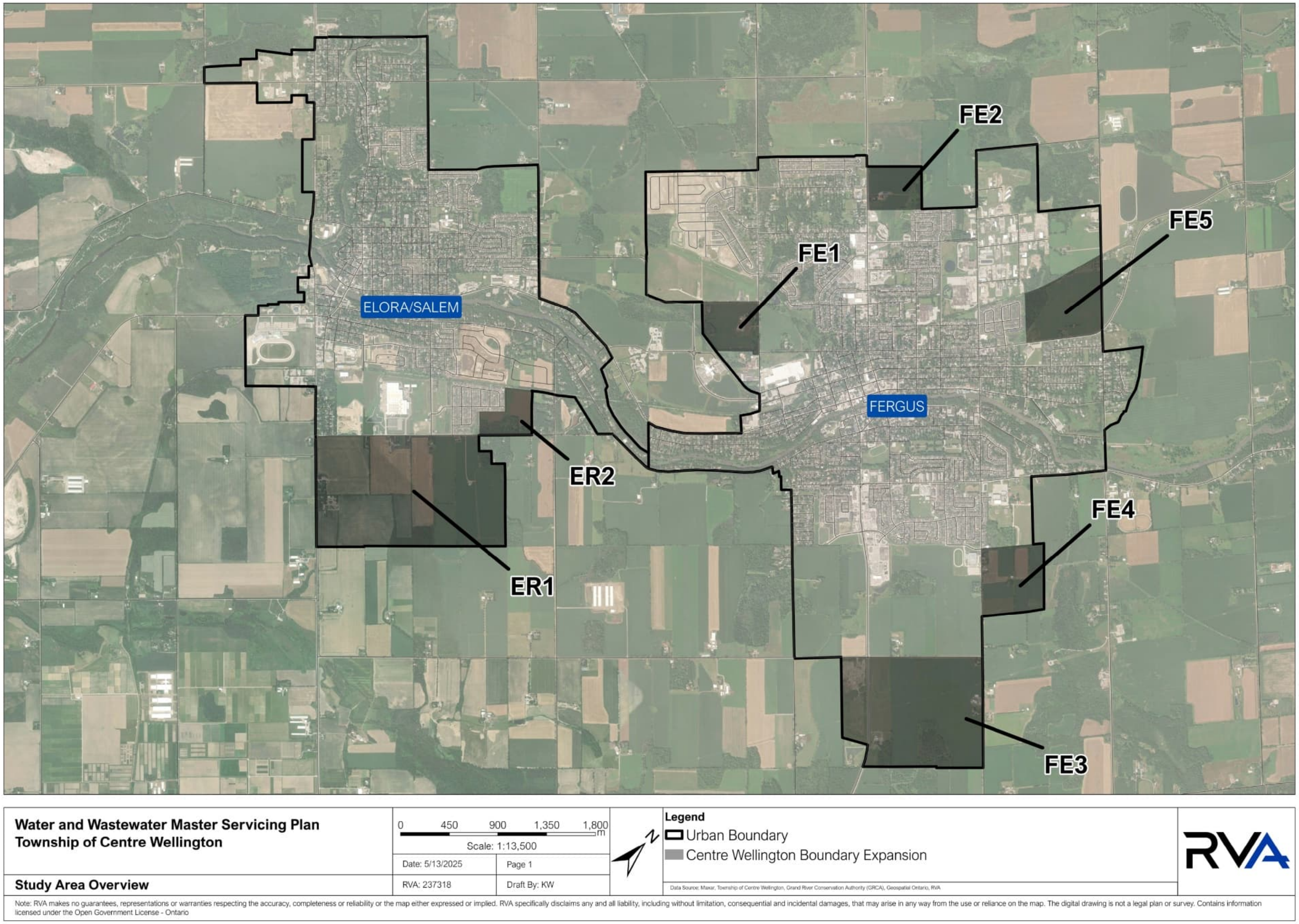

Figure 1-2 – Master Plan Study Area

1.1.4 Cultural Heritage Resources

The Township of Centre Wellington currently has 130 properties designated under the Ontario Heritage Act, and 1053 non-designated properties listed on the Municipal Heritage Register (2025). Further, Schedule A-1 of the Official Plan identifies heritage areas within both the Fergus and Elora/Salem urban centres. In June 2021, the Cultural Heritage Landscape Study and Inventory for the Township of Centre Wellington was endorsed by Council, which identifies 19 Cultural Heritage Landscapes (CHLs). It is expected that the CHLs will be formally recognized in the Official Plan through a future amendment, which will include additional policies and mapping to conserve and protect these heritage resources.

The Official Plan contains goals and objectives which speak to protecting cultural heritage resources, encouraging the functional and economic use of heritage buildings, identifying, protecting and enhancing natural areas, and encouraging public awareness and appreciation of these resources. As per Official Plan policies, prior to undertaking public works within the heritage areas, the Township will evaluate the impacts on the heritage of the area, determine potential public safety considerations, identify alternatives, and implement any remedial measures to eliminate or reduce any adverse impacts.

All works that are recommended by this Master Plan should be undertaken in a manner that avoids or mitigates any impacts to heritage resources, including identified CHLs. For works outside of disturbed road or utility rights of way and/or for any MCEA Schedule B or C projects, cultural heritage and archaeological professionals should be consulted by the Township.

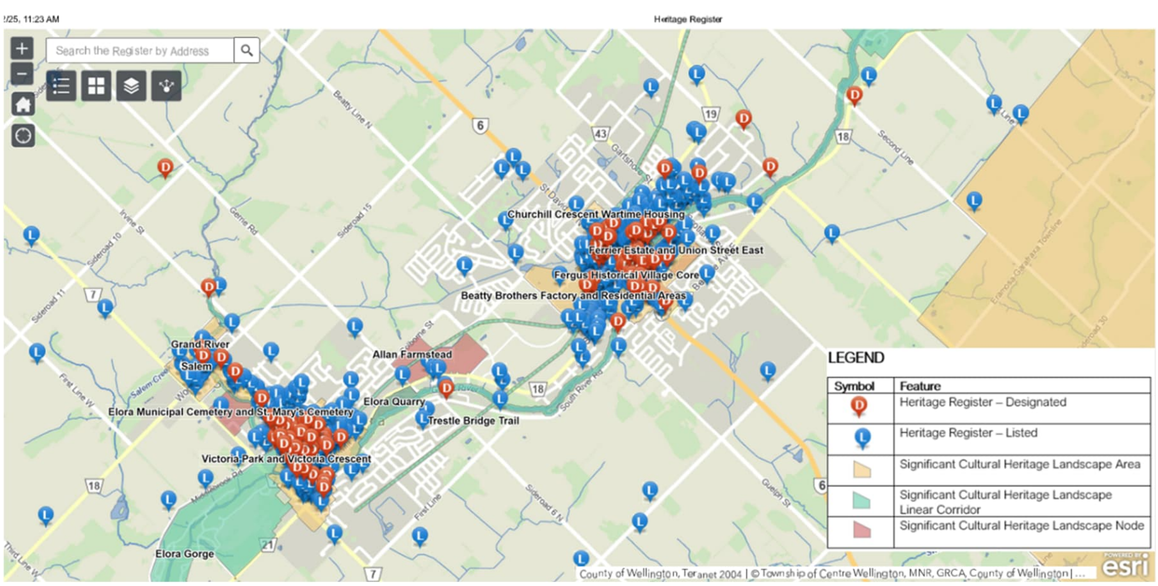

Figure 1-3 Screen Shot of Township's On-line Heritage Register

1.1.5 Natural Environment

In addition to residential and employment lands, the study area contains lands designated as "Core Greenland's". The Core Greenland designation on the land use schedules includes:

- Provincially significant wetlands;
- Habitat of endangered or threatened species; and
- Floodways and hazardous lands.

In reviewing servicing solutions, we would look to keep water and wastewater treatment, pumping stations and storage facilities out of these areas and ensure that any linear works that are required to cross them are based on trenchless installation techniques if appropriate to minimize impact.

Centre Wellington's Official Plan Schedule C, Groundwater Management Plan, indicates that a significant portion of the study area contains areas designated as 2 Year Capture Zone, Potential Recharge Areas, Potential Areas For Future Water Taking, and High Aquifer Vulnerability. Standard construction practices including sediment and erosion control, dewatering based on MECP permit requirements, and established spill control procedures should mitigate impacts for new construction. Operation of new infrastructure and facilities in accordance with the issued MECP permits should mitigate operational concerns.

Site specific environmental reviews may be required for any MCEA Schedule B or C projects that are identified at the time when these studies are undertaken.

1.2 Master Plan Goals

To meet the future growth of the community up to 2051, this WWSMP will identify short-term and long-term strategies for expanding the water and wastewater servicing infrastructure. The water and wastewater servicing solutions should be technically feasible, as well as financially, socially and environmentally sustainable. The WWSMP will identify capacity constraints of the water and wastewater systems for both linear and vertical assets. Preferred solution(s) will be prioritized and implemented in phases to address short- term and long-term needs, and shall:

- Comply with applicable regulations to provide adequate water and wastewater servicing;
- Consider rightsholder and stakeholder comments and concerns;
- Aim to build climate change resiliency;
- Reduce system complexity and improve ease of operations;
- Aim to improve existing levels of servicing; and

- Consider realistic design criteria;
    - Be financially viable and reduce lifecycle cost,
    - Be socially and environmentally sustainable.

1.3 Existing Infrastructure

1.3.1 Serviced Population

Both Elora/Salem and Fergus are fully serviced communities with a municipal drinking water system (DWS) and a wastewater treatment system (WWTS). However, there are pockets of areas along the urban boundary that are not connected to the municipal systems and have private wells and septic systems.

The 2005 Centre Wellington Municipal Official Plan (Township Official Plan) details that prior to amalgamation, significant 'fringe area' development in proximity to the former Town of Fergus and Village of Elora was undertaken, where the majority of housing units were provided with private wells and sewage systems. Most of these fringe areas are now incorporated into the boundaries of the Fergus and Elora/Salem Urban Centres, however, they continue to remain on private servicing.

1.3.2 Municipal Drinking Water System

1.3.2.1 Water Supply

Centre Wellington's potable water system and distribution network consists of:

- 121 km of Watermain;
- 1,229 Water Valves;
- 742 Hydrants;
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- 4 Water Towers; and
- 1 Booster Pumping Station (BPS).

Both Elora and Fergus's DWSs are connected via the BPS, allowing for water sharing between the two communities. The combined system is henceforth labelled as Centre Wellington DWS. Table 1.1 provides the rated capacity of the supply wells per associated Permit To Take Water (PTTW) licence # 1546-DG8JAY.

Table 1.1 Centre Wellington DWS - Supply Wells Rated Capacity

Infrastructure	Permitted Capacity (m^3/day)
Well E1	1,728
Well E3	1,338
Well E4	1,901
Well F1	1,685
Well F2 - R	1,642
Well F4	1,685
Well F5	1,728
Well F6	1,555
Well F7	1,642

1.3.2.2 Water Storage

Table 1.2 lists the water storage facilities and their capacities servicing the combined DWS.

Table 1.2 Centre Wellington Water Storage Facilities and Associated Capabilities

Facility	Storage Volume (m^3)
Gartshore Street Tower	3,410
Scotland Street Tower	3,410
Daniel Crescent Tower	2,725
Bridge Street Tower	2,275

1.3.2.3 Water Distribution

Figure 1-4 also illustrates the water distribution network for the Centre Wellington DWS. Elora has a singular Pressure Zone while Fergus is separated into a High Pressure Zone located in the north-east area, and a Low Pressure Zone across the remainder of the community. Two *Pressure Reducing Valves* (PRVs) allow for controlled water distribution between the two zones.

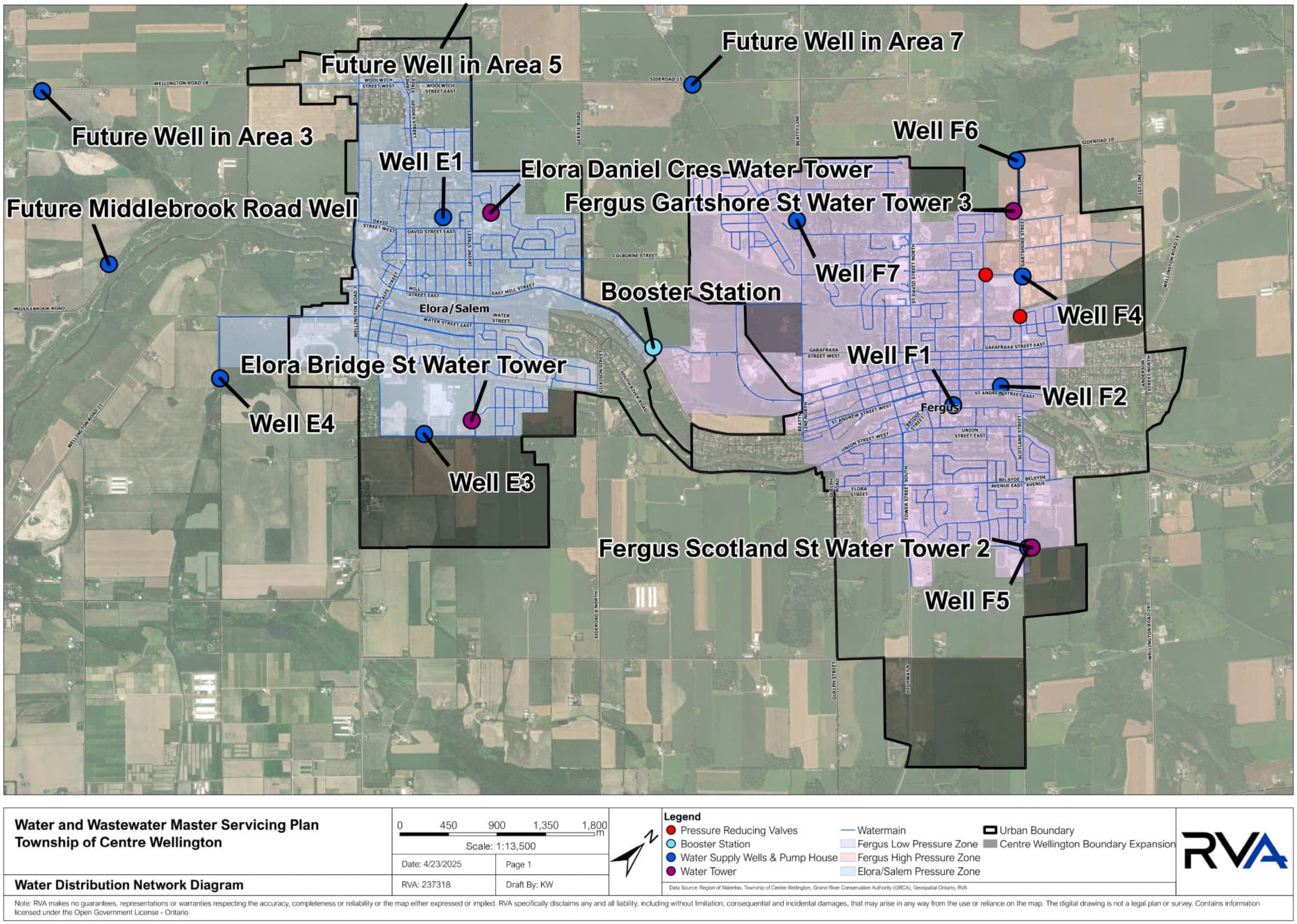


Figure 1-4 Current Water System

1.3.3 Municipal Wastewater System

Centre Wellington's wastewater treatment and collection network consists of:

- 105 km of Gravity Mains;
- 2.4 km of Pressure Mains;
- 5.3 km of Low Pressure Main;
- 1570 Maintenance Holes;
- 6 Low Pressure System (LPS) Air Release Valves;
- 53 LPS Cleanout Valves;
- 223 LPS Shutoff Valves;
- 7 Pumping Stations;
- 2 Treatment Plants;
- 2 Sewer Bridge Crossings of River; and
- 2 Siphon Crossings of River.

1.3.3.1 Sewage Pumping Station

Table 1.3 lists the sewage pumping stations (SPS) and associated capacities servicing both Elora/Salem and Fergus.

1.3.3.1 Wastewater Collection System

Figure 1-5 illustrates Centre Wellington's wastewater collection system.

Elora's entire collection system drains or discharges to the Clyde St. SPS, which discharges to the Elora Wastewater Treatment Plant (WWTP). The settlement area north of the river drains to the Clyde SPS via a siphon crossing on Metcalfe Street.

Fergus has multiple SPSs collecting sanitary flows across multiple catchment areas that discharge to an influent chamber at the community's WWTP. The settlement area north of the river discharge flow via two bridge St. David St. North and Scotland St. as well as a siphon crossing between Cameron St. and Queen St. E.

Table 1.3 SPSs servicing communities of Elora/Salem and Fergus

SPS	Equipment	Firm Capacity (m^3/d)	Overflow Discharge
Elora / Salem			
West Mill	• 2 pumps (1 duty / 1 standby) • 1 wet well (70.8 m^3)	1,382	Grand River
Clyde Street	• 3 pumps (1 duty / 2 standby) • 2 wet wells (43.9m^3)	Duty: 5,184 Standby: 2 x 15,000	Grand River
Fergus			
St Andrew Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (97.3m^3)	3,020	Grand River
Stafford Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (75.4 m^3)	1,860	Southridge Stormwater Pond 1A
Tower Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (75.4 m^3)	3,499	Swan Creek
David Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (13m^3)	1,296	Irvine Creek
Union Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (14.6 m^3)	Not rated	Grand River

1.3.3.2 Elora Wastewater Treatment Plant

The Elora WWTP is a Class III facility that was built in 1963, followed by an expansion and re-rating in 1980 and new facility in 2014. The facility is an Extended Aeration treatment plant with a rated average day flow (ADF) capacity of 5,000 m^3/d and comprises of preliminary treatment provided by a screening and grit removal system, biological treatment by plug flow-type extended aeration tanks, solid-liquid separation by secondary clarifiers, tertiary filtration via sand beds, disinfection via UV system and sludge stabilization via Lystek.

1.3.3.3 Fergus Wastewater Treatment Plant

The Fergus WWTP is a Class IV facility and was built in 1961. The facility is a Conventional Activated Sludge (CAS) plant with a rated ADF capacity of 8,000 m^3/d, and comprises of a preliminary treatment system via a screening and grit removal system, followed by two treatment trains including:

- Primary treatment via clarifiers with raw sludge and scum removal;

- Biological treatment in aeration tanks and solid – liquid separation in secondary clarifiers;
- Tertiary filtration via sand filters and disinfection via UV system; and
- Sludge stabilization via digestors.

2.0 MASTER PLAN APPROACH

2.1 Municipal Class Environmental Assessment Process

2.1.1 Introduction

This WWSMP is being undertaken in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) March 2023. The MCEA process sets out the process that a proponent must follow to meet the requirements of the *Ontario Environmental Assessment Act* for a class or category of infrastructure projects. Projects are divided into schedules based on the type of projects and activities. Schedules are categorized as Exempt, B and C with reference to the magnitude of their anticipated environmental impact. These are described briefly in the following paragraphs.

Exempt projects include various municipal maintenance, operational activities, rehabilitation works, minor reconstruction or replacement of existing facilities, and new facilities that are limited in scale and have minimal adverse effects on the environment. These projects are exempt from the requirements of the Environmental Assessment Act. Most Exempt projects were formerly classified as Schedule A and A+ projects.

Schedule B projects are those which have a potential for adverse environmental effects. A screening process must be undertaken which includes consultation with directly affected public and relevant review agencies. Projects generally include improvements and minor expansions to existing facilities. The project process must be filed, and all documentation prepared for public and agency review.

Schedule C projects have the potential for significant environmental effects and must follow the full planning and documentation procedures specified in the Class EA document. An Environmental Study Report (ESR) must be prepared and filed for review by public and review agencies. Projects generally include the construction of new facilities and major expansions to existing facilities.

There are five key elements in the Class EA planning process. These include:

1. Phase 1 – Identification of problem (deficiency) or opportunity;
2. Phase 2 – Identification of alternative solutions to address the problem or opportunity. Public and review agency contact is mandatory during this phase and input received along with information on the existing environment is used to establish the preferred solution. It is at this point that the appropriate Schedule (B or C) is chosen for the undertaking. If Schedule B is chosen, the process and decisions are then documented in a Project File. Schedule C projects proceed through the following Phases;

3. Phase 3 – Examination of alternative methods of implementing the preferred solution established in Phase 2. This decision is based on the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects;
4. Phase 4 – Preparation of an Environmental Study Report summarizing the rationale, planning, design, and consultation process of the project through Phases 1-3. The ESR is then to be made available to agencies and the public for review; and
5. Phase 5 – Completion of contract drawings and documents. Construction and operation to proceed. Construction to be monitored for adherence to environmental provisions and commitments. Monitoring during operation may be necessary if there are special conditions.

2.1.2 Master Plan Process

The Master Plan Process provides the basis for a developing a long-range plan which integrates infrastructure requirements for existing and future land use. The WWSMP has been developed following Approach #1 of the Municipal Class Environmental Assessment (Municipal Engineers Associated [MEA]), which involves a broad scope and a low level of assessment of the projects identified in the Master Plan. The process follows, at minimum, the same steps of the first two phases of the MCEA process, allowing integration of infrastructure requirements for existing and future land use with the MCEA process, including public and agency consultation. Figure 2-1 shows the MCEA Master Plan process being followed by this project.

2.2 Problem and/or Opportunity Statement

As the first step in Phase 1 of the Class EA process, the proponent (the Township) must identify and describe the problem or opportunity that the project is intended to address. In essence, the Problem Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study. The Township has chosen the following as its statement of the problem/opportunity to be addressed by the Master Plan:

> *"The Township is attracting many new residents and businesses. To meet the future needs of the community, solutions to grow the water and wastewater servicing infrastructure need to be evaluated."*

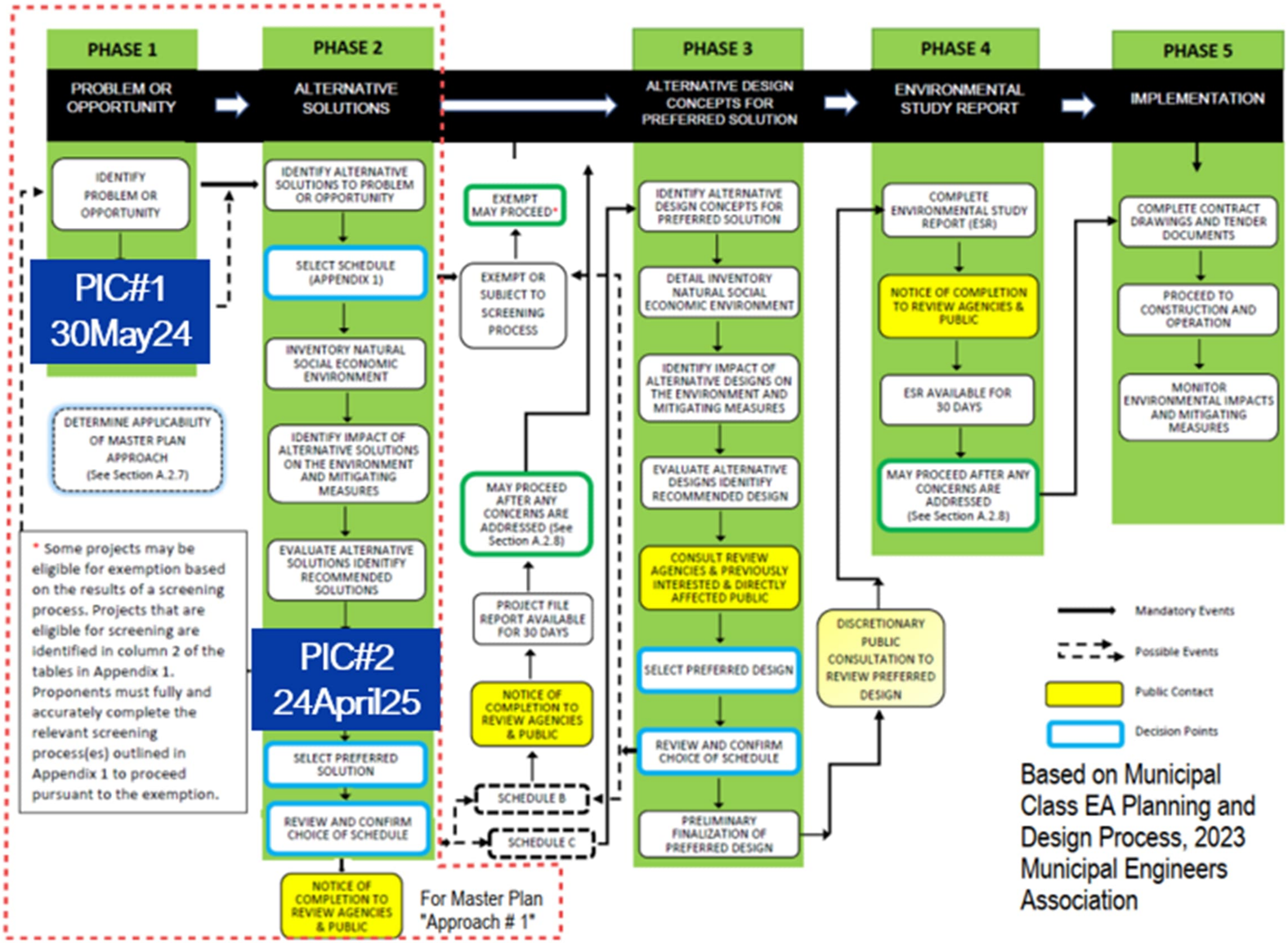


Figure 2-1 MCEA Master Plan Process (outlined in red)

2.3 Referenced Legislations and Policies

2.3.1 Legislations

2.3.1.1 Provincial Acts and Regulations

The following Provincial Acts and Regulations were referenced for the development of the W/WW Master Plan. Details for each are provided in Appendix 1.

- Environmental Assessment Act (EAA);
- Environmental Protection Act (EPA);
- Ontario Water Resources Act (OWRA);
- Water Opportunities and Water Conservation Act (WCA);
- Nutrient Management Act (NMA);
- Safe Drinking Water Act (SDWA);
- Clean Water Act (CWA);
- Sustainable Water and Sewage Systems Act; and
- Provincial Policy Statement 2020.

2.3.1.2 Federal Acts and Regulations

The following Federal Acts were referenced for the development of the W/WW Master Plan. Details for each are provided in Appendix 1.

- Federal Fisheries Act;
- Species at Risk Act; and
- Endangered Species Act.

2.3.2 County Policies

2.3.2.1 County of Wellington Official Plan

The County of Wellington's Official Plan (County of Wellington, 2024) was last updated in February 2024. It provides direction for the Growth of the County over the next 20 years. The plan provides policies that all land use and servicing decisions are to follow. The Official Plan has identified several growth areas to expand the urban centre, with predominant pockets in south and northwest Fergus for residential greenfield growth plus lands in the northeast and southeast corners of Elora. Additionally, greenfield employment growth has been identified for several pockets on the outer edges of Fergus and Elora, with the largest areas in northeast Fergus and southwest Elora.

2.3.2.2 Phase 2 Municipal Comprehensive Review Report: Urban Land Needs Assessment

Future growth has been allocated to Centre Wellington by the County of Wellington through the Official Plan Amendment 120 (County of Wellington, 2023). The Urban Land Needs Assessment (Watson & Associates Economists Ltd., 2022) outlines the urban expansion required to achieve the level of growth outlined in Amendment 120. Key conclusions include:

- A 20% intensification target within Centre Wellington's existing built areas was recommended during the 2022-2051 planning horizon.
- The County has a shortfall of designated Community Area land by 485 hectares (ha). To accommodate, the County designated a portion of Future Development lands to Community Area and expanded the Urban Settlement Area Boundaries of Centre Wellington, Mapleton, and Minto.
- Additionally, the County also expanded its Urban Settlement area boundaries (by 192 ha) to accommodate additional Employment Area lands in Centre Wellington.

2.3.2.3 Wellington Roads Master Action Plan

The Wellington Road Master Action Plan (Dillon Consulting, 2022) was completed in 2022. The action plan identifies long-term road network requirements to support future growth and provides recommendations to address road safety, connect neighbouring municipalities, and improve the County Road network.

2.3.3 Township of Centre Wellington Planning Studies and Reports

2.3.3.1 Municipal Official Plan

The Municipal Official Plan (Township of Centre Wellington, 2003) was adopted in November 2003 and approved in May 2005. It is a policy document that provides an overview of Centre Wellington's views and how land should be used. Additionally, it provides direction for future planning and initiatives for improving the physical environment, as well as guidance for municipal decision-making regarding infrastructure.

As part of the Official Plan, Centre Wellington plans to eventually provide municipal sewage and water services to all of the areas that are designated as Fergus and Elora-Salem. The plan also provides direction with respect to new developments, existing developments, sewer and water allocation, sanitary sewer collection, and design capacity.

2.3.3.2 Transportation Master Plan

The Transportation Master Plan (WSP, 2019) was completed in 2019 and provides methods for improving all modes of transportation in and around Centre Wellington. The goal of the plan was to set a vision for a sustainable transportation future that addresses immediate needs and accommodates for forecasted growth. Recommendations included formalizing a truck by-pass, implementing active transportation, manage parking supply, and adopt traffic calming and complete streets policies.

2.3.3.3 Water Supply Master Plan

The Water Supply Master Plan (AECOM, 2019) was completed in 2019 and provides water demand projections, water supply capacity requirements to 2041, and an assessment of water supply alternatives. The following strategies were recommended for servicing growth:

- Replacement of existing wells F2 and F5 and development of four new wells; and
- Implement water conservation and efficiency initiatives.

2.3.3.4 Development Charges Background Study

The Development Charges Background Study (Watson & Associates Economists Ltd., 2021) was prepared in 2021 for Centre Wellington as required by the Development Charges Act, 1997. Development charges are one-time fees charged by Centre Wellington on new properties to provide recovery of costs associated with services such as water supply, wastewater services, storm water management, etc.

2.3.3.5 Asset Management Plan

The Asset Management Plan (Township of Centre Wellington, 2022) was completed in 2022 and provides a planned approach for the management and investment towards the Township's owned assets. It examined the state of Centre Wellington's assets and levels of service and provided strategies for asset management and financing. The value (in 2022 dollars) of the water and wastewater infrastructure is $112,137,451 and $84,538,312, respectively.

Assets associated with the water network include 121 km of water main, valves, wells, water towers, booster stations, and pressure reducing chambers. Based on the condition of the water mains and associated risk, the recommended annual investment (in 2022 dollars) is $2,667,455. Similarly, the recommended annual investment for the wastewater network is $2,242,000. This considers 112 km of sanitary sewers, maintenance holes, valves, pumping stations, and treatment plants.

2.3.4 South Fergus Master Environmental Servicing Plan & Secondary Plan (2023)

The South Fergus Master Environmental Servicing Plan & Secondary Plan (MHBC Planning, 2023) was completed in 2023 and provides a guide for the development of remaining greenfield land in South Fergus. The plan considers environmental, servicing, transportation, and land use planning components. The following recommendations were outlined:

- Designate identified natural heritage features as Core Greenland such that they can be retained, buffered, and enhanced;
- Construct two collector roads: an east-west corridor between Tower Street and Scotland Street and a north-south corridor between McQueen Boulevard and Second Line. In addition, several road and intersection improvement opportunities were identified;
- A preferred sanitary servicing option was to have the entire Study Area under the South Fergus Master Environmental Servicing Plan & Secondary Plan and the Tower Street sanitary pumping station service area drain by gravity to a new sanitary pumping station;
- The new sanitary pumping station would pump flows via a forcemain along Guelph Street to Union Street;
- Four connection points to the existing water distribution system were proposed in addition to a plan for an expansion to the water distribution system; and
- Several drainage patterns and stormwater management facilities were proposed).

2.3.5 2023 – 2026 Strategic Plan

The 2023 – 2026 Strategic Plan (Township of Centre Wellington, 2024) gives an overview of the goals that Council is aiming to achieve during the 2023 – 2026 period. Council approved goals include creating conditions for economic prosperity, improving activity, health, and wellness of the community, managing growth, striving for environmental stewardship, and providing innovative and sustainable governance.

3.0 CONSULTATION AND ENGAGEMENT

3.1 Introduction

The consultation process is an integral component of the MCEA process. As the Township is required to undertake two mandatory contact points to inform, engage and consult with public representatives. As such, public, stakeholder, and staff engagement was a key component and consideration when developing the WWSMP. Effective communication with Indigenous communities, agencies, stakeholders, and the public can reduce or avoid controversy that can ultimately lead to project delays and general discontent of project stakeholders. RVA, in consultation with Township staff, identified stakeholders, agencies and Indigenous communities that may have an interest in the study, the methods of contact, and the timing of contact for this project. This section details the consultation process followed by this MCEA. Public consultation is documented in Appendix 2 of this report.

3.2 Notices

The Notice of Study Commencement, project updates and project information were published on the Township's News & Public Website (https://connectcw.ca/WWSMP).

The Notice of Completion was sent out to agencies and interested parties by email and posted on the Township's Connect-CW project page. Copies of the notices are included in Appendix 2-1.

3.3 Stakeholder Consultation

The MCEA process requires stakeholder consultation to incorporate input from interested or impacted groups. Potential stakeholders included but were not limited to:

- Public – This includes individual members of the public including property owners who may be affected by the project, individual citizens who may have a general interest in the project, special interest groups, community representatives, and developers; and
- Review agencies – This includes government agencies who represent the policy positions of their respective departments, ministries, authorities, or agencies.

Public and Agency contact lists and notices are in presentation are in Appendix 2-1. Responses were received and reviewed, and these are documented in Appendix 2-4.

All Notices, PICs and other information on the Master Plan has been published on the Township's Website:

https://connectcw.ca/WWSMP.

3.4 Indigenous Consultation

Based on discussions and recommendations provided by the MECP regional office, RVA on behalf of the Township confirmed Indigenous communities and in addition contacted Crown-Indigenous Relations and Northern Affairs Canada. The purpose of the contact was to request which, if any, Indigenous communities may be affected by the project alternatives. The Information provided ensures the appropriate communities have been included in the contact lists for the duration of the MCEA project. Contact was made with the following Indigenous groups:

- Six Nations of the Grand River;
- Six Nations Lands and Resources;
- Mississaugas of the Credit First Nation;
- Métis Nation of Ontario;
- Haudenosaunee Development Institute; and
- Haudenosaunee Confederacy.

This is documented in Appendix 2-2.

3.5 Public Information Centres

Public Information Centre (PIC) is a method to communicate with the public, interested parties and review agencies. For this project, two (2) PICs were held to present the Problem and Opportunity Statement, background information collected, a review of the servicing strategies being evaluated, present the evaluation criteria, the preliminary preferred solution, and the project timeline.

PIC#1 was held on May 30, 2024, at the CW Community Sportsplex in Fergus. The posted hours were from 6:00 PM to 8:00 PM.

PIC#2 was held on April 24, 2025, at the Elora Centre for the Arts in Elora. The posted hours were from 6:00 PM to 8:00 PM.

Details of the PICs are included in Appendix 2-3 which contains a summary of the meetings, a copy of the presentations, attendance lists, comments received. Any responses were received and reviewed, and these are documented in Appendix 2-4.

3.6 Incorporating Consultation Input

The input and information gathered from the various parties who participated in the consultation were reviewed by the Project Team and used to develop the WWSMP.

4.0 HISTORICAL AND PROJECTED SERVICED POPULATION

4.1 Overview

The development of the WWSMP required an understanding of the historical serviced residential and employment population to establish patterns and trendlines of municipal services usage. It also required population growth projections established in the Official Plan and prepared in the Municipal Comprehensive Review (MCR) by Watson & Associates Economists Ltd in 2022 and was adopted by the Official Plan in 2024.

4.2 Historical Population

4.2.1 Municipal Comprehensive Review

The MCR study provides the County of Wellington with growth management technical requirements and associated strategic policy recommendations to support the development of the Official Plan. Both Fergus and Elora/Salem are subdivided into three designated zones as follows:

- Built Urban Area (BUA): existing developed locations that will accommodate growth through intensification;
- Designated Greenfield Area (DGA): greenfield areas outside of the delineated BUA boundary within the urban boundary of an Urban Settlement Area; and
- Employment Land Areas.

Population data for residential and employment populations are detailed in the following subsections.

4.2.2 Residential Population

4.2.2.1 Total Residential Population

Historically, the Township has seen 43% of the County's overall growth, of which has been primarily concentrated in Elora/Salem and Fergus, both being urban centres and primary growth areas. The MCR report provides population estimates for years 2021 – 2051 in 5-year increments. The population for 2023 that is needed to establish baseline conditions has been obtained by linear interpolation of the 2021 and 2026 data as shown in Table 4.1.

Table 4.1 Fergus and Elora/Salem Historical Population

Community	2021	2023	2026
Elora/Salem	7,800	9,040	10,900
Fergus	19,100	19,500	20,100

4.2.2.2 Serviced Residential Population

As noted in Section 1.3, there are residential populations in both Fergus and Elora that are not connected to municipal services and are on private wells and / or septic systems. To establish usage of municipal services on a per-person basis (per capita basis), the Township provided historical serviced populations from 2021 – 2023 estimated using water-meter data which is provided in Table 4.2 below.

Table 4.2 Historical Serviced Population in Elora/Salem and Fergus

Year Community	2021	2022	2023
Elora/Salem Serviced Population			
Drinking Water System	5,580	6,200	6,820
Wastewater Treatment System	5,545	6,165	6,785
Fergus Serviced Population			
Drinking Water System	16,774	16,974	17,174
Wastewater Treatment System	16,493	16,693	16,893

4.2.3 Employment Population

The MCR organizes employment population into two categories: export-based which can contribute to influx of non-residential population during working hours on employment lands, and community-based which is primarily comprised of the local residential population serving employment on community lands. Therefore, water usage and wastewater generation in addition to that of the existing residential population is contributed from the export-based employment population only. This employment population is designated as employment-land-employment (ELE), as opposed to population-related employment which is designated as population-related employment (PRE). Key points from the MCR report regarding the employment population in the Township is as follows:

- The Township accommodates 34% of the County's Urban ELE, or 2,510 employees as of 2021;
- From 2016 to 2021, employment growth in the Township was largely PRE; and
- Fergus and Elora/Salem's industrial-metered water demand is less than 10% of the total water consumption.

As the industrial metered water demand is relatively low, in the analysis of historical water demands and wastewater flows, employment population is not considered separately.

Additionally, the *2019 Township of Centre Wellington's Transportation Master Plan* provides commuting patterns for Fergus and Elora/Salem. The 2016 commuting patterns demonstrates that many residents work outside the Township, such as Guelph, Halton region, Peel Region, and Region of Waterloo etc. Per Figure 4-1 below taken from the Transportation Master Plan, about 55% of the 5,300 trips made in the afternoon rush hour originate from these outside communities to the Township. Therefore, it can be assumed that most of ELE population in both urban centres are offset by the residents leaving the areas during the same time. However, the MCR report does recommend increasing the employment activity rate in the future, by establishing more industrial and commercial employment opportunities. This can result in an influx of employees from outside the urban boundaries during working hours (presumably 8 AM to 5 PM).

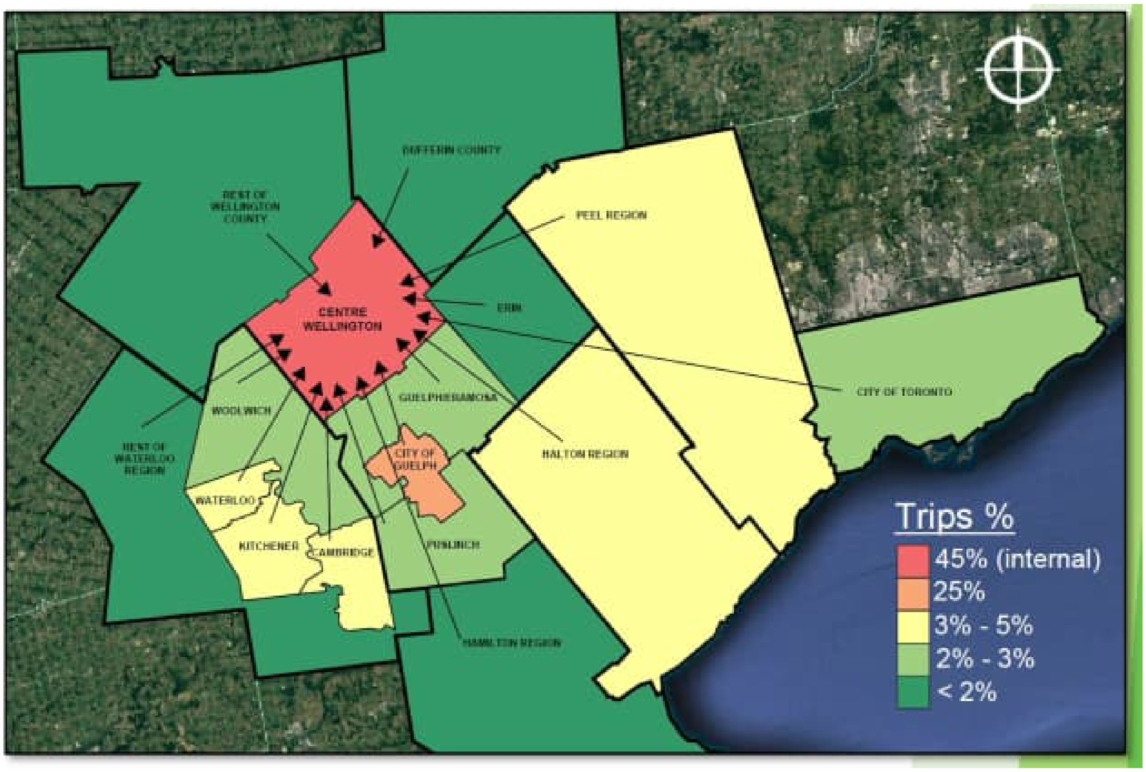


Figure 4-1 Trip Volume During Afternoon Peak Hour. Source: 2019 Township of Centre Wellington Transportation Master Plan, WSP

4.3 Population Projections

Centre Wellington is expected to accommodate 44% of the County's overall growth to 2051 in Fergus and Elora. Population forecasts to year 2051 for both communities is provided in the MCR Report and is summarized in Table 4.3. It is assumed that, as of 2023, all future growth will be connected to municipal services.

Table 4.3 Elora/Salem and Fergus Population Growth to 2051

Community	2023	2051	2023-2051 Additional Growth
Elora/Salem	9,040	14,100	5,060
Fergus	19,500	36,300	16,800
Total Population	28,540	50,400	21,860
Drinking Water System			
Elora/Salem	6,820	11,880	5,060
Fergus	17,174	33,974	16,800
Wastewater Treatment System			
Elora/Salem	6,785	11,845	5,060
Fergus	16,893	33,693	16,800

4.3.1 Employment Population Forecast

ELE population growth to year 2051 in the Township is also provided in the MCR reports in 5-year increments and is summarized in Table 4.3. Since only Fergus and Elora/Salem are fully serviced areas in the Township and have delineated industrial areas, it can be (conservatively) assumed that all forecasted ELE population growth for the Township will occur solely in the two communities.

Additionally, as of April 2024, it appear that both urban settlements have relatively equivalent existing built and vacant industrial land area. As such, it was assumed that the forecasted ELE population will be allotted equally to the existing industrial areas in both communities.

Table 4.4 Centre Wellington Employment Land Employment Population

Population	2051
A = Total Employment Population (per MCR Study)	5,910
B = A/2 = Employment Population in each Urban Settlement	2,955
B/3 = [Equivalent Residential] ELE Population in each Urban Settlement	985

4.3.2 Total Population Forecast

Table 4.5 summarizes the population projections for the projected population up to 2051 for Elora/Salem and Fergus, respectively.

Table 4.5 Elora and Fergus Population Projections

Urban Centre	2023	2051		
Total Population	Residential	Residential	ELE	Total
Elora/Salem	9,040	14,100	985	15,085
Fergus	19,500	36,300	985	37,285
Drinking Water System	Residential	Residential	ELE	Total
Elora/Salem Serviced Population	6,820	11,880	985	12,865
Fergus Serviced Population	17,174	33,974	985	34,959
Wastewater System	Residential	Residential	ELE	Total
Elora/Salem Serviced Population	6,785	11,745	985	12,830
Fergus Serviced Population	16,893	33,693	985	34,678

5.0 SERVICING STRATEGY AND EVALUATION CRITERIA

5.1 Drinking Water System Level of Service

5.1.1 Guidelines and Water Use Sources

Typical DWSs comprise of the water supply, treatment, and the distribution systems. The supply system includes groundwater wells and/or surface water sources, and the distribution system includes booster pumping stations and storage facilities. The Township's DWS is supplied only by groundwater wells.

The criteria used to obtain and analyse the water treatment components has been compiled from the following standards and guidelines:

- Centre Wellington Development Manual (2024);
- Ontario Design Guidelines for Drinking Water Systems (MECP Guidelines) (2016); and
- Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (10 states) Recommended Standards for Water Works (2022).

The MECP Guidelines require that water demand be based on the data collected from the Township's historical recorded water use data and cover gaps using reasonable assumptions based on the factors and guidelines provided. Water demand is generally composed of the following:

- Water that is consumed for residential and non-residential use (metered);
- Bulk water that is dispensed to water tankers (metered);
- Water that is used in the water treatment and distribution process (metered);
- Water used for firefighting (typically not metered);
- Water used for flushing distribution system (typically not metered); and
- Water that lost in the distribution system through pipe or reservoir leakage.

Unaccounted for or non-metered water is checked to determine water loss in the system. The MECP Guidelines direct that where flow records for an existing distribution system show that unaccounted-for-water exceeds 15% of average daily demand, then an average value within the range of 270 to 450 L/(capita*day) should be considered for projecting future water use and the cause of the unaccounted-for-water determined and reduced or eliminated as much as is practical.

5.1.2 Drinking Water System Infrastructure Sizing

5.1.2.1 Water Supply

The MECP Guidelines require that capacity of water treatment supply to be greater than the highest demand (typically maximum day demand) since allowance is needed for water required for in-plant use and process losses. Additionally, water security is ensured by sizing the system such that it can meet the consumer water demand with the largest asset out of service. This is defined as the *Firm Capacity* of the system, and it should exceed the projected maximum day water demand of the DWS.

Table 5.1 summarizes definitions of the key water demand parameters that were used for this WWSMP and the sources they are obtained from.

Table 5.1 DWS Design Parameters (MECP Guidelines)

Parameter	Definition	Source
Average Day Demand (ADD)	The ADD is defined as the average of all daily recorded water demand over a given year.	*Daily Flows* Excel files[1]
Maximum Day Demand (MDD)	Maximum volume of water required in any 24-hour period during the design period.	
Maximum Day Peaking Factor (MDPF)	$\text{MDPF} = \dfrac{\text{MDD}}{\text{ADD}}$	
Supply Firm Capacity	Capacity of the water supply wells able to supply the water treatment plant design capacity with the largest well out of service.	Permit to Take Water (PTTW)
Distribution Firm Capacity	Capacity of the system to supply pressure zones with the largest high lift pump out of service.	MECP Design GL

1: Provided by the Township.

5.1.2.2 Water Distribution

The MECP Guidelines recommends the following as design objectives for a reliable water distribution system that provides continuous supply of potable water at adequate pressure:

- Adequate water storage facilities that balance system pressure and cope with peak demands, fire protection, and other emergencies;
- Looped watermain with and minimal dead ends as possible to prevent stagnation and maintain adequate flow and turnover; and
- Maintains the following (as checked by Hydraulic Modelling):

- o A minimum pressure of 140 kPa (20 psi) at ground level under MDD plus fire flow,
- o Normal operating pressure should range from 350 kPa (50 psi) to 480 kPa (70 psi), and not less than 275 kPa (40 psi),
- o The maximum pressures should not exceed 700 kPa (100 psi) unless provided with pressure reducing devices.

5.1.2.3 Water Storage

The MECP Guidelines require that water storage facilities be designed to satisfy the greater of the following demands: MDD plus fire flow or peak hour demand (PHD). The required water storage is calculated using the following formula from the MECP guidelines:

$$\text{Water Storage Requirement} = A + B + C$$

Where A is the storage volume required to meet recommended fire flows based on serviced population and is provided by the MECP Guidelines, B is the equalization storage (25% of MDD), and C is the emergency storage (25% of the sum of A and B).

5.2 Wastewater Treatment System Level of Service

5.2.1 Guidelines and Wastewater Sources

WWTSs comprise of the collection system and the treatment plant. Collection systems include both gravity- and force- (pumped) sewer mains, and sewage pumping stations that are connected to sewer mains and pump the flows to the WWTPs. The criteria used to obtain and analyse the parameters for the WWTSs is compiled from the following standards and guidelines:

- Centre Wellington Development Standards;
- Ontario Design Guidelines for Sewage Works (MECP Guidelines) as amended in 1984 and 2008; and
- Wastewater Treatment Fundamentals published by Water Environment Federation (WEF Guidelines).

5.2.2 Wastewater Treatment System Infrastructure Sizing

Table 5.2 summarizes definitions of the key wastewater flow parameters that will be used for this Masterplan and the sources they are obtained from.

Table 5.2 WWTS Design Parameters (MECP Guidelines)

Parameter	Definition	Source
Rated Capacity	Rated capacity of sewage treatment plants is defined as the average daily flow which the sewage treatment works have been approved to handle.	WWTP ECA
Average Day Flow (ADF)	Cumulative total sewage flow to the sewage works during a calendar year, divided by the number of days during which sewage was flowing to the sewage treatment works that year.	Annual Performance Report
Maximum Day Flow (MDF)	Largest volume of flow received during a one-day period expressed as a volume per unit time.	
Dry Weather Flows (DWF)	The DWF is the lowest daily average flow in a year, thereby a day that has undergone the least infiltration.	Flow Monitoring Data and Effluent Flow Meter
Extraneous Flows	Flows contributed only from rain inflow and ground water infiltration (I&I), calculated as: MDF – DWF. Typically analyzed as the flow volume of I&I contributed per hectare of serviced area (L/ha/s)	
Maximum Day Peaking Factor (MDPF)	$MDPF = \frac{MDF}{ADF}$	-
Peak Flows	Largest flow over a specific time interval (hourly or instantaneous) in a year.	Flow Monitoring Data and Effluent Flow Meter

A key direction for WWTSs is using real date of flow rates and sewage characteristics in both wet and dry conditions, if possible. Per the MECP guidelines,

- Collection systems are to be sized for ultimate sewage flows or peak flows that include extraneous or wet-weather flow events that comprise of Infiltration from rain and Inflow from groundwater (I&I); and
- Wastewater treatment plants are rated for ADF, with individual unit-treatment processes to be sized for peak flows.

5.3 Approach for Establishing Servicing Strategy

5.3.1 General Servicing Solutions to Review

For municipal infrastructure, the following are the standard solutions recognized by the MCEA that are reviewed for capability to address operational or capacity obstacles to supporting growth:

- General Servicing Solution (GSS) 1 - Do Nothing: This alternative solution is a required baseline condition that considers the anticipated impacts if no remedial or mitigation measures are taken to address the identified issues. Under this scenario, no improvements or changes would be undertaken to address the current and future water supply and storage requirements. Therefore, identified obstacles that prevent growth and development would not be addressed which is contrary to Township's goals and the Official Plan's objectives. Therefore, "Do Nothing" alternative is not an acceptable solution and is not evaluated further.
- GSS 2 - Limit Growth: This alternative solution considers the anticipated impacts if community growth is limited to the existing municipal system capacities. Like the "Do Nothing" alternative, this alternative is contrary to the objectives of the Township and the Official Plan and is not evaluated further.
- GSS 3 – Reduce Consumption: The Township has a program for Water Conservation Education, a new toilet rebate program as well as Outdoor Water Use by-law (99-55) which is being updated in 2025. These programs are designed to reduce unnecessary water use. Infiltration/Inflow reduction into the sewage collection system is being addressed based on a 2019 Inflow & Infiltration Study which recommended sewer lining projects (per the current 10-year capital budget) and ongoing flow monitoring. These programs should continue and be expanded.
- GSS 4 – Provide Services to Allow for Planned Growth: Based on the requirements, water services can include new water supply (separate initiative per the Township's 2019 Water Supply Master Plan (WSMP)), water storage, water pumping and distribution, etc. Wastewater services and new sanitary sewers, upgrades to existing or new sewage pumping, and wastewater treatment plant expansions.

The Master Plan will focus on providing servicing solutions that allow for planned growth per GSS 4, while continuing and enhancing the existing programs under GSS 3.

5.3.2 Alternative Strategies Development

Development of servicing strategies to meet future growth demands involved formulating alternative solutions that meet the municipal water and wastewater services levels established in Sections 5.1 and 5.2. The alternative solutions are developed based on the following:

- Committed or approved planning projections and associated developments;
- Infrastructure capacities to meet MECP requirements with adequate system security and redundancy; and
- Use of Hydraulic Modelling to assess existing conditions as well as impact of future growth demands on system infrastructure.

5.3.3 Evaluation Criteria Development

5.3.3.1 Longlisted Alternative Strategies

The evaluation process for the proposed alternatives followed a two-step approach. First, a list of alternatives was proposed and compared against the problem and opportunity statement based on criteria listed in Table 5.3. An alternative was not evaluated further if it would not comply with the problem and opportunity statement, had any major constraints, disadvantages, or overall unfeasibility (pre-screening). Following the pre-screening of each alternative, a shortlist of possible alternatives was made. The shortlisted alternatives were evaluated further using typical Class EA evaluation criteria as described in the following sections.

Table 5.3 Pre-Screening Criteria for Proposed Alternatives Evaluation

Alternatives	Pre-Screening Criteria Based on Master Plan Problem and Opportunity Statement			
	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)

5.3.3.2 Shortlisted Alternative Strategies

An evaluation criterion to evaluate the shortlisted alternative solutions was developed based on the MCEA requirements. It comprised of four categories with specific criteria that should be reviewed as listed in Table 5.4.

Table 5.4 MCEA Evaluation Criteria

Evaluation Criteria	Criteria Indicators
TECHNICAL	
Impact on Operations and Maintenance	• Maintains or improves current level of operations and maintenance required. • Minimizes complexity of the system. • Minimizes potential risk to operations and maintenance staff health and safety.
Meets Legislated Criteria and Regulations	• Meets all legislated criteria and regulations.
Constructability	• Minimizes logistical constraints such as site access. • Minimizes negative impacts on constructability related to site conditions (i.e. soil quality and topography).
Impact on Existing Infrastructure	• Optimizes use or integration of existing infrastructure. • Aligns with other planned infrastructure as outlined in existing Master Plans and the Capital Plan.
Aligns with Approval and Permitting Process	• Allows for approvals and permits to be obtained in a timely manner.
SOCIAL AND CULTURAL	
Impact on Cultural Heritage Resources	• Minimizes potential impacts to cultural heritage resources.
Impact on Existing Communities, Residential Areas, and Proposed Development	• Minimizes need to acquire land not owned by the Township. • Minimizes negative impacts that may result due to changes in a neighborhood's characteristics.
Minimizes Construction Impacts	• Minimizes impact to nearby neighbours during construction. • Minimizes noise, odour, road closures, and construction traffic during construction. • Minimizes impacts to businesses during construction.
ENVIRONMENTAL	
Impact on Environmental Features	• Protects sensitive natural areas features and GRCA regulated areas. • Minimizes impact to existing terrestrial and aquatic habitats and species.
Impact on Surface Drainage, Groundwater and Surface Water	• Minimizes impacts within GRCA regulated areas. • Protects groundwater and surface area and follows the Clean Water Act.
Climate Change Resiliency	• Provides resiliency to extreme weather events. • Able to adapt to climate change and the risk associated with a changing climate.
Greenhouse Gases Emissions	• Minimizes GHG emissions and impacts to the environment which may limit the ecosystem's ability to remove GHGs from the atmosphere.

Evaluation Criteria	Criteria Indicators
ECONOMIC	
Best Use of Existing Infrastructure	• Reuses existing infrastructure where possible to reduce energy and material demands.
Provides Low Capital Costs	• Minimizes capital costs.
Provides Low Life-Cycle Costs	• Minimizes operation and maintenance costs.

The evaluation criteria is applied to each alternative solution to rate their ability of meeting the Master Plan's Problem and Opportunity Statement and narrow down to the preferred solution. Table 5.5 illustrates the rating scale used.

Table 5.5 Evaluation Criteria Measurement

Evaluation Rating Scale		
Highest Impact (Most Negative Solution)		Lowest Impact (Most Positive Solution)

6.0 WATER MASTER PLAN

Appendix 4 to this document contains the Water Master Plan Technical Report which provides additional details that are summarized in this section.

6.1 Capital Forecast

The Township has provided the planned 10-year capital forecast from 2025 to 2034 for water projects. The Total Capital Budget is estimated at $51.4 million of this:

- $5.9 million is identified to bring Area # 3 and Area # 7 wells into production; and
- $7.1 million is identified for future system growth that do not have funding assigned for their completion.

The remainder is for facility and watermain renewal projects as well as growth projects that have been currently financed.

Key water project that was accounted for in the development of this Master Plan is addition of new water supply wells. The 2019 Water Supply Master Plan recommended the Township obtain an additional 7,023 m^3/d of groundwater supply to satisfy the forecasted 2041 water demand and recommended four new preferred well areas (Areas 3, 5, 7, and 8) for further investigation. In response, the Township undertook the New Well Exploration Program Feasibility Assessment in 2024, which determined that each well will be able to produce up to 2,592 m^3/d (30 L/s). Per the Township's 10-year Capital forecast, wells in Areas 7, 3, and 5 will be installed in 2027, 2031, and 2036, respectively. as shown Figure 6-4.

In April 2025, the Township executed an agreement to purchase the privately held water supply located at 7334 Middlebrook Road as a future water supply source. The timing of when this well will be brought into the Elora/Salem and Fergus Water Supply is not presently known. This Master Plan will consider the requirement for a watermain connection from this source to the settlement area.

6.2 Historical Water Demand Analysis

6.2.1 Water Demand Trends

Table 6.1 provides the historical water demand in Fergus and Elora/Salem as a combined DWS. Water consumption trends show relatively constant water demand and MDD values since 2021. Fergus makes up for 65% of the total water consumption.

Figure 6-1 provides a comparison to water consumption trends of surrounding cities and towns with similar population sizes. As seen, Centre Wellington's water consumption is much lower compared to the averages across Ontario. Although this maybe attributed to several factors, the most likely is the absence of precise serviced population data.

Furthermore, Centre Wellington's per capita consumption of 250 lpcd is lower than that recommended for greenfield areas in the MECP Guidelines (270 – 450 lpcd). Likewise, the MDPF factor of 1.5 is lower than that typically observed for the corresponding serviced population size (MDPF of 1.9 is typical for populations 10,000 – 25,000). As such, a per capita consumption of 280 lpcd and MDPF of 1.9 is used for a conservative future water demand projections.

Table 6.1 Centre Wellington Historical Water Use Analysis and Projection Parameters

Parameter	Units	2021	2022	2023
Historical ADD	m^3/day	5,778	5,849	5,731
ADD per capita	Lpcd	258	252	239
Historical MDD	m^3/day	8,484	9,190	8,521
MDPF	-	1.5	1.6	1.5
Parameters used for Forecasting Future Water Demand				
ADD per capita	lpcd	280		
MDPF	-	1.9		

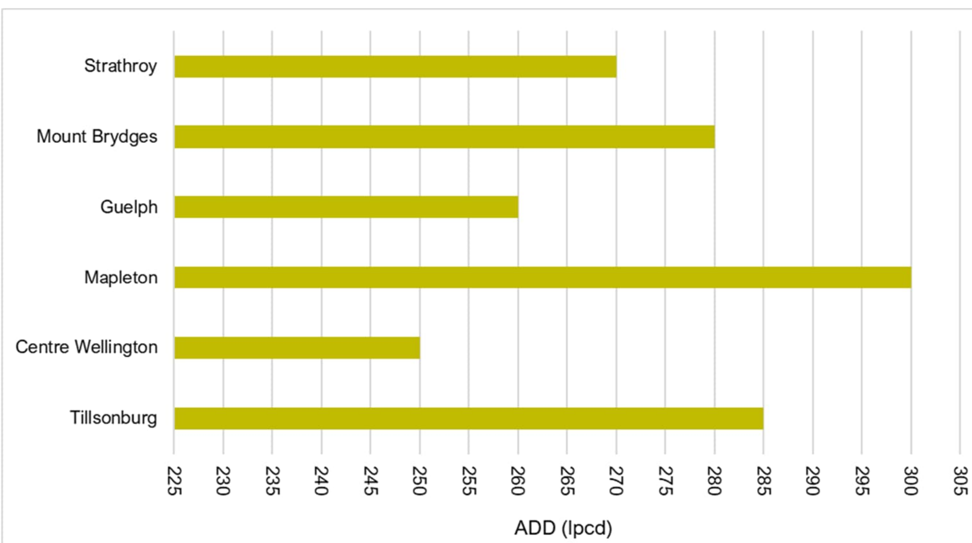


Figure 6-1 Select Ontario Community per Capita Water Consumption

6.2.2 Non-Metered Water Demand

Water loss data was taken from Water Revenue vs Consumption vs Population excel file provided by the Township. The historical water loss is calculated as the percentage of total supplied water that is unaccounted for. The results are provided in Table 6.2 and shows that average historical water loss is 20.1 %, which exceeds the threshold percentage recommended in the MECP Guidelines (15%).

Table 6.2 Centre Wellington DWS Historical Water Loss

Parameter	2021	2022	2023
Total Supplied Water (m^3)	2,114,609	2,135,647	2,098,748
Total Non-Revenue Water (m^3)	470,510	461,770	431,651
Metered Consumption (m^3)	1,644,100	1,673,877	1,667,097
Accounted for Non-Revenue Water (m^3)	42,147	29,520	18,238
Unaccounted Water Consumption (m^3)	428,362	432,250	413,414
Water Loss (% of total supplied)	20.3%	20.2%	19.7%

6.3 Hydraulic Modeling in Support of Water Master Plan

Appendix 3 contains the Water and Wastewater Servicing Master Plan Hydraulic Model Report. InfoWater Pro hydraulic modeling platform was utilized to develop water distribution systems model for the Elora and Fergus systems. As a first step, detailed background data was collected which included GIS datasets of the watermains, hydrants, storage facilities, and pumping stations located within the Elora and Fergus. A detailed review of the SCADA data related to the various storage facilities and pump stations was also conducted to develop a thorough understanding of the system operations as well as to use the provided data in the model calibration phase. An extensive field-testing program was also implemented, which involved ten (10) hydrant flow tests and five (5) C-factor tests to assist with the calibration of the hydraulic model.

The calibrated model was utilized to assess the hydraulic performance of the system under existing (2024), 2051, and ultimate build-out demand conditions. Additional scenarios were also simulated to determine the feasibility and assess the impacts of the capital works proposed by the Township, which involved the addition of new water sources (wells) and watermains within the Elora and Fergus water distribution systems. A separate scenario was also completed to determine the feasibility of adding one (1) new booster station between Elora and Fergus, with the intent to provide redundancy in the event the current booster station ever went out of service.

6.4 Distribution System Findings

Refer to Figure 6-2 for the Hydraulic Modelling results for baseline year 2024 scenario. Model results show that existing conditions meet the water supply and pressure requirements across the system during peak hour conditions, which indicates a robust system that meets MECP guidelines. However, some areas located in dead-ends experience fire flows lower than the recommended 67

L/s. This information has been provided to the Township for their review as this issue is not within the scope of this Master Plan.

6.5 Water System under 2051 Demand Projections

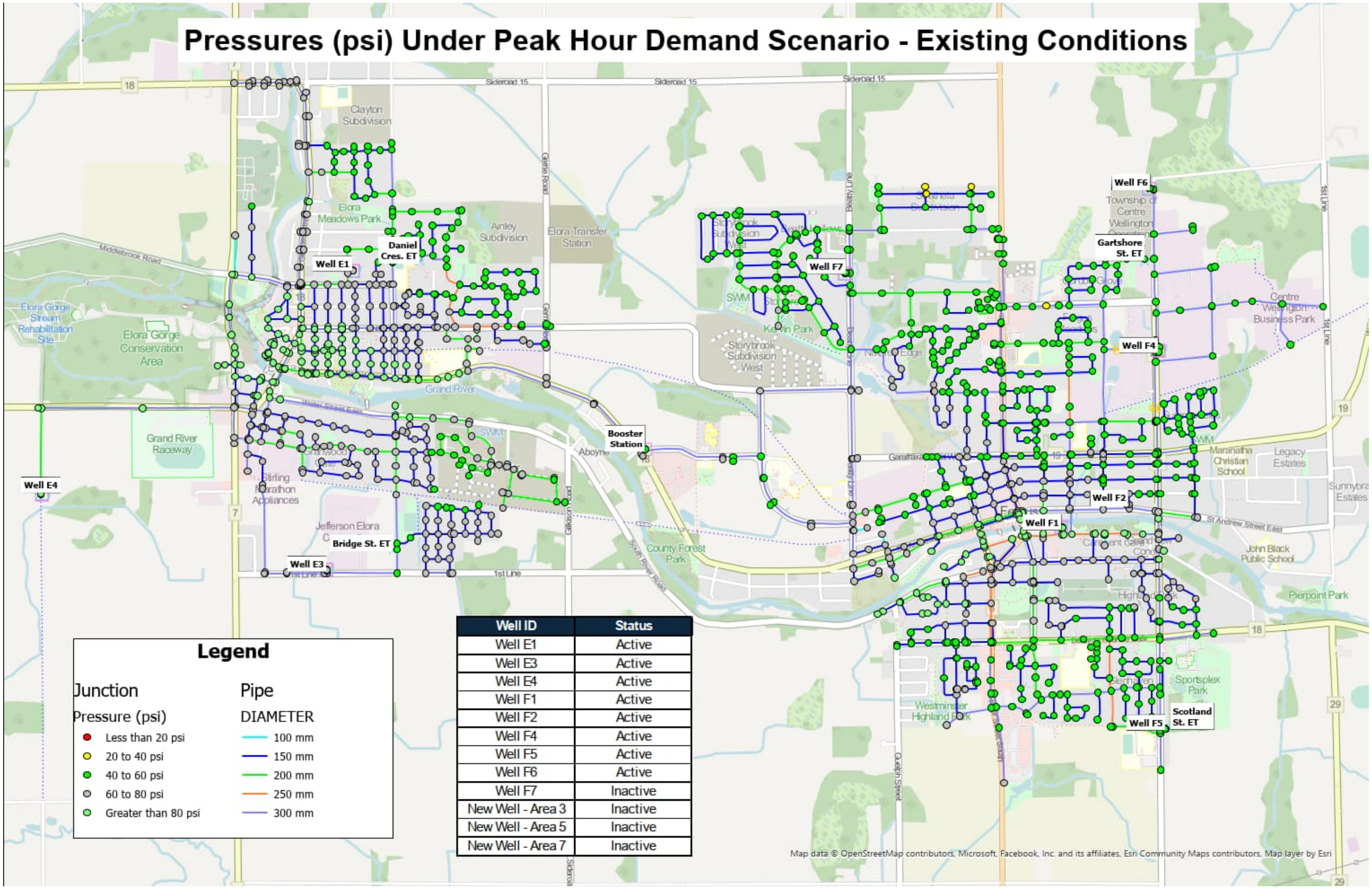
6.5.1 Water Supply

Table 6.3 provides the projected water demand to year 2051 for the Centre Wellington DWS.

Table 6.3 Centre Wellington 2051 Water Supply Requirements

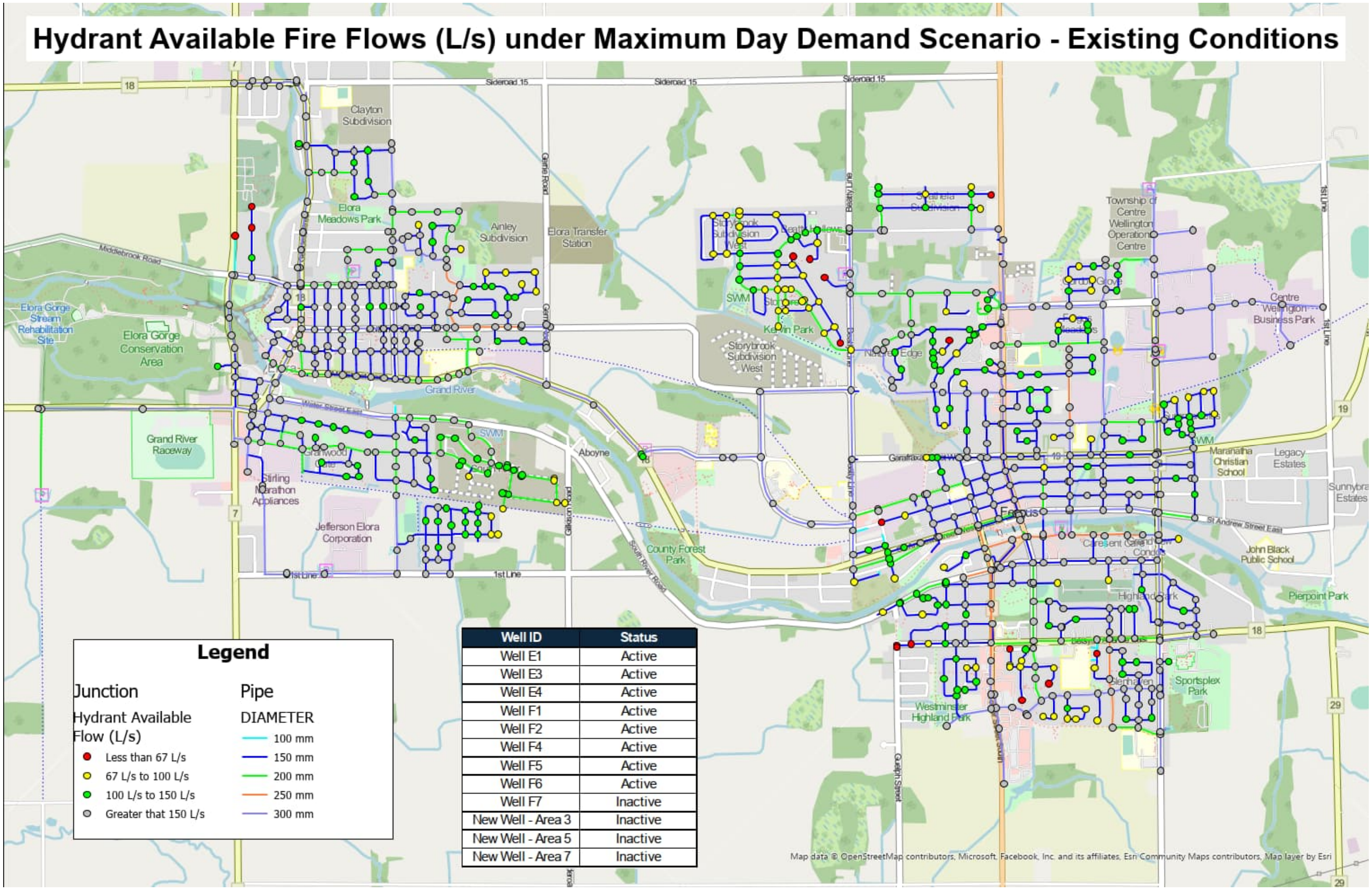
Parameter	Units	Total
MDD	m^3/day	21,330
Current System Firm Capacity	m^3/day	13,066
Current Surplus (+)/Deficit (-)	m^3/day	-8,335
Future System Firm Capacity[1]	m^3/day	20,214
Future Surplus (+)/Deficit (-)	m^3/day	-1,187
1: Includes Capacities of Future Wells in Areas 3, 5, and 7, no details provided in the Middlebrook Well capacity at present		

Figure 6-4 shows the anticipated requirement for water supply to be brought online to provide supply up to 2051. It should be noted that future wells from areas 3,5, and 7 will not be able to fully supply the anticipated 2051 firm capacity supply.



Well ID	Status
Well E1	Active
Well E3	Active
Well E4	Active
Well F1	Active
Well F2	Active
Well F4	Active
Well F5	Active
Well F6	Active
Well F7	Inactive
New Well - Area 3	Inactive
New Well - Area 5	Inactive
New Well - Area 7	Inactive

Figure 6-2 Hydraulic Modelling Pressures Under Peak Hour Demand for Baseline Year 2023 Scenario



Well ID	Status
Well E1	Active
Well E3	Active
Well E4	Active
Well F1	Active
Well F2	Active
Well F4	Active
Well F5	Active
Well F6	Active
Well F7	Inactive
New Well - Area 3	Inactive
New Well - Area 5	Inactive
New Well - Area 7	Inactive

Figure 6-3 Hydraulic Modelling Hydrant Available Fire Flows Under Maximum Day Demand for Baseline Year 2023 Scenario

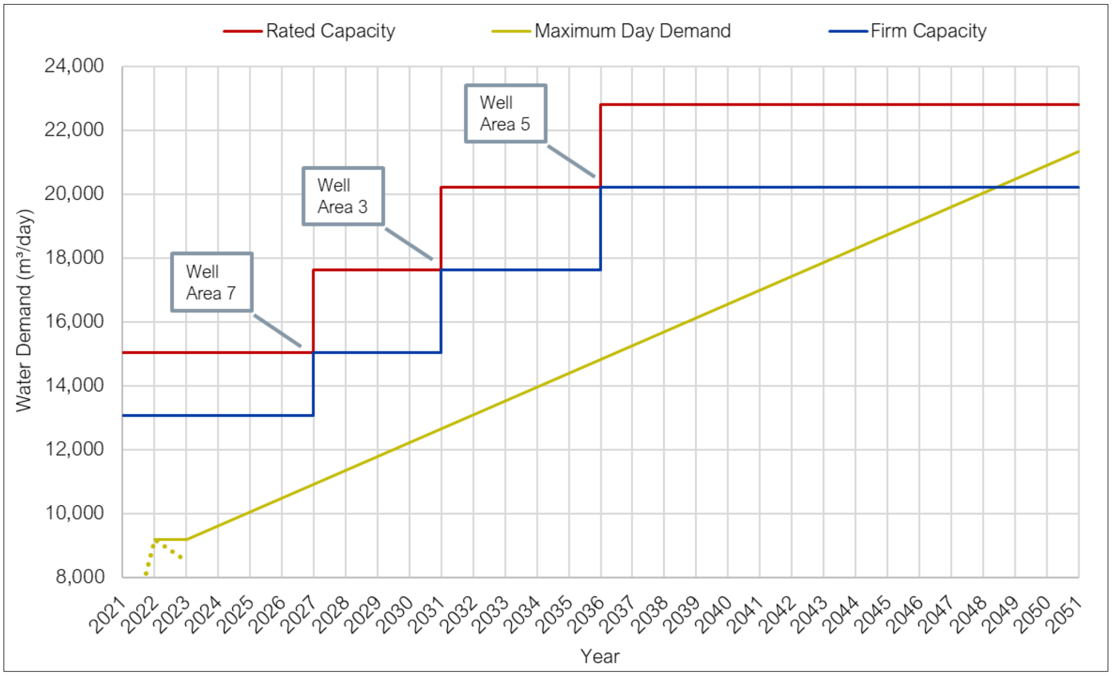


Figure 6-4: Implementation Timeline of Future New Wells (not including Middlebrook Well)

6.5.2 Water Storage

Table 6.4 provides the projected water supply requirements.

Table 6.4 Centre Wellington 2051 Water Storage Requirements

Parameter	Units	Total
Fire Flow Storage Volume	m^3	8,165
Equalization Storage Volume	m^3	5,350
Emergency Storage Volume	m^3	3,379
Required Storage Capacity	m^3	16,894
Available Storage Capacity	m^3	11,820
Remaining Available Storage Capacity	m^3	-5,074

Figure 6-5 shows the projected required water storage capacity required to 2051. As noted, additional storage volume will be required by 2035.

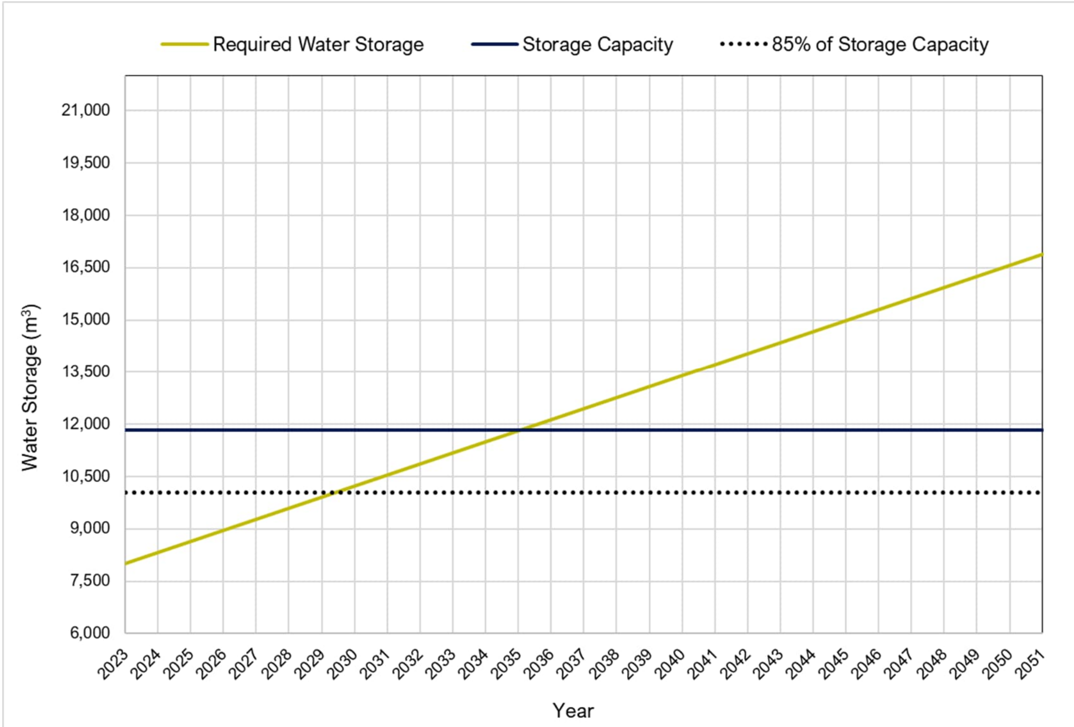


Figure 6-5 Centre Wellington DWS Water Storage Capacity Projections

6.5.3 Water Distribution

Regarding the water distribution system, there are two aspects to address for the planned growth to 2051. These are:

- What are the impacts to the existing distribution system based on the requirement to service population growth within the current boundaries of Elora-Salem and Fergus; and
- What are the new components of the distribution system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing distribution system. Based on our analysis, the existing distribution system can support the anticipated future growth to 2051.

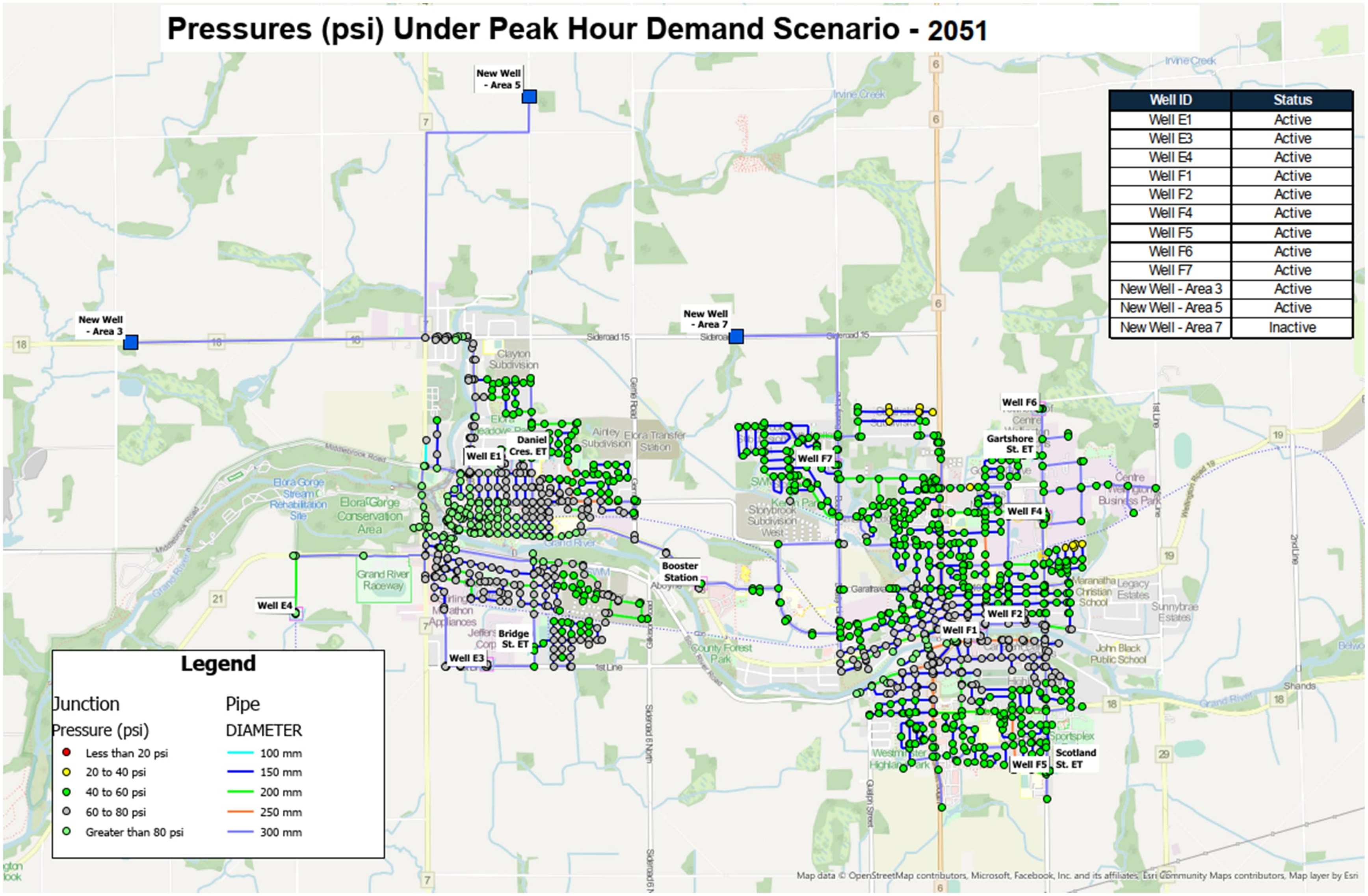


Figure 6-6 Hydraulic Modelling Pressures Under Peak Hour Demand for 2051

6.6 Water System Alternative Strategies and Recommended Solution

6.6.1 Water Storage

Table 6.5 evaluates the longlisted strategies for addressing the water storage requirements. General Servicing Solution (GSS)s 1 and 2 are described in Section 5.3 and were screened out. GSS 3 considers reducing future water demand through water conservation and efficient use and these measures will be incorporated into capital works and operations going forward.

Therefore, GSS 4, Provide Services to Allow for Planned Growth is to be implemented and there are two general options for this approach noted below.

Option 1 constitutes building a new storage facility to support the Township's growth. This alternative is shortlisted as a viable strategy, as it sufficiently meets the Master Plan's objectives.

Option 2 constitutes re-building the existing elevated tanks in either Fergus or Elora to expand its capacity. This strategy is screened out under the assumption that the existing storage structures were sized for the load of existing water volume. Any expansion at the existing site will involve complex technical requirements and has a low benefit-cost ratio, due to the following:

- Technical complexity in maintaining the pressure and storage requirements in the distribution network while existing facility is down for the entire duration of construction work;
- Complex constructability sequencing that is typical for projects involving demolition of existing infrastructure while maintaining continued services; and
- Does not allow for future expansion capability due to the limited space available within the existing sites.

Although some cost saving can be expected when building on existing Municipal site (as opposed to land acquisition), the savings are not anticipated to outweigh the costs.

Therefore, Option 2 is chosen to develop a solution to water storage.

Table 6.5 Longlisted Strategy Evaluation for Water Storage Requirements

Criteria / Alternatives:	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)
GSS 3: Reduce Demand via Conservation	✗	✓	✓	Combine with preferred
GSS 4 Option 1: Built New Storage Facility	✓	✓	✓	Yes
GSS 4 Option 2: Expand Existing Storage Facility	✓	✗	✓	No

6.6.1.1 Shortlisted Alternative Strategies – Water Storage

In collaboration with the Township's operating staff, it was determined that the preferred storage facility is a buried reservoir serviced by a BPS. A criteria to determine the preferred location for the new storage facility was established and is shown in Table 6.6.

Table 6.6 Shortlisted Strategy Evaluation for Water Storage Requirements

Criteria	Description
Location	• Since reservoir is to service the three pressure zones in the Township, preferred location will be on the border line between the two pressure zones to minimize the individual watermain extensions required to each zone. • Preferred location will either be on existing Township property or allow for cost-sharing via development charges; and • Preferred location will be in close proximity to existing large forcemains.
BPS	the elevation differences across the Township including areas of planned , BPSs maybe required. The strategy that requires the least number of BPSs will he highest.

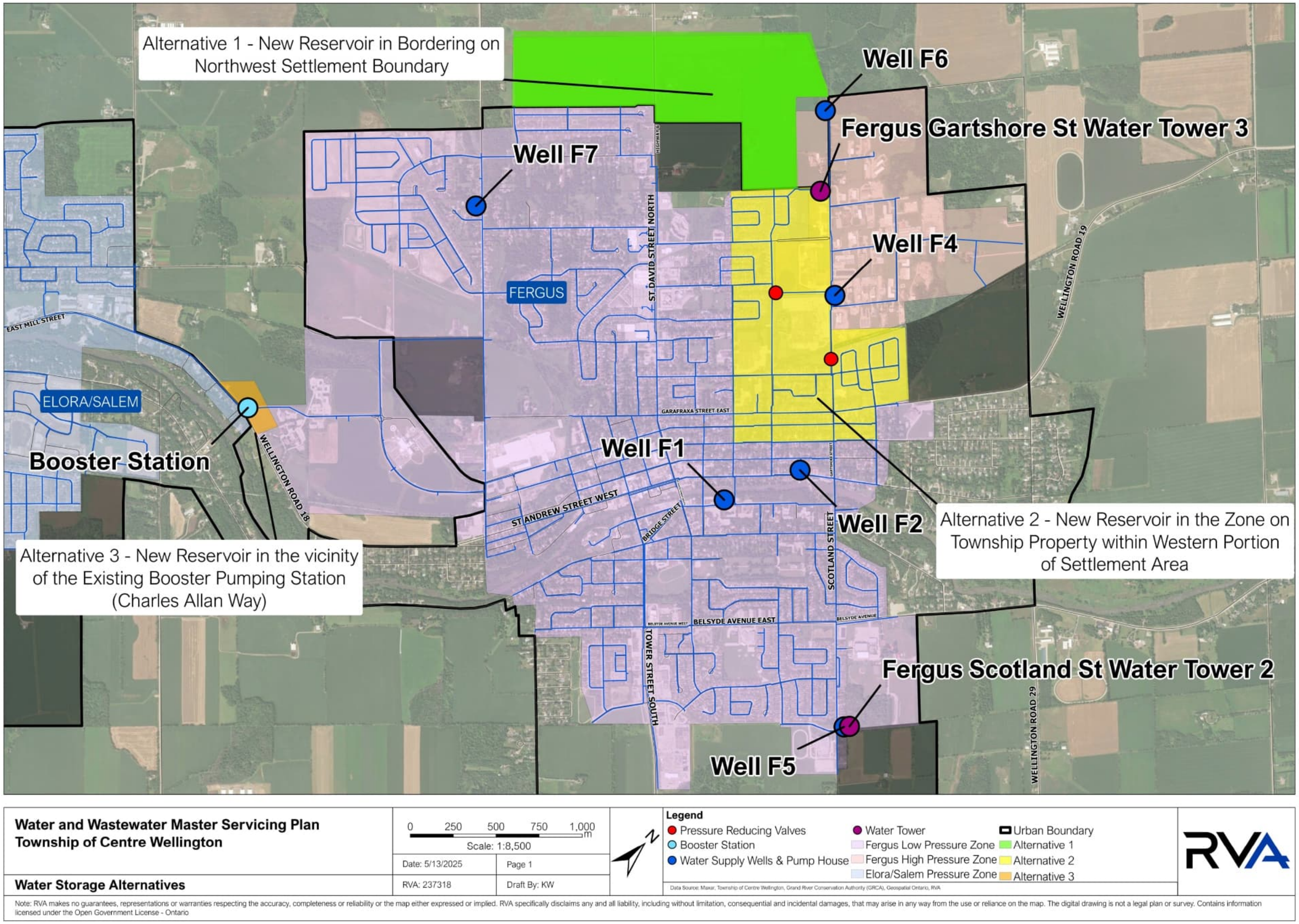


Figure 6-7 Water Storage Options

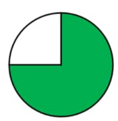
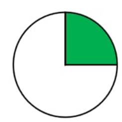
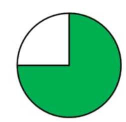
Based on the above requirements, the following three alternative locations as shown in Figure 6-7 were proposed and reviewed per the established evaluation criteria:

- Alternative 1 – New Reservoir Bordering on Northwest Fergus Settlement Boundary;
- Alternative 2 – New Reservoir on Township Property within North Fergus Settlement Area; and
- Alternative 3 – Build a New Reservoir Near the Existing Booster Pumping Station.

6.6.1.2 Preferred Strategy

The evaluation in Table 6.7 shows that preferred strategy is Alternative 1 – New Reservoir Bordering on Northwest Fergus Settlement Boundary. A reservoir in this location would require a BPS with two separate pumping systems dedicated to the high pressure and low-pressure zones. The reservoir could be fed by the low-pressure zone, as the two Wells F4 and F6 in the high-pressure zone are dedicated to the Gartshore Tower. The two individual discharge mains from the dedicated pump system are to be connected to the existing distribution network in the respective pressure zones (upstream and downstream of the pressure reducing valves).

Table 6.7 Strategy Evaluation for Water Storage Requirements

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
TECHNICAL			
Impact on Operations and Maintenance	Provides redundant supply to high pressure zone	Provides redundant supply to high pressure zone at	Provides redundant connection between both communities
Meets Legislations/Regulations	No issues to meet Legislation and Regulations		
Constructability	No foreseeable constructability issues	Extensive construction sequencing required with new watermains or extensions under existing roads	No foreseeable constructability issues
Impact on Existing Infrastructure	No impact on existing infrastructure.	No impact on existing water infrastructure but existing urban area may be displaced.	No impact on existing infrastructure
Aligns with Approval and Permitting Process	If Township owns the property, works may be considered Exempt per current MCEA process.	Will be built on Township property; however, presence of residential neighbourhood requires a Schedule B Class EA per current MCEA process	Property acquisition requires a Schedule B Class EA per current MCEA process and possibly expropriation.
Score			
SOCIAL AND CULTURAL			
Impact on Cultural Heritage Resources	No anticipated impact on cultural heritage resources. Standard archeological and heritage investigations required.		
Impact on Existing Communities	Can be planned to be built as a future development and not impact existing social and cultural environment.	High potential to disrupt social environment due to placement in existing urban area.	If located on County property to south, it will change aesthetic of entrance to the County’s campus and require a landscape buffer

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
Minimum Construction Impacts	Will have to limit impact to residents if bordering on a property line.		Will have to limit impact to commuters on County Road 18 and those accessing the County's campus.
Score			
ENVIRONMENTAL			
Impact on Environmental Features	No anticipated impact on environmental features.		
Impact on Water Bodies	No anticipated impact on surface drainage, groundwater and surface water.		
Climate Change Resiliency	Reservoir will be located outside of regulated area and not subject to impacts of flooding.		
Greenhouse Gases Emissions	No difference between GHG emissions between this and the other options.		
Score			
ECONOMIC			
Best Use of Existing Infrastructure	This option is proximate to an existing storage tower and to both Fergus's Pressure zones.	This option is proximate to both pressure zones but may require the relocation of an existing social environment.	This option is proximate to both communities but will require land acquisition
Provides Low Capital Costs	This option is anticipated to have the lowest capital cost as it should not required land	This option is anticipated to have a higher capital cost as it may require the relocation of an existing social environment.	This option is anticipated to have a higher capital cost as it requires the coast of land acquisition and the possible loss of residual value from

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
	acquisition or the relocation of any park land.		the abandonment of the existing BPS.
Provides Low Life-Cycle Costs	No difference between life cycle costs anticipated between this and the other options.		
Score	◕	◑	◔
Overall Score	Most Preferred Option ◕	2nd Preferred Option ◑	Least Preferred Option ◑

6.6.2 Water Distribution

There is a need to provide watermain connections from the planned new wells to the distribution system as well as to extend the distribution system to the new areas brought into the 2024 growth boundary, the following watermain projects have been identified. Standard practice is to run watermains along existing road rights of way or other municipality owned rights of way. Therefore, no options for watermain connection were considered in the Master Plan other than extending watermains across the existing rights of way. When servicing strategies are developed in detail for the various components of the new areas brought into the 2024 growth boundary, a more detailed analysis can be made to confirm if there are more than one option for routing the required watermains to service these new areas.

Table 6.8 summarizes the watermain projects that are required to support the planned growth to 2051. These projects are shown in Figure 6-8.

Table 6.8 Summary of Watermain Projects Identified in the Master Plan

Project Number	Community	Watermain Length (m)	Area Serviced	Description
W-S-L	Elora-Salem and Fergus	500	High Pressure Zone	Connection of New Reservoir to Low Pressure Zone in Fergus
W-S-H	Fergus	500	Fergus Low Pressure and Elora Zones	Connection of New Reservoir to High Pressure Zone in Fergus
W-E-1	Elora-Salem	200	ER1	New Watermain on First Line at Wellington Rd 7
W-E-2	Elora-Salem	930	ER1	New Watermain on Wellington Rd 7 from First Line to ER1
W-E-3	Elora-Salem	1,175	ER1	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W
W-E-4	Elora-Salem	360	ER1	New Watermain on East limits of existing Main on First Line
W-E-5	Elora-Salem	1,000	New Well Supply to Communities	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18,

Project Number	Community	Watermain Length (m)	Area Serviced	Description
				including connection to South St dead end.
W-E-6	Elora-Salem	2,000	New Well Supply to Communities	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5
W-E-7	Elora-Salem	410	Growth within existing urban area	New Watermain on Irvine St from Bricker Ave to Woolwich St.
W-E-8	Elora-Salem	630	Growth within existing urban area	New Watermain on Woolwich St. E from Irvine St to James St.
W-E-9	Elora-Salem	3,050	New Well Supply to Communities	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3
W-E-10	Elora-Salem	2,050	New Well Supply to Communities	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd
W-E-11	Elora-Salem	1,000	New Well Supply to Communities	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location
W-F-1	Fergus	690	FE3	New Watermain on HWY 6 from FE3 to Second Line
W-F-2	Fergus	690	FE3	New Watermain on Jones Baseline from FE3 to Second Line
W-F-3	Fergus	1,050	FE3 and FE4	New Watermain on Second Line from Jones Baseline to HWY 6
W-F-4	Fergus	1,050	FE3	New Watermain on Second Line from HWY 6 to Guelph St.
W-F-5	Fergus	1,025	FE3	New Watermain on Guelph St. from Second Line to

Project Number	Community	Watermain Length (m)	Area Serviced	Description
				60m south of Cummings Cres. S
W-F-6	Fergus	670	FE3 and FE4	New Watermain on HWY 6 from Second Line to existing main
W-F-7	Fergus	750	FE3 and FE4	New Watermain on Scotland St from Second Line to existing main
W-F-8	Fergus	325	FE3	New Watermain connecting McQueen Blvd to Guelph St.
W-F-9	Fergus	830	FE3	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.
W-F-10	Fergus	180	Growth within existing urban area	New Watermain on St. George St. W from Maple St. to Beatty Line
W-F-11	Fergus	530	FE5	New Watermain on East limit of existing watermain on Garafraxa St. to FE5
W-F-12	Fergus	600	Growth within existing urban area	New Watermain on Sideroad 18 from Vincent St. to Steele St.
W-F-13	Fergus	1,080	New Well Supply to Communities	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15
W-F-14	Fergus	1,000	New Well Supply to Communities	New Watermain on Sideroad 15 from Beatty Line to New Well 7

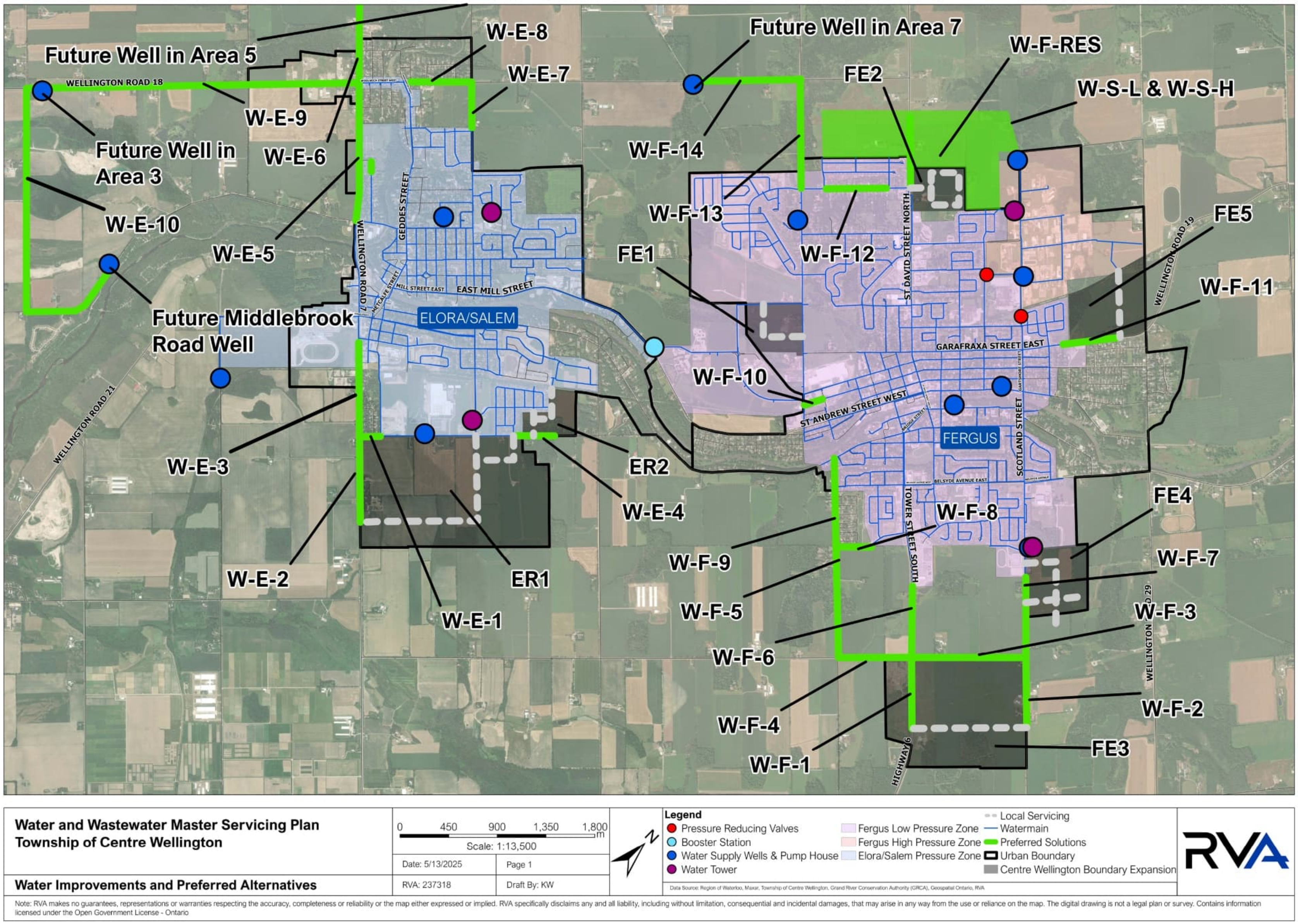


Figure 6-8 Proposed Watermains for Servicing to 2051

6.7 Water Risk Review - Second Connection between Elora and Fergus

6.7.1 Requirement and Concept for Connection

The Township would like to consider a second connection between the Elora and Fergus distribution networks to provide additional security to the system as part of their risk management study. Risk management involves managing risk to reduce the severity and frequency of an event impacting the health, safety and financial security of the owner of infrastructure and its uses.

It would be anticipated that approximately 950 m of 300 mm watermain would be required for a redundant connection as this is the current size of the existing connection. This would run east from the 300 mm watermain stub in Elora at the intersection of Gerrie Road and Colborne Street to the 300 mm watermain stub in Fergus at the intersection of the entrance to the Storybrook Subdivision. To match the performance of the existing connection between the Elora and Fergus a booster station would be required on the new connection. Figure 6-9 shows the proposed connection location.

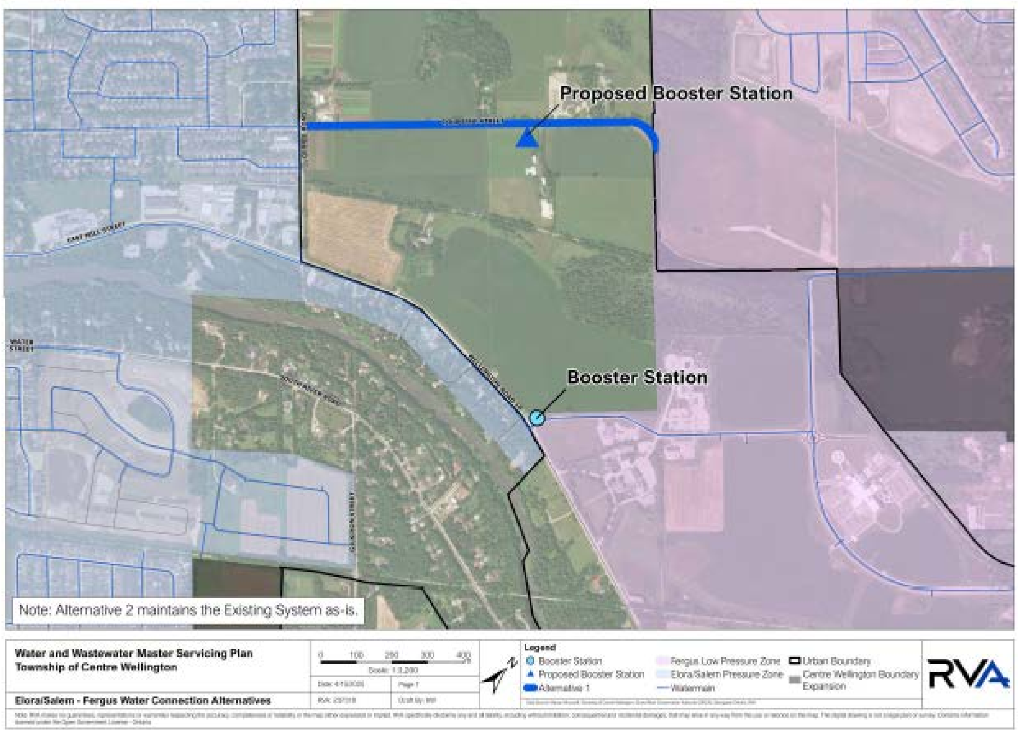


Figure 6-9 Proposed Location of Second Watermain Connection between Elora and Fergus

6.7.2 Frequency of a Potential Watermain Break

For this size and application, practice since the 1980's is to install watermains of PVC pressure pipe (per AWWA standard C900). Typically, PVC pressure pipe is corrosion resistant and is anticipated to have a service life in the order of 80 to 100 years. Failure of PVC pipe is typically related to installation practices such as poor pipe bedding construction, damage of the pipe during installation, or improper alignment of pipe joints (USEPA Primer on Condition Curves for Water Mains, 2013). Current Township and Ontario standards for watermain installation are designed to prevent this type of failure provided adequate inspection and quality testing is undertaken during construction.

The current 300 mm watermain on Wellington Road 18 from Gerrie Road (Elora) east to Charles Allan Way is 20 years old, and the current 300 mm watermain on Charles Allan Way/Fredrick Campbell Street from Wellington Road 18 from Charles Allan Way east to Beatty Line (Fergus) is 10 years old. These sections of watermain would be expected to have a remaining lifespan free of breakage of 80 to 90 years. Therefore, the frequency of a potential main break would be low.

6.7.3 Severity of a Potential Watermain Break

Should a main break occur, it would be between Gerrie Road (Elora) and Beatty Line (Fergus), it would be anticipated that the break would be fixed within 24 hours as the 300 mm watermain size is a common size where pipe and fittings can be obtained from suppliers within the region within a short time.

The water distribution system and wells will be isolated on either side of the break and Table 6.9 summarizes the current capacities of each part of the system.

Table 6.9 Current Well Capacity for Elora and Fergus

Elora [a]		Fergus [b]	
Well	Capacity (m^3/d)	Well	Capacity (m^3/d)
E1	1,741	F1	1,833
E2	1,964	F2	409
E3	1,228	F4	1,964
Total	4,933	F5	1,963
Firm Capacity (E2 out of service)	3,705	F6	1,964
		F7	1,964
		Total	10,097
		Firm Capacity (F7 out of service)	8,133

uts from Future Area 3 and 5 wells are not included
ut from Future Area 7 well is not included

In the event of a watermain break the normal practice for a municipality is to put out an advisory to residents and employers to voluntarily reduce water use via social media, traditional media and on the Township website. From experience in Ontario, such calls are generally heeded and water demand can be reduced to below average day demand and in most cases the demand will approach minimum demand. Table 6.10 details the anticipated Minimum Day Demand (Min. DD) and the ADD for each system in 2023 and in 2051.

Table 6.10 Expected Range of Flow During Watermain Break (m^3/d)

Elora		Fergus	
2023 Min. DD [a]	1,406	2023 Min. DD	3,095
2023 ADD	1,955	2023 ADD	3,776
2051 Min. DD	2,449	2051 Min. DD	5,039
2051 ADD	3,405	2051 ADD	6,794

mum Daily Flow which is based on average of 10 lowest flows in 2023

6.7.4 Meeting Future Maximum Day and Fire Flows

The hydraulic modeling undertaken has indicated that water distribution pressures under the 2051 Peak Hour demand scenario can be met without a second connection. The hydraulic modeling undertaken has indicated that fire flows under the 2051 Maximum Day demand scenario are adequate without a second connection.

6.7.5 Future Connection Cost for a Second Connection

The estimated capital cost for the additional connection is shown in Table 6.11. The total cost is estimated to be $5.5 million.

Table 6.11 Capital Cost (2025 dollars not including HST)

Component	Unit	Unit Cost	Total
New watermain (installation, appurtenances, road rehabilitation)	1000	$1,750	$1,750,000
Township Portion for Oversized Watermain through development (installation, appurtenances, road rehabilitation)	750	$875	$656,250
Booster Pumping Station	L.S.	$2,000,000	$2,000,000
Land Acquisition for BPS (450 m2)	L.S.	$500,000	$500,000
Engineering	L.S.	$570,000	$570,000
		Total (-30%/ +50%)	$5,476,250

6.7.6 Conclusion

The risks from a watermain break on the existing connection line can be managed with the existing well supplies in Elora and Fergus until 2051. The second connection does not provide improvements to the required services pressures or fire flows under the 2051 demand scenarios.

Therefore, the cost of implementing a second connection and a booster pumping station outweighs its usefulness for risk management or service improvement.

6.8 Water System Management

6.8.1 Water Distribution System Modeling

It would be recommended that the Township provide an allotment of $75,000 every five years over the Master Plan period to keep the current water hydraulic model up to date based on water taking data, meter data and changes to the distribution system.

6.8.2 District Metering

Due to the water loss rates noted as being greater than 15% of total water produced, it is recommended that the Township look at long term leakage monitoring. within the water distribution system. This requires the installation of flow meters at strategic points throughout the distribution system, each meter recording flows into an isolated area which has a defined and permanent boundary. Such an area is called a District Metered Area (DMA). District meters should be included in all new development areas and constructed in accordance with Township specifications. DMAs will be considered as a local service, with construction and commissioning costs paid for by developers.

7.0 WASTEWATER MASTER PLAN

Appendix 5 to this document contains the Wastewater Master Plan Technical Report which provides additional details that are summarized in this section.

7.1 Capital Forecast

The Township has provided the planned 10-year capital forecast from 2025 to 2034 for wastewater projects. The Total Capital Budget is estimated at $58.0 million of this:

- $33.0 million is identified for the expansion of the Fergus WWTP in 2034;
- $5.7 million is identified for the Beaty Line trunk sewer crossing of the Grand River in Fergus in 2034; and
- $2.9 million is identified for storm and sanitary sewer inspection, relining and repairs to reduce system inflow.

The remainder is for facility and sewer renewal projects as well as growth projects that have been currently financed.

7.2 Historical Wastewater Flow Analysis

7.2.1 Wastewater Flow Trends

7.2.1.1 Overview

Table 7.1 and Table 7.2 provides Elora's and Fergus's historical wastewater flow data, respectively, from 2021 – 2023 as recorded by the primary effluent Parshall flume at both WWTPs. The data has been optimized to remove any outliers as detailed in Appendix 5. Peak flow peaking factors have been compared to those of similar sized communities as provided in the WEF guidelines.

Table 7.1 Elora Historical Wastewater Flows

Parameter	Units	2021	2022	2023	Average
ADF	m^3/day	1,737	1,815	1,979	1,844
PDF	m^3/day	3,223	4,809	5,931	4,654
PDPF	-	1.9	2.6	3.0	2.5
WEF recommended MDPF	-				2.5
Peak Instantaneous Flow	L/s	132.0	146.7	193.0	157.2
PIF Factor	-	6.6	7.0	8.4	7.3
WEF recommended PIF Factor	-				4.4
PHF	L/s	88.1	127.0	87.8	101.0

Parameter	Units	2021	2022	2023	Average
PHF Factor	-	4.4	6.0	3.8	4.8

Table 7.2 Fergus Historical Wastewater Flows

Parameter	Units	2021	2022	2023	Average
ADF	m^3/day	4,223	4,082	4,699	4,335
PDF	m^3/day	24,042	13,752	18,675	18,823
PDPF	-	5.7	3.4	4.0	4.3
WEF recommended MDPF	-				2.3
PIF	L/s	350	294	350	331
PIF Factor	-	7.2	6.2	6.4	6.6
WEF recommended PIF Factor	-				3.8
PHF	L/s	341	239	378	319.4
PHF Factor	-	8.9	6.9	9.0	8.3

7.2.1.2 Analysis

The flow data shows that both systems have significantly larger peaking factors than those recommended by WEF. This atypically higher wet collection system is attributed to large I&I exposure which strains both wastewater collection and treatment systems.

In 2020, Cole Engineering completed inflow & infiltration (I/I) studies for Fergus and Elora/Salem (Cole Engineering Group Ltd., 2020), with data collected from years 2018 to 2019. The findings are summarized as follows:

- For Fergus, the average wet weather volume entering the sewer system ranged from volumetric coefficients of 0.7% to 3.6%, with two isolated areas showing 10.7% and 1.9%. Comparing to the typical volumetric coefficients of 1.0 – 2.0% shows that Fergus has a history of higher than average I&I exposure. Four significant rainfall events were captured during the study period with the largest event being 45mm of rainfall in depth.
- For Elora/Salem, the average wet weather volume entering the system ranges from 1.3% to 5.5%, also indicating significantly high I&I exposure. The largest rainfall event recorded during this study period was 49mm in depth.

The Township further undertook an *Assessment of Wet Weather Flows Compared to Dry Weather Flows* in 2023, which evaluated data from 2012 to 2021. The study concluded that a rain event exceeding 60 mm of rain over a short time span will significantly increase the likelihood of a bypass event occurring in the wastewater treatment plant.

7.2.2 Wastewater Flow Characteristics

7.2.2.1 Elora WWTP

Table 7.3 provides the final effluent objectives and limits for the Elora WWTP as outlined in the plant's Environmental Compliance Approvals (ECA) #1534-ACFL3V. No noteworthy effluent exceedances were recorded from 2021 – 2023.

Table 7.3 Elora WWTP Effluent Objectives and Limits

Effluent Parameter	Effluent Objective	Effluent Limit	
	Average Concentration (mg/L)	Average Concentration (mg/L)	Average Waste Loading (kg/d)
$CBOD_5$	8.0	15.0	75.0
Total Suspended Solids	8.0	15.0	75.0
Total Phosphorus	0.2	0.3	21.0
TAN[1] May 1-Nov. 30 Dec. 1-Apr. 30	0.6 3.0	2.0 5.0	10.0 25.0

1: Total Ammonia Nitrogen (TAN)

7.2.2.2 Fergus WWTP

Table 7.4 provides the final effluent objectives and limits for the Fergus WWTP as outlined in the plant's ECA #1534-ACFL3V.

Table 7.4: Fergus WWTP Effluent Objectives and Limits

Effluent Parameter	Effluent Objective		Effluent Limit	
	Average Concentration (mg/L)	Average Loading (mg/L)	Average Concentration (mg/L)	Average Waste Loading (kg/day)
$CBOD_5$	8.0	64	15.0	120
Total Suspended Solids	8.0	64	15.0	120
Total Phosphorus	0.2	1.6	0.38	3.04
TAN May 1-Nov. 30 Dec. 1-Apr. 30	0.6 3.0	4.8 24	2.0 5.0	16 40

Several effluent exceedances were recorded from 2019 – 2023 that were largely related to the Tertiary Filtration (sand filters) system. Additionally, the filter equipment were also in poor condition with repeated failure events.

7.3 Hydraulic Modeling in Support of Wastewater Master Plan

Appendix 3 contains the Water and Wastewater Servicing Master Plan Hydraulic Model Report. PCSWMM hydraulic modeling platform was utilized to develop wastewater collection systems models for the Elora and Fergus systems. Similar to water modeling, as a first step, a detailed review of the Township's GIS datasets was conducted, which included a detailed review of the system infrastructure in Elora and Fergus, such as pipes, manholes, and pumping stations. This detailed review of the GIS datasets allowed RVA to identify locations with critical discrepancies, which were addressed by continuous discussion with the Township and review of additional GIS datasets provided by the Township. Also, a detailed review of the available flow and rainfall monitoring data from 2018 and 2019 was conducted to assist with the calibration of the model. The flow monitoring data was reviewed from ten (10) locations in Fergus and eight (8) locations in Elora for completeness, pattern repeatability, and sanitary sewer response under varying rainfall events. This allowed us to ensure that the collected data could be further utilized for dry and wet weather model calibration and validation.

The dry weather flow calibration was completed by simulating a typical dry weather pattern and comparing it against the observed flows recorded at each location. Similarly, a wet weather flow calibration was also completed by simulating the observed storm events and adjusting the various model parameters iteratively until the modeled values for the flows were well within the observed values. The calibrated model was utilized to assess the performance under existing (2023), 2051, and ultimate build-out demand conditions. Additional scenarios were also simulated to determine the feasibility and assess the impacts of the capital works proposed by the Township, which involved the upgrades to existing sewer mains, the addition of new sewer mains, and diverting sanitary flows from existing SPS locations to new SPS locations within the Elora and Fergus wastewater collection systems.

Model results show that existing conditions meet the requirements to convey flows under maximum day and wet weather conditions.

7.4 Wastewater System Under 2051 Flow Projections

7.4.1 Wastewater Treatment System

Table 7.5 provides the projected wastewater flows to year 2051 for both Elora/Salem and Fergus WWTSs. The projections are illustrated in Figure 7-1 and Figure 7-2 for Elora/Salem and Fergus respectively, which show that Elora has ample capacity to support growth beyond 2051 while Fergus will exceed the rated capacity of the plant by 2042.

Table 7.5 Centre Wellington WWTPs Projected Wastewater Flows to 2051

2051 Parameter	Units	Elora/Salem	Fergus
ADF	m^3/day	3,660	9,383
Plant Rated Capacity	m^3/day	5,000	8,000
ADF % of Plant Rated Capacity	%	73%	115%

7.4.2 Wastewater Collection System

Regarding the wastewater collection system, there are two aspects to address for the planned growth to 2051. These are:

- What are the impacts to the existing collection system based on the requirement to service population growth within the current boundaries of Elora-Salem and Fergus; and
- What are the new components of the collection system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing distribution system. Figure 7-3 shows the growth impacts on the existing Elora-Salem collection system and Figure 7-4 growth impacts on the exiting Fergus collection system if growth areas are routed through the existing sewer network. Options to provide sewage collection were developed and are summarized in this section which include routing through part or all of the existing sewer network or else to route partly or completely through a new collection system.

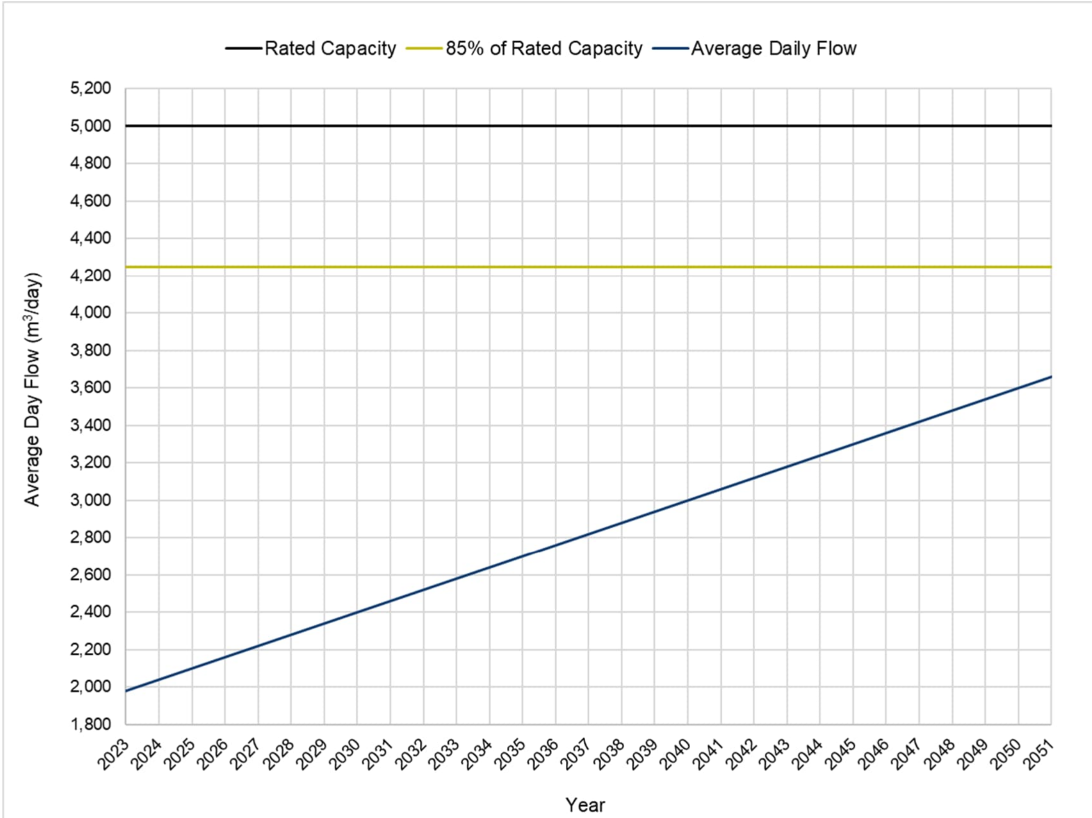


Figure 7-1 Elora WWTS Projected Wastewater Flows

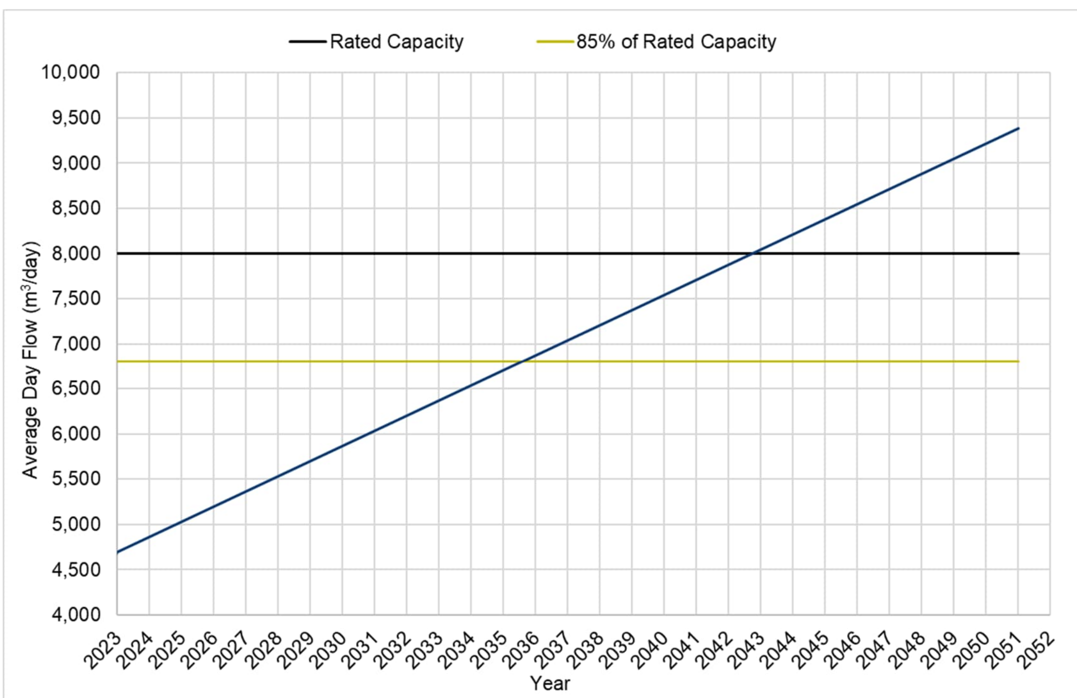


Figure 7-2 Fergus WWTS Projected Wastewater Flows

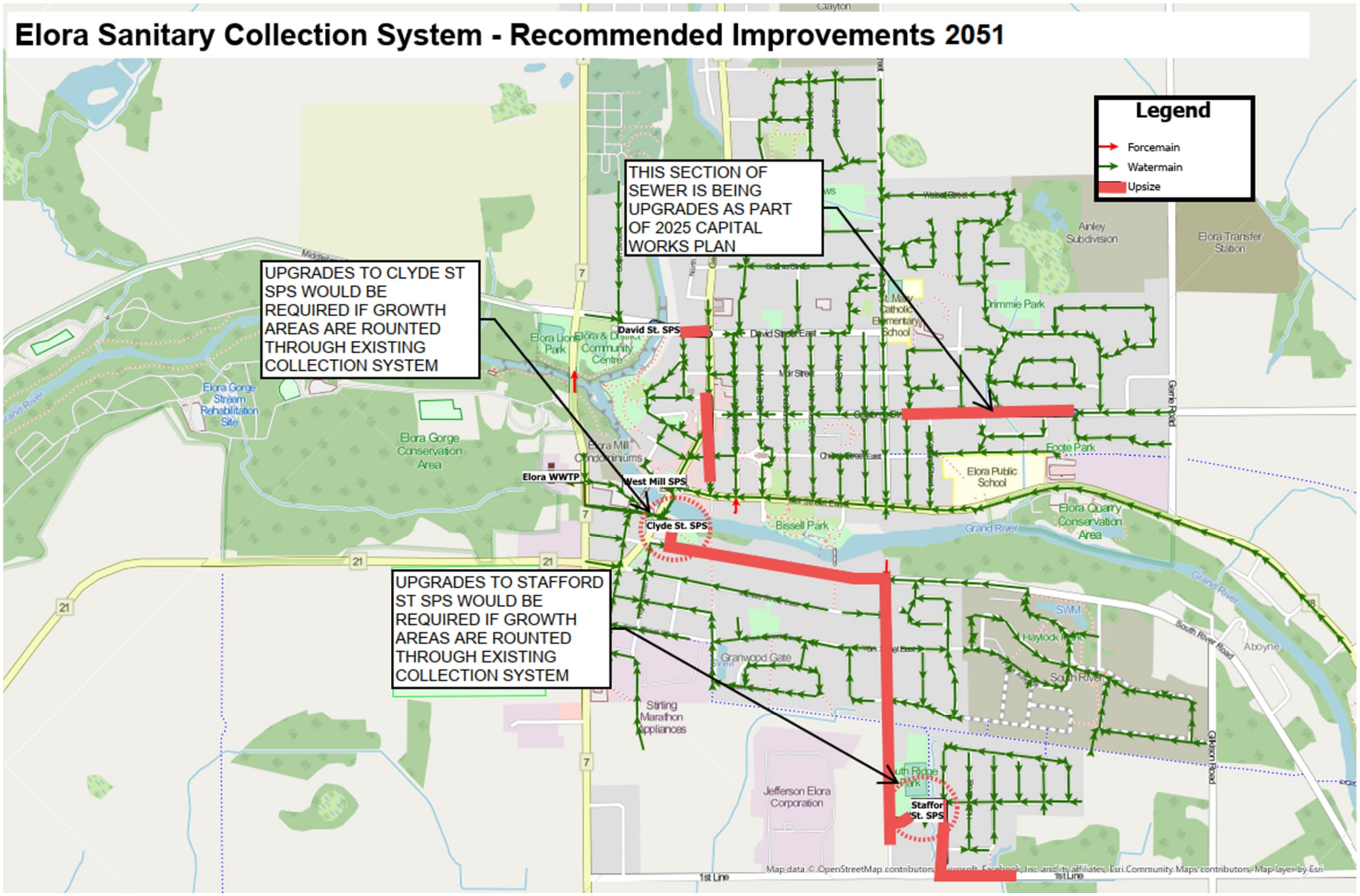


Figure 7-3 2051 Growth Impact on Existing Elora-Salem Collection System

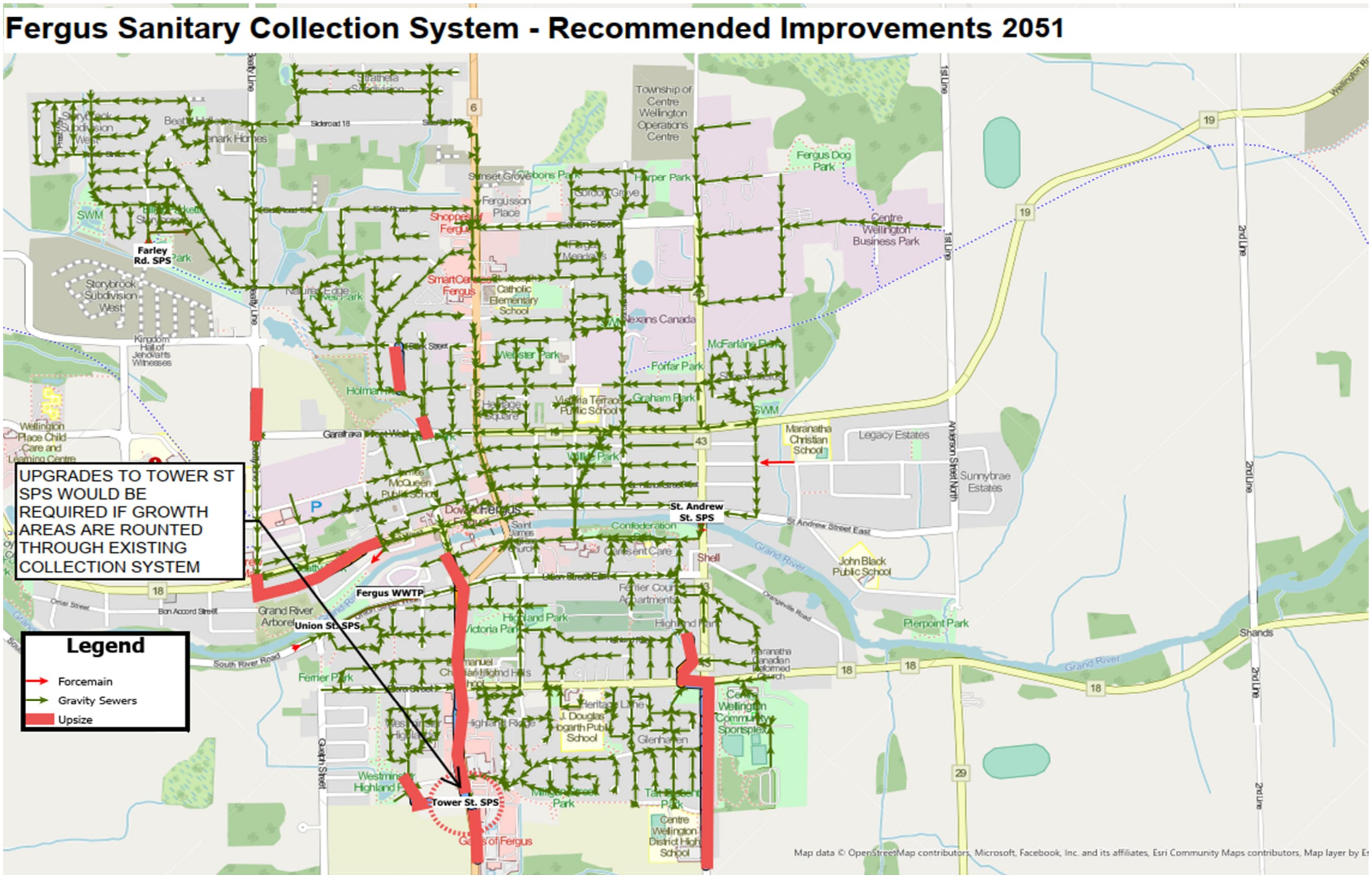


Figure 7-4 2051 Growth Impact on Existing Elora-Salem Collection System

7.5 Wastewater System Alternative Strategies and Recommendations

7.5.1 Longlist Alternative Strategies – Wastewater Treatment System

7.5.1.1 Overview and Criteria

The following criteria was established for the development of longlisted alternative strategies for the Fergus WWTP's projected capacity deficit by 2041:

- Proposed upgrades are to align with the planned replacements or upgrades of major equipment to minimize capital costs;
- Proposed upgrades are designed for at least 20-year flows post upgrades year. That is, if upgrades are constructed in 2040, design is based on minimum 2060 flows;
- Proposed upgrades consider expansion capability beyond design year;
- Proposed upgrades maximize use of existing assets; and
- Proposed upgrades consider alternative technologies to assist with capacity expansion.

7.5.1.2 Constraints

The following constraints were identified for the Fergus WWTP future servicing strategy:

1. Current unit processes at both WWTP are sized for ADF and PDF. However, current MECP practice is to size certain processes for Peak Hour and Peak Instantaneous Flows. As such, % of expansion to meet 2051 requirements varies for each unit process as shown in Figure 7-5;
2. Current site constraints at the Fergus WWTP are shown in Figure 7-6;
3. More stringent (lower) effluent limits in the new ECA for the expanded WWTP;
4. Maximizing Elora's capacity without requiring a new ECA application; and
5. Estimating the flow that can be pumped from Fergus to Elora and minimizing the detention time in the collection system (to prevent sewage septicity).

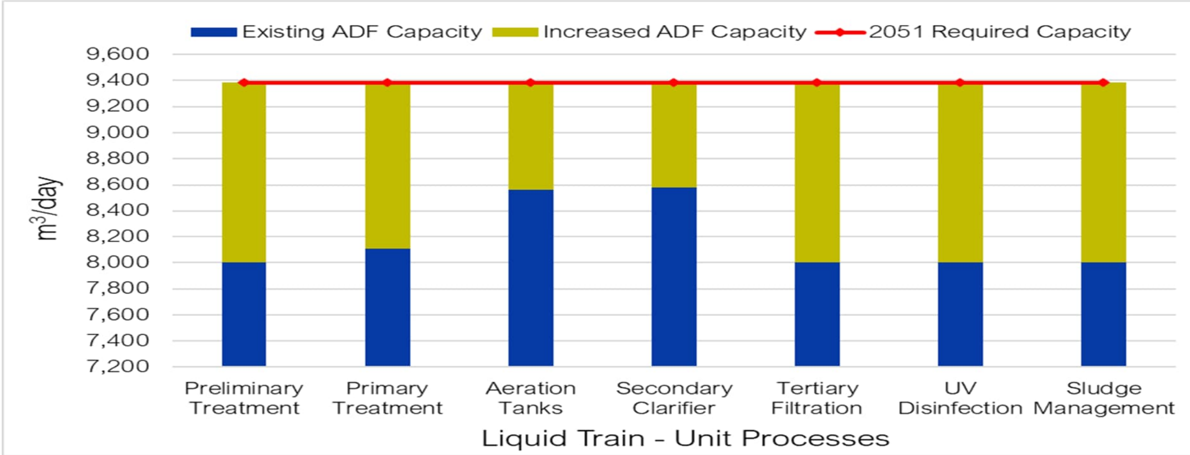


Figure 7-5 ADF Capacity of Liquid Train – Fergus WWTP Unit Processes

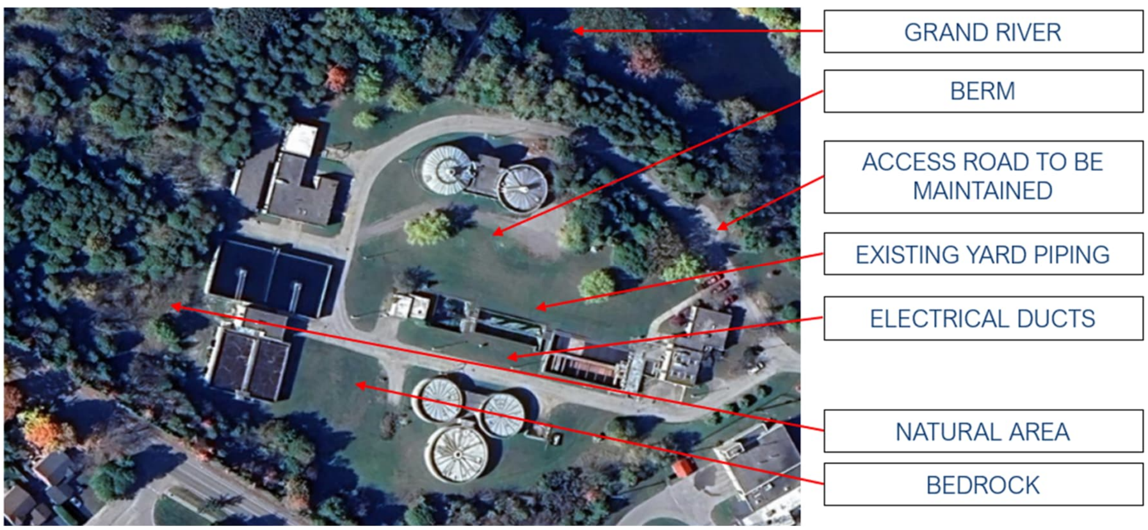


Figure 7-6 Current Constraints at the Fergus WWTP

7.5.1.3 Strategies and Evaluation

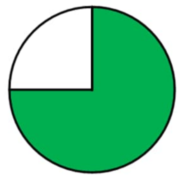
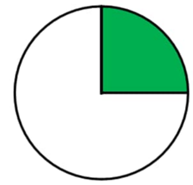
Based on the above, the following longlisted alternative strategies were produced:

- Alternative 1: Upgrade Fergus WWTP; and
- Alternative 2: Send Partial Flows to Elora WWTP up to Elora's Rated Capacity.

Table 7.6 provides the evaluation for the two long-listed alternatives, which shows that the preferred strategy is upgrading the Fergus WWTP such that growth to 2051 is supported and the proposed upgrades consider expansion capability beyond 2051.

Table 7.6 Longlisted Strategy Evaluation for Wastewater Systems

Category	1 - Upgrade Fergus WWTP	2- Send Partial Fergus WW Flows to Elora WWTP to Maximize Elora WWTP's Capacity
Technical	• This solution can be implemented to provide for 2051 and to layout the ultimate plant configuration for this WWTP • Will allow the Elora WWTP to accept post 2051 flows from its catchment area	• Will use up capacity in the WWTP and may require significant upgrades post 2051 or a new WWTP to service further expansion of the Elora servicing area • Will require a new or upgraded pumping station in area of the Farley SPS or a new SPS on the western side of Fergus to redirect flows
Social and Cultural	• Will not cause additional linear works than those required to provide flows to the Fergus WWTP • Standard temporary impacts during WWTP construction which will need to be mitigated • Expanded capacity may require additional standard odour control measures due to proximity of residential properties	• May require significant linear infrastructure work to redirect flows in Fergus and in Elora which will be disruptive to communities during construction and may require odour control • Standard temporary impacts during WWTP construction which will need to be mitigated • Expanded capacity may require additional standard odour control measures due to proximity of residential properties
Environmental	• Upgrades to WWTP will require review of impacts to environment through Schedule C Class EA and appropriate mitigation measures	• Upgrades to WWTP will require review of impacts to environment through Schedule C Class EA and appropriate mitigation measures • Additional sewer/forcemain to connect collection systems may require mitigation measures if these are not in municipal road allowances
Economic	• Costs will have to be reviewed based on component upgrades to Fergus WWTP	• May allow some deferment of upgrade costs for Fergus WWTP • Costs will have to be reviewed based on costs for new/upgrades of SPS in Fergus and upgrades to collection systems in Fergus and Elora • Costs will have to be reviewed based on component upgrades to Elora WWTP • Costs will have to be established for using up capacity of Elora WWTP

Category	1 - Upgrade Fergus WWTP	2- Send Partial Fergus WW Flows to Elora WWTP to Maximize Elora WWTP's Capacity
Overall		

Therefore, the long-listed option that is chosen is to upgrade the Fergus WWTP.

7.5.2 Shortlisted Evaluation Strategies – Wastewater Treatment System

7.5.2.1 Evaluation Strategies

Figure 7-7 shows the criteria used for the approach to implementing the preferred strategy of Fergus WWTP capacity expansion.

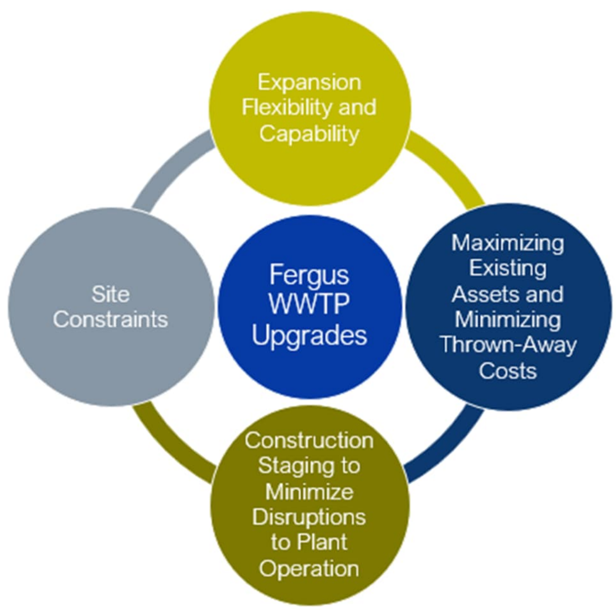


Figure 7-7 Fergus WWTP Capacity Expansion Strategy Implementation Criteria

Specifically:

- The expansion options are to consider capability of expanding the capacity with minimal additional upgrades or minimal throw-away costs, to continue supporting growth beyond 2051;
- The expansion options are to consider the limited footprint available in the existing site as illustrated in Figure 7-6;

- The expansion options are to account for the lifecycle replacements of the unit processes that will be undertaken within the next 5 to 10 years by incorporating the replaced units within the upgrades and minimizing throw-away costs. Figure 7-8 illustrates the identified lifecycle replacements in response to either aging equipment or equipment condition, as recorded in the 2024 Fergus WWTP condition assessment. Generally, all assets are in fair condition but will exceed capacity in 0 - 16 years; and
- The expansion options are to minimize complex constructability and account for fully operating plant for entire construction duration.

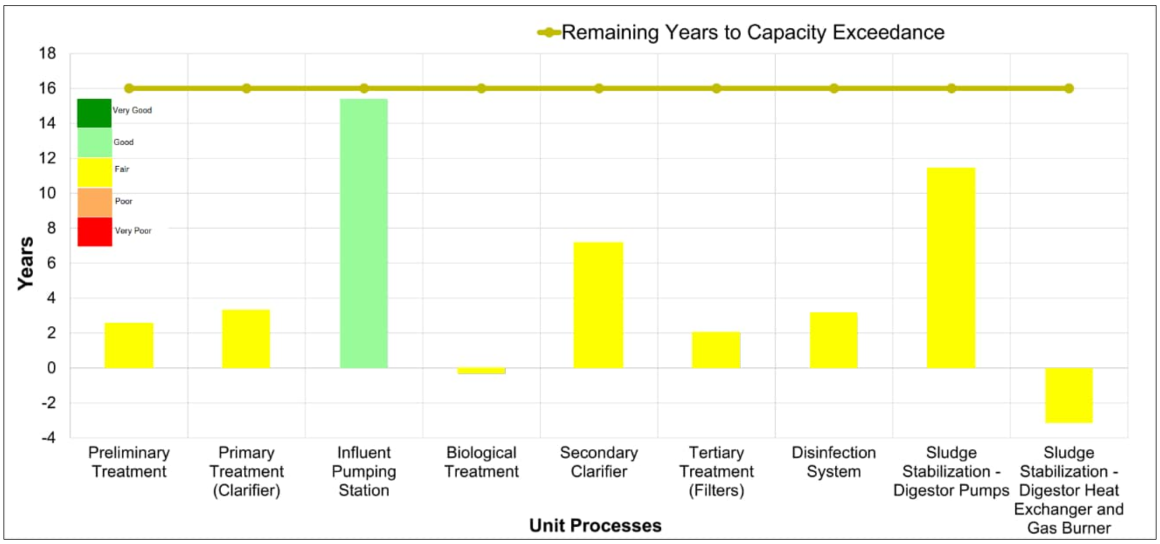


Figure 7-8: Unit Processes Years Remaining to Rated Capacity Exceedance

Based on the above approach, the following two options were determined as the shortlisted alternative strategies:

- Option 1: Retain Fergus WWTP as a Conventional Activated Sludge (CAS) facility and expand capacity via a new 3rd Liquid Train; or
- Option 2: Convert Fergus WWTP to a Membrane Bio-Reactor (MBR) facility.

Both options are for expanding the liquid train. Conceptual site plans for the two options are shown in Figures 7-9 and 7-10, respectively. Sizing of the unit processes are detailed in Appendix 5.

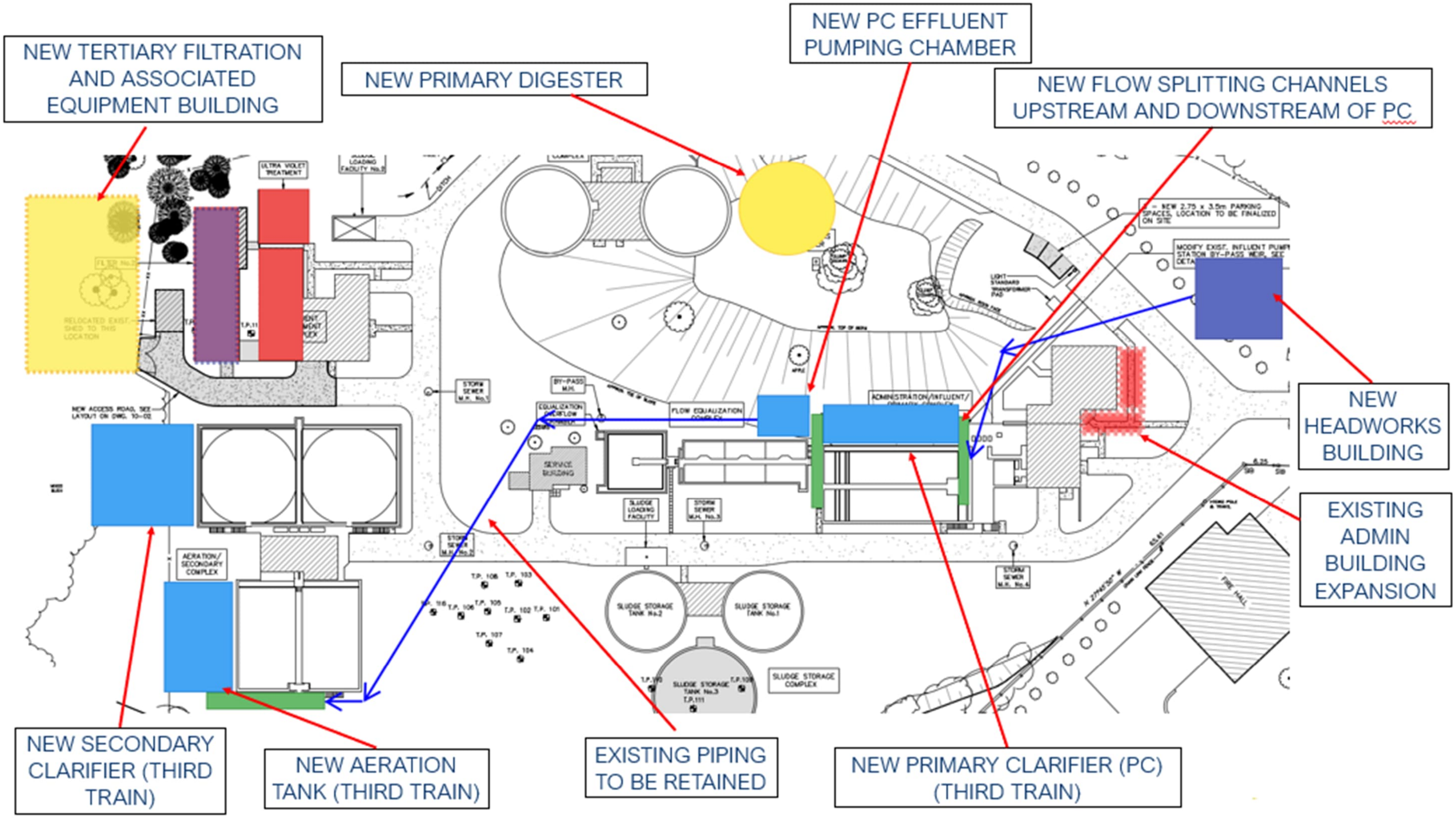


Figure 7-9 Conventional Activated Sludge (CAS) Facility Expansion Layout

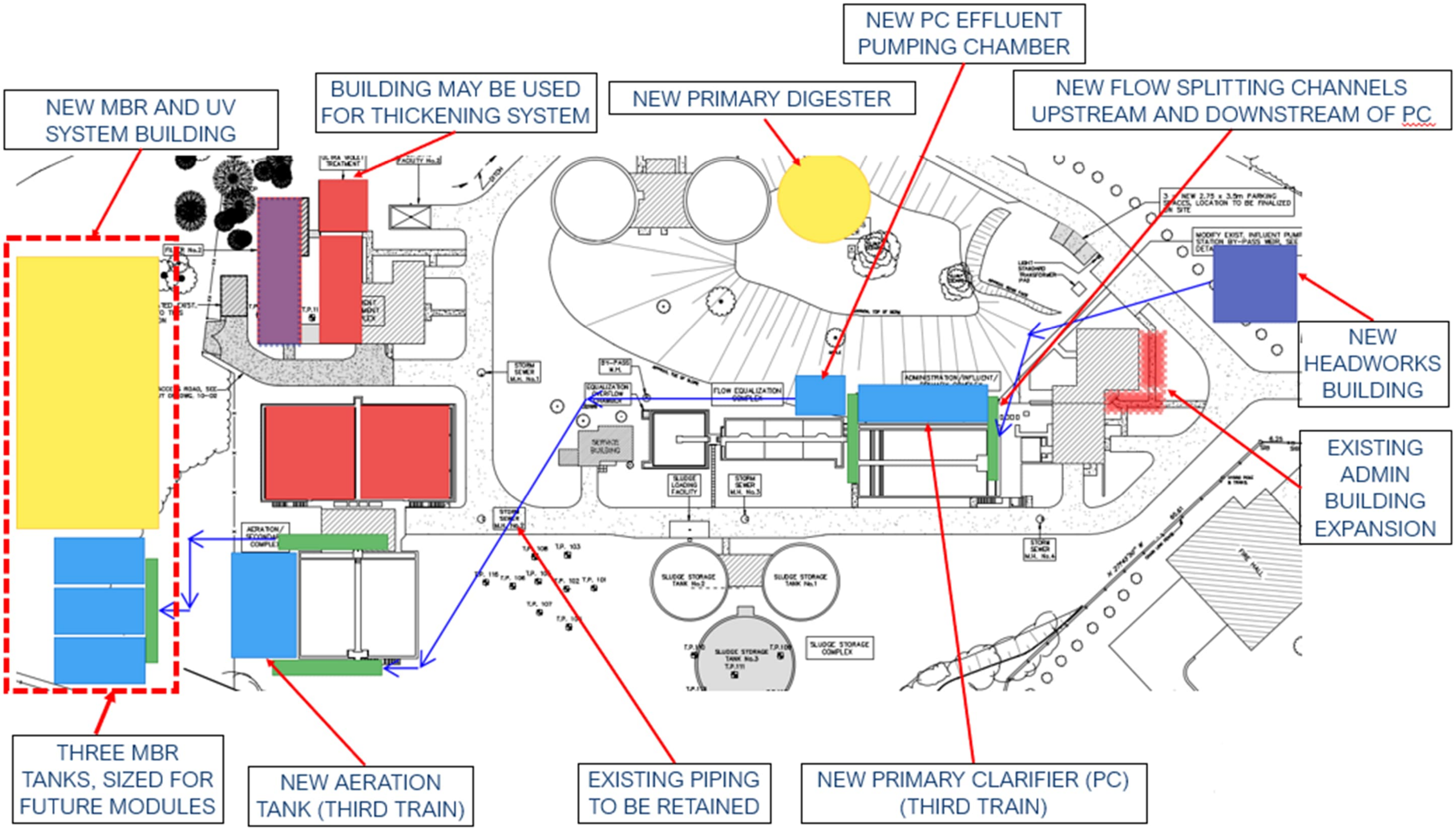


Figure 7-10 Membrane Bioreactor (MBR) Facility Expansion Layout

The timeline for the expansion of the WWTP using CAS technology is shown in Table 7.7.

Table 7.7 Timeline for CAS Expansion

Phase	Description	Implementation Period		
		2025-2030	2031-2036	2037-2042
Interim Upgrades	Study + Design	Filtration System Assessment Study	Detailed Design of Surface Media Filtration in new Tertiary Treatment Building	
	Construction	Replacement or Rehabilitation of Sand Filters (this is a lifecycle cost for existing process)	Construction of new Tertiary Filtration System + Building	
Expansion	Study + Design		Schedule C Class EA + Assimilative Capacity Study	Detailed Design
	Construction			New Third Liquid Train + Sludge Management

The timeline for the expansion of the WWTP using MBR technology is shown in Table 7.8.

Table 7.8 Timeline for CAS Expansion

Phase	Description	Implementation Period		
		2025-2030	2031-2036	2037-2042
Interim Upgrades	Study + Design		Lifecycle Replacement Cost Savings on • Secondary Clarification • Activated Sludge Pumping	
Expansion	Study + Design	Replacement or Rehabilitation of Sand Filters	Schedule C Class EA + Assimilative Capacity Study	Detailed Design of Fergus WWTP Upgrades
	Construction			New MBR Facility + Sludge Management

7.5.2.2 Evaluation

Table 7.9 provides the evaluation of the two options based on MCEA's technical and financial categories, (as other two categories will be same). The results show that preferred strategy to expand Fergus WWTP's capacity is a via CAS technology.

Table 7.9 Evaluation of Fergus WWTP Expansion Strategies based on MCEA Technical Criteria

Category	1-Retain WWTP as a CAS Facility and Add a New Third Train		2 – Convert WWTP to an MBR Facility	
Meets Existing and Future Needs	• Maximizes use of existing tankage while accounting for lifecycle replacements / upgrades due within the next 5 years. • To meet capacity beyond 2051, additional tankage and upgrades required.	◕	• Will facilitate operational and maintenance requirements, as two unit processes will be combined into one. • To meet capacity beyond 2051, will likely only require additional equipment that can be installed within existing tankage.	●
Impact on Operations and Maintenance	• Improves operational redundancy by allowing for flow splitting between three trains, instead of only two. • Current operations staff are experienced with this facility and will require minimal training for the new train.	●	• All operations staff will require training on the new facility. • MBRs require much more maintenance activities than CAS plants. • However, staff only has to maintain one unit process as compared to two which saves on maintenance costs and requirements.	◑
Constructability	• Facilitates Construction Sequencing, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.	◕	• Facilitates Construction Sequencing, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.	◕
Impact on Existing Infrastructure	No adverse impact on existing infrastructure. Project objective allows for lifecycle improvements and maximizes utilization of existing infrastructure (along with expansion of the plant).	◕	Project will lead to decommissioning of at least two unit processes which are due for life-cycle replacement or improvements within next 5 years. As such, does not maximize use of existing infrastructure.	◑

Category	1-Retain WWTP as a CAS Facility and Add a New Third Train		2 – Convert WWTP to an MBR Facility	
Aligns with Approval and Permitting Process	• Dependent on the ACS study and ECA approval. • Technology comparisons for Tertiary Filters are provided to account for potentially more stringent effluent requirements.		• Dependent on the ACS study and ECA approval • MBR facilities are capable of meeting very stringent requirements without the use of tertiary filters.	
Expansion Capability	• Future expansion is limited to either introducing a fourth train or converting to an MBR facility. If the latter is selected, upgrades and new assets added will be decommissioned. • With the proposed design, Fergus WWTP capacity may be expanded to 11,500 m^3/d		• With the proposed design, Fergus WWTP capacity may be expanded to 11,500 m^3/d	
Capital Costs	$71.3 Million		$73.6 Million	
40 – Year Lifecycle Costs	• Asset Replacement Cost: $31.8 Million • 40- year Operational Cost: $13.9 Million		• Asset Replacement Cost: $39.8 Million • 40- year Operational Cost: $16.7 Million	
Overall Score	Preferred Option			

7.5.2.3 Sludge Management

The Fergus WWTP's sludge management system can provide a sludge management for flows equivalent to 8,560 m^3/day. The Township's operating staff have noted a requirement for a new primary digestor due to the ongoing issues with the existing tanks. As such, the Master Plan recommendations will include a new Primary Digestor. The Township has scheduled a Sludge Storage Capacity Assessment for this year. The Primary Digestor expansion may be minimized by thickening the sludge prior to discharging to the digestors. A recommended strategy is to undertake a technology assessment for dewatering as part of the Sludge Storage Capacity Assessment.

7.5.3 Sanitary Collection System

7.5.3.1 Introduction

There is a need to provide collection connection of sufficient capacity to meet the anticipated flows from the growth to 2051 as it is conveyed to either of the existing WWTPs. There are two aspects to address for planned growth to 2051. These are:

- What are the impacts to the existing collection system based on the requirement to service population growth within the current boundaries of Elora/Salem and Fergus; and
- What are the new components of the collection system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing sanitary collection system of growth and to develop options to route additional sewage flows to the Elora and Fergus WWTPs. There were four growth areas with multiple options for servicing, these are:

- South Elora (Area ER1);
- West Fergus (Area FE1); and
- South Fergus (Areas FE3 and FE4).

Each of the servicing options also consider if new or upgraded SPS is required. Other required sanitary connections that were noted had no other options other than extending sewers or forcemains across the existing rights of way. When servicing strategies are developed in detail for the various components of the new areas brought into the 2024 growth boundary, a more detailed analysis can be made to confirm if there are more than one option for routing the required sanitary services to new areas.

7.5.3.2 South Elora (Area ER1)

Possible routing of the sanitary collection system is shown in Figure 7-11 from area ER1. On this basis there are two alternatives as detailed in Table 7.10. Based on reviewing the three possible options as shown in Table 7.10, the Township has decided to proceed with Alternative 1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP.

Table 7.10 South Elora Collection System Options

Option	Description	Details
1a	Gravity sewer on Wellington Road 7	• New 2,600 m of gravity sewer on Road 7 • 1.6 km of gravity sewer to Carlton Pl • Flows directed to Clyde St SPS • Upgrade of Clyde St. SPS • Allows for servicing of potential developments along Road 7 • An internal SPS will be required South-East of the expanded area to be serviced
1b	New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	• 1,000 m of forcemain to 1st Line • 1,600 m of gravity sewer to Carlton Pl • Flows to be directed to Elora WWTP • May require a low lift pumping station at Elora WWTP • Allows for servicing of potential developments along Road 7 • An internal SPS will be required South-East of the expanded area to be serviced
2	Upgrade Existing System	• Upgrade 2,200 m of gravity sewers on Bridge St and Water St • Upgrade Stafford St SPS • Upgrade Clyde St SPS • An internal SPS will be required South-East of the expanded area to be serviced

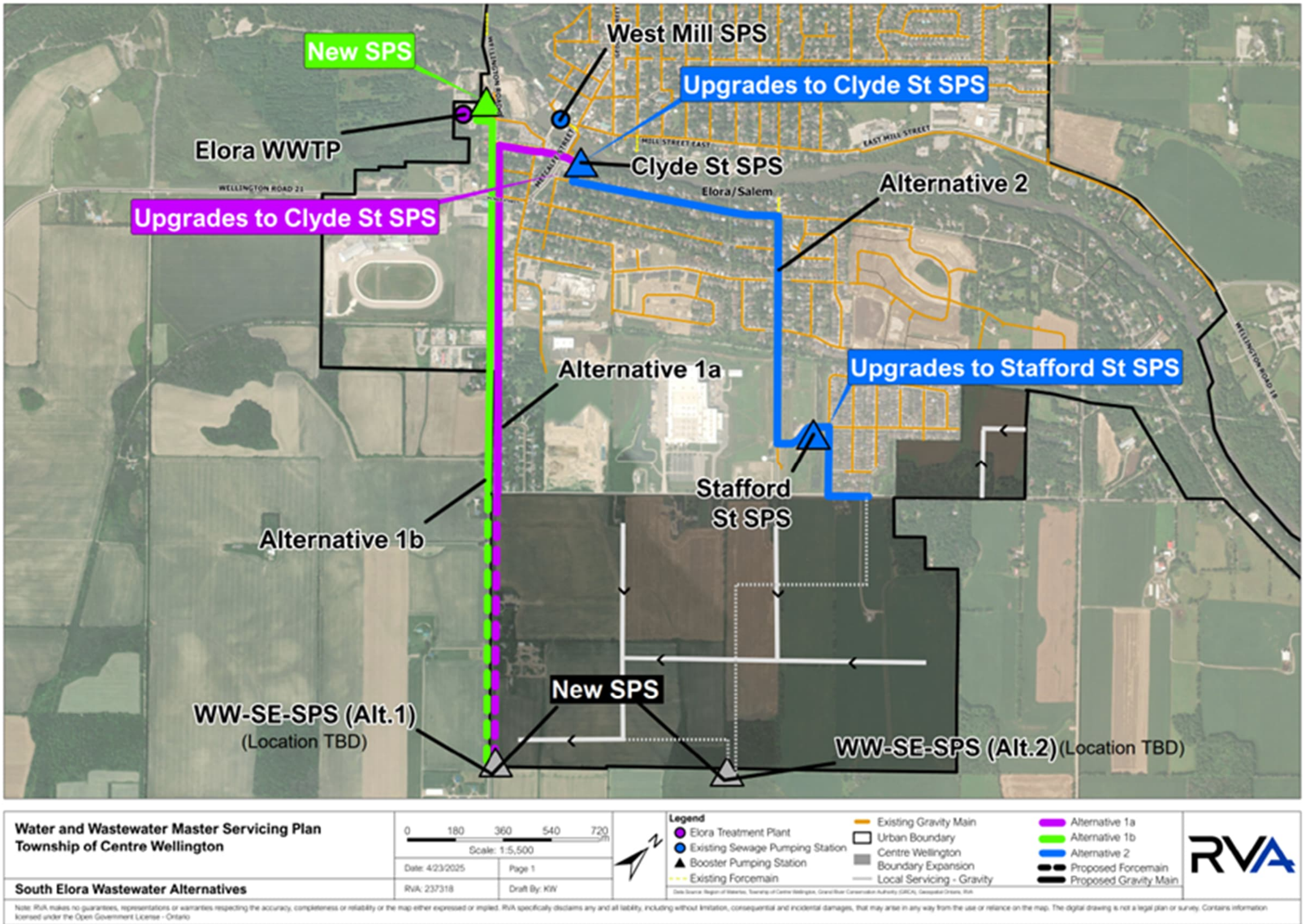
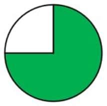
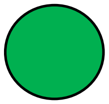
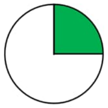


Figure 7-11 South Elora Collection System Options

Table 7.11 Review of South Elora Collection System Options

Category	1a-New Forcemain/ Gravity Sewers on Wellington Road 7 to Clyde St SPS	1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	2-Upgrade Existing System
Technical	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Upgrades To Clyde St SPS	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Does not require Clyde SPS upgrades • Requires new SPS	• Allows for servicing to boundary expansion area in South Elora.
Social and Cultural	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts. Some construction on Carlton Pl.	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts.	• Will have to limit impact to nearby residents and businesses.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions
Economic	• Capital cost estimated at $17.2 Million (including Clyde St SPS upgrade) • 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area + Clyde St SPS upgrade)	• Capital Cost estimated at $14.3 Million (including new Elora WWTP SPS) • No 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area and by Elora WWTP)	• Capital estimated at $25 Million including Clyde St SPS and Stafford St SPS upgrade • 40-year Operation Cost in Present Value estimated at $10.0 Million (from new SPS in ER1 area + Clyde St SPS and Stafford SPS upgrades)

Category	1a-New Forcemain/ Gravity Sewers on Wellington Road 7 to Clyde St SPS	1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	2-Upgrade Existing System
Overall			

7.5.3.3 Fergus (Beatty Line/Colquhoun St Upgrades for Area FE1)

Possible routing of the sanitary collection system is shown in Figure 7-12 from area FE1. On this basis there are two alternatives as detailed in Table 7.12. Based on reviewing the two possible options as shown in Table 7.13, the Township has decided to proceed with Alternative 1 Upgrading the Existing Collection System.

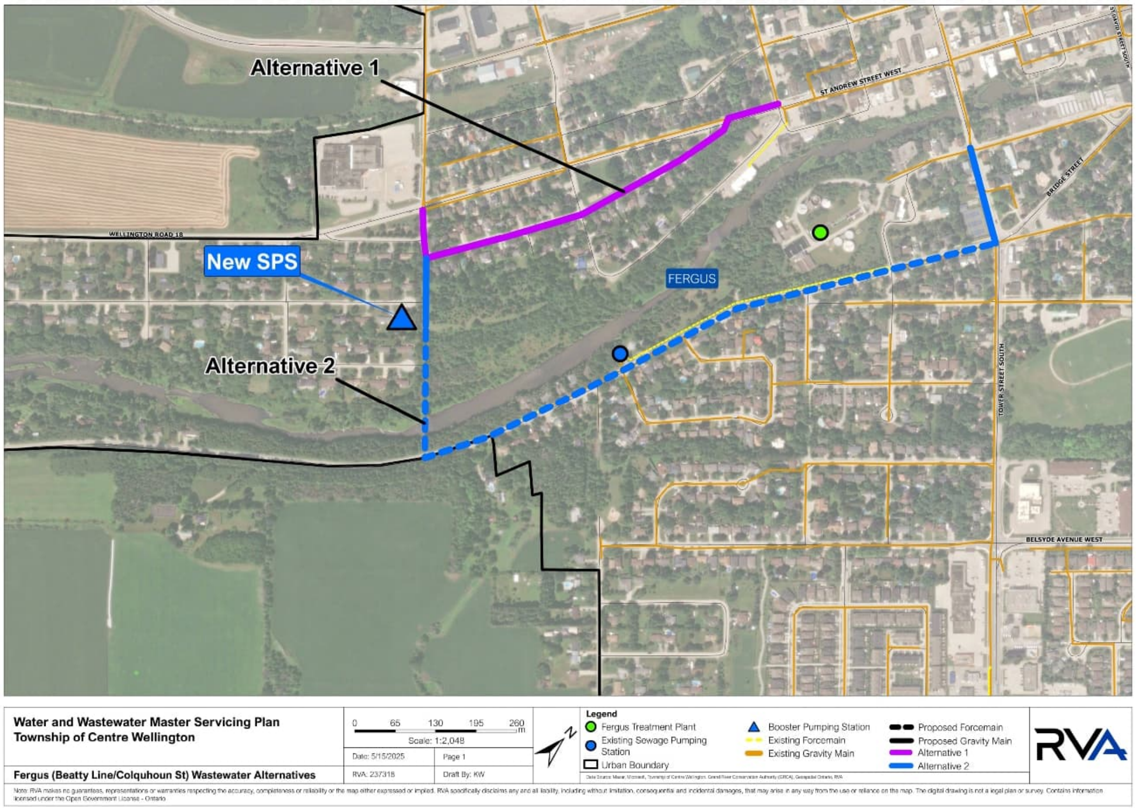
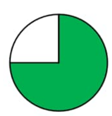
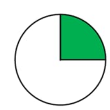


Figure 7-12 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Table 7.12 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Option	Description	Details
1	Upgrade Existing System	• Upgrade 650 m of gravity sewers on Colquhoun St
2	New SPS and Forcemain Crossing Grand River	• New SPS on Beatty Line (92 L/s capacity) • New 250 mm forcemain to cross the river to Fergus WWTP • The new forcemain extends to the Fergus WWTP. The existing Union St SPS connects to the new forcemain.

Table 7.13 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Category	1 – Upgrade Existing System	2 – New SPS and Forcemain Crossing Grand River
Technical	• Does not trigger upgrade to or construction of a new SPS.	• Does not trigger replacement of existing sewers but requires a new SPS, forcemain and a river crossing
Social and Cultural	• Will have some impact to nearby residents on Colquhoun St. on 700 m corridor (local road)	• Special attention to Grand river crossing. • Will have some impact to nearby residents on Union St. on 1100 m corridor
Environmental	• Does not promote the emission of greenhouse gas (GHG) emissions.	• Additional GHG emissions caused by the requirement to construct a new SPS.
Economic	• Capital Costs estimated at $4.0 Million • No associated O&M costs	• Capital Costs estimated at $13.0 Million including new SPS at Beatty Line • 40-year Operation Cost in Present Value estimated at $3.8 Million (from new Beatty Line SPS)
Overall		

7.5.3.4 South Fergus (Area FE3)

Table 7.14 reviews the three serving options for the South Fergus area. These are shown in Figure 7-13. The Township has decided to proceed with Option 3 Gravity Sewer to New South Fergus SPS through the South Fergus Secondary Plan Area due as it has less impact on the social environment.

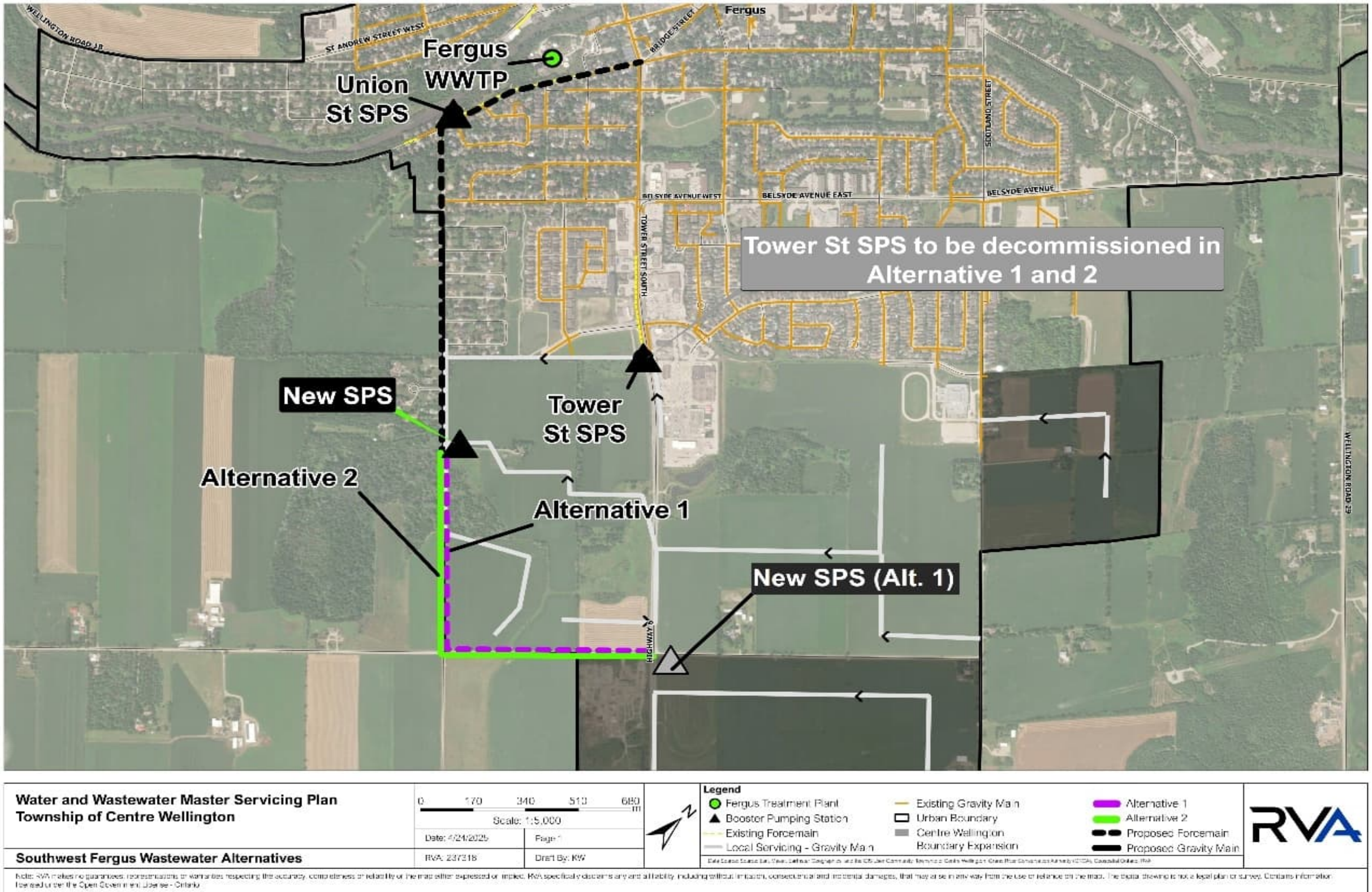


Figure 7-13 South Fergus Collection System Options

Table 7.14 Review of South Fergus Collection System Options

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
Description	• New South Fergus SPS • New SPS for southern expansion area (location to be determined) • New 3km of forcemains on 2nd Line, Guelph Road, Union • Decommission Tower St SPS	• New South Fergus SPS • New 1,300 m of gravity sewer to the South Fergus Proposed SPS • New 1,700 m of forcemain on Guelph Road, Union St • Decommission Tower St SPS	• New South Fergus SPS • New area FE3 SPS • 270m of forcemain within FE3 • 3,750m of new gravity main • Decommission Tower St. SPS • Sanitary connection to FE4
Technical	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • Allows for a shallower sewer but requires new SPS	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • A deeper sewer allows flow by gravity to the new SPS	• Allows for servicing of boundary expansion areas FE3 and FE4 • Eliminates the need to upgrade sewer along Scotland Street, Belsyde Ave and Elgin St. as a result and development of FE4 • Adds small SPS on southern portion of FE3
Social and Cultural	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have	• To South Fergus SPS have limited impact to nearby residents. Majority of construction will be done within the South Fergus Lands • From South Fergus SPS, most of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
	additional impacts to the community during construction	additional impacts to the community during construction	
Environmental	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct one new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.
Economic	• Total Capital Cost estimated at \$27.5 million including New Fergus SPS and New SPS to service FE3 • Total Capital Cost estimated at \$3.3 million to separately service FE4 • Total Capital cost is \$30.8 million • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have "throw away" costs due to requirement to replace sections of sewer that are less than 30-years old • 40-year Operation Cost in Present Value estimated at \$9.5 Million (from new Fergus SPS and New SPS to service FE3)	• Total Capital Cost estimated at \$27.5 million including New Fergus SPS and New SPS to service FE3 • Total Capital Cost estimated at \$3.3 million to separately service FE4 • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have "throw away" costs due to requirement to replace sections of sewer that are less than 30-years old • 40-year Operation Cost in Present Value estimated at \$7.8 Million (from new Fergus SPS)	• Total Capital Cost estimated at \$35.6 million including New Fergus SPS and New SPS to service FE3 and FE4) • 40-year Operation Cost in Present Value estimated at \$11.8 Million (from new Fergus SPS and New SPS to service FE3 and FE4)

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
Overall	◑	◑	◕

7.5.3.5 Summary of Sanitary Collection Projects

Table 7.15 summarizes the sanitary collection projects that are required to support the planned growth to 2051. These projects are shown in Figure 7-14.

Table 7.15 Summary of Sewer and Forcemain Projects Identified in the Master Plan

Project Number	Community	Sewer/Forcemain Length (m)	Area Serviced	Description
WW-E-1	Elora-Salem	1,000	ER1	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line
WW-E-2	Elora-Salem	1,500	ER1	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP
WW-E-3	Elora-Salem	290	Growth within existing urban area	Geddes St. Sanitary Sewer Replacement
WW-E-4	Elora-Salem	450	Growth within existing urban area	East Mill Street Sanitary Sewer Replacement from Melville to Irvine
WW-F-1	Fergus	705	FE3	New Gravity/Forcemain on Second Line from HWY 6 to Guelph St.
WW-F-2	Fergus	850	FE3	New Gravity/Forcemain on Guelph St from Second Line to New Fergus SPS
WW-F-3	Fergus	975	FE3	New Forcemain on Guelph St from New SPS to Union St.
WW-F-4	Fergus	1030	FE3	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP to service area FE3

Project Number	Community	Sewer/Forcemain Length (m)	Area Serviced	Description
WW-F-5	Fergus	880	FE4	Upgrading gravity main on Scotland St. from south limit to Belsyde Ave.
WW-F-6	Fergus	110	FE4	Upgrading gravity main on Belsyde Ave. from Scotland St. to Elgin St. Easement
WW-F-7	Fergus	240	FE4	Upgrading gravity main on Elgin St. from Belsyde Ave. to manhole ES-MH-01009
WW-F-8	Fergus	80	Growth within existing urban area	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St
WW-F-9	Fergus	630	Growth within existing urban area	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W
WW-F-10	Fergus	280	Growth within existing urban area	Upgrading gravity main on Holman Cres. And Perry St.

7.6 Wastewater Risk Review – Sanitary Sewer Siphon Crossings in Elora and Fergus

7.6.1 Current Siphons

The Township would like to consider the risk associated with siphon crossings of the Grand River. There are two crossings:

- On the east side of the Metcalfe St bridge in Elora there is a double-barreled siphon (350 mm and 200 mm pipes) crossing from north to south; and
- South of the intersection of St Andrew St E and Cameron St in Fergus is a sewer siphon crossing with sewer sizes from 600 mm (incoming sewer on north side) to 250 mm (across river), and 300 mm (south side) which connects to the sewer on Queen St E.

These are shown in Figure 7-15.

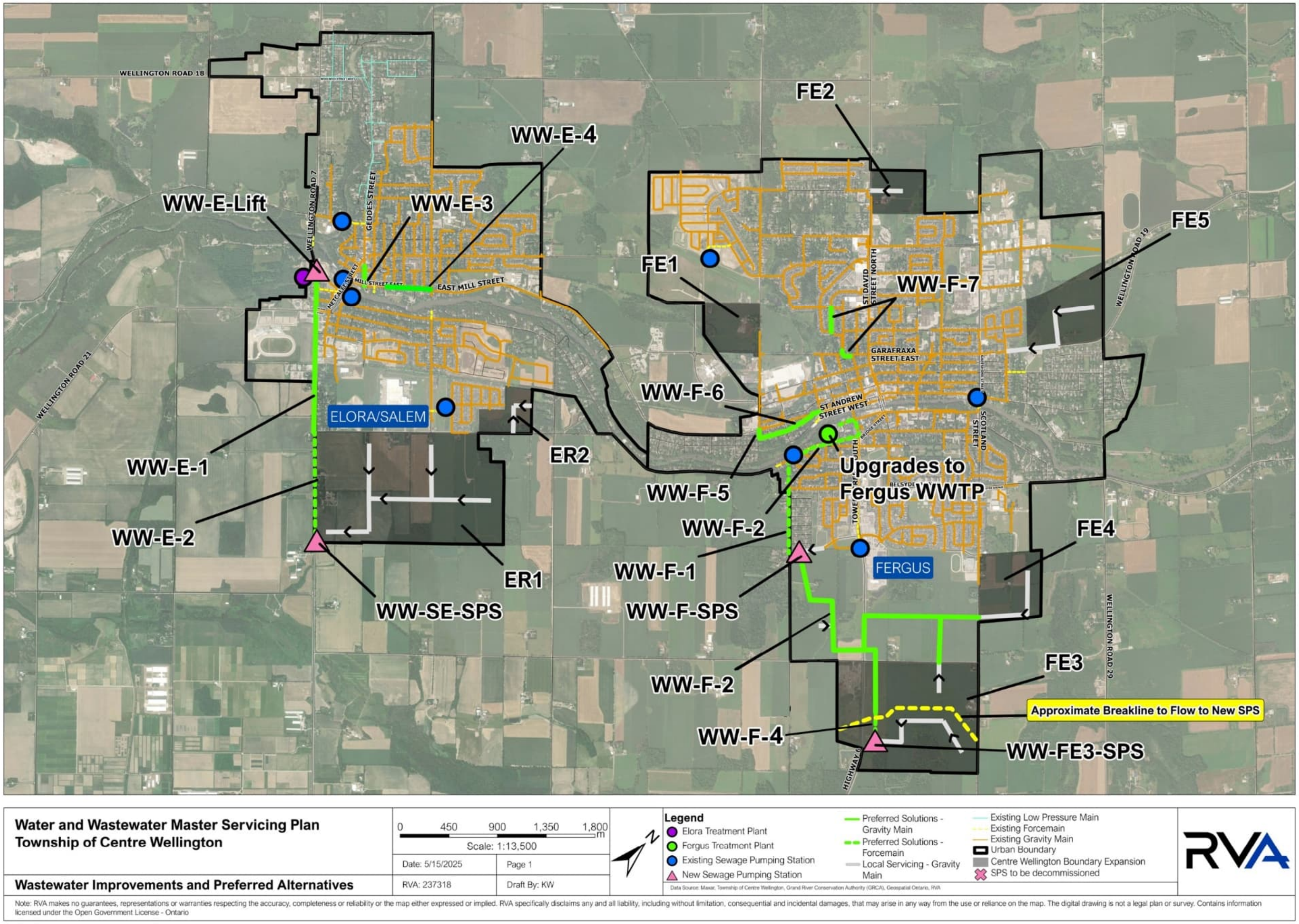
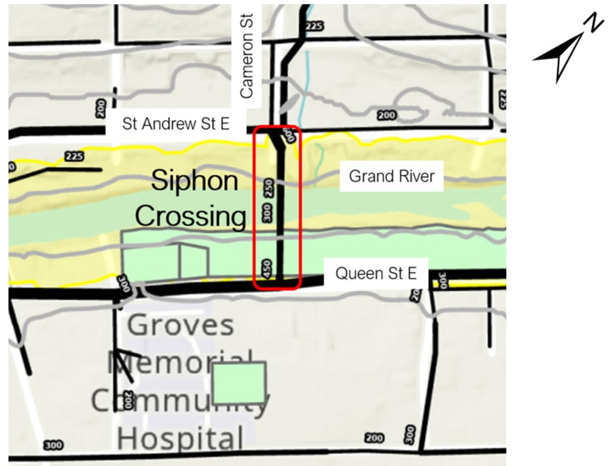


Figure 7-14 Proposed Sanitary Collection System Upgrades to 2051

Elora Siphon Crossing



Fergus Siphon Crossing

Figure 7-15 Sanitary Siphon Crossings in Elora and Fergus

Based on available records, the Elora siphon was installed in 1980 using PVC pipe that was placed by open cut into the rive bed. The siphon was built with a minimum of 1.5 m cover which included a 1 m thick stone gabion basket interfacing with the rive bed surface. The Township's 2022 Asset Management Plan (AMP) indicated that these were considered to be in fair condition with a moderate probability of failure.

Based on available records, the Fergus siphon was installed in 1993 using PVC pipe for the 250 mm and 300 mm portions that area assumed to be the siphon components. The methodology of installation is not known but the 2022 AMP indicated that these were considered to be in good condition with a low probability of failure.

The wastewater collection system hydraulic model did note that there were no issues with conveying the expected 2051 flows through the siphons.

7.6.2 Frequency of a Potential Siphon Failure

Typically, HDPE and PVC sewer pipe is corrosion resistant and is anticipated to have a service life in the order of 80 to 100 years. Failure of HDPE and PVC pipes are typically related to installation practices such as poor pipe bedding construction, damage of the pipe during installation, or improper alignment of pipe joints *(USEPA Primer on Condition Curves for Water Mains, 2013*). Current Township and Ontario standards for sewer and forcemain installation are designed to prevent this type of failure provided adequate inspection and quality testing is undertaken during construction.

These siphons would be expected to have a remaining lifespan free of breakage of 50 years. Therefore, the frequency of a potential main break would be low.

7.6.3 Severity of a Siphon Failure

There would be two major impacts if there would be a siphon failure:

- A release of raw sewage into the environment either on land or within the river; and
- Sewage back up into the system that can result in basement flooding.

These are similar impacts to the Township that they presently must address within their sewer collection system and in the event of a wet weather bypass at the WWTPs. The major impacts would be:

- The costs to remediate environmental contamination;
- The cost to temporarily pump sewage either to trucks or to pump to another sewer outlet. pipe break or blockage; and
- The cost to expedite the repair or replacement of the siphon.

7.6.4 Conclusion

As the likelihood of unplanned failure of either siphon are low but the impact can be major but are typical for operation of a collection system, it is recommended that the Township undertake the following risk reduction measures:

- Undertake a camera inspection of the siphon crossings to confirm their condition and to plan for any preventative maintenance required;
- Undertake hydrogeomorphological surveys of the crossing sites to determine if there is active river erosion occurring that may expose the pipes and put their integrity at risk; and
- As the collection system grows to accommodate future lands outside of the current boundary, confirm if siphon capacity should be increased or if additional river crossings should be undertaken to mitigate the risks associated with river crossings.

7.7 Wastewater Collection System Management

To manage the wastewater collection system, it is recommended that the Township update the wastewater hydraulic model every five years over the Master Plan period and undertake flow monitoring of sewers to better define infiltration issues.

8.0 CAPITAL PROGRAM

Appendix 6 provides project cost sheets for each water and wastewater project that has been identified to better define the scope of work and cost that is anticipated for each project.

8.1 Costing Presented in the Master Plan

ASTM E 2516 (Standard Classification for Cost Estimate Classification System) provides a five-level classification system based on several characteristics, with the primary characteristic being the level of project definition (i.e., percentage of design completion). The ASTM standard, shown in Table 8.1 illustrates the typical accuracy ranges that may be associated with the general building industries.

Table 8.1 ASTM E2516 Accuracy Range of Cost Opinions for General Building Industries

Cost Estimate Class	Expressed as % of Design Completion	Anticipated Accuracy Range as % of Actual Cost
5	0-2	-30 to +50
4	1-15	-20 to +30
3	10-40	-15 to +20
2	30-70	-10 to +15
1	50-100	-5 to +10

The cost estimates developed in this report would be best described as a Class 5 Cost Estimate which is typically used for high level study project. Cost opinions are in 2025 dollars and reflect the reduced HST payable by the Township.

8.2 Preferred Water Servicing Strategy

8.2.1 Overall Water Servicing Strategy Description

The preferred water servicing strategy identified in Section 6 is intended to meet the drinking water system requirements of Township of Centre Wellington to 2051. The recommended solutions were established in consultation with the Township on the basis of the Master Plan Goals that were established for this project.

The recommended strategy prioritized various implementation undertakings to provide for sufficient water supply (per the recommendations of the Township's 2019 Water Supply Master Plan), storage and flow and pressure to the target year of 2051. As well, the preferred water servicing alternative solution serves to address risk (i.e. redundancy, reliability, etc.) within the

Township-wide municipal drinking water system. The preferred servicing strategies are implemented on a timeline established in accordance with each project's MCEA schedule.

The anticipated timing of each project within the Preferred Strategy has been established based on the projected population and employment growth within the Township. The timelines are categorized as following:

- Short – term period from 2025 to 2033; and
- Long-term period from 2034-2051.

When community water demands approach 85% of the capacity limit for a given water system, undertakings should be considered to expand/increase the DWS capacity. This industry standard benchmark is intended to help operators maintain sufficient operating capacities of the DWS as a whole and individual water system components. Accordingly, the project schedule – which is subject to refinement – was developed such that new water system expansion project will begin operation when the driver established for its requirement has manifested.

8.2.2 Recommended Water Projects

Table 8.2 summarizes the costs for the recommended water projects that have been identified in this Master Plan.

8.3 Preferred Wastewater Servicing Strategy

8.3.1 Overall Wastewater Servicing Strategy Description

The preferred wastewater servicing strategy identified in Section 7 is intended to meet the wastewater servicing requirements of Township of Centre Wellington to 2051. The recommended solutions were established in consultation with the Township on the basis of the Master Plan Goals that were established for this project.

The recommended strategy prioritized various implementation undertakings to provide for sufficient wastewater conveyance and treatment to the target year of 2051. As well, the preferred wastewater servicing alternative solution serves to address risk (i.e. redundancy, reliability, etc.). The preferred servicing strategies are implemented on a timeline established in accordance with each project's MCEA schedule.

Table 8.2 Recommended Water Projects

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
W-F-RES	Fergus	W	Vertical	New Water Reservoir in Fergus	2030	2035	$14,560,000	$1,100,000	$15,660,000	Total Growth	Total Growth
W-S-L	Fergus	W	Linear	Connection of New Reservoir to Low Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-S-H	Fergus	W	Linear	Connection of New Reservoir to High Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-E-1	Elora-Salem	W	Linear	New Watermain on First Line at Wellington Rd 7	2035	2037	$570,000	$0	$570,000		ER1
W-E-2	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to ER1	2035	2037	$1,950,000	$0	$1,950,000		ER1
W-E-3	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W	2035	2037	$2,210,000	$0	$2,210,000		ER1
W-E-4	Elora-Salem	W	Linear	New Watermain on East limits of existing Main on First Line	2035	2037	$1,040,000	$0	$1,040,000		ER2
W-E-5	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.	2031	2033	$2,090,000	$0	$2,090,000	Total Growth	Total Growth
W-E-6	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5	2031	2033	$4,090,000	$0	$4,090,000	Total Growth	Total Growth
W-E-7	Elora-Salem	W	Linear	New Watermain on Irvine St from Bricker Ave to Woolwich St.	2034	2036	$910,000	$0	$910,000	Total Growth	Total Growth
W-E-8	Elora-Salem	W	Linear	New Watermain on Woolwich St. E from Irvine St to James St.	2034	2036	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-E-9	Elora-Salem	W	Linear	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3	2031	2033	$6,510,000	$0	$6,510,000	Total Growth	Total Growth
W-E-10	Elora-Salem	W	Linear	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd	2031	2033	$4,510,000	$0	$4,510,000	Total Growth	Total Growth
W-E-11	Elora-Salem	W	Linear	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location	2031	2033	$2,400,000	$0	$2,400,000	Total Growth	Total Growth
W-F-1	Fergus	W	Linear	New Watermain on HWY 6 from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000		FE3
W-F-2	Fergus	W	Linear	New Watermain on Jones Baseline from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000		FE3
W-F-3	Fergus	W	Linear	New Watermain on Second Line from Jones Baseline to HWY 6	2034	2036	$2,190,000	$0	$2,190,000		FE3
W-F-4	Fergus	W	Linear	New Watermain on Second Line from HWY 6 to Guelph St.	2034	2036	$1,530,000	$0	$1,530,000		FE3
W-F-5	Fergus	W	Linear	New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S	2034	2036	$2,660,000	$0	$2,660,000		FE3
W-F-6	Fergus	W	Linear	New Watermain on HWY 6 from Second Line to existing main	2034	2036	$1,430,000	$0	$1,430,000		FE3

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
W-F-7	Fergus	W	Linear	New Watermain on Scotland St from Second Line to existing main	2031	2033	$1,590,000	$0	$1,590,000		FE4
W-F-8	Fergus	W	Linear	New Watermain connecting McQueen Blvd to Guelph St.	2034	2036	$880,000	$0	$880,000		FE3
W-F-9	Fergus	W	Linear	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.	2034	2036	$2,100,000	$0	$2,100,000	Total Growth	Total Growth
W-F-10	Fergus	W	Linear	New Watermain on St. George St. W from Maple St. to Beatty Line	2028	2030	$520,000	$0	$520,000	Total Growth	Total Growth
W-F-11	Fergus	W	Linear	New Watermain on East limit of existing watermain on Garafraxa St. to FE5	2034	2036	$1,430,000	$0	$1,430,000		FE5
W-F-12	Fergus	W	Linear	New Watermain on Sideroad 18 from Vincent St. to Steele St.	2033	2035	$1,540,000	$0	$1,540,000		FE2
W-F-13	Fergus	W	Linear	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15	2027	2029	$2,250,000	$0	$2,250,000	Total Growth	Total Growth
W-F-14	Fergus	W	Linear	New Watermain on Sideroad 15 from Beatty Line to New Well 7	2027	2029	$2,090,000	$0	$2,090,000	Total Growth	Total Growth
Total Identified Projects:							$68,850,000	$1,100,000	$69,950,000		

Table 8.3 – Recommended Wastewater Projects

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
WWTP- F	Fergus	WW	Vertical	Fergus WWTP Upgrade	2035	2042	$71,280,000	$13,910,000	$85,190,000	Total Growth	Total Growth
WW-SE SPS	Elora-Salem	WW	Vertical	New South Elora SPS	2034	2036	$8,300,000	$4,300,000	$12,600,000		ER1
WW-E-LIFT	Elora-Salem	WW	Vertical	New lift station at the Elora WWTP	2034	2036	$6,430,000	$3,110,000	$9,540,000		ER1
WW-F-SPS	Fergus	WW	Vertical	New South Fergus SPS	2034	2036	$19,670,000	$6,800,000	$26,470,000		FE3
WW-FE 3 SPS	Fergus	WW	Vertical	New Area FE 3 SPS	2034	2036	$5,810,000	$1,660,000	$7,470,000		FE3
WW-E-1	Elora-Salem	WW	Linear	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP	2034	2036	$3,140,000	$0	$3,140,000		ER1
WW-E-2	Elora-Salem	WW	Linear	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line	2034	2036	$2,120,000	$0	$2,120,000		ER1
WW-E-3	Elora-Salem	WW	Linear	Geddes St. Sanitary Sewer Replacement	2034	2036	$800,000	$0	$800,000	Total Growth	Total Growth
WW-E-4	Elora-Salem	WW	Linear	East Mill Street (Melville to Irvine) Sanitary Sewer Replacement	2034	2036	$1,190,000	$0	$1,190,000	Total Growth	Total Growth
WW-F-1	Fergus	WW	Linear	New Forcemain on Guelph St from New SPS to Union St.	2034	2036	$2,460,000	$0	$2,460,000		FE3

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
WW-F-2	Fergus	WW	Linear	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP	2034	2036	$2,590,000	$0	$2,590,000		FE3
WW-F-3	Fergus	WW	Linear	New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands	2034	2036	$4,810,000	$0	$4,810,000		FE4
WW-F-4	Fergus	WW	Linear	Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS	2034	2036	$300,000	$0	$300,000		FE4
WW-F-5	Fergus	WW	Linear	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St	2034	2036	$280,000	$0	$280,000		FE1
WW-F-6	Fergus	WW	Linear	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W	2034	2036	$1,640,000	$0	$1,640,000		FE1
WW-F-7	Fergus	WW	Linear	Upgrading gravity main on Holman Cres. And Perry St.	2034	2036	$770,000	$0	$770,000	Total Growth	Total Growth
Total Identified Projects							$131,590,000	$29,780,000	$161,370,000		

8.4 Recommended Studies and Investigations

Table 8.4 summarizes the recommended studies and investigations.

Table 8.4 Recommended Studies and Investigations

Component	Total Cost	Comment
Wastewater System Hydraulic Model Updates	$173,000	Five Year Model Update (current value $75,000 per study), present value
Siphon Investigation	$204,000	$100,000 per siphon for camera work and report, assumed done in next few years
Annual Storm Drainage Disconnection Grant Program	$865,000	$60,000 per year for 25 years, present value
Water System Hydraulic Model Updates	$346,000	Five Year Study including flow monitoring (current value $1500,00 per study), present value
Total	$1,588,000	

8.5 Master Plan Implementation

As shown in Figure 8-1, the Township will monitor the various project drivers and implement recommended projects when the appropriate trigger point is reached

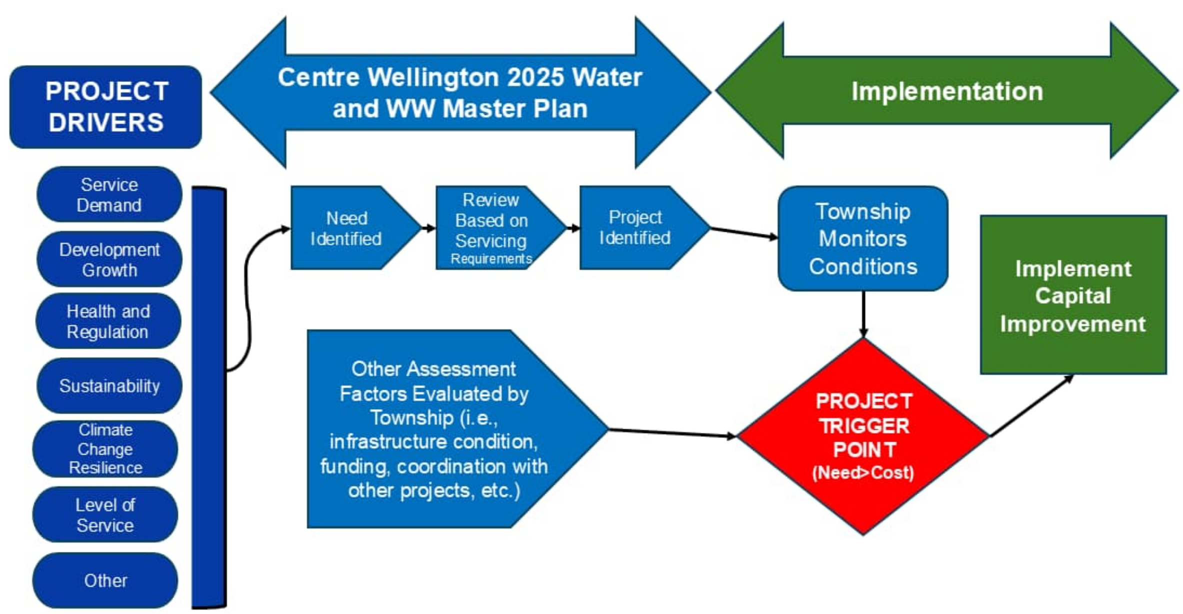
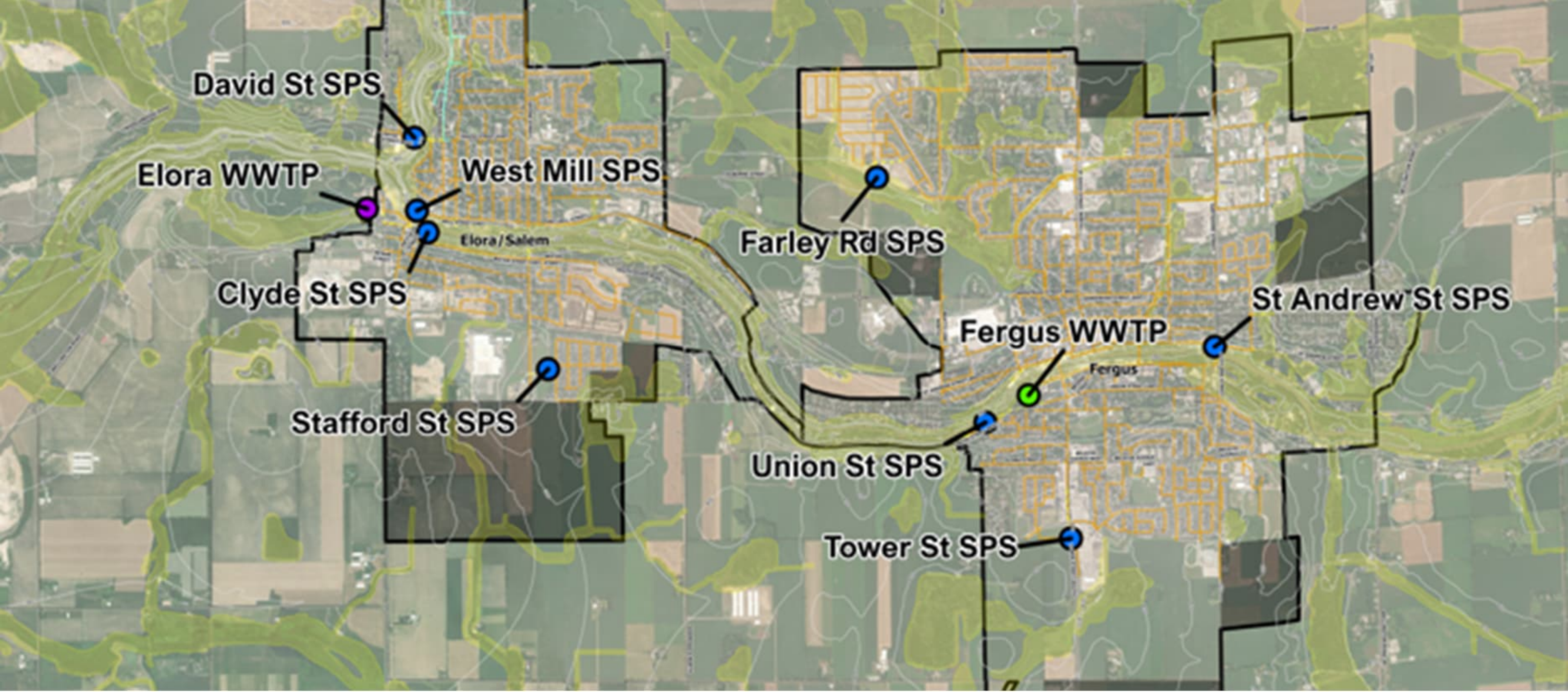


Figure 8-1 Proposed Master Plan Implementation Procedure



TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 1

Federal and Provincial Legislation Applicable to Water and Wastewater Servicing

June 30, 2025

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1.0 FEDERAL ACTS AND REGULATIONS

1.1 Federal Fisheries Act

The *Fisheries Act* (Government of Canada 1985) is administered by Fisheries and Oceans Canada (DFO) and provides a framework for the proper management and control of fisheries as well as the conservation and protection of fish and fish habitat, including the prevention of pollution. In June of 2019, Canada modernized the *Fisheries Act*; the new provisions and stronger protections aim to better support the sustainability of Canada's fish and fish habitat for future generations. In particular, Section 34.4 prohibits any work, undertaking or activity (other than fishing) that results in the death of fish; Section 35.1 prohibits the harmful alteration, disruption, or destruction of fish habitat (HADD); and Section 36 prohibits the deposit of deleterious substances.

The *Fisheries Act* requires that projects avoid causing death of fish or HADD of fish habitat unless authorized by DFO or a designated representative. Proponents are responsible for planning and implementing works, undertakings or activities in a manner that avoids harmful impacts to fish and fish habitat. Should proponents believe that their work, undertaking or activity will result in harmful impacts to fish and fish habitat, a Request for Review (RFR) must be submitted, and the DFO will work with them to assess the risk and provide advice and guidance on how to comply with the *Fisheries Act*.

1.2 Species at Risk Act

At a federal level, Species at Risk (SAR) designations for species occurring in Canada are initiated by the completion of a comprehensive Status Report by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment, species are added to the federal List of Wildlife Species at Risk (Government of Canada 2002).

Species that are included on Schedule 1 as Endangered or Threatened are afforded both individual and critical habitat protection on federal lands under the Species at Risk Act (SARA). On private or provincially owned lands, only aquatic species listed as Endangered, Threatened or Extirpated are protected under SARA, unless ordered by the Governor in Council.

1.3 Endangered Species Act

At the provincial level, SAR and their habitats are protected under the *Endangered Species Act* (ESA, Government of Ontario 2007) which is administered by the Ministry of Environment, Conservation and Parks (MECP). SAR designations for species in Ontario are initiated by the completion of a comprehensive Status Report by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of the Environment, Conservation and Parks, species are added to the Species at Risk in Ontario (SARO) List (O. Reg. 230/08) under the ESA. Section 9(1) of the ESA, 2007 prohibits the killing, harming, harassment, capture, taking, possession, transport, collection, buying, selling, leasing, trading, or offering to buy, sell, lease or trade species listed as Extirpated, Endangered, or Threatened on the SARO List. Section 10(1) prohibits damaging or destroying habitat of Endangered or Threatened species on the SARO List and may apply to Extirpated species through special regulations. General habitat protection applies to all Endangered and Threatened species, with some species having 'categorized habitat', which protects areas within specific distances from known records. Some SAR are afforded a more precise habitat protection through a habitat regulation (regulated habitat), as identified in Ontario Regulation 242/08. Species designated as Special Concern are not protected under the Act.

The ESA, 2007 includes provisions for permits under Section 17(2)(c) that would otherwise contravene the Act. Projects which propose impacts to SAR or their habitat would require a permit or other process (e.g., registration) to proceed without contravening the Act.

2.0 PROVINCIAL ACTS AND REGULATIONS

2.1 Environmental Assessment Act (EAA)

The EAA is the legislation which allows the MCEA process to be followed by municipalities so that they can plan, design, construct, maintain, rehabilitate, and/or retire municipal road, water, wastewater, and transit projects. This allows these projects to proceed without having to obtain project-specific approval under the EAA provided that the MEA Class EA process is followed.

2.2 Environmental Protection Act (EPA)

The intent of the EPA is to protect the Ontario environment from an "adverse effect" which is defined as the following:

- Impairment of quality of the natural environment for any use that can be made of it;
- Injury or damage to property or to plant or animal life;
- Harm or material discomfort to any person;
- An adverse effect on the health of any person;
- Impairment of the safety of any person;
- Rendering any property or plant or animal life unfit for human use;
- Loss of enjoyment of normal use of property; and
- Interference with the normal conduct of business.

Regulations from the Act which may impact or have bearing on the operation or construction of water and wastewater systems are shown below in Table 2.1.

Table 2.1: EPA Regulations Impacting Water, Wastewater and Stormwater Systems

Regulation	Title
O. Reg. 53/24	General and Transitional Matters
O. Reg. 406/19	On-Site and Excess Soil Management
O. Reg. 208/19	Environmental Compliance Approval in Respect of Sewage Works
O. Reg. 1/17	Registrations Under Part ii.2 of the Act - Activities Requiring Assessment of Air Emissions
O. Reg. 351/12	Registrations Under Part ii.2 of the Act - Waste Management Systems
O. Reg. 255/11	Applications for Environmental Compliance Approvals
O. Reg. 224/07	Spill Prevention and Contingency Plans
O. Reg. 222/07	Environmental Penalties
O. Reg. 153/04	Records of Site Condition - Part xv.1 of the Act
O. Reg. 675/98	Classification And Exemption of Spills and Reporting of Discharges
O. Reg. 524/98	Environmental Compliance Approvals - Exemptions from Section 9 of the Act
O. Reg. 232/98	Landfilling Sites
O. Reg. 206/97	Waste Disposal Sites, Waste Management Systems And Sewage Works Subject to Approval Under or Exempt from the Environmental Assessment
O. Reg. 101/94	Recycling and Composting of Municipal Waste

Regulation	Title
R.R.O. 1990, Reg. 360	Spills

2.3 Ontario Water Resources Act (OWRA)

The purpose of this Act is to provide for the conservation, protection, and management of Ontario's waters and for their efficient and sustainable use, to promote Ontario's long-term environmental, social, and economic well-being.

2.4 Water Opportunities and Water Conservation Act (WCA)

The 2010 WCA under the Water Taking and Transfer (OWRA) Regulation (O. Reg 387/04) is one of the various provincial land use planning statutes, policies, and plans that set out direction relating to water conservation and efficiency best management practices. The Act aims to conserve and sustain water resources for present and future generations by:

a) Foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors; and
b) Create opportunities for economic development and clean-technology jobs in Ontario.

One measure managed by the regulation comprises of the *Province of Ontario – 2021 Water Conservation and Efficiency Program* which assesses water conservation measures in accordance with best water management standards and practices. Ontario has a range of programs to manage water supply and demand, such as establishing water efficiency standards, and requires local planning authorities to protect water quality and promote green infrastructure. Water takers are required to monitor and report data annually.

2.5 Nutrient Management Act (NMA)

The General Regulation Ontario Regulation (O. Reg.) 267/03 made under the Nutrient Management Act governs the requirements for land application of biosolids, e.g., seasonal storage requirement. For wastewater treatment plants (WWTP) which were not phased in under the *Nutrient Management Act,* requirements are set out in the Environmental Compliance Approval (ECA), based on the MECP and the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land, 1996. Part II of the NMA requires the Municipality to ensure that their biosolids land application program meets the requirements of the Act and complies with the requirements for land application for non-agricultural source materials (NASM).

2.6 Safe Drinking Water Act (SDWA)

The *Safe Drinking Water Act* was implemented following the Walkerton Water Crisis (2000), at which time there was no formal regulation of drinking water treatment, operation, record taking, and remedial actions for unsafe drinking water in Ontario. Ontario Regulation 170 (O. Reg 170) under the SDWA provides the requirement for municipal water supply systems which includes reference to the Ten State Standards and the MECP document titled *Procedure for Disinfection of Drinking Water.* The MECP *Design Guidelines for Drinking-Water Systems* (Water Guidelines) is used for the analysis of the Municipality's supply and distribution systems; but it is understood that the guidelines do allow some individual municipal discretion on items such as municipal fire protection. The guidelines will be the foundational basis for risk assessments, supply and distribution planning, fire flow determination, design system pressures and calculation of future water supply.

Schedule 22 and Section 11 of O. Reg 170/03 under the Act requires that an annual status summary report on the performance of the Municipality's Drinking Water System (DWS) be provided to the Council and be reviewed per the guidelines established by the MECP.

The sampling, testing, monitoring, and pumping of the water supplied by the wells must follow the requirements set by Permits to Take Water (PTTW), the Municipal Drinking Water License, and Drinking Water Works Permit for the subject systems. The Sustainable Water and Sewage Systems Act (SWSS) (2002) indicates that regulated entities are required to submit a report detailing the provision of water services and wastewater services including an inventory of and management plan for the associated infrastructure.

2.7 Clean Water Act (CWA)

The CWA is a law enacted by the Legislative Assembly of Ontario, Canada to protect existing and future sources of drinking water. The CWA (2006) is a major part of the Ontario government's commitment to ensuring that every Ontarian has access to safe drinking water. Key regulations enabling the work and authority for Source Water Protection are:

- O. Reg. 284/07 Source Protection Areas and Regions delineates source water protection areas within the province;
- O. Reg. 287/07 General mandates the terms of reference and requirements for source water protection plans; and
- O. Reg. 288/07 Source Protection Committees under the CWA constitutes and mandates Source Projection Committees.

When municipal raw water demonstrates an exceedance of an Ontario Drinking Water Quality standard or increasing trend of a contaminant of concern, the CWA allows local Source Protection Authorities (SPAs) to designate municipal wellhead protection areas as Issues Contributing Areas (ICA). An ICA delineates an area where certain current or past land use have or are likely inferred to contribute to the elevated contaminant concentration in raw water supplies.

2.8 Sustainable Water and Sewage Systems Act

The *Sustainable Water and Sewage Systems Act* (SWSSA) mandates that all municipalities (regulated entity) operate their water and wastewater systems on a full cost recovery basis where the system cost is borne by the system users. Every municipality that provides water services to the public has to prepare and approve a plan describing how the entity intends to pay the full cost of providing those services. This Act has no enabling regulations and was implemented following the Walkerton Water Crisis which occurred in 2000.

2.9 Provincial Policy Statement 2024

The Provincial Policy Statement (PPS), 2024 (Ministry of Municipal Affairs and Housing [MMAH], 2024) sets out the Provincial policy direction for land use planning in Ontario, including managing growth, using and managing natural resources, protecting the environment, and ensuring public health and safety.

The vision of the policy recognizes that Ontario's long-term prosperity, environmental health and social well-being depend on promoting efficient land use and development patterns. Efficient development patterns also optimize the use of land, resources and public investment in infrastructure and public service facilities and support sustainability by promoting strong, liveable, healthy and resilient communities, protecting the environment and public health and safety, and facilitating economic growth.

The policies indicate that at the time of creating a new official plan and each official plan update, sufficient land shall be made available to accommodate an appropriate range and mix of land uses to meet projected needs for a time horizon of at least 20 years, but not more than 30 years, informed by provincial guidance. Planning for infrastructure, public service facilities, strategic growth areas and employment areas may extend beyond this time horizon.

Land use patterns within settlement areas shall be based on densities and a mix of land uses which:

- Efficiently use land and resources;
- Optimize existing and planned infrastructure and public service facilities;
- Support active transportation;
- Are transit-supportive, as appropriate; and
- Are freight-supportive.

In addition, the importance of intensification and redevelopment is noted as follows:

“a) maintain at all times the ability to accommodate residential growth for a minimum of 15 years through lands which are designated and available for residential development; and

b) maintain at all times where new development is to occur, land with servicing capacity sufficient to provide at least a three-year supply of residential units available through lands suitably zoned, including units in draft approved or registered plans.”

Per Section 3.6 of the PPS, municipal sewage services and municipal water services are the preferred form of servicing for settlement areas to support protection of the environment and minimize potential risks to human health and safety. Policies require that planning for sewage and water services shall:

“a) accommodate forecasted growth in a timely manner that promotes the efficient use and optimization of existing municipal sewage services and municipal water services and existing private communal sewage services and private communal water services;

b) ensure that these services are provided in a manner that:

1. can be sustained by the water resources upon which such services rely;
2. is feasible and financially viable over their life cycle;
3. protects human health and safety, and the natural environment, including quality and quantity of water; and
4. aligns with comprehensive municipal planning for these services, where applicable.

c) promote water and energy conservation and efficiency;

d) integrate servicing and land use considerations at all stages of the planning process;

e) consider opportunities to allocate, and re-allocate if necessary, the unused system capacity of municipal water services and municipal sewage services to support efficient use of these services to meet current and projected needs for increased housing supply; and

f) be in accordance with the *[PPS preferred hierarchy of servicing (municipal > communal > private)]*."

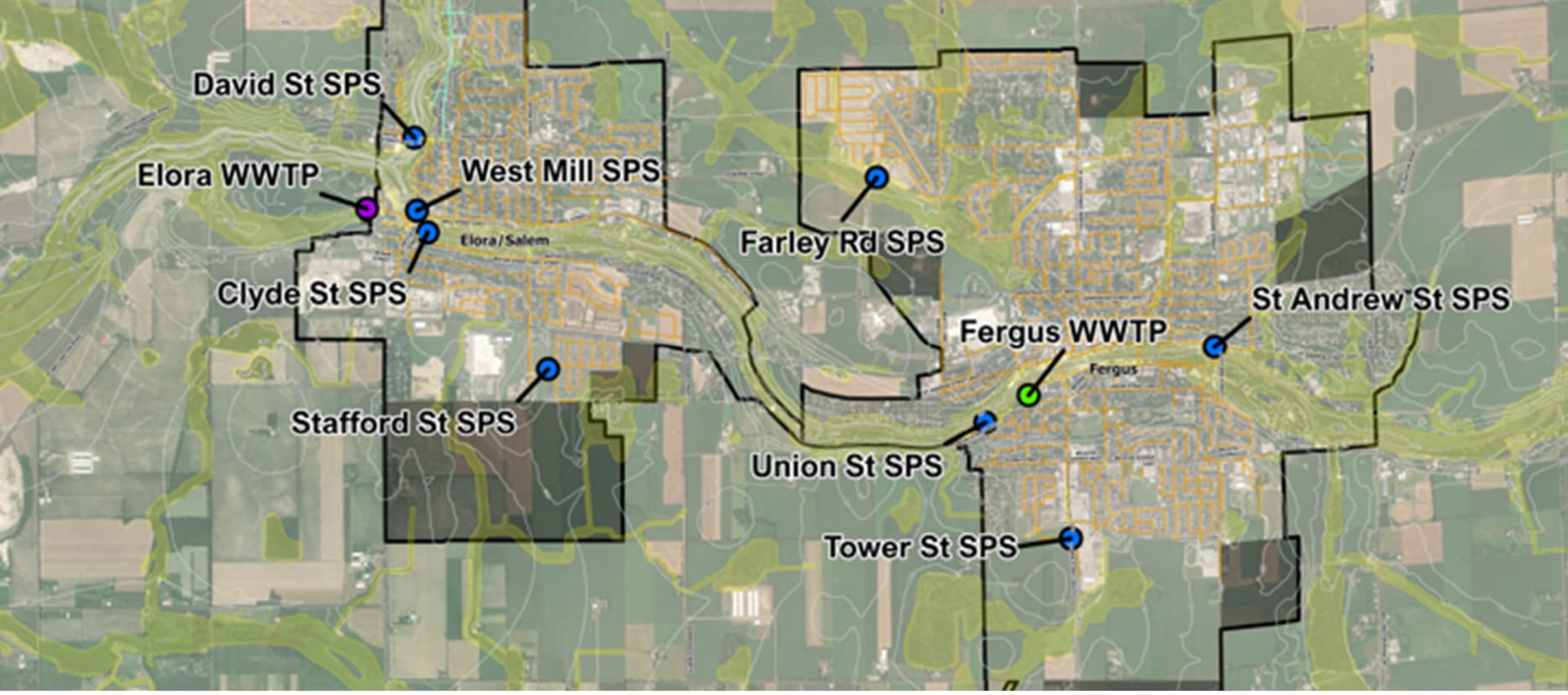
All planning decisions and Official Plan policies (including those related to infrastructure) are required to be 'consistent with' the policies of the PPS (2024).

2.10 Ontario Heritage Act

The *Ontario Heritage Act* mandates the criteria and process for identifying provincial heritage properties and the standards for their protection, maintenance, use and disposal. The Act is generated through consultation with the affected public and ministries.

Provincial Heritage Property examples:

- Courthouses and jails;
- Monuments and cemeteries;
- Historic gardens and forts;
- Provincial parks and cultural heritage landscapes;
- Power generating stations and provincial mental health facilities; and
- Bridges, museums and historic houses.



TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 2

Master Plan Consultation

June 30, 2025

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WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

Appendix 2-1 Public and Agency Notices

COMPANY NAME/ADDITIONAL NAME	DATE MODIFIED	MODIFICATION TYPE	COMMENTS	FIRST NAME	LAST NAME	POSITION	COMPANY NAME/ADDITIONAL NAME	LOCATION	CITY/ TOWN	PROVINCE
Municipal Agency										
Township of Centre Wellington				Shawn	Watters	Mayor	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Kerri	O'Kane	Manager of Legislative Services & Municipal Clerk	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Dan	Wilson	Chief Administrative Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Kendra	Martin	Communications Officer	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				John	Gaddye	Superintendent of Public Works	Township of Centre Wellington	7444 Wellington Road 21	Elora	ON
Township of Centre Wellington				Mariana	Iglesias	Manager of Planning	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Brett	Salmon	Managing Director of Planning & Development	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Adam	McNabb	Managing Director of Coporate Services & Treasurer	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Pat	Newson	Managing Director of Community Services	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Lisa	MacDonald	Township Councillor - Ward 1	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Kimberley	Jefferson	Township Councillor - Ward 2	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Barbara	Lustgarten-Evoy	Township Councillor - Ward 3	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Jennifer	Adams	Township Councillor - Ward 4	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Bronwynne	Wilton	Township Councillor - Ward 5	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Denis	Craddock	Township Councillor - Ward 6	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Phil	Brown	Chair, Centre Wellington Heritage Committee	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Wellington County				Don	Kudo	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON
Wellington County				Joe	de Koning	County Engineer	Wellington County	74 Woolwich Street	Guelph	ON
Township of Woolwich				Rae	Bauman	Executive Officer/Corporate Communication/Media Relations	Township of Woolwich	24 Church Street West	Elmira	ON
Township of Woolwich				Jared	Puppe	Director of Infrastructure Services	Township of Woolwich	24 Church Street West	Elmira	ON
Township of Woolwich				Ryan	Tucker	Engineering Project Supervisor	Township of Woolwich	24 Church Street West	Elmira	ON
Township of Woolwich				Darryl	Schwartzentrube	Engineering Technologist	Township of Woolwich	24 Church Street West	Elmira	ON
Town of Erin			Council Members | Town Of Erin	Michael	Dehn	Mayor	Town of Erin	5684 Trafalgar Rd.	Hillsburgh	ON
Town of Erin			Council Members | Town Of Erin	John	Brennan	Councillor	Town of Erin	4986 Tenth Line	Georgetown	ON
Town of Erin			Council Members | Town Of Erin	Jame	Cheyne	Councillor	Town of Erin	9202 Sideroad 24	Hillsburgh	ON
Town of Erin			Council Members | Town Of Erin	Cathy	Aylard	Councillor	Town of Erin			
Town of Erin			Council Members | Town Of Erin	Bridget	Ryan	Councillor	Town of Erin			
Town of Erin			Council Members | Town Of Erin	Jeff	Duncan	County Councillor	Town of Erin	74 Trafalgar Rd.	Hillsburgh	ON
Town of Minto			Home Page | Town of Minto	Dave	Turton	Mayor	Town of Minto	33 George St	Harriston	ON
Town of Minto			Home Page | Town of Minto	Jean	Anderson	Deputy Mayor	Town of Minto	6362 3rd Line	Harriston	ON
Town of Minto			Home Page | Town of Minto	Judy	Dirksen	Councillor	Town of Minto	6395 6th Line	Harriston	ON
Town of Minto			Home Page | Town of Minto	Ron	Elliott	Councillor	Town of Minto	330 Prospect St	Palmerston	ON
Town of Minto			Home Page | Town of Minto	Geoff	Gunson	Councillor	Town of Minto	27 Elora St N	Harriston	ON
Town of Minto			Home Page | Town of Minto	Ed	Podniewicz	Councillor	Town of Minto	6806 8th Line	Harriston	ON
Town of Minto			Home Page | Town of Minto	Paul	Zimmerman	Councillor	Town of Minto	89 Webb St	Harriston	ON
Town of Minto			Home Page | Town of Minto	David	Anderson	County Councillor	Town of Minto	6362 3rd Line	Harriston	ON
Guelph/Eramosa Township			Member Listing | Mayor and Council | GET	Chris	White	Mayor	Guelph/Eramosa Township	225 Mary Street, P.O. Box 656	Rockwood	ON
Guelph/Eramosa Township			Member Listing | Mayor and Council | GET	Bruce	Dickieson	Ward 1 Councillor	Guelph/Eramosa Township	5284 Wellington Road 32	Guelph	ON
Guelph/Eramosa Township			Member Listing | Mayor and Council | GET	Corey	Woods	Ward 2 Councillor	Guelph/Eramosa Township	5754 Jones Baseline, R.R.#5	Guelph	ON
Guelph/Eramosa Township			Member Listing | Mayor and Council | GET	Steven A.	Liebig	Ward 3 Councillor	Guelph/Eramosa Township	8175 Indian Trail, R.R. #5	Rockwood	ON
Guelph/Eramosa Township			Member Listing | Mayor and Council | GET	Mark	Bouwmeester	Ward 4 Councillor	Guelph/Eramosa Township	251 Brady Street	Rockwood	ON
Municipality of Mapleton			Councillors - Municipality of Mapleton			General Planning	Municipality of Mapleton			
Municipality of Mapleton			Councillors - Municipality of Mapleton	Gregg	Davidson	Mayor	Municipality of Mapleton			
Municipality of Mapleton			Councillors - Municipality of Mapleton	Amanda	Reid	Councillor	Municipality of Mapleton			
Municipality of Mapleton			Councillors - Municipality of Mapleton	Martin	Tamlyn	Councillor	Municipality of Mapleton			
Municipality of Mapleton			Councillors - Municipality of Mapleton	Michael	Martin	Councillor	Municipality of Mapleton			
Municipality of Mapleton			Councillors - Municipality of Mapleton	Marlene	Ottens	Councillor	Municipality of Mapleton			
Township of Puslinch						General Contact	Township of Puslinch			
Township of Wellington North			Water & Sewer Servicing | Township of Wellington North (wellington-north.com)	Corey	Schmidt	Manager, Environmental and Development Services	Township of Wellington North			
Conservation Authority										
Grand River Conservation Authority				Laura	Warner	Resource Planner	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON
Grand River Conservation Authority		Removed Trevor Heywood and added Jessica Conroy.		Jessica	Conroy	Resource Planner	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON
Grand River Conservation Authority				Dwight	Boyd	Director of Engineering	Grand River Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON
Provincial and Federal Agency										
Ministry of Environment, Conservation and Parks (MECP)			Preparing environmental assessments | ontario.ca			Class EA Form	Ministry of Environment, Conservation and Parks (MECP)			
Ministry of the Environment, Conservation and Parks - Environmental Assessment and Permissions Branch						General Contact	Ministry of the Environment, Conservation and Parks - Environmental Assessment and Permissions Branch			
Ministry of the Environment, Conservation and Parks, West Central Region			Organization details | INFO-GO (gov.on.ca)	Joan	Del Villar Cuicas	Environmental Resource Planner & EA Coordinator (Acting	Ministry of the Environment, Conservation and Parks, Wes	135 St Clair Ave W., 8th Floor	Toronto	ON
Ministry of Municpal Affairs and Housing			M9aGFubmFoJTlwZXZhbnMmc29ydGxhYmVsPXNvcnQtb3B0aW9uMCZsb2NhbGU9ZW4=	Hannah	Evans	Assistant Deputy Minister, Municipal Services	Ministry of Municpal Affairs and Housing	College Park 16th Floor, 777 Bay St.	Toronto	Ontario
Ministry of Municpal Affairs and Housing		Replaced Sean Fraser with Er	ganization details | INFO-GO (gov.on.ca)	Erick	Boyd	Western Municipal Service Office	Ministry of Municpal Affairs and Housing	College Park 16th Floor, 777 Bay St.	Toronto	Ontario
Ministry of Transportation			Organization details | INFO-GO (gov.on.ca)	Cheryl	Davis	Manager (Acting), Environmental Policy Office	Ministry of Transportation	3rd Floor, 159 Sir William Hearst Ave.	Toronto	Ontario
Ministry of Infrastructure			Organization details | INFO-GO (gov.on.ca)	Andrea	Chow	Director, Infastructure Policy Branch	Ministry of Infrastructure	College Park 4th Floor, Suite 425, 777 Bay St.	Toronto	Ontario
Ministry of Agriculture, Food and Rural Affairs			Organization details | INFO-GO (gov.on.ca)	Cale	Selby	Director, Environmental Management Branch	Ministry of Agriculture, Food and Rural Affairs	Ontario Government Building, 3rd Floor S, 1 Stone Road W	Guelph	Ontario
Ministry of Natural Resources and Forestry			Organization details | INFO-GO (gov.on.ca)	Crystal	Lafrance	District Manager, Guelph District	Ministry of Natural Resources and Forestry	1 Stone Road West	Guelph	ON
Ministry of Citizenship and Multiculturalism (MCM)			Organization details | INFO-GO (gov.on.ca)	Dan	Minkin	Heritage Planner, MCM	Ministry of Citizenship and Multiculturalism (MCM)	401 Bay Street	Toronto	ON
Ministry of Indigenous Affairs			Organization details | INFO-GO (gov.on.ca)	Jessica	Hill	Senior Advisor - Indigenous Relations Unit	Ministry of Indigenous Affairs	160 Bloor Street, Suite 400	Toronto	ON
Fisheries and Oceans Canada Centre for Inland Waters			Fisheries and Oceans Canada in the Ontario and Prairie Region (dfo-mpo.gc.ca)				Fisheries and Oceans Canada Centre for Inland Waters	867 Lakeshore Road	Burlington	ON
Crown-Indigenous Relations and Northern Affairs Canada						General Contact	Crown-Indigenous Relations and Northern Affairs Canada			
Environment and Climate Change Canada - Environmental Assessment Section						General Contact	Environment and Climate Change Canada - Environmental Assessment Section	200 Sacré-Coeur Blvd	Gatineau	QC
Transport Canada						General Contact	Transport Canada	4900 Yonge St	Toronto	ON

COMPANY NAME/ADDITIONAL NAME	DATE MODIFIED	MODIFICATION TYPE	COMMENTS	FIRST NAME	LAST NAME	POSITION	COMPANY NAME/ADDITIONAL NAME	LOCATION	CITY/ TOWN	PROVINCE
OCWA										
Ontario Clean Water Agency			[Organization details | INFO-GO (gov.on.ca)]()	Alex	Chik	Project Manager	Ontario Clean Water Agency	Suite 500, 2085 Hurontario St	Mississauga	ON
Utilities										
Centre Wellington Hydro						General Contact	Centre Wellington Hydro			
Rogers Communication						General Contact	Rogers Communication	333 Bloor Street East	Toronto	ON
Enbridge						General Contact	Enbridge	500 Consumers Road	North York	ON
Hydro One -Guelph				Ahmad	Nouman	Supervising Distribution Tech.	Hydro One -Guelph			
Bell Canada		Email bounce back: removed from contact list.					Bell Canada			
School Boards and Student Transportation										
Upper Grand District School Board				Martha C.	Rogers	Director of Education	Upper Grand District School Board	500 Victoria Road North	Guelph	ON
Wellington Catholic District School Board				Michael	Glazier	Director of Education	Wellington Catholic District School Board	75 Woolwich Street	Guelph	ON
Wellington-Dufferin Student Transportation Services							Wellington-Dufferin Student Transportation Services	66 Arrow Road	Guelph	ON
Emergency Services										
Township of Centre Wellington				Tom	Mulvey	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON
Township of Centre Wellington				Jonathan	Karn	Deputy Fire Chief	Township of Centre Wellington	250 Queen Street W	Fergus	ON
Township of Centre Wellington				Chantalle	Pellizzari	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON
Township of Centre Wellington				Shannon	Koestner	Community Emergency Management Coordinator	Township of Centre Wellington	1 MacDonald Square	Elora	ON
County of Wellington				Hurania	Melgar	Emergency Manager/CEMC	County of Wellington	536 Wellington Road 18 RR1	Fergus	ON
Ontario Provincial Police						Centre Wellington Operations Centre (Fergus) Detachment	Ontario Provincial Police	371 Charles Allan Way	Fergus	ON
Guelph Wellington Paramedic Services				Sherry	Hoysa	Guelph Wellington Paramedic Services	Guelph Wellington Paramedic Services			
Indigenous Contacts										
Six Nations of the Grand River				Sherri-Lyn	Hill	Chief	Six Nations of the Grand River	1695 Chiefswood Rd., PO Box 5000	Ohsweken	ON
Six Nations Lands and Resources			Address updated 24/04/02 based on an email from Ms. Dawn LaForme	Lonny	Bomberry	Lands and Resources Director	Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON
Six Nations Lands and Resources			ased on an email from Ms. Dawn LaForme. Always CC Dawn LaForme when emailing Peter.	Peter	Graham	Consultation Supervisor	Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON
Six Nations Lands and Resources			Dawn LaForme. Do not address the letter to Dawn, the letter should be addressed to Peter.	Dawn	LaForme		Six Nations Lands and Resources	2498 Chiefswood Rd., PO Box 5000	Ohsweken	ON
Mississaugas of the Credit First Nation				Claire	Sault	Chief	Mississaugas of the Credit First Nation	4065 Hwy 6	Hagersville	ON
Mississaugas of the Credit First Nation				Mark	LaForme	Director of Consultation	Mississaugas of the Credit First Nation	4065 Hwy 6	Hagersville	ON
Mississaugas of the Credit First Nation				Abby	LaForme	Consultation Manager	Mississaugas of the Credit First Nation	4065 Hwy 6	Hagersville	ON
Mississaugas of the Credit First Nation				Adam	LaForme	Archaeology/FLR Participation Contact	Mississaugas of the Credit First Nation	4065 Hwy 6	Hagersville	ON
Métis Nation of Ontario			Address updated 23/07/20 based on call with Metis First Nations general line.	Jesse	Fieldwebster	Manager of Lands, Resources and Consultations	Métis Nation of Ontario	Unit 10 & 11, 845 King Street	Midland	ON
Haudenosaunee Development Institute							Haudenosaunee Development Institute	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON
Haudenosaunee Confederacy				Hohahes Leroy	Hill	Secretary to the Haudenosaunee Confederacy	Haudenosaunee Confederacy	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON
Haudenosaunee Confederacy				Raechelle (Jan	Williams	Environmental Supervisor	Haudenosaunee Confederacy	16 Sunrise Court, Suite 600, P.O. Box 714	Ohsweken	ON
Businesses										
Wellington Federation of Agriculture				Janet	Harrop	President	Wellington Federation of Agriculture	7764 Nichol Sdrd 5	Fergus	ON
Bethel Mennonite Church				Dave	Tiessen	Paster	Bethel Mennonite Church	6772 Eighth Line West, R.R. #1	Elora	ON
Devlopers										
Cachet Homes				Marcus	Gagliardi		Cachet Homes			
Cachet Homes				Jessie	HaKong		Cachet Homes			
Crozier		Added after NOC.		James	Fletcher	Engineering Intern, Land Development	Crozier			
Crozier		Added after NOC.		Matt	Britton	Land Development	Crozier			
GEI Consultants		Added pos PIC#1		Angela	Kroetsch	Land Development	GEI Consultants			
Contacts Received Post PIC#1										
		Added after PIC#1		Tyra	Duncan	Resident		308 Erb St.		
		Added after PIC#1		Carolyn	Skimson	Resident		300 Erb St.		
		Added after PIC#1		Kathryn	Nuyten-Cox	Resident		581 Woodside St	Fergus	ON
		Added after PIC#1		Amanda	Murphy	Resident				
MTE		Added after PIC#1		Jeff	Martens		MTE			
MTE		Added after PIC#1		Michael	Felinczak		MTE			
		Added after PIC#1		Randy	Dryburgh	Resident		39 Beirnes Court	Fergus	ON
		Added after PIC#1		Farhan	Kamali Siddiqui	Developer				
		Added after PIC#1		Wayne	Arnott					
Crozier		Added after PIC#1		Jim	Firth	Developer	Crozier			

COMPANY NAME/ADDITIONAL NAME	POSTAL CODE	TEL	EMAIL	NOTICE OF COMMENCEMENT/ PIC#1			NOTICE OF PIC#2			NOTICE OF FINAL REPORT		
				DATE SENT	COMMENTS	NOT RECEIVED	DATE SENT	COMMENTS	NOT RECEIVED	DATE SENT	COMMENTS	NOT RECEIVED
Municipal Agency												
Township of Centre Wellington	N0B 1S0	519-846-9691 x295	mayor@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x243	kokane@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x234	dwilson@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x220	kmartin@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x313	jgaddye@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x289	miglesias@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x297	bsalmon@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x224	amcnabb@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x319	pnewson@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	226-384-2345	lisamacdonald@outlook.com	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	226.332.5861	ward2@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	226.332.6005	ward3@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519.827.5904	ward4@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	226.332.6004	ward5@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	226.332.6214	ward6@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0			RVA TO SEND								
Wellington County	N1H 3T9	519-837-2600 x2280	donk@wellington.ca	RVA TO SEND								
Wellington County	N1H 3T9	519-837-2600 x2270	joedk@wellington.ca	RVA TO SEND								
Township of Woolwich	N3B 2Z6	519-669-1647 x6021	rbauman@woolwich.ca	RVA TO SEND								
Township of Woolwich	N3B 2Z6	519-669-6029	JPuppe@woolwich.ca	RVA TO SEND								
Township of Woolwich	N3B 2Z6	519-669-1647 x6048	rtucker@woolwich.ca	RVA TO SEND								
Township of Woolwich	N3B 2Z6	519-669-1647 x6047	dschwartzentruber@woolwich.ca	RVA TO SEND								
Town of Erin	N0B 1Z0	519.855.4407 EXT. 232	Michael.Dehn@erin.ca	RVA TO SEND								
Town of Erin	L7G 4S8	519.833.7309	john.brennan@erin.ca	RVA TO SEND								
Town of Erin	N0B 1Z0	519.855.6310	jamie.cheyne@erin.ca	RVA TO SEND								
Town of Erin			cathy.aylard@erin.ca	RVA TO SEND								
Town of Erin			bridget.ryan@erin.ca	RVA TO SEND								
Town of Erin	N0B 1Z0	519.855.6134	jeffd@wellington.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-338-2407	dturton@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-505-5914	janderson@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-321-9101	jdirksen@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 2P0	519-343-2330	relliott@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-897-9801	ggunson@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-292-1123	epodniewicz@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	519-504-3812	pzimmerman@town.minto.on.ca	RVA TO SEND								
Town of Minto	N0G 1Z0	226-750-0782	davida@wellington.ca	RVA TO SEND								
Guelph/Eramosa Township	N0B 2K0	519-830-6725	chris.white@get.on.ca	RVA TO SEND								
Guelph/Eramosa Township	N1H 6J4	519-831-8828	bruce.dickieson@get.on.ca	RVA TO SEND								
Guelph/Eramosa Township	N1H 6J2	519-824-7377	corey.woods@get.on.ca	RVA TO SEND								
Guelph/Eramosa Township	N0B 2K0	519-766-7108	steven.liebig@get.on.ca	RVA TO SEND								
Guelph/Eramosa Township	N0B 2K0	519-856-2127	mark.bouwmeester@get.on.ca	RVA TO SEND								
Municipality of Mapleton			planning@mapleton.ca	RVA TO SEND								
Municipality of Mapleton		519-638-3313 x 060	gdavidson@mapleton.ca	RVA TO SEND								
Municipality of Mapleton		519-638-3313 x 061	areid@mapleton.ca	RVA TO SEND								
Municipality of Mapleton		519-638-3313 x 062	mtamlyn@mapleton.ca	RVA TO SEND								
Municipality of Mapleton		519-638-3313 x 063	mmartin@mapleton.ca	RVA TO SEND								
Municipality of Mapleton		519-638-3313 x 064	mottens@mapleton.ca	RVA TO SEND								
Township of Puslinch			services@puslinch.ca	RVA TO SEND								
Township of Wellington North		519-848-3620 Ext. 4627	cschmidt@wellington-north.com	RVA TO SEND								
Conservation Authority												
Grand River Conservation Authority	N1R 5W6	519-621-2763 x 2231	lwarner@grandriver.ca	RVA TO SEND								
Grand River Conservation Authority	N1R 5W6	519-621-2763 x 2292	jconroy@grandriver.com	RVA TO SEND								
Grand River Conservation Authority	N1R 5W6	519-621-2763 x2225	dboyd@grandriver.ca	RVA TO SEND								
Provincial and Federal Agency												
Ministry of Environment, Conservation and Parks (MECP)			eanotification.wcregion@ontario.ca	RVA TO SEND								
Ministry of the Environment, Conservation and Parks - Envi			MEA.NOTICES.EAAB@ontario.ca	RVA TO SEND								
Ministry of the Environment, Conservation and Parks, West	M4V 1P5		joan.delvillarcuicas@ontario.ca;	RVA TO SEND								
Ministry of Municpal Affairs and Housing	M7A 2J3		hannah.evans@ontario.ca	RVA TO SEND								
Ministry of Municpal Affairs and Housing	M7A 2J3		erick.boyd@ontario.ca	RVA TO SEND								
Ministry of Transportation	M3M 0B7		cheryl.davis@ontario.ca	RVA TO SEND								
Ministry of Infrastructure	M5G 2E5	416-303-9287	andrea.chow@ontario.ca	RVA TO SEND								
Ministry of Agriculture, Food and Rural Affairs	N1G 4Y2		cale.selby@ontario.ca	RVA TO SEND								
Ministry of Natural Resources and Forestry	N1G 4Y2	519-859-6376	crystal.lafrance@ontario.ca	RVA TO SEND								
Ministry of Citizenship and Multiculturalism (MCM)	M7A 0A7	416-786-7553	dan.minkin@ontario.ca	RVA TO SEND								
Ministry of Indigenous Affairs	M7A 2E6	416-326-4744	jessica.hill2@ontario.ca	RVA TO SEND								
Fisheries and Oceans Canada Centre for Inland Waters	L7S 1A1	905-336-4999	info@dfo-mpo.gc.ca	RVA TO SEND								
Crown-Indigenous Relations and Northern Affairs Canada			aadnc.infopubs.aandc@canada.ca	RVA TO SEND								
Environment and Climate Change Canada - Environmental Assessment Section	K1A 0H3		ec.enviroinfo.ec@canada.ca	RVA TO SEND								
Transport Canada	M2N 6A5		EnviroOnt@tc.gc.ca	RVA TO SEND								

COMPANY NAME/ADDITIONAL NAME	POSTAL CODE	TEL	EMAIL	NOTICE OF COMMENCEMENT/ PIC#1			NOTICE OF PIC#2			NOTICE OF FINAL REPORT		
				DATE SENT	COMMENTS	NOT RECEIVED	DATE SENT	COMMENTS	NOT RECEIVED	DATE SENT	COMMENTS	NOT RECEIVED
OCWA												
Ontario Clean Water Agency	L5A 4G1	905-302-1666	achik@ocwa.com	RVA TO SEND								
Utilities												
Centre Wellington Hydro			enquiries@cwhydro.ca	RVA TO SEND								
Rogers Communication	M4W 1G9	(416) 935-7777		RVA TO SEND								
Enbridge	M2J 1P8	1-877-343-3255	webmaster-corp@enbridge.com	RVA TO SEND								
Hydro One -Guelph		519-535-7361	ahmad.nouman@hydroone.com	RVA TO SEND								
Bell Canada				RVA TO SEND								
School Boards and Student Transportation												
Upper Grand District School Board	N1E 6K2	519-822-4420 x721	amy.villeneuve@ugdsb.on.ca	RVA TO SEND								
Wellington Catholic District School Board	N1H 6H6	519-821-4640 x214	michael.glazier@wellingtoncdsb.ca	RVA TO SEND								
Wellington-Dufferin Student Transportation Services	N1K 1T4	519-842-4119		RVA TO SEND								
Emergency Services												
Township of Centre Wellington	N1N 1S8	519-846-9691 x389	tmulvey@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N1N 1S8	519-846-9691 x387	jkarn@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x241	cpellizzari@centrewellington.ca	RVA TO SEND								
Township of Centre Wellington	N0B 1S0	519-846-9691 x249	skoestner@centrewellington.ca	RVA TO SEND								
County of Wellington	N1M 2W3	519-837-2600 x3322	huraniam@wellington.ca	RVA TO SEND								
Ontario Provincial Police	N1M 2W3	519-846-5930	OPP.Wellington.County@opp.ca	RVA TO SEND								
Guelph Wellington Paramedic Services			sherry.hoysa@guelph.ca	RVA TO SEND								
Indigenous Contacts												
Six Nations of the Grand River	N0A 1M0	519-445-2201	sherri-lyn_hillpierce@sixnations.ca									
Six Nations Lands and Resources	N0A 1M0		lonnybomberry@sixnations.ca	TOWNSHIP SENT May 15, 2024								
Six Nations Lands and Resources	N0A 1M0	519-753-0665 x 5425	LRCS@sixnations.ca; cc dlaforme@sixnations.ca;									
Six Nations Lands and Resources	N0A 1M0	519-445-2201	dlaforme@sixnations.ca									
Mississaugas of the Credit First Nation	N0A 1H0	905-768-1133	claires@mncfn.ca									
Mississaugas of the Credit First Nation	N0A 1H0		Mark.Laforme@mncfn.ca									
Mississaugas of the Credit First Nation	N0A 1H0	905-768-4260	abby.laforme@mncfn.ca	TOWNSHIP SENT May 15, 2024								
Mississaugas of the Credit First Nation	N0A 1H0		adam.laforme@mncfn.ca									
Métis Nation of Ontario	L4R 0B7	(705)-529-6000	consultations@metisnation.org jessef@metisnation.org	Hold Until MECP Confirms FN is on Contact List								
Haudenosaunee Development Institute	N0A 1M0	(519) 755-2769	info@hdi.land									
Haudenosaunee Confederacy	N0A 1M0	519-445-4222	communications@hdi.land; jocko@sixnationsns.com; info@hdi.land; 1749resource@gmail.com									
Haudenosaunee Confederacy	N0A 1M0	519-445-4222	janicewilliams@hdi.land	TOWNSHIP SENT May 15, 2024								
Businesses												
Wellington Federation of Agriculture	N1M 2W3	519-820-9293		RVA TO SEND								
Bethel Mennonite Church	N0B 1S0	519-591-1608	mdavetiessen@gmail.com	RVA TO SEND								
Devlopers												
Cachet Homes			marcus@cachetdevelopments.com	RVA TO SEND								
Cachet Homes			jessie@cachethomes.com	RVA TO SEND								
Crozier			jfletcher@cfcrozier.ca									
Crozier			mbritton@cfcrozier.ca									
GEI Consultants			AKroetsch@geiconsultants.com									
Contacts Received Post PIC#1												
			tyravduncan@gmail.com									
			carolynskimson@gmail.com									
			kathryn.nuyten@gmail.com									
			amandacox1984@gmail.com									
MTE			jmartens@mte85.com									
MTE			mfelinczak@mte85.com									
	N1M 3V4		r.sdryburgh@gmail.com									
			farhankamali@gmail.com									
			jwayne@arnottgroup.com									
Crozier			jfirth@cfcrozier.ca									

Samya Chams

From:	Carol Derrick
Sent:	May 13, 2025 12:30 PM
To:	Samya Chams
Subject:	FW: Notice of Commencement & Public Information Centre for the Water and Wastewater Master Servicing Plan for the Township of Centre Wellington
Attachments:	237318-Centre Wellington-W WW MSP-Notice of Commencement-AODA Compliant.pdf

Carol

From: Carol Derrick
Sent: May 22, 2024 2:39 PM
Subject: Notice of Commencement & Public Information Centre for the Water and Wastewater Master Servicing Plan for the Township of Centre Wellington

On behalf of the Township of Centre Wellington, please see enclosed the Notice of Commencement and Public Information Centre for a Water and Wastewater Master Servicing Plan to service the future growth of Fergus and Elora/Salem.

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

Should you wish to stop receiving notices pertaining to this project or would like to direct it to an alternate recipient, please advise the undersigned.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Dania Chehab, P.Eng., M.Eng.
Project Manager
DChehab@rvanderson.com
(416) 497-8600 ext. 1456

Encls: Notice of Commencement

Samya Chams

From:	Samya Chams
Sent:	April 10, 2025 4:03 PM
To:	Samya Chams
Cc:	Ryan Maiden; John Tyrrell; Darika Sharma
Subject:	Notice of PIC#2 - Water and Wastewater Master Servicing Plan for the Township of Centre Wellington
Attachments:	WWSMP - PIC #2 Notice.pdf
Categories:	Filed by Newforma

Good afternoon,

On behalf of the Township of Centre Wellington, please see attached the Notice of Public Information Centre #2 for the Water and Wastewater Master Servicing Plan.

The PIC#2 details are as follows:

> **Date & Time:** April 24th, 2025, 6:00 pm – 8:00 pm
> **Location:** Elora Centre for the Arts, 75 Melville St, Elora, ON N0B 1S0

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

The project team values the participation of all stakeholders and wishes to ensure that the community's interests and concerns are taken into consideration. Please contact the project team members listed on the attached notice should you require further information on this project.

Thank you,

Samya Chams, B.A. (She/Her)
Administrative Assistant

R.V. Anderson Associates Limited
557 Southdale Road East, Suite 200
London ON N6E 1A2
t 519 681 9916 x5021
LinkedIn | **Facebook** | **Website**

PROUDLY 100% CANADIAN

WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

Appendix 2-2 Indigenous Consultation

From: Ryan Maiden
Sent on: May 15, 2024 3:29:30 PM
To: janicewilliams@hdi.land
CC: Natasha Lee; Dania Chehab
Subject: Township of Centre Wellington, MEA Class EA, Water and Wastewater Servicing Master Plan
Attachments: Centre Wellington-W WW MSP-Notice of Commencement.pdf (177.18 KB), CentreWellington-WWSMP_MP_HDI_NoC - Raechelle Williams.pdf (344.11 KB)

Good Afternoon,

The Township of Centre Wellington has initiated a Municipal Class Environmental Assessment Study to prepare a Water and Wastewater Servicing Master Plan (WWSMP) for the communities of Fergus and Elora. The WWSMP will provide the Township with an understanding of how the existing water and wastewater networks are functioning, identify current and future capacity constraints, evaluate opportunities to increase system capacity, and inform short and long range planning to maintain or improve levels of service and accommodate future growth in the Township.

Please find attached a letter and the Notice of Study Commencement for this Class EA Study. This noticed is being distributed to the public, government agencies, Indigenous Nations and key stakeholders via publication in the local newspaper, posting on the Township's website and email circulation. There is also a project webpage at connectCW.ca

We are interested in understanding any interests or questions that the Haudenosaunee Development Institute may have regarding this project and if there is a potential for the Project to affect Indigenous and treaty rights. If you would like to meet to discuss the project in more detail, please feel free to contact me and we will arrange a virtual meeting.

Regards,

Ryan Maiden, P.Eng | Water and Wastewater Capital Project Manager

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
Office: 519.846.9691 x285 centrewellington.ca
Cell: 226.378.4476
Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Ryan Maiden
Sent on: May 15, 2024 3:32:41 PM
To: Abby.LaForme@mncfn.ca
CC: Natasha Lee; Dania Chehab
Subject: Township of Centre Wellington, MEA Class EA, Water and Wastewater Servicing Master Plan
Attachments: CentreWellington-WWSMP_MP_MCFN_NoC - Abby LaForme.pdf (344.13 KB), Centre Wellington-WWW MSP-Notice of Commencement.pdf (177.18 KB)

Good Afternoon,

The Township of Centre Wellington has initiated a Municipal Class Environmental Assessment Study to prepare a Water and Wastewater Servicing Master Plan (WWSMP) for the communities of Fergus and Elora. The WWSMP will provide the Township with an understanding of how the existing water and wastewater networks are functioning, identify current and future capacity constraints, evaluate opportunities to increase system capacity, and inform short and long range planning to maintain or improve levels of service and accommodate future growth in the Township.

Please find attached a letter and the Notice of Study Commencement for this Class EA Study. This noticed is being distributed to the public, government agencies, Indigenous Nations and key stakeholders via publication in the local newspaper, posting on the Township's website and email circulation. There is also a project webpage at connectCW.ca

We are interested in understanding any interests or questions that the Mississaugas of the Credit First Nations may have regarding this project and if there is a potential for the Project to affect Indigenous and treaty rights. If you would like to meet to discuss the project in more detail, please feel free to contact me and we will arrange a virtual meeting.

Regards,

Ryan Maiden, P.Eng | Water and Wastewater Capital Project Manager

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
Office: 519.846.9691 x285 centrewellington.ca
Cell: 226.378.4476
Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Ryan Maiden
Sent on: May 15, 2024 3:26:19 PM
To: lonnybomberry@sixnations.ca
CC: Natasha Lee; Dania Chehab
Subject: Township of Centre Wellington, MEA Class EA, Water and Wastewater Servicing Master Plan
Attachments: Centre Wellington-W WW MSP-Notice of Commencement.pdf (177.18 KB), CentreWellington-WWSMP_MP_SNGR_NoC - Lonny Bomberry.pdf (344.83 KB)

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Good Afternoon,

The Township of Centre Wellington has initiated a Municipal Class Environmental Assessment Study to prepare a Water and Wastewater Servicing Master Plan (WWSMP) for the communities of Fergus and Elora. The WWSMP will provide the Township with an understanding of how the existing water and wastewater networks are functioning, identify current and future capacity constraints, evaluate opportunities to increase system capacity, and inform short and long range planning to maintain or improve levels of service and accommodate future growth in the Township.

Please find attached a letter and the Notice of Study Commencement for this Class EA Study. This noticed is being distributed to the public, government agencies, Indigenous Nations and key stakeholders via publication in the local newspaper, posting on the Township's website and email circulation. There is also a project webpage at connectCW.ca

We are interested in understanding any interests or questions that the Six Nations of the Grand River may have regarding this project and if there is a potential for the Project to affect Indigenous and treaty rights. If you would like to meet to discuss the project in more detail, please feel free to contact me and we will arrange a virtual meeting.

Regards,

Ryan Maiden, P.Eng | Water and Wastewater Capital Project Manager

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
Office: 519.846.9691 x285 centrewellington.ca
Cell: 226.378.4476
Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

CANADA POST POSTES CANADA

Tracking number:

RN831612217CA

Delivered
Shipping service: Lettermail
Sender: Unavailable
Delivery standard: Apr. 14

Latest updates

Date	Time	Location	Progress	Post office
Apr. 10	10:25 am		Signature available	
Apr. 10	10:25 am	HAGERSVILLE,ON	Delivered	
Apr. 10	7:02 am	HAGERSVILLE,ON	Item processed	
Apr. 10	12:39 am	KITCHENER,ON	Item in transit	
Apr. 9	9:39 pm	KITCHENER,ON	Item processed	
Apr. 9	1:10 pm	ELORA,ON	Item accepted at the Post Office	

Features and options
Signature Required

CANADA POST POSTES CANADA

Tracking number:

RN831612225CA

Delivered
Shipping service: Lettermail
Sender: Unavailable
Delivery standard: Apr. 14

Latest updates

Date	Time	Location	Progress	Post office
Apr. 10	12:48 pm		Signature available	
Apr. 10	12:48 pm	OHSWEKEN,ON	Delivered	
Apr. 10	9:36 am	OHSWEKEN,ON	Notice card left indicating where and when to pick up item	
Apr. 10	12:44 am	KITCHENER,ON	Item in transit	
Apr. 9	9:44 pm	KITCHENER,ON	Item processed	
Apr. 9	1:10 pm	ELORA,ON	Item accepted at the Post Office	

Features and options
Signature Required

CANADA POST POSTES CANADA

Tracking number:

RN831612203CA

Delivered
Shipping service: Lettermail
Sender: Unavailable
Delivery standard: Apr. 14

Latest updates

Date	Time	Location	Progress	Post office
Apr. 10	10:25 am		Signature available	
Apr. 10	10:25 am	HAGERSVILLE,ON	Delivered	
Apr. 10	7:02 am	HAGERSVILLE,ON	Item processed	
Apr. 10	12:44 am	KITCHENER,ON	Item in transit	
Apr. 9	9:44 pm	KITCHENER,ON	Item processed	
Apr. 9	1:10 pm	ELORA,ON	Item accepted at the Post Office	

Features and options
Signature Required

Tracking number:

RN831612234CA

Delivered
Shipping service: Lettermail
Sender: Unavailable
Delivery standard: Apr. 14

Latest updates

Date	Time	Location	Progress	Post office
Apr. 14	9:47 am		Signature available	
Apr. 14	9:47 am	OHSWEKEN,ON	Delivered	
Apr. 10	9:38 am	OHSWEKEN,ON	Notice card left indicating where and when to pick up item	
Apr. 10	12:45 am	KITCHENER,ON	Item in transit	
Apr. 9	9:45 pm	KITCHENER,ON	Item processed	
Apr. 9	1:10 pm	ELORA,ON	Item accepted at the Post Office	

Features and options
Signature Required

CANADA POST POSTES CANADA

Tracking number:

RN831612194CA

Delivered
Shipping service: Lettermail
Sender: Unavailable
Delivery standard: Apr. 14

Latest updates

Date	Time	Location	Progress	Post office
Apr. 10	12:48 pm		Signature available	
Apr. 10	12:48 pm	OHSWEKEN,ON	Delivered	
Apr. 10	9:38 am	OHSWEKEN,ON	Notice card left indicating where and when to pick up item	
Apr. 10	12:44 am	KITCHENER,ON	Item in transit	
Apr. 9	9:44 pm	KITCHENER,ON	Item processed	
Apr. 9	1:10 pm	ELORA,ON	Item accepted at the Post Office	

Features and options
Signature Required

WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

Appendix 2-3 Public Information Centres

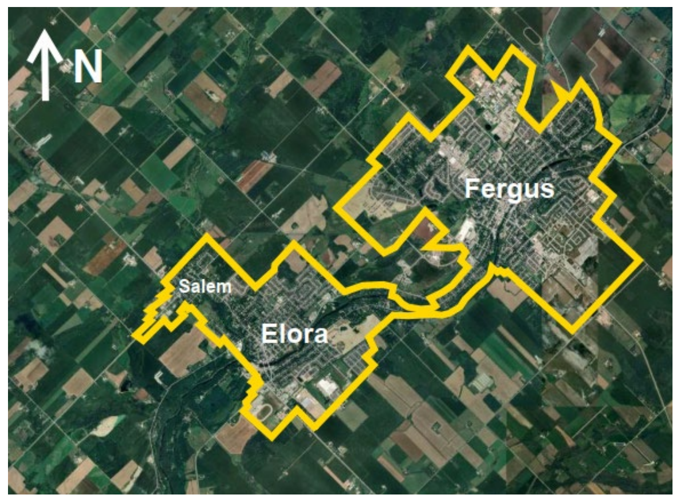
PIC # 1

May 30, 2024

NOTICE OF STUDY COMMENCEMENT AND PUBLIC INFORMATION CENTRE

WATER AND WASTEWATER MASTER SERVICING PLAN FOR THE TOWNSHIP OF CENTRE WELLINGTON

The Township of Centre Wellington has initiated a Water and Wastewater Master Servicing Plan (MSP) to service the future growth of Fergus and Elora / Salem. The proposed study area aligns with Fergus and Elora / Salem urban boundaries, and approved planned growth areas, as illustrated in the figure below.



The Township of Centre Wellington is completing this Water and Wastewater MSP to identify high-level strategies for existing and future water and wastewater servicing.

The preferred servicing strategies will:

- Support service area growth to 2051 while considering opportunities for operational flexibility and redundancy, as well as for optimization and improvement of the existing systems;
- Provide resiliency to potential future changes to regulatory and climatic conditions;
- Balance environmental, social, technical, and economical considerations.

This project will also consider strategic opportunities to optimize and expand the Fergus Wastewater Treatment Plant (WWTP).

The project is being completed as an **Approach No. 1 Master Plan** project under the framework of the **Municipal Class Environmental Assessment** (October 2000, amended in 2007, 2011, 2015, & 2023), which is approved under the *Ontario Environmental Assessment Act*. The study will address the requirements of Phase 1 and part of Phase 2 of the Municipal Class EA process.

Consultation with the public, Indigenous Communities, regulator agencies, and stakeholder groups is a key element of a Municipal Class EA study. To facilitate this, two (2) Public Information Centres (PICs) are planned over the course of the study to gather input on potential servicing solutions and provide an opportunity to discuss concerns and issues with the project team.

The Township invites interested parties to attend and participate in PIC 1:

May 30, 2024 at 6:00 to 8:00 pm
CW Community Sportsplex

Presentation materials will also be available for viewing on the Township's website at: www.connectcw.ca/WWSMP

If you have any questions or comments regarding the study, or wish to be added to the project contact list to receive notices, please contact a member of the project team:

Ryan Maiden, P.Eng.
Water and Wastewater Capital Manager
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
519-846-9691 ext. 285
Rmaiden@centrewellington.ca

Dania Chehab, P.Eng., M.Eng.
Project Manager
R.V. Anderson Associates Limited
2001 Sheppard Avenue East, Suite 300
Toronto, ON M2J 4Z8
416-497-8600 ext. 1456
DChehab@rvanderson.com

This notice first issued May 14, 2024.

Welcome

The Township of Centre Wellington welcomes you to this Public Information Centre.

The Goals of this Public Information Centre:

- Introduce the project and why it is being done.
- Provide background information on the existing water and wastewater system.
- Provide an overview of the process that will be followed for the project.
- Answer any questions that you may have.

What's Involved In The Water And Wastewater Servicing Master Plan?

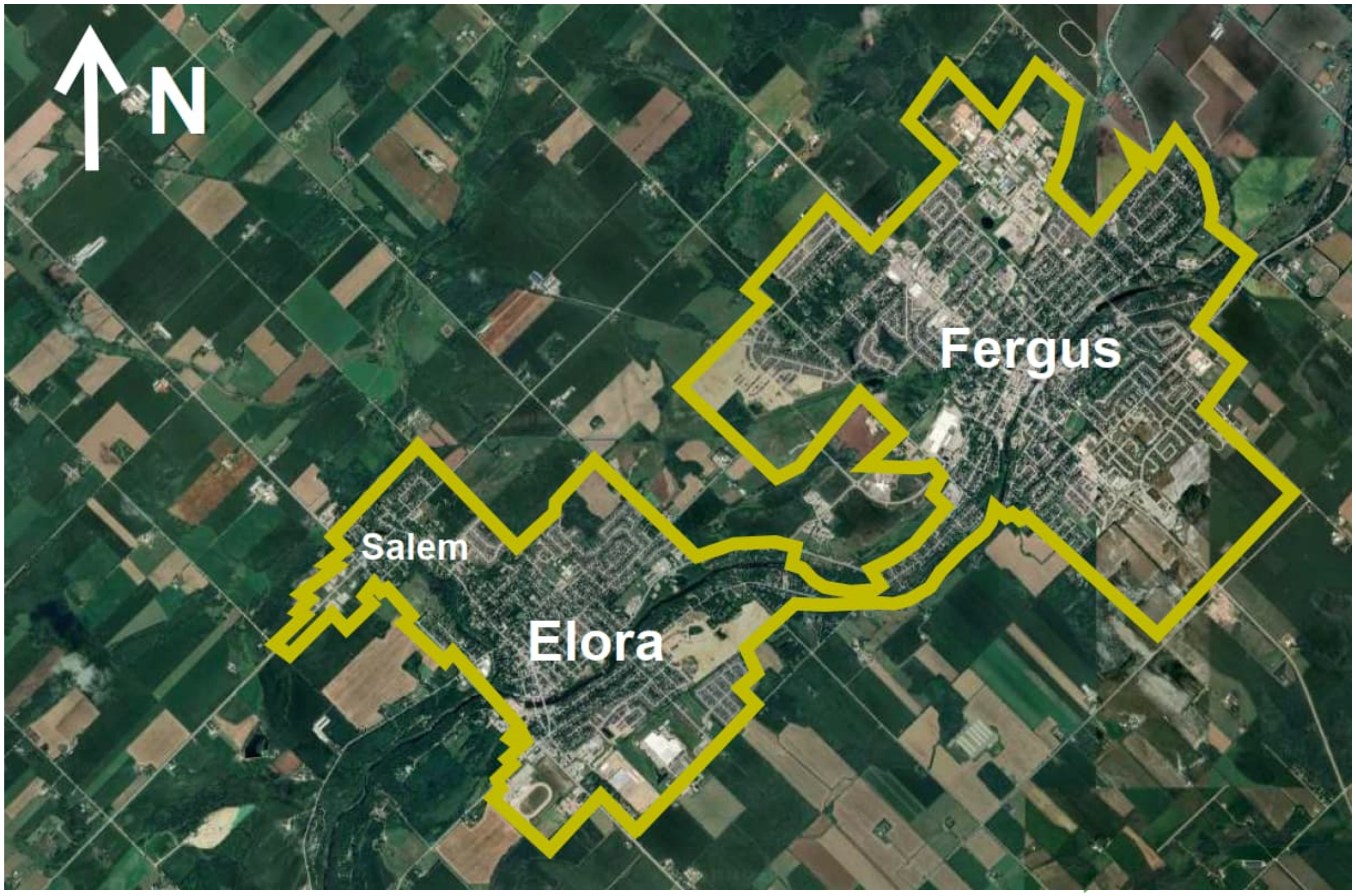
- The Township is undertaking a Master Servicing Plan (MSP) study under the Municipal Class Environmental Assessment framework.
- The MSP study will follow Approach #1 (high level study) under the Master Planning Framework.

Centre Wellington is Growing

We are planning water and wastewater servicing for the anticipated growth of Fergus and Elora / Salem to 2051.

Objectives

- Establish timelines for addressing servicing gaps.
- Identify short- and long-term strategies for servicing and expanding water and wastewater capacity
- Provide a roadmap for required infrastructure projects.



The Municipal Class EA Process

The Master Servicing Planning (MSP) study will complete Phase 1 and a portion of Phase 2 of the environmental assessment process. Any Schedule B or C projects resulting from this MSP will require additional investigations or study to fulfill Class EA requirements.

Phase 1: Develop the Problem/ Opportunity statement, Notice of Commencement

Phase 2: Development & Initial Evaluation of Alternative Solutions

Phase 2: Conduct Detailed Investigations

Phase 3: Alternative Design Concepts of Preferred Solution

Phase 4: Prepare Environmental Study Report

Phase 5: Implementation (Design & Construction)

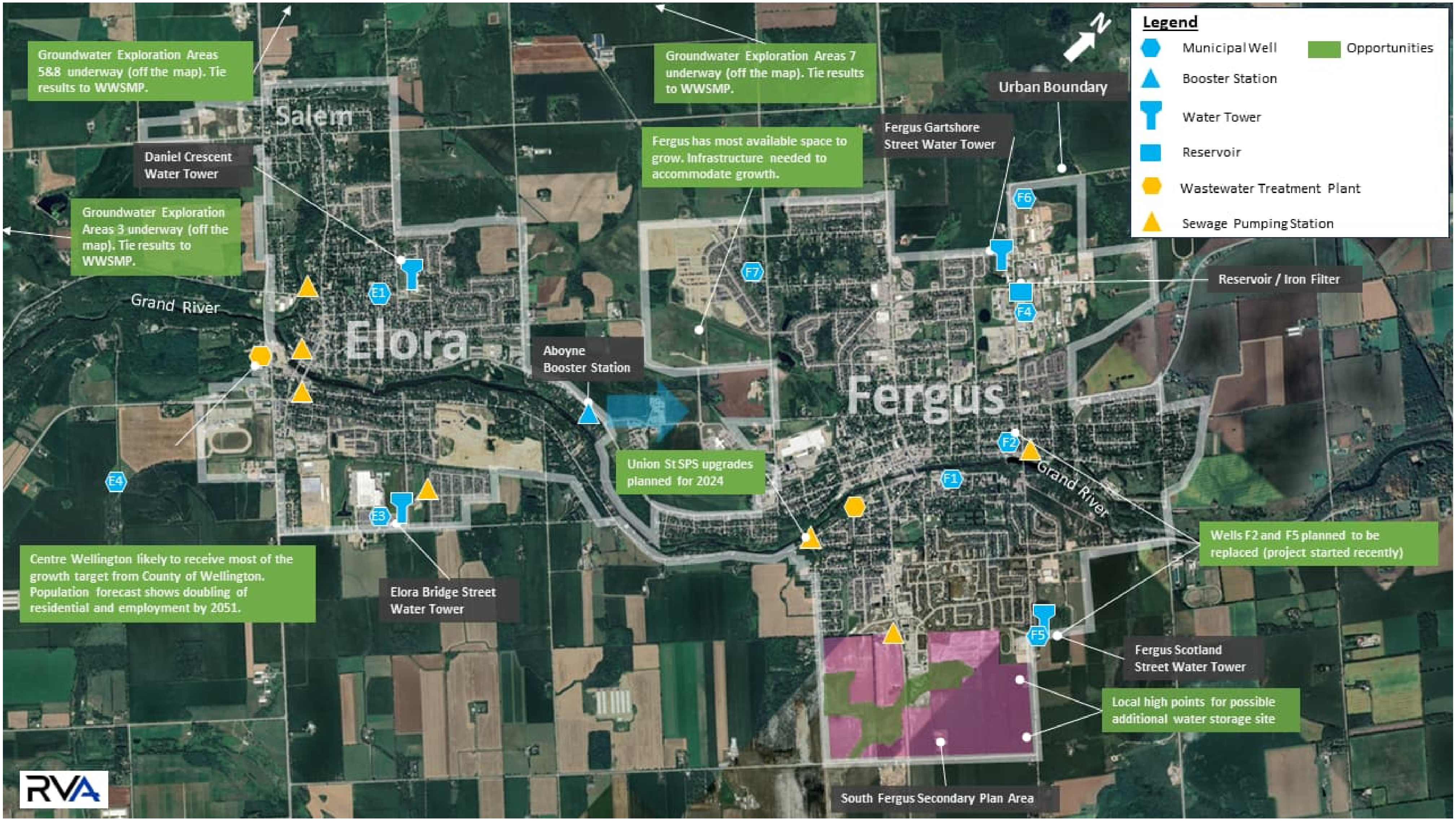
Current MSP Project

Schedule B Class EA
(e.g. water storage, pumping station, etc.)

Schedule C Class EA
(e.g. wastewater treatment plant capacity increase, etc.)

Legend
- Included with this MSP
- Future studies or investigations (not part of this MSP)
- We are here!

Overview of Existing Infrastructure



Centre Wellington

What's Changed Since the 2019 Water Supply Master Plan?

2019 Water Supply Master Plan

- Estimated the growth in Centre Wellington to 2041.
- Determined how much water supply is required.
- Considered water conservation and demand management, as well as alternative water supplies.

The Current Study

- Identify areas of future development requiring water and wastewater servicing.
- Determine future water and wastewater servicing requirements.
- Identify and evaluate solutions to expand the existing sanitary collection and water distribution systems to service the future population to 2051.
- Establish the design criteria for water distribution and sanitary collection systems.
- Model the existing water and wastewater systems.
- Assessment of the future expansion of the Fergus WWTP.
- Provide a 30-year funding requirement forecast.

Problem and Opportunity Statement

Problem

The Township is attracting many new residents and businesses. To meet the future needs of the community, solutions to grow the water and wastewater servicing infrastructure need to be evaluated.

Approach

The Water and Wastewater Servicing Master Plan will identify capacity constraints and identify and evaluate opportunities to increase system capacity to accommodate for growth to the 2051 planning horizon.

Objectives

Preferred solution(s) will be prioritized and implemented in phases to address short and long-term goals and needs, and shall:

- Comply with applicable regulations to provide adequate water and wastewater servicing.
- Consider stakeholder comments and concerns.
- Aim to build climate change resiliency.
- Reduce system complexity and improve ease of operations.
- Aim to improve existing levels of servicing.
- Consider sequencing of solution implementation.
- Consider realistic design criteria.
- Be financially viable and reduce lifecycle cost.
- Be socially and environmentally responsible.

Next Steps

Project Kick-Off

Define Problem or Opportunity Statement

We are here!

Public Information Centre #1

Develop and Evaluate Alternative Solutions

Establish Preferred Alternatives and Capital Implementation Plan

Public Information Centre #2

File Notice of Completion

(Fall 2024)

30-Day Public Review Period

Final Water and Wastewater Servicing Master Plan

(Winter 2025)

Thank You for Attending!

Questions or Comments?

- Complete a comment sheet this evening.
- Submit comments to a project team member.
- Presentation materials available at: www.connectcw.ca/WWSMP.

Project Team Members

Ryan Maiden, P.Eng.
Water and Wastewater Capital Manager
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
519-846-9691 ext. 285
Rmaiden@centrewellington.ca

Dania Chehab, P.Eng., M.Eng.
Project Manager
R.V. Anderson Associates Limited
2001 Sheppard Avenue East, Suite 300
Toronto, ON M2J 4Z8
416-497-8600 ext. 1456
DChehab@rvanderson.com

Sign Up to Stay Up to Date with the Project!

#	Name	Email and/or Mailing Address
1.	[redacted]	[redacted]
2.	[redacted]	[redacted]
3.	JEFF MARTENS	JMARTENS@MTE85.COM
4.	MICHAEL FELINCZAK	MFELINCZAK@MTE85.COM
5.	[redacted]	[redacted]
	[redacted]	[redacted]
	WAYNE ARNOTT	jwayne@arnottgroup.com
8.		
9.		
10.		

PIC # 2

April 24, 2025

Notice of Public Information Centre #2

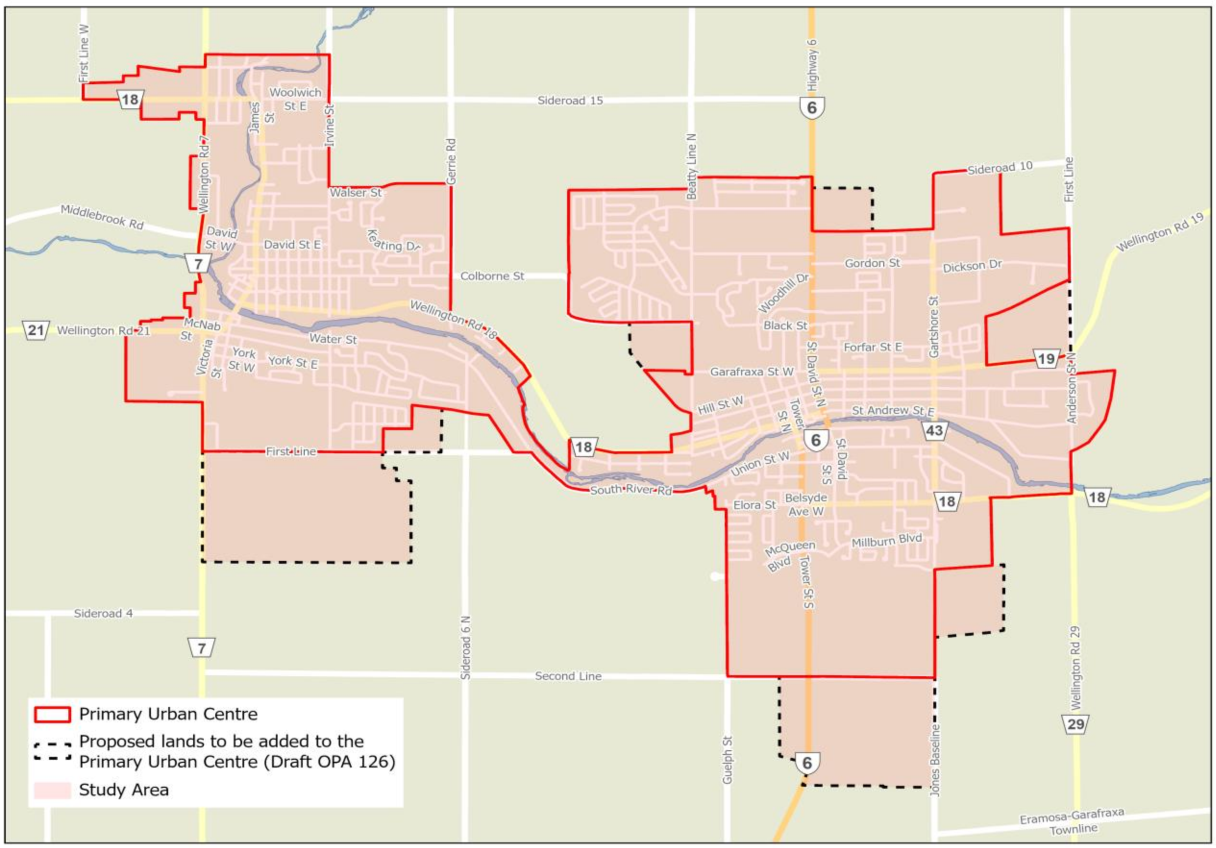
Municipal Class Environmental Assessment Study for a Water and Wastewater Servicing Master Plan

You Are Invited!

The Township of Centre Wellington welcomes your attendance at the second in-person Public Information Centre (PIC) meeting for the Municipal Class Environmental Assessment Study for the Water and Wastewater Servicing Master Plan. This PIC will be seeking feedback from the public on a preferred Water and Wastewater Servicing alternative and evaluation process.

Date & Time: April 24th, 2025, 6:00 pm – 8:00 pm

Location: Elora Centre for the Arts, 75 Melville St, Elora, ON N0B 1S0



The Project

The Township of Centre Wellington has initiated a Water and Wastewater Servicing Master Plan (WWSMP) to service future growth in the Township. This study will help identify capacities and constraints on the existing water and wastewater systems and potential future constraints caused by planned development. The study area aligns with Fergus and Elora / Salem urban boundaries, and proposed lands to be added to the Primary Urban Centre (Draft OPA 126), as illustrated in the figure above.

The Study Process

This Municipal Class Environmental Assessment Study is being carried out in accordance with the requirements for Master Plans as outlined in the Municipal Engineers Association's Municipal Class Environmental Assessment document (October 2000, as amended). This study will address Phases 1 and 2 of the Municipal Class Environmental Assessment Study process to identify any problems or opportunities within the Water and Wastewater systems, identify alternative solutions, and establish a preferred alternative.

Consultation and Input

At the PIC, the preliminary preferred water and wastewater servicing alternative and evaluation process will be presented, and attendees will have the opportunity to direct any comments or questions related to the project directly to the Project Team.

If you are unable to attend the PIC, a webpage containing study information is available. An online forum will be made available at this webpage from **April 24th to May 8th, 2025** to allow stakeholders to share, collaborate, exchange ideas and learn more about this project. To access the online forum and review ongoing project updates, visit the webpage at:

https://www.connectcw.ca/WWSMP

If you have questions or comments regarding the Study, or would like to be included on the mailing list to receive future notices and study updates, please contact one of the Project Team members below:

Ryan Maiden, P.Eng
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 285
rmaiden@centrewellington.ca

John Tyrrell, M.Sc, P. Eng.
Consultant Project Manager
R.V. Anderson Associates Limited
519-691-9916 x 5038
JTyrrell@rvanderson.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

This notice was first issued on April 10, 2025

Water and Wastewater Servicing Master Plan

Township of Centre Wellington

Public Information Centre #2, April 24, 2025

The Goals of this Public Information Centre:

- Introduce the project and describe the Master Plan process
- Provide information on the existing water and wastewater system and servicing requirements to 2051 (horizon of Master Plan)
- Provide details on the review of options to provide water/wastewater infrastructure to 2051 and a preliminary selection of preferred options
- Answer any questions that you may have

What's Involved In The Water and Wastewater Servicing Master Plan?

- The Township is undertaking a Master Servicing Plan (MSP) study under the Municipal Class Environmental Assessment framework
- The MSP study will follow Approach #1 (high level study) under the Master Planning Framework

The Water and Wastewater Servicing Master Plan will identify capacity constraints and identify and evaluate opportunities to increase system capacity to accommodate for growth to the 2051 planning horizon.

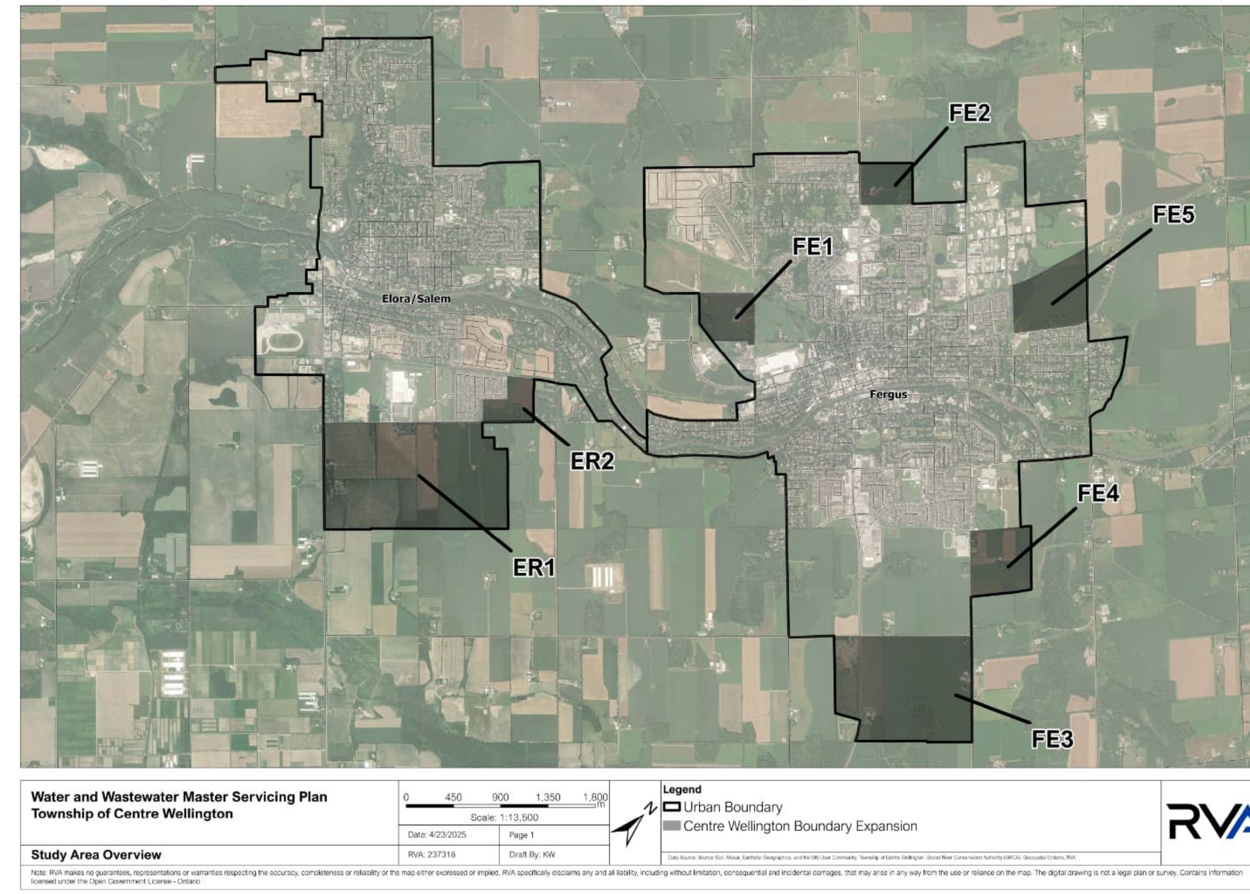
Problem and Opportunity Statement

The Township is attracting many new residents and businesses. To meet the future needs of the community, solutions to grow the water and wastewater servicing infrastructure need to be evaluated.

Master Plan Objectives

The Water and Wastewater Servicing Master Plan will identify capacity constraints and identify and evaluate opportunities to increase system capacity to accommodate for growth to the 2051 planning horizon. Preferred solution(s) will be prioritized and implemented in phases to address short and long-term goals and needs, and are intended to:

- Comply with applicable regulations to provide adequate water and wastewater servicing
- Consider stakeholder comments and concerns
- Aim to build climate change resiliency
- Reduce system complexity and improve ease of operations
- Aim to improve existing levels of servicing
- Consider sequencing of solution implementation
- Consider realistic design criteria
- Be financially viable and reduce lifecycle cost
- Be socially and environmentally responsible



Urban Centre	2023[a,b]	2051[b]		
Total Population	Residential	Residential	ELE *	Total
Elora / Salem	9,040	14,100	985	15,085
Fergus	19,500	36,300	985	37,285
Drinking Water System	Residential	Residential	ELE	Total
Elora / Salem Serviced Population	6,820	11,880	985	12,865
Fergus Serviced Population	17,174	33,974	985	34,959
Wastewater System	Residential	Residential	ELE	Total
Elora / Salem Serviced Population	6,785	11,845	985	12,830
Fergus Serviced Population	16,893	33,693	985	34,678

* Employment-land-employment

a) Municipal Water Meter Data; b) Municipal Comprehensive Review Study, Watson & Associates Economist LTD. 2022

RVA

Centre Wellington

Water and Wastewater Servicing Master Plan

Township of Centre Wellington

Public Information Centre #2, April 24, 2025

Alternative 1 (Do Nothing) would not provide the water or wastewater servicing capacity to the existing and planned growth - *Not considered moving forward*

Alternative 2 (Limit Growth) neither meets the Township's vision for the growth and nor does it mitigate the water and wastewater servicing risks for the existing serviced population - *Not considered moving forward (Contradicts Township and Wellington County Growth Plans)*

Alternative 3 – the Township has ongoing initiatives

- Water Conservation (Water)
- Infiltration/Inflow Reduction (Wastewater)
- *Programs should continue and be expanded*

Alternative 4 – Provide services to allow for planned growth:

- Water Servicing Concepts ex: new water supply (separate initiative), water storage, water pumping and distribution, etc.
- Wastewater System Servicing Concepts ex: new linear infrastructure, pumping, treatment expansions, etc.

The Master Plan will focus on providing servicing solutions that allow for Planned growth per Alternative 4, while continuing and enhancing the existing programs under Alternative 3.

Review of Servicing Options

Rating Scale:

Highest Impact
(Most Negative Solution)

Lowest Impact
(Most Positive Solution)

Category	Criteria
Technical	• Constructability • Improvement to operations • Infrastructure required • Approval requirements
Social and Cultural	• Temporary impacts due to construction • Impact to built heritage resources and cultural heritage landscapes • Impact to archaeological resources
Environmental	• Impact to aquatic and terrestrial species and habitat • Impact to surface water quantity and quality • Climate change resiliency
Economic	• Capital costs • Operational and maintenance costs • User Value

RVA

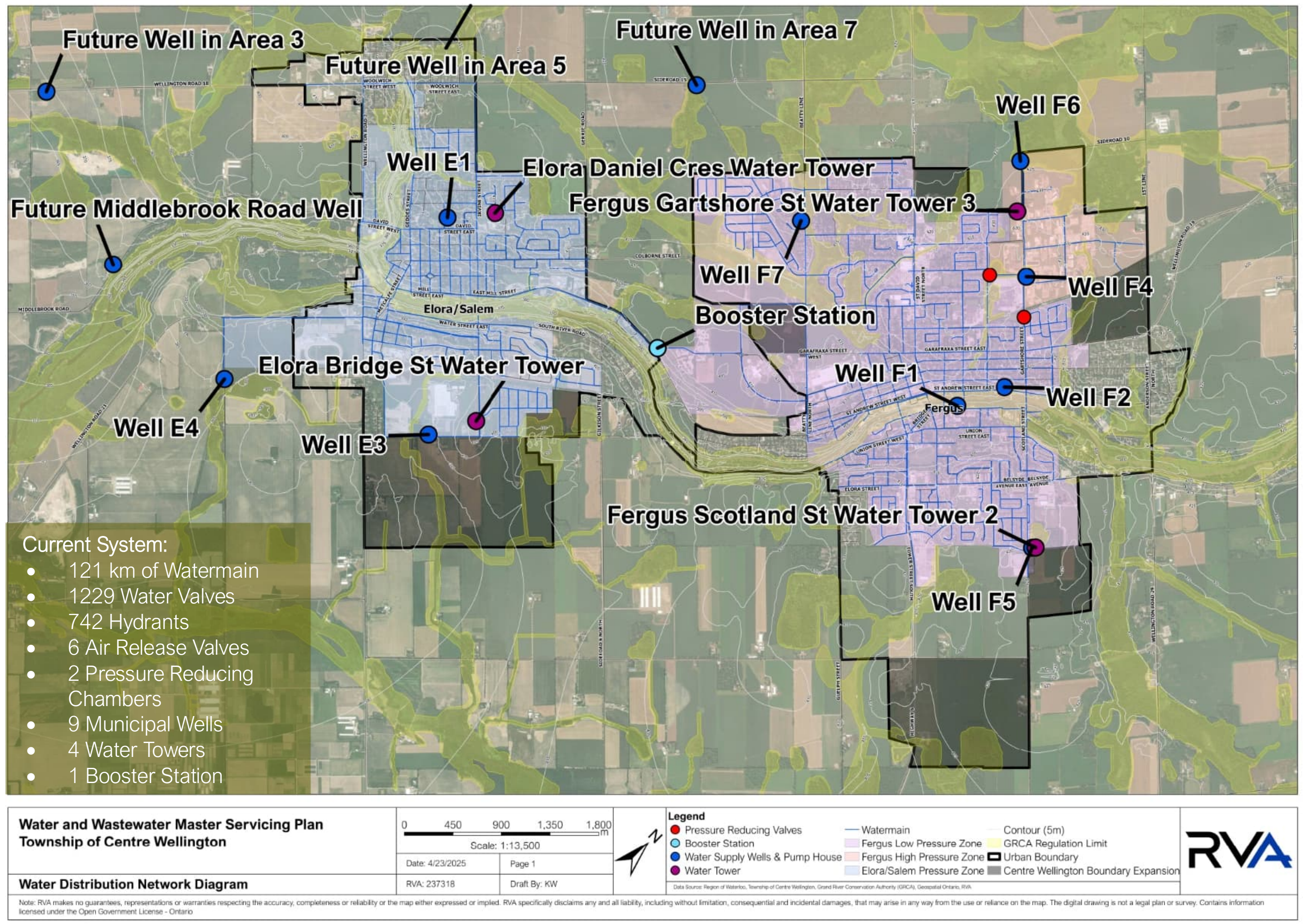
Centre Wellington

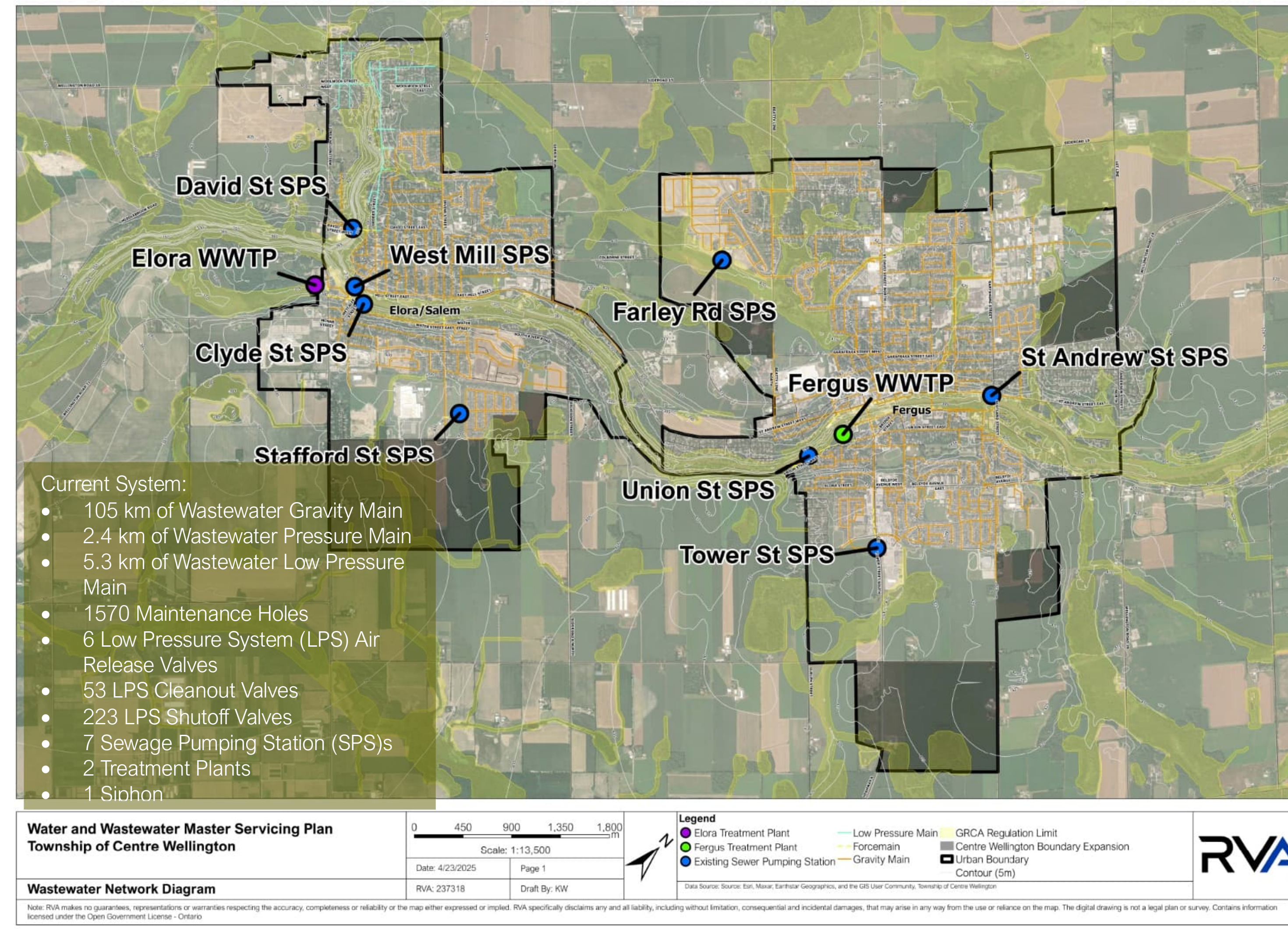
Water and Wastewater Servicing Master Plan

Township of Centre Wellington

Public Information Centre #2, April 24, 2025

Existing Conditions





Water Supply, Storage and Distribution

Township's 2019 Water Supply Master Plan which anticipates bringing on three additional wells over the next 15 to 20-years to provide water supply to meet Centre Wellington's requirements (Wells 3, 5 and 7). Township has recently purchased Middlebrook Road Well to the west of Elora.

Water Storage:

The current water storage is 11,820 m^3 by 2051 17,540 m^3 is required. There is a requirement to provide an additional 5,720 m^3 of storage.

Water Supply and Distribution:

- 2021 Maximum Day Demand is 8,522 m^3/day and the forecasted demand is 21,330 m^3/day in 2051
- Additional wells identified to provide the water supply

Hydraulic modeling was used to determine if there will be impacts to the current water distribution system based on the 2051 water demands

Wastewater Collection:

The Wastewater collection system was modelled to determine the following:

- System constraints in the Elora and Fergus WW Collection Systems
- 2051 Scenario to determine improvements required based on the system constraints
- Major Findings
  - Upgrades to the existing collection system due to growth
  - New sewers (on existing municipal roadways) attributed to boundary growth
  - Minor upgrades to existing collection system due to wet weather issues

Wastewater Treatment:

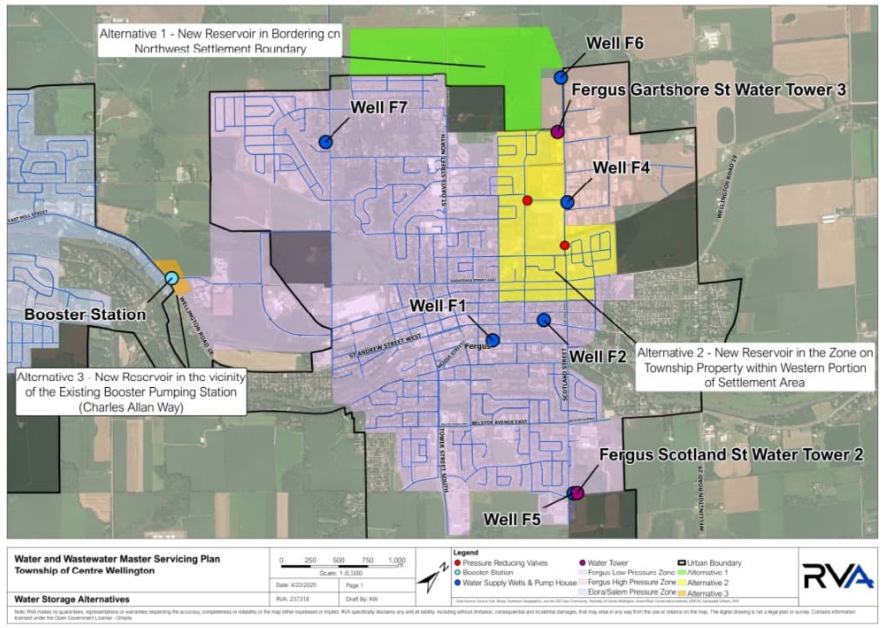
- For the current sewage catchment areas: The Fergus WWTP's capacity is 8,000 m^3/day and will by require 9,400 m^3/day of capacity by 2051
- Elora WWTP's capacity is 5,000 m^3/day will be 12% under capacity by 2051

Water and Wastewater Servicing Master Plan

Township of Centre Wellington

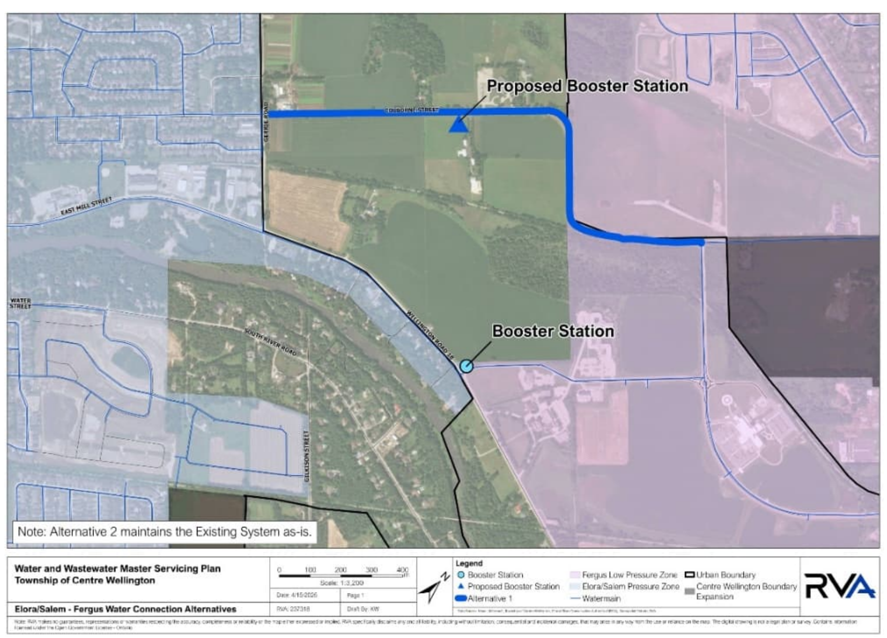
Public Information Centre #2, April 24, 2025

Water Supply and Distribution – Alternatives



Water Storage – Alternatives

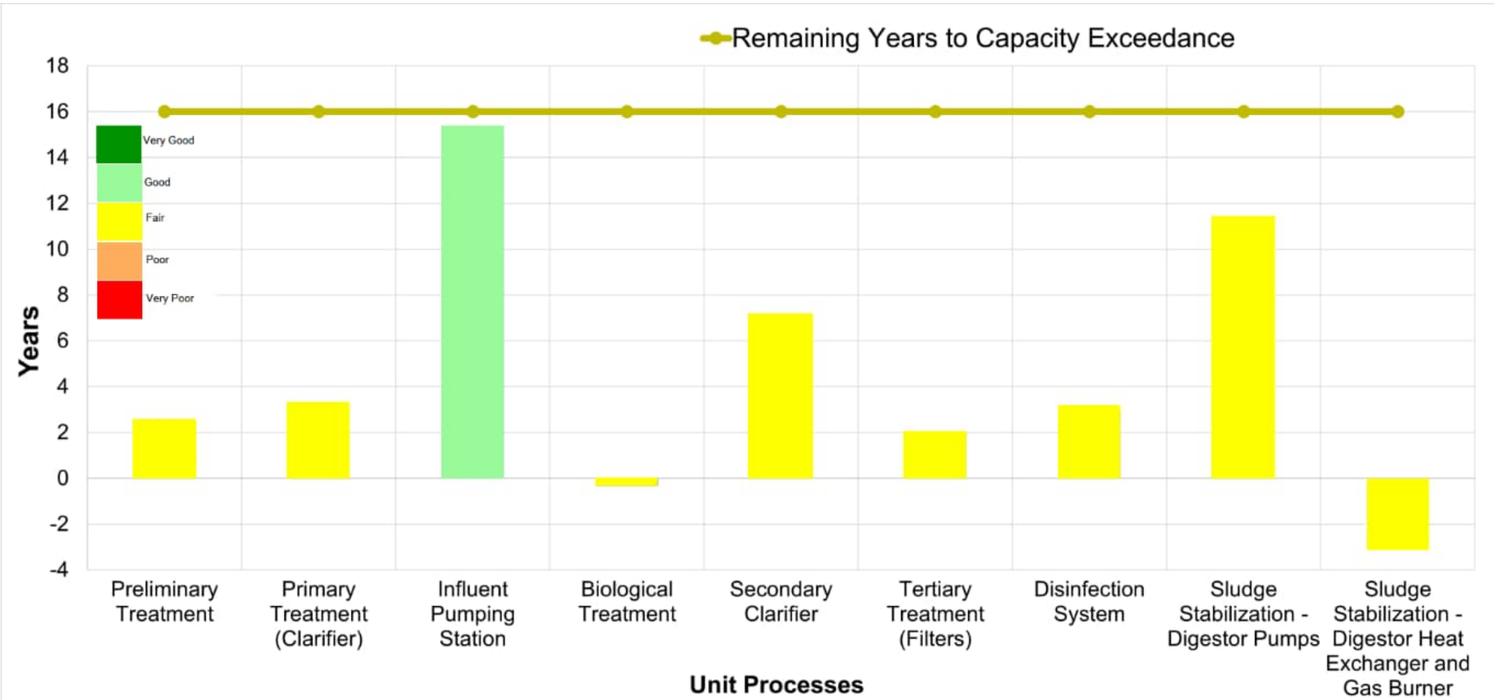
Category	1 - New Reservoir in Bordering on Northwest Settlement Boundary	2 - New Reservoir in the Zone on Township Property within Western Portion of Settlement Area	3 - New Reservoir in the Vicinity of Existing Booster Pumping Station (Charles Allan Way)
Technical	• Proximate to both Fergus High- and Low-pressure zones, so can service all three settlement pressure zones	• Proximate to both Fergus High- and Low-pressure zones, so can service all three settlement pressure zones	• Not proximate Fergus High pressure zone, so can service only Fergus Low and Elora pressure zones economically
Social and Cultural	• Standard archaeological and heritage investigations required for site	• High potential to disrupt social environment due to placement in existing urban area	• Low to moderate potential to disrupt social environment due to possible placement in existing County campus area • Standard archaeological and heritage investigations required for site
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site if not on campus
Economic	• $14.6 million capital cost not including watermain connection costs • $3.0 Million in rehabilitation at 20-years • 40-yr LCC of $515 K	• $14.6 million capital cost not including watermain connection costs • $3.0 Million in rehabilitation at 20-years • 40-yr LCC of $515 K	• $14.6 million capital cost not including watermain connection costs • $3.0 Million in rehabilitation at 20-years • 40-yr LCC of $515 K
Overall	Preferred Alternative		



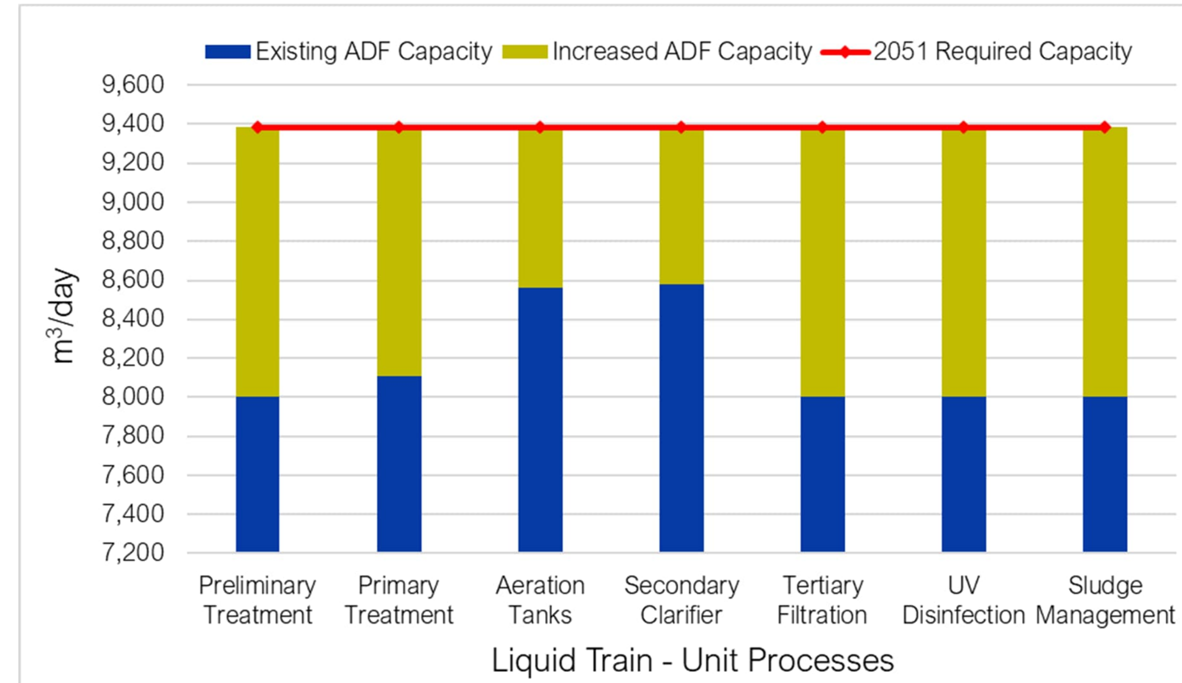
Water Distribution Connection Evaluation: Redundant Connection Between Elora and Fergus

Category	1 – Additional Connection between Elora-Salem and Fergus Systems	2 – Maintain Existing Infrastructure
Technical	• Not required for growth or to maintain service pressure. • Requires a new pumping station. • Property will need to be acquired. • Would provide system redundancy with a second connection between the Elora and Fergus water systems	• Pressures under the 2051 Peak Hour Demand scenario can be met by the existing system as-is. • The potential and severity of the existing watermain breaking is low.
Social and Cultural	• Construction impact to residents and businesses on Colborne St. • Standard archaeological and heritage investigations required for site.	• No impact.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site	• No impact.
Economic	• Around $5.5 M in Capital Works • 40-year LCC estimated at $1.9 M	• No Additional Cost
Overall		Preferred Alternative

Fergus WWTP Unit Processes

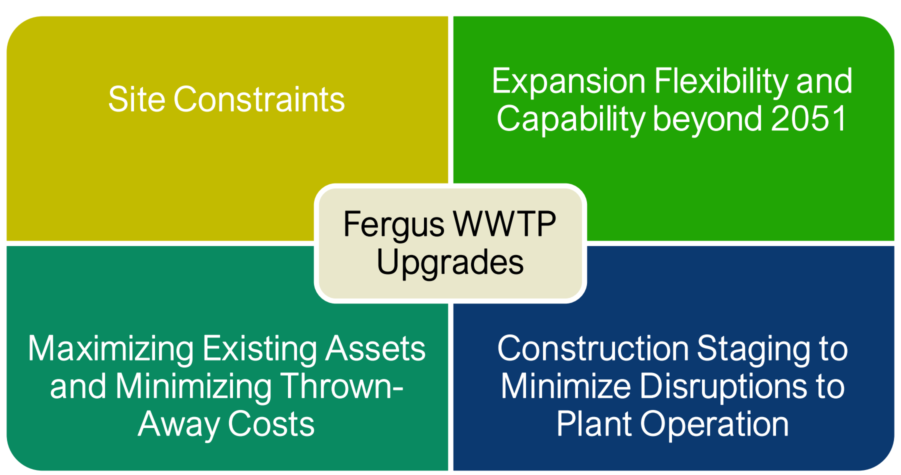


Graph illustrates that almost all unit processes will reach end of typical lifespan and will require replacement within next 5 to 10 years.



- Current unit processes at WWTP are sized for Average Daily Flow (ADF) and Peak Daily Flow (PDF0 based on the as-built hydraulic profile drawing
  - Current MECP practice is to size certain processes for Peak Hour (PH) and Peak Instantaneous Flow (PIF)
  - As such, % of expansion to meet 2051 requirements varies for each unit process.
- Unit-processes to be up-sized can be divided into technology-based (preliminary, tertiary and disinfection equipment), and tankage based.

Wastewater Treatment Facility Alternatives



To meet the objectives to the left, the upgrades can be implemented via the following two options:

Option 1: Retain Fergus WWTP as a Conventional Activated Sludge (CAS) facility and expand capacity via a new 3rd Liquid Train; or

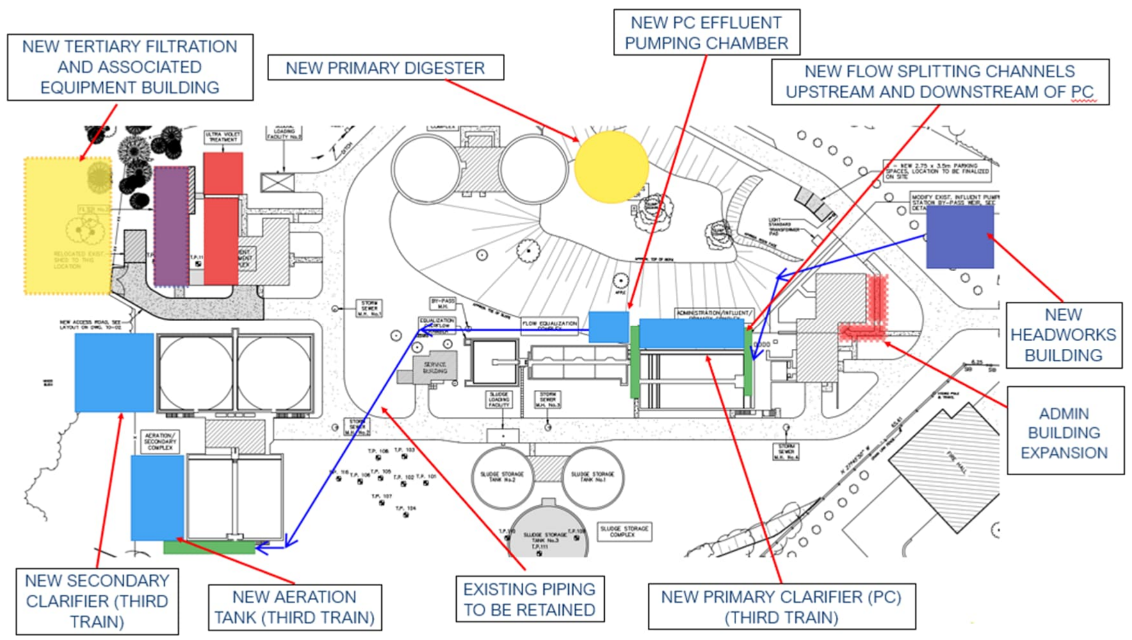
Option 2: Convert Fergus WWTP to a Membrane Bio-Reactor (MBR) facility

Water and Wastewater Servicing Master Plan

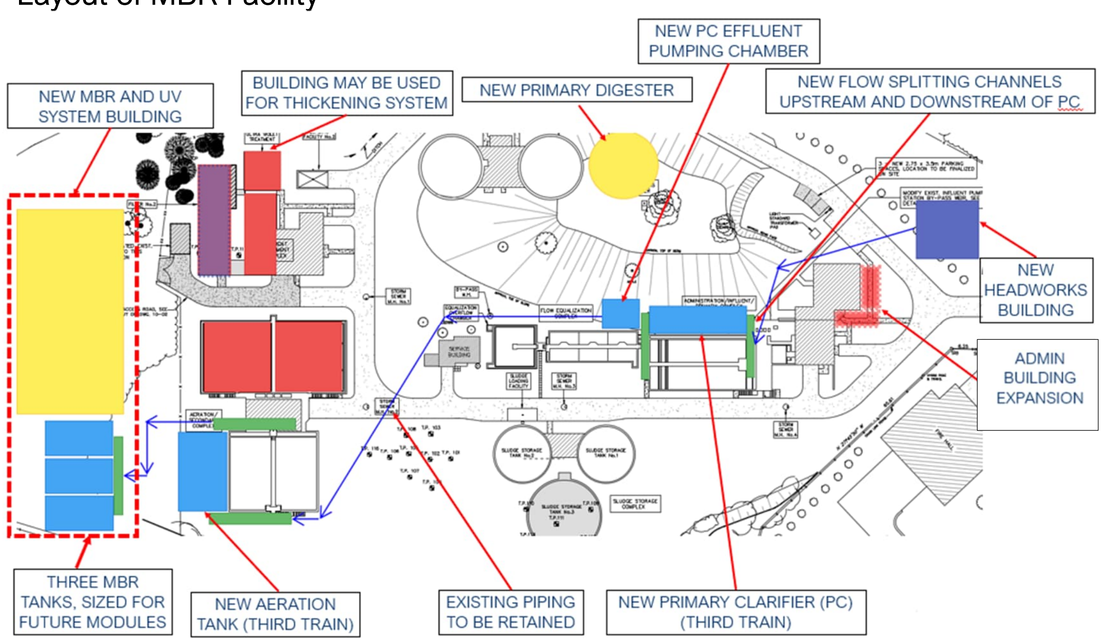
Township of Centre Wellington

Public Information Centre #2, April 24, 2025

Layout of CAS Facility



Layout of MBR Facility



Fergus WWTP Upgrades – Upgrades Evaluation and Preferred Strategy

Evaluation Criteria	1-Retain Fergus as a CAS Facility and Add a New Third Train	2 – Convert Fergus to an MBR Facility
Technical Criteria		
Meets Existing and Future Needs	• Maximizes use of existing tankage while accounting for lifecycle replacements / upgrades due within the next 5 years. • Meets the required treatment capacity projected for 2051. To meet capacity beyond 2051, additional tankage and upgrades required.	• Will facilitate operational and maintenance requirements, as two unit processes will be combined into one. • Meets the required treatment capacity projected for 2051. • To meet capacity beyond 2051, will likely only require additional equipment that can be installed within existing tankage.
Impact on Operations and Maintenance	• Improves operational redundancy by allowing for flow splitting between three trains, instead of two • Current operations staff are experienced with this facility and will require minimal training for the new train.	• All operations staff will require training on the new facility, increasing capital costs • MBRs require much more maintenance activities than CAS plants. • However, staff only has to maintain one unit process as compared to two which saves on maintenance costs and requirements.
Constructability	• Facilitates Construction Sequencing, including requirement of maintaining an operating plant throughout construction duration, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.	• Facilitates Construction Sequencing, including requirement of maintaining an operating plant throughout construction duration, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.
Impact on Existing Infrastructure	No adverse impact on existing infrastructure. Project objective allows for lifecycle improvements and maximizes utilization of existing infrastructure (along with expansion of the plant).	Project will lead to decommissioning of at least two unit processes which are due for life-cycle replacement or improvements within next 5 years. As such, does not maximize use of existing infrastructure.
Aligns with Approval and Permitting Process	• Dependent on the ACS study which is recommended to be undertaken as part of the Schedule C Class EA. • Technology comparisons for Tertiary Filters are provided to account for potentially more stringent effluent requirements	• Dependent on the ACS study which is recommended to be undertaken as part of the Schedule C Class EA. • MBR facilities are capable of meeting very stringent requirements without the use of tertiary filters.
	Economic	
Expansion Capability	• Future expansion is limited to either introducing a fourth train or converting to an MBR facility. If the latter is selected, upgrades and new assets added will be decommissioned. • With the proposed design, Fergus WWTP capacity can be expanded to 11,500 m^3/d	• MBR system offers substantial future expansion capabilities within the same footprint and with minimal capital costs. • With the proposed design, Fergus WWTP capacity can be expanded to 11,500 m^3/d
Capital Costs (per breakdown provided in 2025 – 2042 Capital Plan)	$71.3 Million	$73.6 Million
40 – Year Life-Cycle Costs	• Asset Replacement Cost: $31.8 Million • 40- year Operational Cost: $13.9 Million	• Asset Replacement Cost: $39.8.8 Million • 40- year Operational Cost: $16.7Million
Overall		

Water and Wastewater Servicing Master Plan

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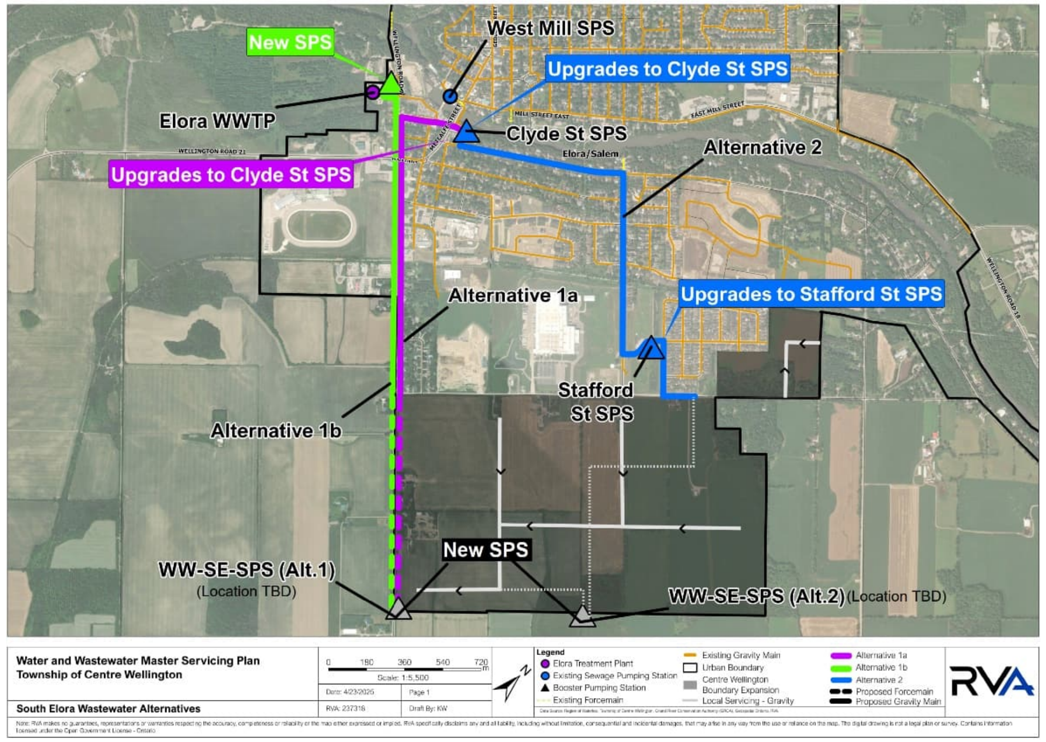
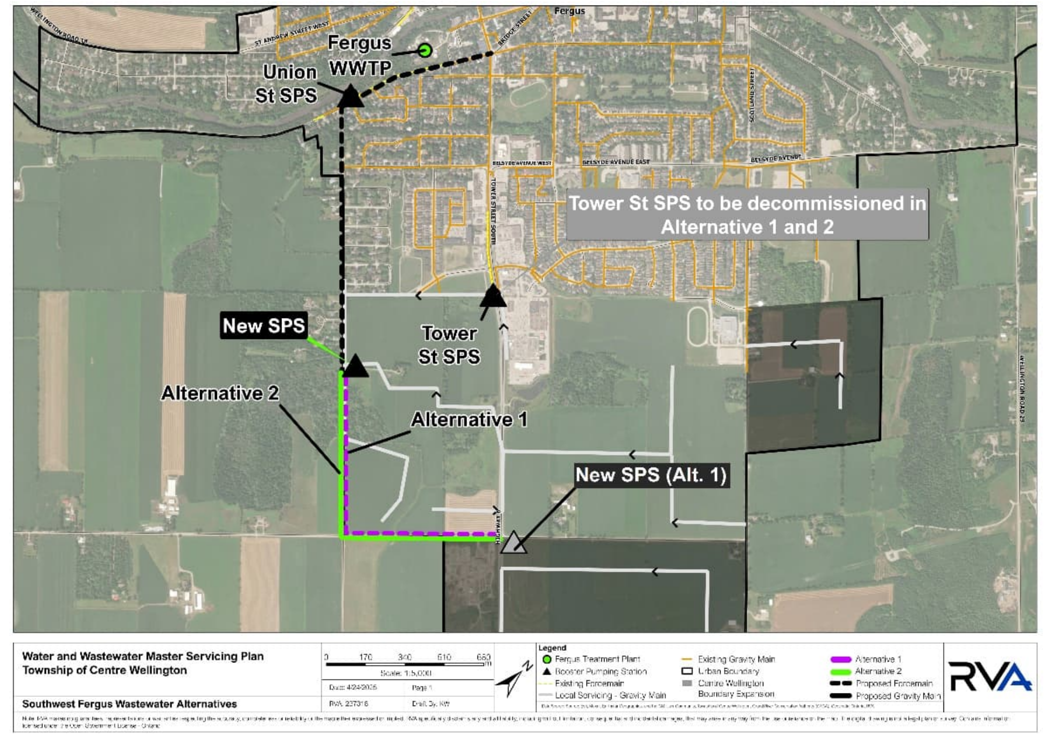
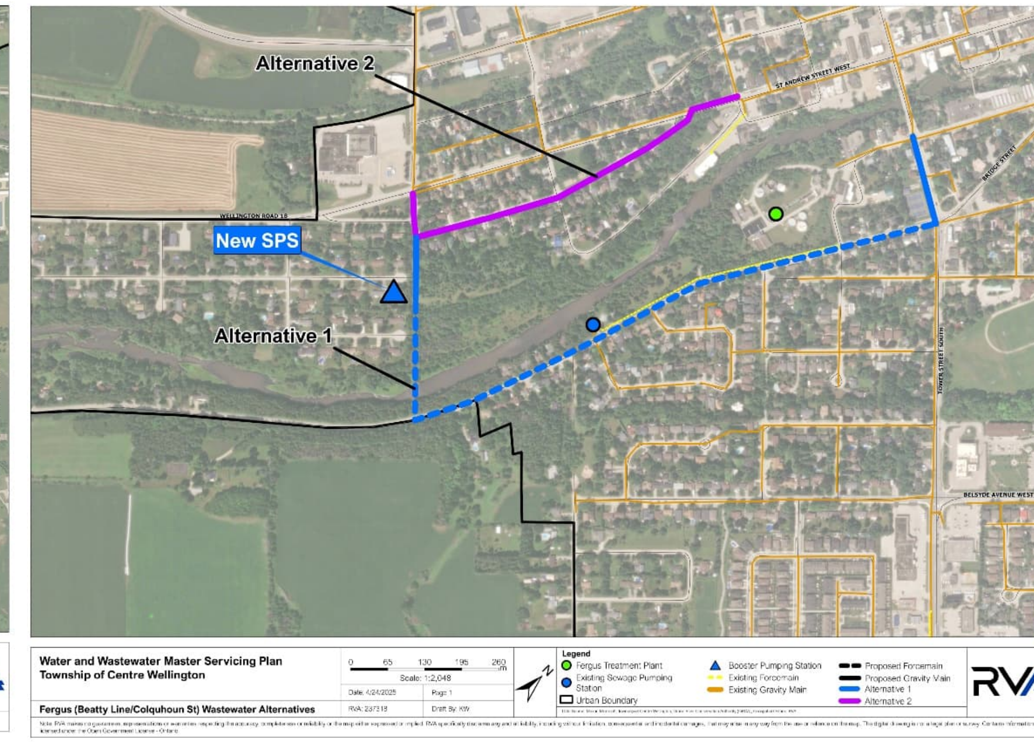
Wastewater Collection Alternatives







Category	1a-New Forcemain/ Gravity Sewers on Wellington Road 7 to Clyde St SPS	1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	2-Upgrade Existing System
Technical	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Upgrades To Clyde St SPS	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Does not require Clyde SPS upgrades • Requires new SPS	• Allows for servicing to boundary expansion area in South Elora.
Social and Cultural	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts. Some construction on Carlton Pl.	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts.	• Will have to limit impact to nearby residents and businesses.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions
Economic	• Capital cost estimated at $17.2 M (including Clyde St SPS upgrade) • 40-year Operation Cost in Present Value estimated at $6.7 M (from new SPS in ER1 area + Clyde St SPS upgrade)	• Capital Cost estimated at $14.3 M (including new Elora WWTP SPS) • No 40-year Operation Cost in Present Value estimated at $6.7 M (from new SPS in ER1 area and by Elora WWTP)	• Capital estimated at $25 M including Clyde St SPS and Stafford St SPS upgrade • 40-year Operation Cost in Present Value estimated at $10.0 M (from new SPS in ER1 area + Clyde St SPS and Stafford SPS upgrades)
Overall		Preferred Alternative	

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS
Technical	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • Allows for a shallower sewer but requires new SPS	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • A deeper sewer allows flow by gravity to the new SPS
Social and Cultural	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W
Environmental	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct one new SPS. However, Tower St SPS can be decommissioned.
Economic	• Total Capital Cost estimated at $31 M including New Fergus SPS and New SPS to service FE3 • 40-year Operation Cost in Present Value estimated at $6.8 M (from new Fergus SPS and New SPS to service FE3)	• Total Capital Cost estimated at $25 M including New Fergus SPS • 40-year Operation Cost in Present Value estimated at $5.0 M (from new Fergus SPS)
Overall		Preferred Alternative

Category	1 – Upgrade Existing System	2 – New SPS and Forcemain Crossing Grand River
Technical	• Does not trigger upgrade to or construction of a new SPS.	• Does not trigger replacement of existing sewers but requires a new SPS, forcemain and a river crossing
Social and Cultural	• Will have some impact to nearby residents on Colquhoun St. on 700 m corridor (local road)	• Special attention to Grand river crossing. • Will have some impact to nearby residents on Union St. on 1100 m corridor
Environmental	• Does not promote the emission of green house gasses.	• Additional GHG emissions caused by the requirement to construct a new SPS.
Economic	• Capital Costs estimated at $4.0 M • No associated O&M costs	• Capital Costs estimated at $13.0 M including new SPS at Beatty Line • 40-year Operation Cost in Present Value estimated at $3.8 M (from new Beatty Line SPS)
Overall	Preferred Alternative	

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Water and Wastewater Servicing Master Plan

Township of Centre Wellington

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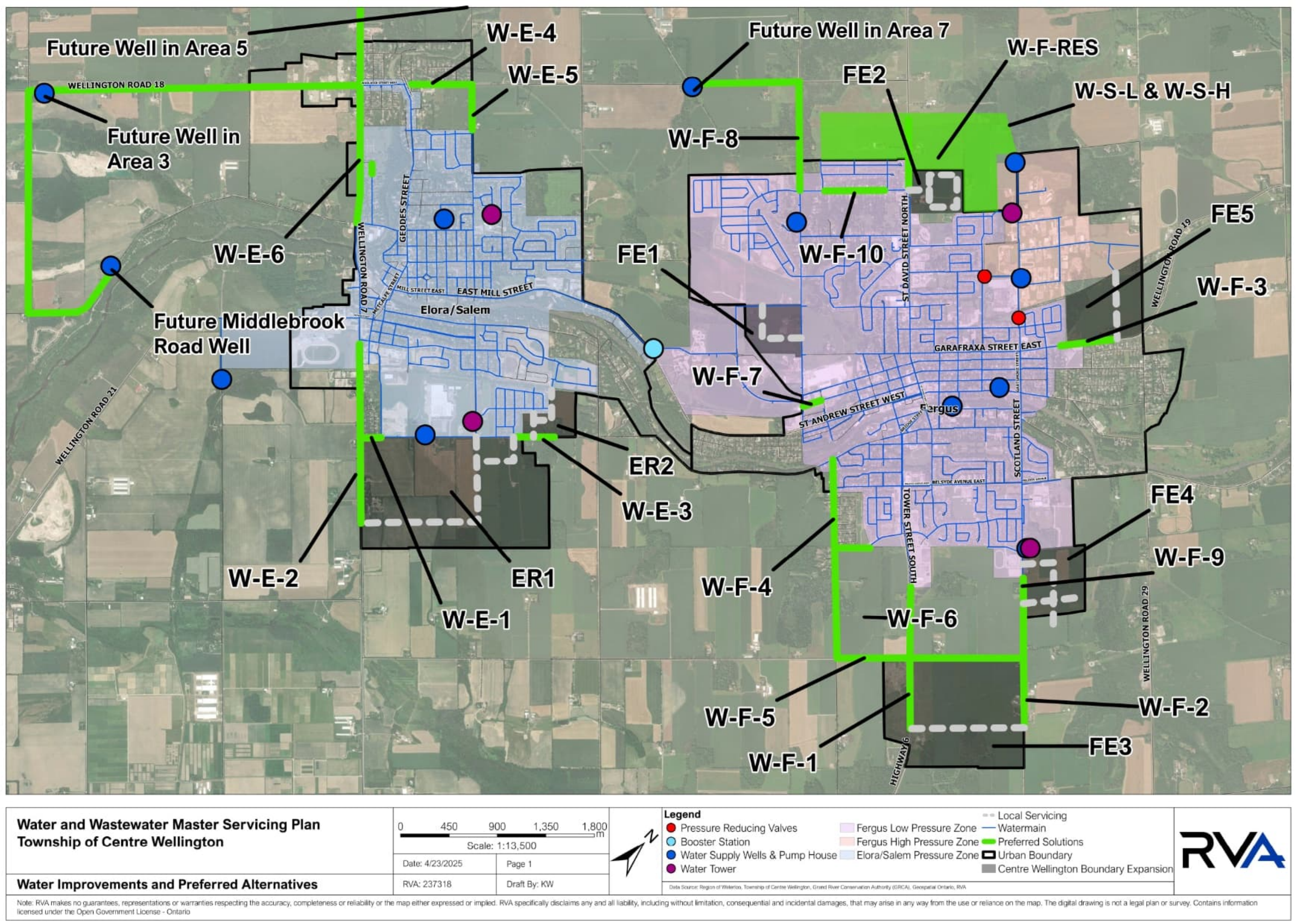
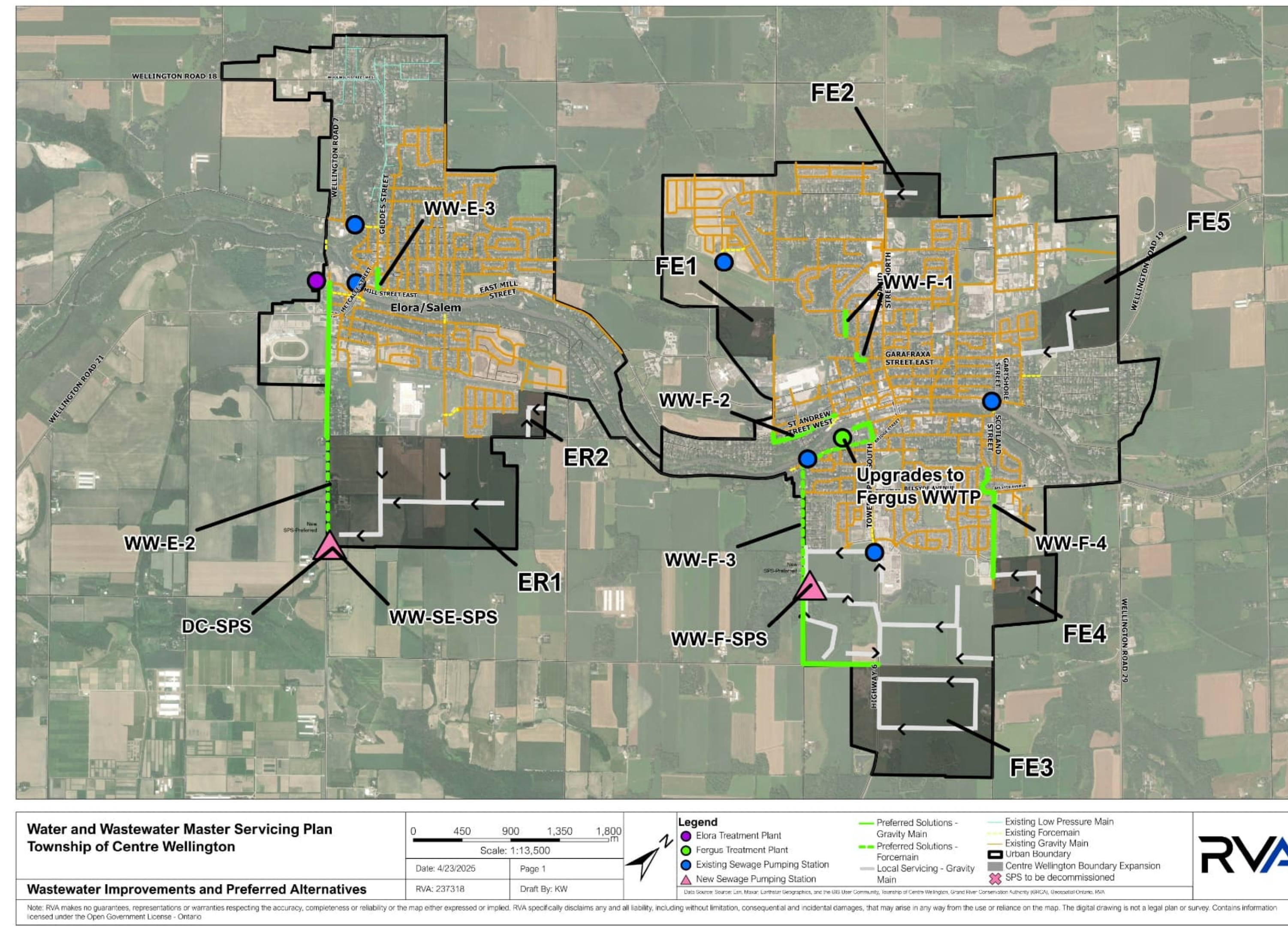
Water Supply/Distribution Wastewater Collection – Preferred Solutions





Next Steps

- Establish preferred water and wastewater servicing alternatives and capital implementation plan
- Capital infrastructure funding and risk analysis
- Water and wastewater servicing master plan report
- Notice of completion

Questions or Comments?

- Complete a comment sheet this evening.
- Submit comments to a project team member.
- Presentation materials available at: www.connectcw.ca/WWSMP.

Project Team Members

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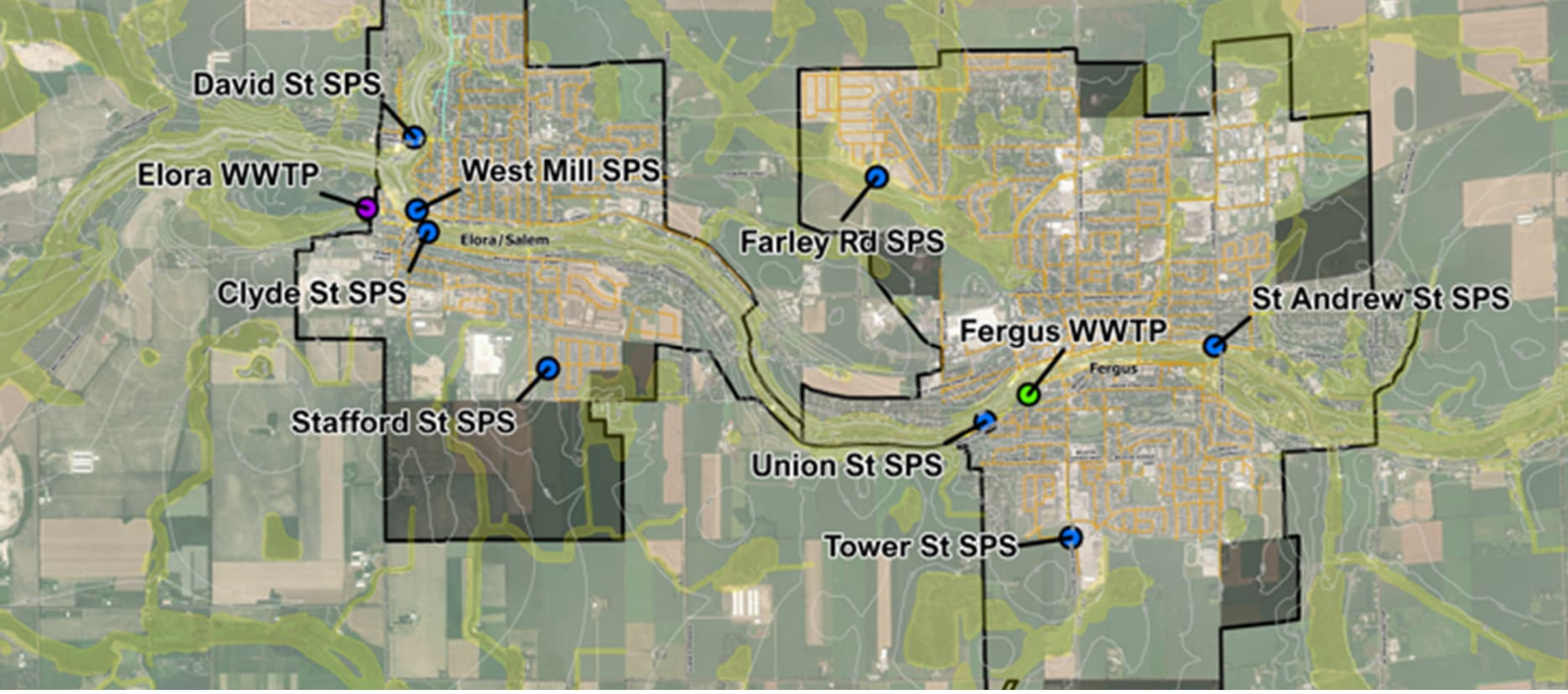

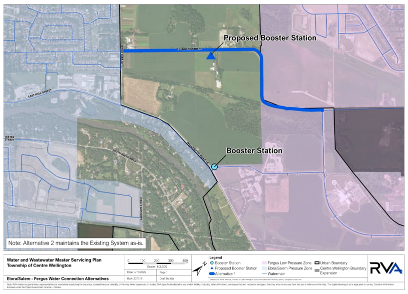

TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Public Information Centre #2

April 24, 2025

Information Handout for Public Meeting

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Water and Wastewater Servicing Master Plan
Township of Centre Wellington
Public Information Centre #2, April 24, 2025

Welcome

The Township of Centre Wellington welcomes you to this Public Information Centre.

The Goals of this Public Information Centre:

- Introduce the project and describe the Master Plan process.
- Provide information on the existing water and wastewater system and servicing requirements to 2051 (horizon of Master Plan).
- Provide details on the review of options to provide water/wastewater infrastructure to 2051 and a preliminary selection of preferred options.
- Answer any questions that you may have.

1

What's Involved In The Water and Wastewater Servicing Master Plan?

- The Township is undertaking a Master Servicing Plan (MSP) study under the Municipal Class Environmental Assessment framework.
- The MSP study will follow Approach #1 (high level study) under the Master Planning Framework.

Problem/Opportunity

The Township is attracting many new residents and businesses. To meet the future needs of the community, solutions to grow the water and wastewater servicing infrastructure need to be evaluated.

Approach

The Water and Wastewater Servicing Master Plan will identify capacity constraints and identify and evaluate opportunities to increase system capacity to accommodate for growth to the 2051 planning horizon.

Objectives

- Establish timelines for addressing servicing gaps
- Identify short- and long-term strategies for servicing and expanding water and wastewater capacity
- Provide a roadmap for required infrastructure projects

Preferred solution(s) will be prioritized and implemented in phases to address short and long-term goals and needs, and shall:

- Comply with applicable regulations to provide adequate water and wastewater servicing
- Consider stakeholder comments and concerns
- Aim to build climate change resiliency
- Reduce system complexity and improve ease of operations
- Aim to improve existing levels of servicing
- Consider sequencing of solution implementation
- Consider realistic design criteria
- Be financially viable and reduce lifecycle cost
- Be socially and environmentally responsible

2

Population and Servicing Projections

- Significant population growth is forecast
- Serviced population does not correspond to total population of either community.

Urban Centre	2023[a,b]	2051[b]		
Total Population	Residential	Residential	ELE *	Total
Elora / Salem	9,040	14,100	985	15,085
Fergus	19,500	36,300	985	37,285
Drinking Water System	Residential	Residential	ELE	Total
Elora / Salem Serviced Population	6,820	11,880	985	12,865
Fergus Serviced Population	17,174	33,974	985	34,959
Wastewater System	Residential	Residential	ELE	Total
Elora / Salem Serviced Population	6,785	11,845	985	12,830
Fergus Serviced Population	16,893	33,693	985	34,678

* Employment-land-employment
a) Municipal Water Meter Data
b) Municipal Comprehensive Review Study, Watson & Associates Economist Ltd. 2022

Centre Wellington

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High Level Master Planning Options

Alternative 1 (Do Nothing) would not provide the water or wastewater servicing capacity for the existing and planned growth
Not considered moving forward

Alternative 2 (Limit Growth) neither meets the Township's vision for the growth and nor does it mitigate the water and wastewater servicing risks for the existing serviced population
Not considered moving forward (Contradicts Township and Centre Wellington Growth Plans)

Alternative 3 – the Township has ongoing initiatives
Water Conservation (Water)
Infiltration/Inflow Reduction (Wastewater)
Programs should continue and be expanded

Alternative 4 – Provide services to allow for planned growth:
Water Servicing Concepts ex: new water supply (separate initiative), water storage, water pumping and distribution, etc.
Wastewater System Servicing Concepts ex: new linear infrastructure, pumping, treatment expansions, etc.

The Master Plan will focus on providing servicing solutions that allow for Planned growth per Alternative 4, while continuing and enhancing the existing programs under Alternative 3.

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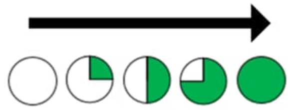
Master Plan – Review of Servicing Options

Rating Scale:

Highest Impact
(Most Negative Solution)



Lowest Impact
(Most Positive Solution)

Categories:

Category	Criteria
Technical	• Constructability • Improvement to operations • Infrastructure required • Approval requirements
Social and Cultural	• Temporary impacts due to construction • Impact to built heritage resources and cultural heritage landscapes • Impact to archaeological resources
Environmental	• Impact to aquatic and terrestrial species and habitat • Impact to surface water quantity and quality • Climate change resiliency
Economic	• Capital costs • Operational and maintenance costs • User Value

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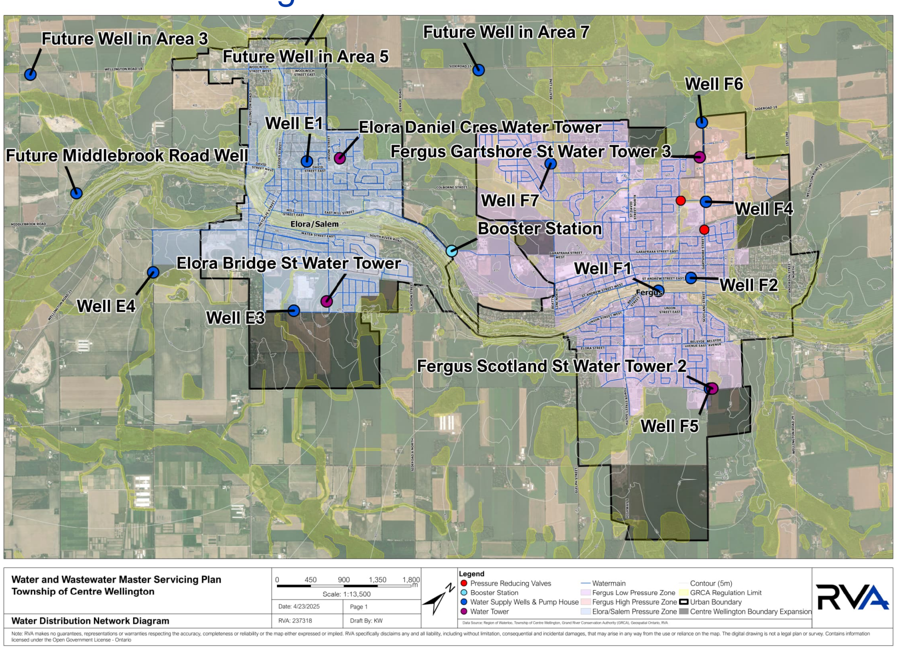
Overview of Existing Infrastructure - Water



Current System:

- 121 km of Watermain
- 1229 Water Valves
- 742 Hydrants
- 6 Air Release Valves
- 2 Pressure Reducing Chambers
- 9 Municipal Wells
- 4 Water Towers
- 1 Booster Station

Centre Wellington

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2051 Infrastructure Requirements- Water

Planning for the Water Supply was undertaken in the Township's 2019 Water Supply Master Plan which anticipates bringing on three additional wells over the next 15 to 20-years to provide water supply to meet Centre Wellington's requirements.

Water Storage

- The current Water Storage Capacity is 11,820 m^3 and this currently meets provincial guidelines for storage
- By 2051, there will be a requirement for 17,540 m^3 of storage
- There is a requirement to provide an additional 5,720 m^3 of storage for 2051

Water Distribution

- 2021 Maximum Day Demand is 8,522 m^3/day and the forecasted demand is 21,330 m^3/day in 2051.
- Reviewed future growth and determined recommended future extensions to the water distribution system
- Hydraulic modeling was used to determine if there will be impacts to the current water distribution system based on the 2051 water demands (under Peak Day and Fire Conditions)

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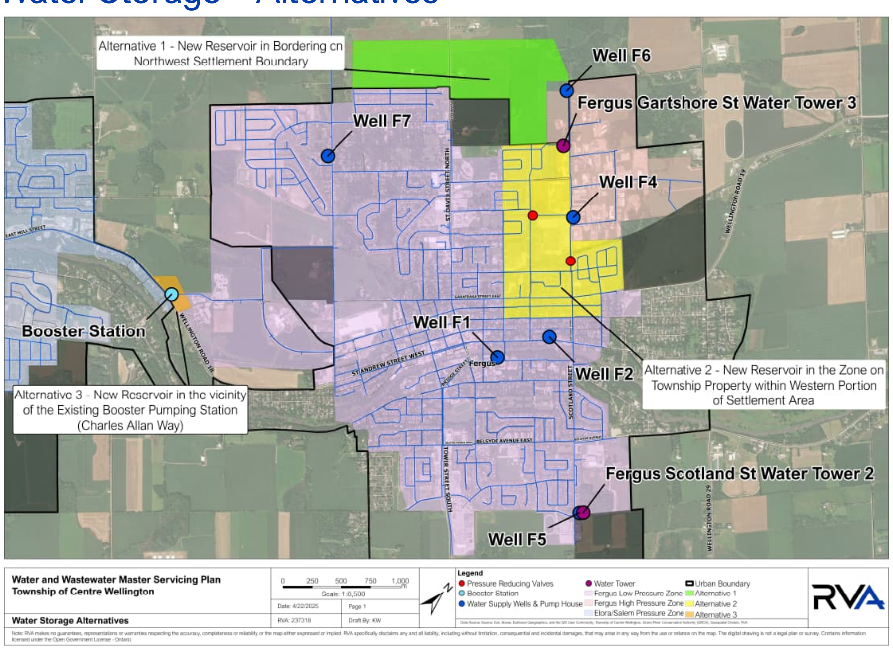
Water Storage – Alternatives



In-ground reservoir per Township's preference with a total volume to be 5,720 m^3 in two cells (2,860 m^3 each)
Pumping to distribution system and backup power
New watermain to connect to existing distribution system
Preference to allow for connection between Fergus low- and high-pressure zones.
Property costs for new site if not on Township property
Costs to relocate existing activity if reservoir to be located on a Township property with a current use.

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Water Storage – Short-Listed Alternatives Evaluation

Category	1 - New Reservoir in Bordering on Northwest Settlement Boundary	2- New Reservoir in the Zone on Township Property within Western Portion of Settlement Area	3- New Reservoir in the Vicinity of Existing Booster Pumping Station (Charles Allan Way)
Technical	• Proximate to both Fergus High- and Low-pressure zones, so can service all three settlement pressure zones	• Proximate to both Fergus High- and Low-pressure zones, so can service all three settlement pressure zones	• Not proximate Fergus High pressure zone, so can service only Fergus Low and Elora pressure zones economically
Social and Cultural	• Standard archaeological and heritage investigations required for site	• High potential to disrupt social environment due to placement in existing urban area	• Low to moderate potential to disrupt social environment due to possible placement in existing County campus area • Standard archaeological and heritage investigations required for site
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site if not on campus
Economic	• \$14.6 million capital cost not including watermain connection costs • \$3.0 Million in rehabilitation at 20-years • 40-yr LCC of \$515 K	• \$14.6 million capital cost not including watermain connection costs • \$3.0 Million in rehabilitation at 20-years • 40-yr LCC of \$515 K	• \$14.6 million capital cost not including watermain connection costs • \$3.0 Million in rehabilitation at 20-years • 40-yr LCC of \$515 K
Overall	Preferred Alternative		

Centre Wellington

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RVA

Water Distribution

The Water distribution system was modelled to determine the following:

- Current Conditions
  - System pressures under Peak Hour Demand (highest hourly flow during a day with maximum water demand)
  - Fire flow available at hydrants under Maximum Day Flow (determination if flows met required rates)
- 2051 Scenario
  - System pressures under Peak Hour Demand
  - Fire flows under Maximum Day Flow
- Risk and Redundancy Review
  - Determination if a second connection between the Elora and Fergus distribution networks would be required to provide additional security to the system
- Major Findings
  - 2,860 m of upsizing that is attributed to growth

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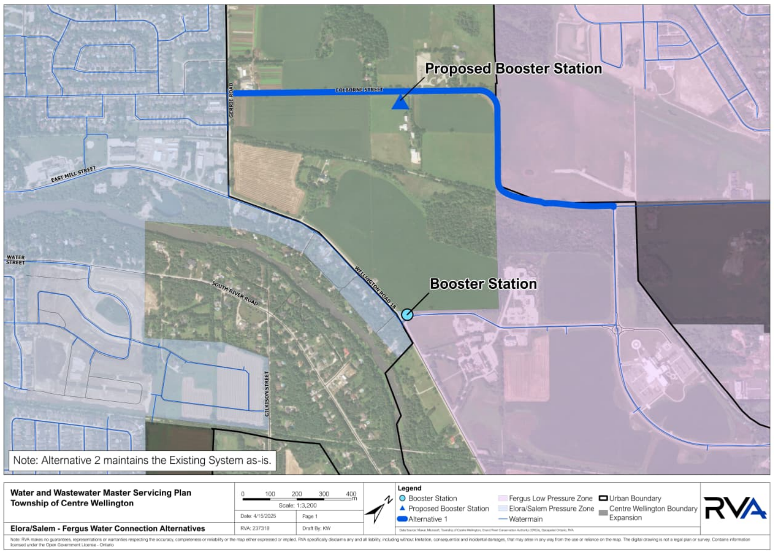
Water Distribution – Connection Evaluation



Risk and Redundancy Review

- Determination if a second connection between the Elora and Fergus distribution networks would be required to provide additional security to the system

Alt.	Name	Description
1	Additional Connection between Elora and Fergus Systems	• New 1,700 m of watermain on Colbourne St. • New BPS
2	Maintain Existing System	• No change to system

Centre Wellington

Water Distribution – Alternative Evaluation

Category	1 – Additional Connection between Elora-Salem and Fergus Systems	2 – Maintain Existing Infrastructure
Technical	• Not required for growth or to maintain service pressure. • Requires a new pumping station. • Property will need to be acquired. • Would provide system redundancy with a second connection between the Elora and Fergus water systems	• Pressures under the 2051 Peak Hour Demand scenario can be met by the existing system as-is. • The potential and severity of the existing watermain breaking is low.
Social and Cultural	• Construction impact to residents and businesses on Colborne St. • Standard archaeological and heritage investigations required for site.	• No impact.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Standard natural heritage investigation required for site	• No impact.
Economic	• Around $5.5 Million in Capital Works • 40-year LCC estimated at $1.9 Million	• No Additional Cost
Overall	◐	● Preferred Alternative

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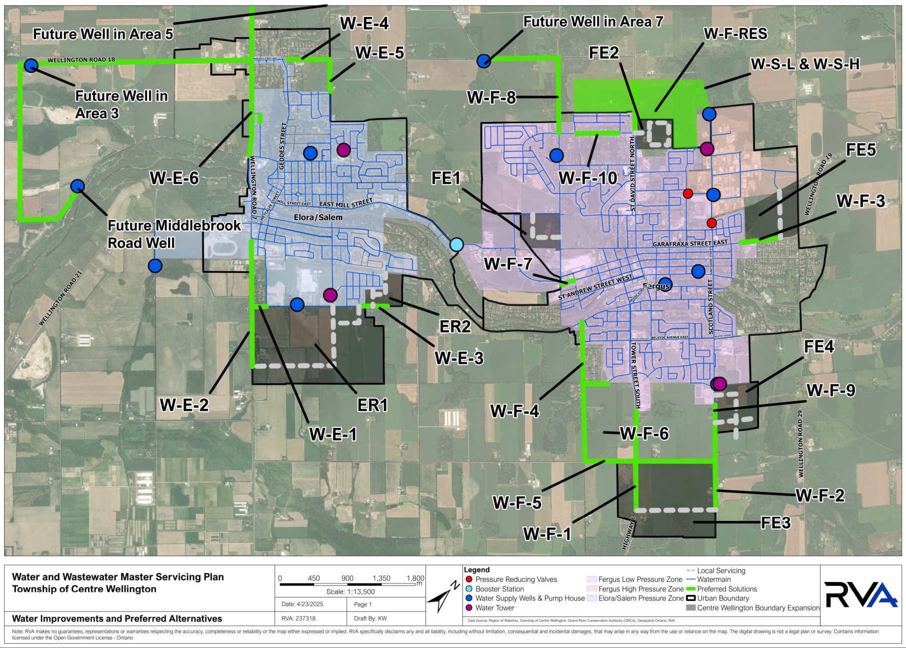
Water – Improvements and Preferred Alternatives



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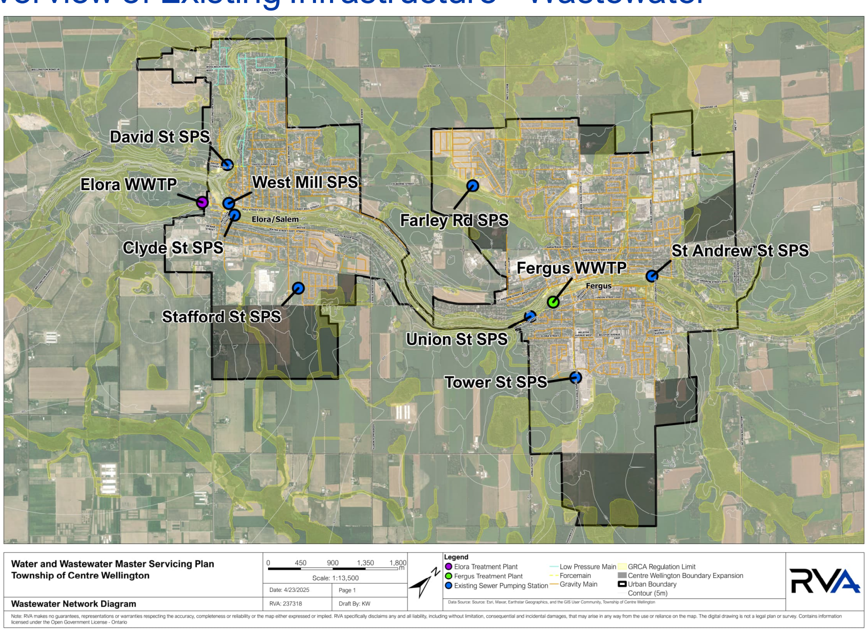
Overview of Existing Infrastructure - Wastewater



Current System:
- 105 km of Wastewater Gravity Main
- 2.4 km of Wastewater Pressure Main
- 5.3 km of Wastewater Low Pressure Main
- 1570 Maintenance Holes
- 6 Low Pressure System (LPS) Air Release Valves
- 53 LPS Cleanout Valves
- 223 LPS Shutoff Valves
- 7 Pumping Stations
- 2 Treatment Plants
- 1 Siphon

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2051 Infrastructure Requirements- Wastewater

Wastewater Collection

The Wastewater collection system was modelled to determine the following:

- System constraints in the Elora and Fergus WW Collection Systems using the following criteria:
  - Gravity sewers with less than 1.8 m of freeboard (very wet systems)
  - Pump station's wet well water level exceeding the overflow level
- 2051 Scenario
  - To determine improvements required based on the system constraints
- Major Findings
  - 10,586 m upgrades are noted in our review of which:
    - 7,376 m are upgrades to the existing collection system due to growth.
    - 3,210 m are new sewers (on existing municipal roadways) attributed to growth.
    - 440 m are upgrades to existing collection system due to wet weather issues.

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2051 Infrastructure Requirements- Wastewater Treatment Facility

Wastewater Treatment

For the current sewage catchment areas:

- The Fergus WWTP's capacity is 8,000 m^3/day and will by require 9,400 m^3/day of capacity by 2051
  - ➢ The plant also has some history of effluent compliance exceedances
- Elora WWTP's capacity is 5,000 m^3/day will be 12% under capacity by 2051

Therefore, Longlisted Alternative Strategies include:

- Alternative 1: Do Nothing
- Alternative 2: Limit Growth
- Alternative 3: Reduce Inflow & Infiltration (I&I)
- Alternative 4: Upgrade Fergus WWTP; or
- Alternative 5: Send partial WW flows from Fergus to Elora by maximizing the Elora WWTP's capacity during the Master Plan timeframe

Fergus WWTP

Elora WWTP

16

Wastewater Treatment Facility – Long-Listed Alternatives and Evaluation

Alternatives	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)
Alternative 1: Do Nothing	×	×	×	No
Alternative 2: Limit Growth	×	✓	×	No
Alternative 3: Reduce Inflow and Infiltration (I&I)	×	✓	✓	Combine with preferred
Alternative 4: Expand Fergus WWTP	✓	✓	✓	Yes
Alternative 4: Send Partial Flows to Elora WWTP	✓	✓	×	No

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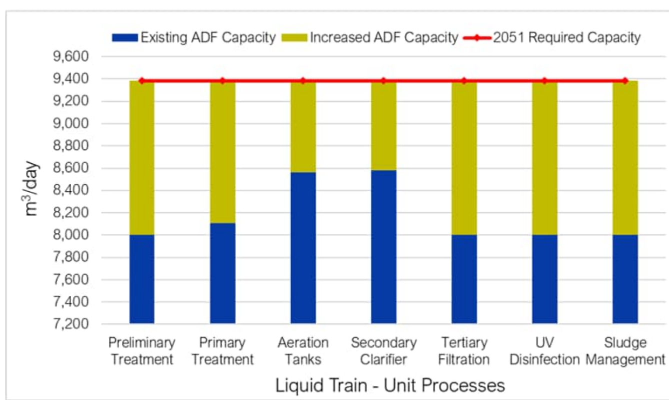
Wastewater – Required Capacity Expansion

- Current unit processes at WWTP are sized for Average Daily Flow (ADF) and Peak Daily Flow (PDF) based on the as-built hydraulic profile drawing
  - Current MECP practice is to size certain processes for Peak Hour (PH) and Peak Instantaneous Flow (PIF)
  - As such, % of expansion to meet 2051 requirements varies for each unit process.
- Unit-processes to be up-sized can be divided into technology-based (preliminary, tertiary and disinfection equipment), and tankage based.
- Required capacity of tankage-based processes are shown in table below.



Tankage	Existing Capacity	Required Capacity
Primary Clarifier Tanks	315 m^2	450 m^2
Aeration Tanks	2,140 m^2	4,760 m^2
Secondary Clarifier Tanks	635 m^2	760 m^2
Primary Digestor	15.3 m x 8.0 m SWD	1 Additional Equal Sized Tank

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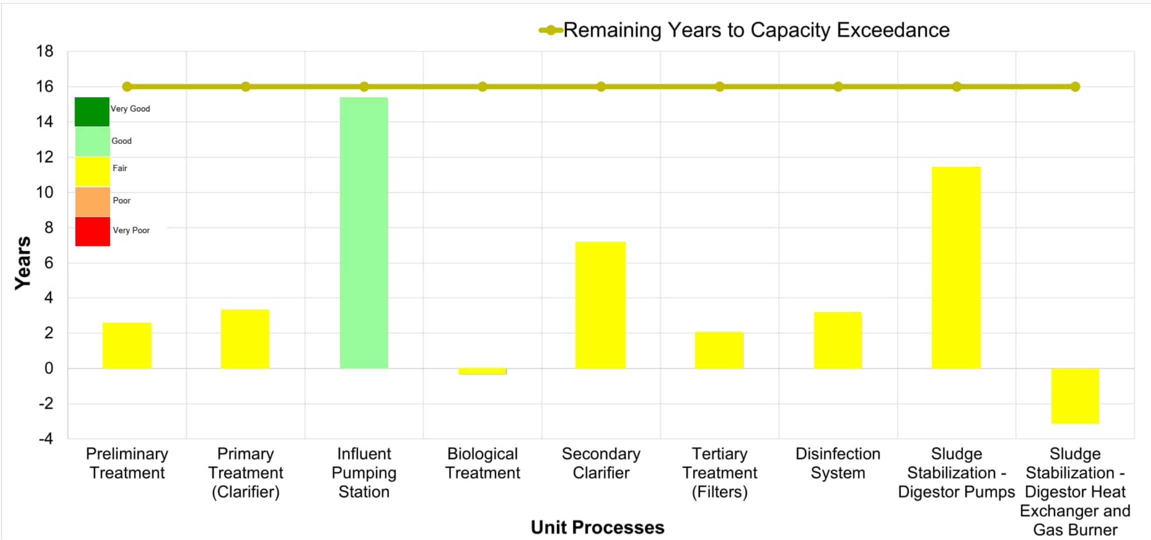
Wastewater – Fergus WWTP Current Asset Condition and Lifespan



Graph illustrates that almost all unit processes will reach end of typical lifespan and will require replacement within next 5 to 10 years.

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Wastewater – Fergus WWTP – Current Site Constraints

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Wastewater – Fergus WWTP Upgrades – Project Objectives

Fergus WWTP Upgrades

- Site Constraints
- Expansion Flexibility and Capability beyond 2051
- Maximizing Existing Assets and Minimizing Thrown-Away Costs
- Construction Staging to Minimize Disruptions to Plant Operation

To meet above objectives, the upgrades can be implemented via the following two options:

Option 1: Retain Fergus WWTP as a Conventional Activated Sludge (CAS) facility and expand capacity via a new 3rd Liquid Train; or

Option 2: Convert Fergus WWTP to a Membrane Bio-Reactor (MBR) facility

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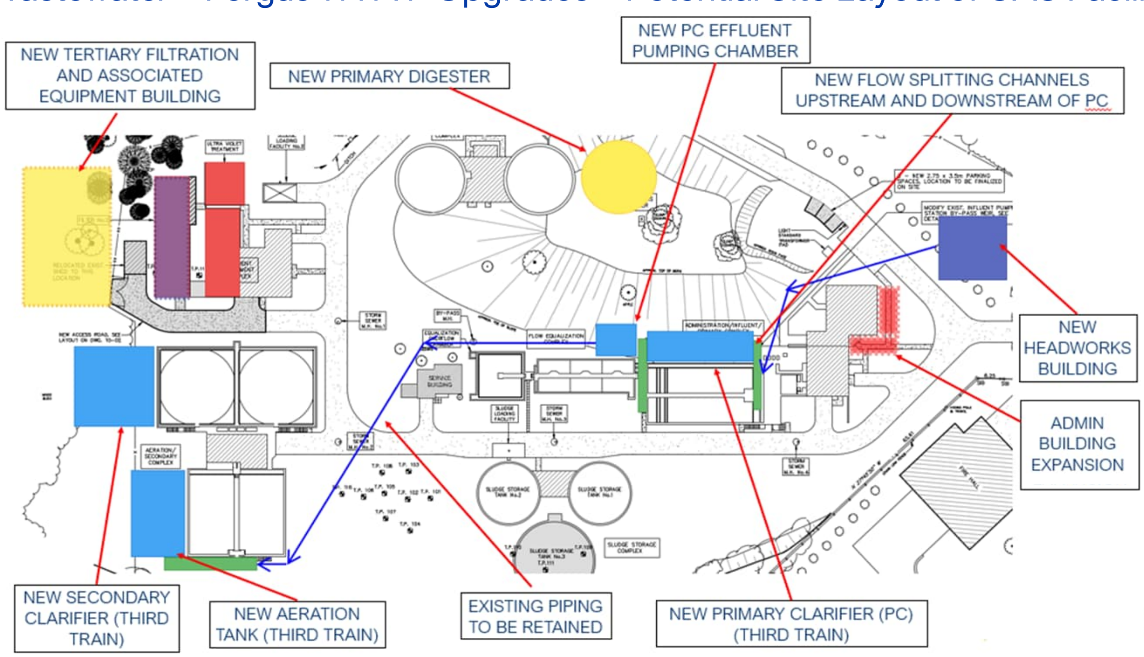
Wastewater – Fergus WWTP Upgrades – Potential Site Layout of CAS Facility



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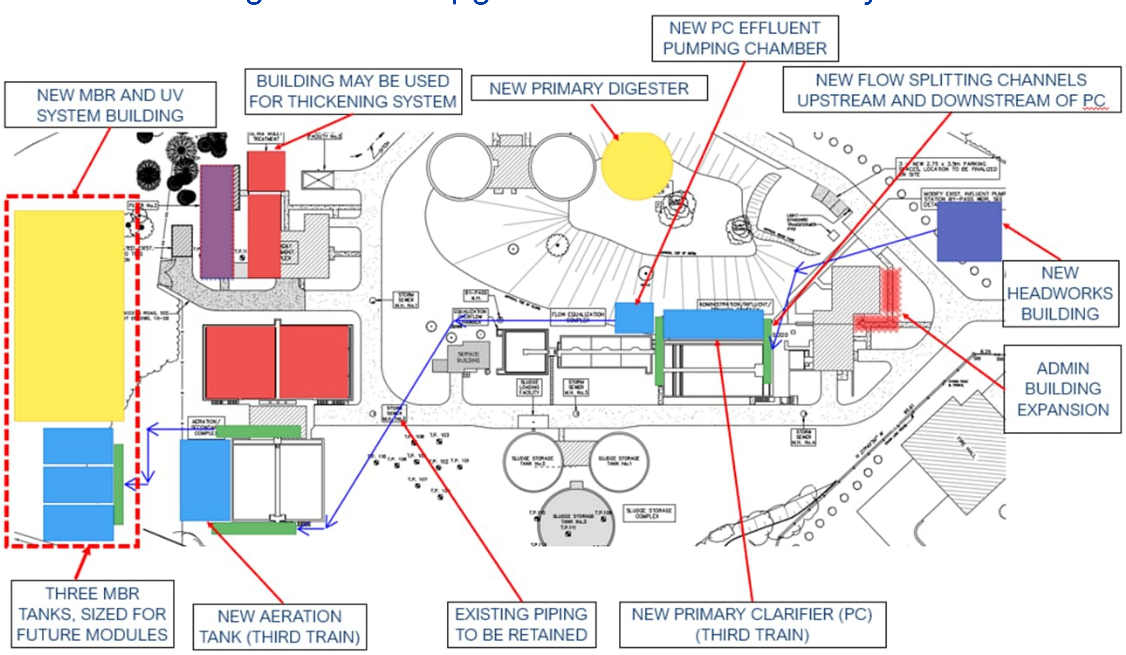
Wastewater – Fergus WWTP Upgrades – Estimated Costing

CAS Facility				
Project Title/Description	Description	2025-2030	2031-2036	2037-2042
Fergus WWTP Interim Upgrades	Study + Design	Filtration System Assessment Study	Detailed Design of Surface Media Filtration in new Tertiary Treatment Building	
	Construction		Construction of new Tertiary Filtration System + Building	
Fergus WWTP Expansion	Study + Design		Schedule C Class EA + Assimilative Capacity Study	Detailed Design
	Construction			New Third Liquid Train + Sludge Management
Cost[1]		$ 150,000	$ 5.2 Million	$ 65.9 Million

CAS Facility allows:
- Upgrades to be implemented in phases, such that tertiary filters are upgraded to preferred technology prior to end of lifespan;
- Third train allows maximum use of existing facility, including accounting for required life-cycle replacements in the next 5-10 years

Wastewater – Fergus WWTP Upgrades – Potential Site Layout of MBR Facility



Wastewater – Fergus WWTP Upgrades – Estimated Costing

MBR Facility				
Project Title/Description	Description	2025-2030	2031-2036	2037-2042
Fergus WWTP Interim Upgrades	Lifecyle Replacement	Replacement or Rehabilitation of Sand Filters	Lifecycle Replacement Cost Savings on • Secondary Clarification • Activated Sludge Pumping	
Fergus WWTP Expansion	Study + Design		Schedule C Class EA + Assimilative Capacity Study	Detailed Design of Fergus WWTP Upgrades
	Construction			New MBR Facility + Sludge Management
Cost		$ 1.7 Million	$450,000	$ 71.4 Million

MBR Facility allows for cost savings on lifecycle replacements associated with secondary clarifiers and activated sludge pumping system as they will eventually be replaced by the MBR filters.

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Wastewater – Fergus WWTP Upgrades – Evaluation and Preferred Strategy

Evaluation Criteria	1-Retain Fergus as a CAS Facility and Add a New Third Train	2 – Convert Fergus to an MBR Facility
Technical Criteria		
Meets Existing and Future Needs	• Maximizes use of existing tankage while accounting for lifecycle replacements / upgrades due within the next 5 years. • Meets the required treatment capacity projected for 2051. To meet capacity beyond 2051, additional tankage and upgrades required.	• Will facilitate operational and maintenance requirements, as two unit processes will be combined into one. • Meets the required treatment capacity projected for 2051. • To meet capacity beyond 2051, will likely only require additional equipment that can be installed within existing tankage.
Impact on Operations and Maintenance	• Improves operational redundancy by allowing for flow splitting between three trains, instead of two • Current operations staff are experienced with this facility and will require minimal training for the new train.	• All operations staff will require training on the new facility, increasing capital costs • MBRs require much more maintenance activities than CAS plants. • However, staff only has to maintain one unit process as compared to two which saves on maintenance costs and requirements.
Constructability	• Facilitates Construction Sequencing, including requirement of maintaining an operating plant throughout construction duration, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.	• Facilitates Construction Sequencing, including requirement of maintaining an operating plant throughout construction duration, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.
Impact on Existing Infrastructure	No adverse impact on existing infrastructure. Project objective allows for lifecycle improvements and maximizes utilization of existing infrastructure (along with expansion of the plant).	Project will lead to decommissioning of at least two unit processes which are due for life-cycle replacement or improvements within next 5 years. As such, does not maximize use of existing infrastructure.
Aligns with Approval and Permitting Process	• Dependent on the ACS study which is recommended to be undertaken as part of the Schedule C Class EA. • Technology comparisons for Tertiary Filters are provided to account for potentially more stringent effluent requirements	• Dependent on the ACS study which is recommended to be undertaken as part of the Schedule C Class EA. • MBR facilities are capable of meeting very stringent requirements without the use of tertiary filters.
Economic		
Expansion Capability	• Future expansion is limited to either introducing a fourth train or converting to an MBR facility. If the latter is selected, upgrades and new assets added will be decommissioned. • With the proposed design, Fergus WWTP capacity can be expanded to 11,500 m^3/d	• MBR system offers substantial future expansion capabilities within the same footprint and with minimal capital costs. • With the proposed design, Fergus WWTP capacity can be expanded to 11,500 m^3/d
Capital Costs (per breakdown provided in 2025 – 2042 Capital Plan)	$71.3 Million	$73.6 Million
40 – Year Life-Cycle Costs	• Asset Replacement Cost: $31.8 Million • 40- year Operational Cost: $13.9 Million	• Asset Replacement Cost: $39.8.8 Million • 40- year Operational Cost: $16.7Million
Overall		

Preferred Alternative

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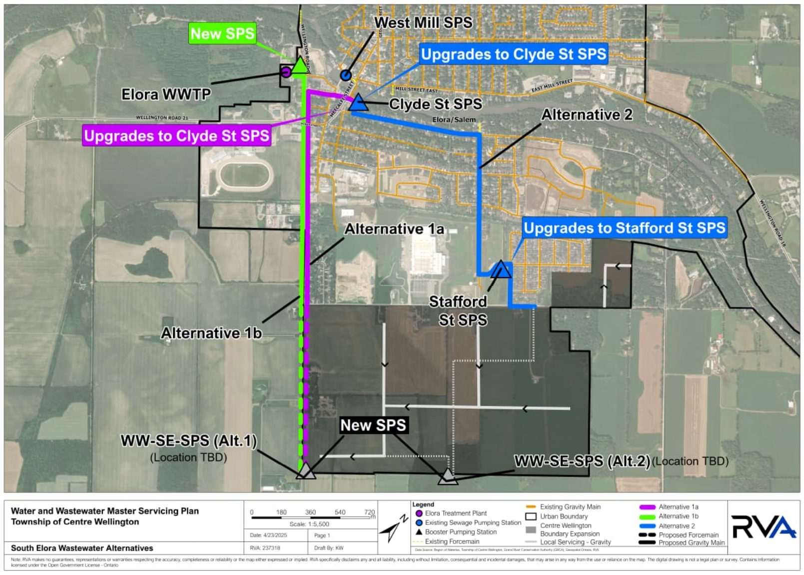
Wastewater Collection – South Elora Alternatives



Alt.	Name	Description
1 a/b	New Forcemain / Gravity sewer on Wellington Road 7	• New 2,600 m of gravity sewer / forcemain on Road 7 • 1 km of forcemain to 1st Line • 1.6 km of gravity sewer to Carlton Pl • Max sewer depth will be 5 meters • Can be directed to Elora WWTP (1b) or to Clyde St SPS (1a) • Alt. 1a would require an upgrade of Clyde St. SPS • Allows for servicing of potential developments along Road 7 • An internal SPS will be required South-East of the expanded area to be serviced
2	Upgrade Existing System	• Upgrade 2,200 m of gravity sewers on Bridge St and Water St • Upgrade Stafford St SPS • Upgrade Clyde St SPS • An internal SPS will be required South-East of the expanded area to be serviced

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Wastewater Collection – South Elora Alternative Evaluation

Category	1a-New Forcemain/ Gravity Sewers on Wellington Road 7 to Clyde St SPS	1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	2-Upgrade Existing System
Technical	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Upgrades To Clyde St SPS	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Does not require Clyde SPS upgrades • Requires new SPS	• Allows for servicing to boundary expansion area in South Elora.
Social and Cultural	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts. Some construction on Carlton Pl.	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts.	• Will have to limit impact to nearby residents and businesses.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions
Economic	• Capital cost estimated at $17.2 Million (including Clyde St SPS upgrade) • 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area + Clyde St SPS upgrade)	• Capital Cost estimated at $14.3 Million (including new Elora WWTP SPS) • No 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area and by Elora WWTP)	• Capital estimated at $25 Million including Clyde St SPS and Stafford St SPS upgrade • 40-year Operation Cost in Present Value estimated at $10.0 Million (from new SPS in ER1 area + Clyde St SPS and Stafford SPS upgrades)
Overall		Preferred Alternative	

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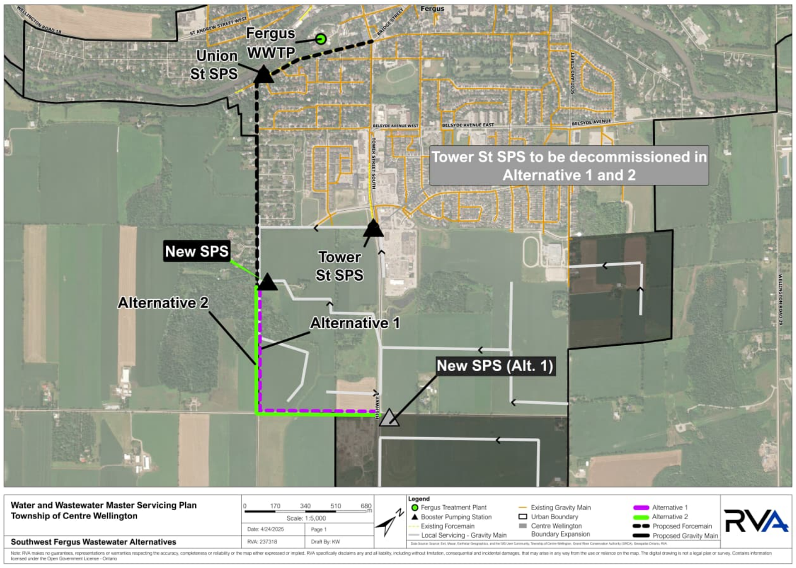
Wastewater Collection – Southwest Fergus Alternatives



Alt.	Name	Description
1	New 2 SPS and Forcemains on Guelph Road – To Fergus WWTP	• New South Fergus SPS • New SPS for southern expansion area (location to be determined) • New 3km of forcemains on 2nd Line, Guelph Road, Union St • Decommission Tower St SPS
2	New Gravity Sewer, SPS and Forcemain on Guelph Road, to Fergus WWTP	• New South Fergus SPS • New 1,300 m of gravity sewer to the South Fergus Proposed SPS • New 1,700 m of forcemain on Guelph Road, Union St • Decommission Tower St SPS

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Wastewater Collection – Southwest Fergus Alternative Evaluation

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS
Technical	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • Allows for a shallower sewer but requires new SPS	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • A deeper sewer allows flow by gravity to the new SPS
Social and Cultural	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W
Environmental	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct one new SPS. However, Tower St SPS can be decommissioned.
Economic	• Total Capital Cost estimated at $31 Million including New Fergus SPS and New SPS to service FE3 • 40-year Operation Cost in Present Value estimated at $6.8 Million (from new Fergus SPS and New SPS to service FE3)	• Total Capital Cost estimated at $25 Million including New Fergus SPS • 40-year Operation Cost in Present Value estimated at $5.0 Million (from new Fergus SPS)
Overall		Preferred Alternative

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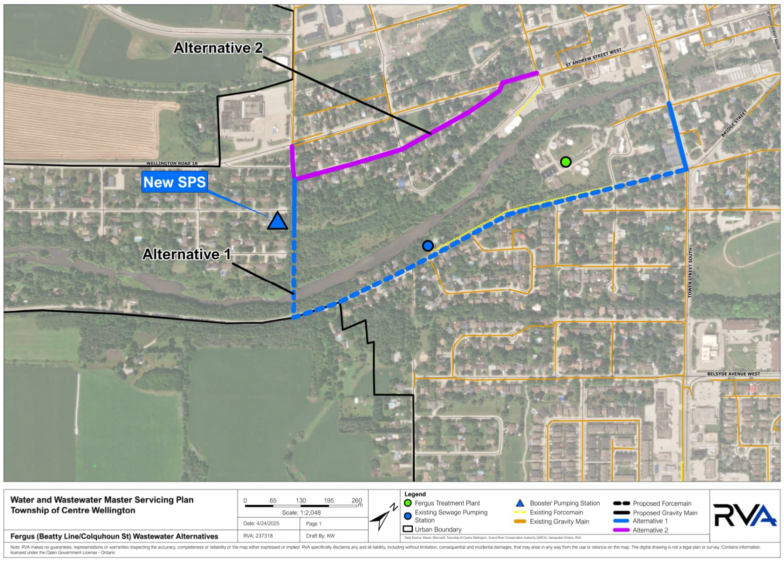
Wastewater Collection – Fergus (Beatty Line/Colquhoun St) Alternatives



Alt.	Name	Description
1	Upgrade Existing System	• Upgrade 650 m of gravity sewers on Colquhoun St
2	New SPS and Forcemain Crossing Grand River	• New SPS on Beatty Line (92 L/s capacity) • New 250 mm forcemain to cross the river to Fergus WWTP • The new forcemain extends to the Fergus WWTP. The existing Union St SPS connects to the new forcemain.

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Wastewater Collection –Fergus (Beatty Line/Colquhoun St) Alternative Evaluation

Category	1 – Upgrade Existing System	2 – New SPS and Forcemain Crossing Grand River
Technical	• Does not trigger upgrade to or construction of a new SPS.	• Does not trigger replacement of existing sewers but requires a new SPS, forcemain and a river crossing
Social and Cultural	• Will have some impact to nearby residents on Colquhoun St. on 700 m corridor (local road)	• Special attention to Grand river crossing. • Will have some impact to nearby residents on Union St. on 1100 m corridor
Environmental	• Does not promote the emission of green house gasses.	• Additional GHG emissions caused by the requirement to construct a new SPS.
Economic	• Capital Costs estimated at $4.0 Million • No associated O&M costs	• Capital Costs estimated at $13.0 Million including new SPS at Beatty Line • 40-year Operation Cost in Present Value estimated at $3.8 Million (from new Beatty Line SPS)
Overall		
	Preferred Alternative	

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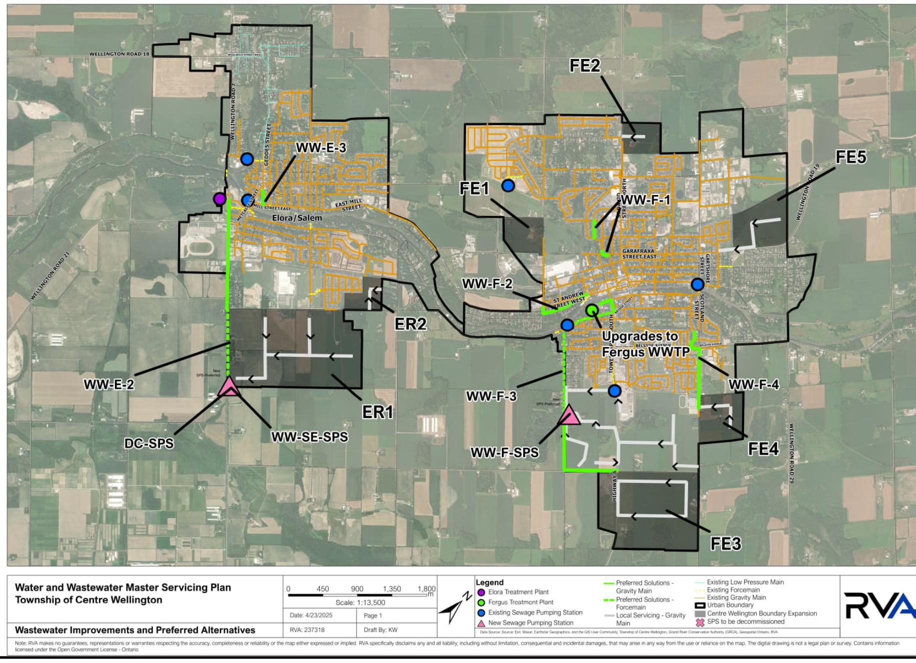
Wastewater – Improvements and Preferred Alternatives



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Recommended Studies/Initiatives for Risk Management to 2051

The following studies and initiatives are recommended to manage the water and wastewater systems to reduce risk:

- Update Water System Hydraulic Model every 5 years (per study cost $75,000 in 2025 dollars)
- Fergus WWTP Filter Replacement Study (rebuild sand filters or build new filter system)
- Update Wastewater System Hydraulic Model every 5 years including the provision of flow monitoring as part of the required data collection (per study cost $150,000 in 2025 dollars)
- Annual Storm Drainage Disconnection Grant Program like the City of St. Thomas' Basement Flooding Grant Program ($60,000 budget per year)
- Based on review of the Township's 2022 Asset Management Plan (AMP) and the findings of our modeling and risk review, system risks can be managed adequately through the Township's ongoing AMP

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Next Steps

- Establish preferred water and wastewater servicing alternatives and capital implementation plan
- Capital infrastructure funding and risk analysis
- Water and wastewater servicing master plan report
- Notice of completion

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Thank You for Attending!

Questions or Comments?

- Complete a comment sheet this evening.
- Submit comments to a project team member.
- Presentation materials available at: www.connectcw.ca/WWSMP.

Project Team Members

Ryan Maiden, P.Eng.
Water and Wastewater Capital Manager
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
519-846-9691 ext. 285
Rmaiden@centrewellington.ca

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557 Southdale Road East, Suite 200
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MEMORANDUM

To: File **Date:** April 25, 2025

From: John Tyrrell **Project No.:** 237318

Subject: Notes from PIC # 2

1. PIC#2 was held on April 24, 2025, for the Township of Centre Wellington's Water and Wastewater Servicing Master Plan at the Elora Centre For the Arts (75 Melville St, Elora ON N0B 1S0). The posted hours were from 6:00 PM to 8:00 PM.

2. In attendance for proponents were:

   Township of Centre Wellington

   Councillor - Lisa MacDonald
   CAO – Dan Wilson
   Managing Director of Planning and Development – Brett Salmon
   Managing Director of Infrastructure Services – Colin Baker
   Manager of Engineering – Adam Gilmore
   Water and Wastewater Capital Manager – Ryan Maiden

   R.V. Anderson Associates Limited

   Project Manager – John Tyrrell
   Process Designer – Hannah Groenewegen

3. Present at the meeting were:

   - 12 residents;
   - 10 consultants; and
   - 1 developer.

4. Presentation were displayed and Township and RVA staff attended to any queries from the meeting participants. Comment sheets were provided and a box to drop off comments was put out.

5. General queries from participants were as follows:

   a. Residents on Hill Street inquired about drainage from the commercial development to the east and ponding in their rear yards. Residents were told that this was not the focus of this study which is planning water and wastewater services to 2051 for the Elora-Salem/Fergus Urban areas but that the Township Staff have noted their concerns and will pass them on the appropriate department to review.

b. Residents on Guelph Road north of the South Fergus Secondary Plan area who are on privately serviced lots inquired as to if they could receive water and sanitary services as part of the extension of servicing from the Secondary Planning Area and from the additional growth lands to its south. Township Staff have noted this request and will consider servicing extension as part of the servicing implementation of the South Fergus Secondary Plan area.

c. Consultants and Developers had questions on the timeline for the Master Plan and it was detailed by Township and RVA staff that the current plan is to present the draft Master Plan to Council at the end of May, have Council review it and accept it in June and then publish the Master Plan for 30-day review in June.

d. Consultants and Developers had questions on various technical aspects of the Master Plan and these were addressed by Township and RVA staff.

6. There were some discussion on lands outside of the current boundary and Township and RVA staff noted that the focus of the Master Plan is servicing to 20251 within the current urban boundaries.

7. All participants were informed that a handout covering the meeting was to be posted on the Township's Master Plan page (https://www.connectcw.ca/WWSMP) on April 25, 2025.

8. Township and RVA staff remained available to respond to individual questions until 8:00 PM.

9. The meeting concluded at 8:00 PM.

10. Comments received via the website will be reviewed separately.

Memo Prepared by:

John Tyrrell

John Tyrrell, M.Sc.(Eng.), P.Eng.
Project Manager

Attachments:

#	Attachment
1	PIC Notice
2	PIC # 2 Sign-in Sheet
3	PIC # 2 Presentation Boards
4	Written comments received in comments box.

PIC # 2 NOTICE

Previously included in this sub- appendix

PIC # 2
SIGN-IN SHEET

Centre Wellington

Township of Centre Wellington
Water and Wastewater
Servicing Master Plan
Public Information Centre #2:
April 24, 2025

ATTENDANCE SHEET

Name	Affiliation (i.e., resident, landowner, agent, agency, consultant)	Contact Information (please include one of email address, phone number, address)
KEVIN FERGIN	CROZIER.	kfergin@cfcrozier.ca
JURGEN KOEHLER	"	jkoehler@cfcrozier.ca
[redacted]	resident	[redacted]
[redacted]	resident	[redacted]
[redacted]	Resident	[redacted]
[redacted]	RESIDENT	[redacted]
Glenn Anderson	Consultant	ganderson@gsiconsultants.com
Steve Peterson	MTE	speterson@mte85.com
Taylor Numan	MTE	tnuman@mte85.com
[redacted]	RESDENT	[redacted]
MATT NINOMIYA	WALTERFEDY	MNinomiya@WALTERFEDY.COM
ERIKA WOODS	WALTERFEDY	ewoods@walterfedy.com
DAN FERGUSON	WALTERFEDY	dferguson@WALTERFEDY.com
[redacted]	Resident	[redacted]
[redacted]	LANDOWNER	[redacted]
M.Lewandowski	Consultant	mlewandowski@tylin.com
[redacted]	resident	[redacted]
[redacted]	resident	[redacted]

Township of Centre Wellington
Water and Wastewater
Servicing Master Plan
Public Information Centre #2:
April 24, 2025

ATTENDANCE SHEET

Name	Affiliation (i.e., resident, landowner, agent, agency, consultant)	Contact Information (please include one of email address, phone number, address)
[redacted]	[redacted] Resident	[redacted]
Dan Ferguson	Consultant WalterFedy	dferguson@walterfedy.com
[redacted]	Resident	[redacted]
	Resident	
	resident	

PIC # 2
PRESENTATION
BOARDS

Previously included in this sub- appendix

PIC # 2
COMMENTS RECEIVED
IN COMMENT BOX

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Public Information Centre #2: April 24, 2025

If you have any comments/questions that you would like to provide the Study Team, please fill out this form and your comments will be reviewed, and you will receive a response.

Name:	[redacted]
Contact Information:	(Please include one of email address, phone number, address, if you wish for a reply to your query)

COMMENTS:

→ I FEEL LIKE THIS WAS A BOX CHECK
→ NOT INFORMATIVE – SHOULD HAVE BEEN A DISCUSSION – Q+A.
DISAPPOINTING!

(Additional room on the back of the page to continue comments)

Please submit comments in comment box at meeting or else forward your comments to the following members of the study team below:

Ryan Maiden, P.Eng.
Water and Wastewater Capital Manager
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
519-846-9691 ext. 285
Rmaiden@centrewellington.ca

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557 Southdale Road East, Suite 200
London, ON N6E 1A2
jtyrrell@rvanderson.com

Comment Form

Centre Wellington

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Public Information Centre #2: April 24, 2025

If you have any comments/questions that you would like to provide the Study Team, please fill out this form and your comments will be reviewed, and you will receive a response.

Name:	[redacted]
Contact Information:	(Please include one of email address, phone number, address, if you wish for a reply to your query)

COMMENTS:

We have concerns about stormwater management plans related to the Hill Street area in Fergus.
The water was already bad and got significantly worse with the construction of the factory on
First Line. Something needs to be done about this BEFORE we start expanding in the area and
make things even worse. This year the water in the backyard was standing at nearly 2ft (above my knee) in our
backyard. Please email us for a video showing how bad it is.

(Additional room on the back of the page to continue comments)

Please submit comments in comment box at meeting or else forward your comments to the following members of the study team below:

Ryan Maiden, P.Eng.
Water and Wastewater Capital Manager
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
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London, ON N6E 1A2
jtyrrell@rvanderson.com

Comment Form

Centre Wellington

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Public Information Centre #2: April 24, 2025

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Name:	[redacted]
Contact Information:	(Please include one of email address, phone number, address, if you wish for a reply to your query)

COMMENTS:

See other Side

(Additional room on the back of the page to continue comments)

Please submit comments in comment box at meeting or else forward your comments to the following members of the study team below:

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London, ON N6E 1A2
jtyrrell@rvanderson.com

Comment Form

Centre Wellington

ADDITIONAL COMMENTS:

as I understand it water + sewer services will be planned down Guelph St to service the South and to Second line. there are 3 cresents off of Guelph St. that would like both water + sewer services too. I feel that if we are to be surounded by city services they should be provided to us as well, you don't want a have not community blocked in. Also Guelph St. is our only access road, if we must be inconvienced by the construction we should get some benifit.

the water would be easy, for the sewer you could send by gravity South to the new lift Station if its too deep to do gravity all the way down Guelph St. also you could do a low pressure system + tie into the pressure main. there are a lot of options please don't leave us out of those improvments.

thanks.

WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

Appendix 2-4 Responses Received

Agencies

May 23, 2024

Dear Dania Chehab and Ryan Maiden,

SUBJECT: NOTICE OF STUDY COMMENCEMENT AND PUBLIC INFORMATION CENTRE – WATER AND WASTEWATER MASTER SERVICING PLAN FOR THE TOWNSHIP OF CENTRE WELLINGTON

The Ministry of Natural Resources and Forestry (MNRF) received a notice of Study Commencement and Public Information Centre for a Water and Wastewater Master Servicing Plan for the Township of Centre Wellington on May 22, 2024. Thank you for circulating this to our office. Please note that we have not completed a screening of natural heritage or other resource values for the project at this time. This response, however, does provide information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, as well as engaging with the Ministry for advice as needed.

Please also note that it is the proponent's responsibility to be aware of, and comply with, all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

Natural Heritage

MNRF's natural heritage and natural resources GIS data layers can be obtained through the Ministry's Land Information Ontario (LIO) website. You may also view natural heritage information online (e.g., Provincially Significant Wetlands, ANSI's, woodlands, etc.) using the Make a Map: Natural Heritage Areas tool.

We recommend that you use the above-noted sources of information during the review of your project proposal.

Natural Hazards

A series of natural hazard technical guides developed by MNRF are available to support municipalities and conservation authorities implement the natural hazard policies in the Provincial Policy Statement (PPS). For example, standards to address flood risks and the potential impacts and costs from riverine flooding are addressed in the *Technical Guide River and Stream Systems: Flooding Hazard Limit (2002)*. We recommend that you consider these technical guides as you assess specific improvement projects that can be undertaken to reduce the risk of flooding.

Petroleum Wells & Oil, Gas and Salt Resources Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best-known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the library website to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Has and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Fish and Wildlife Conservation Act

Please note, that should the project require:

- The relocation of fish outside of the work area, a Licence to Collect Fish for Scientific Purposes under the *Fish and Wildlife Conservation Act* will be required.
- The relocation of wildlife outside of the work area (including amphibians, reptiles, and small mammals), a Wildlife Collector's Authorization under the *Fish and Wildlife Conservation Act* will be required.

Public Lands Act & Lakes and Rivers Improvement Act

Some Project may be subject to the provisions of the *Public Lands Act* or *Lakes and River Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is, or is not, required. Please note, *Lakes and Rivers Improvement Act* approval from the Ministry is not required for certain activities within the area of jurisdiction of a Conservation Authority. Please see the *Lakes and Rivers Improvement Act* administrative guide for more information and contact your local Conservation Authority where unsure if work is subject to regulation under the *Conservation Authorities Act*.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/page/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office. If you have identified any of MNRF's interests and/or may require permit(s) or further technical advice, please direct your specific questions to our office.

If you have any questions or concerns, please feel free to contact me.

Best Regards,

Valerie Francella, Regional Planner
Ministry of Natural Resources and Forestry (MNRF)
705-313-2562
valerie.francella@ontario.ca

From: ONT Environment / Environnement ONT
Sent on: May 27, 2024 10:21:02 AM
To: Carol Derrick
Subject: ONT Environment Response-Notice & PIC - W-WW MSP for the Township of Centre Wellington

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Greetings,

Thank you for your correspondence.

Please note Transport Canada does not require receipt of all Individual or Class EA related notifications. We request that project proponents self-assess whether their project:

1. Will interact with a federal property and/or waterway by reviewing the Directory of Federal Real Property, available at at www.tbs-sct.gc.ca/dfrp-rbif/; **and**
2. Will require approval and/or authorization under any Acts administered by Transport Canada* available at http://www.tc.gc.ca/eng/acts-regulations/menu.htm.

Proposed projects that will occur on federal property (including reserve lands or lands owned by federal departments other than Transport Canada) will be subject to an Impact Assessment per Section 82 of the *Impact Assessment Act, 2019* prior to exercising a federal power (including full or partial funding), and/or performing a function or duty (e.g. regulatory approval or issuance of a lease) in relation to that project.

If the criteria above do not apply, Transport Canada's Environmental Assessment program should not be included in any further correspondence, and future notifications will not receive a response. If there is a role under the program, correspondence should be forwarded to: EnviroOnt@tc.gc.ca with a **brief description of Transport Canada's expected role**.

*Below is a summary of the most common Acts that apply to projects in an Environmental Assessment context:

- ***Canadian Navigable Waters Act (CNWA)*** – the Act applies primarily to works constructed or placed in, on, over, under, through, or across navigable waters set out under the Act. The Navigation Protection Program administers the CNWA through the review and authorization of works affecting navigable waters. Information about the Program, CNWA and approval process is available at: http://www.tc.gc.ca/eng/programs-621.html. Inquiries can be directed to NPPONT-PPNONT@tc.gc.ca or by calling (519) 383-1863.

- ***Railway Safety Act (RSA)*** – the Act provides the regulatory framework for railway safety, security, and some of the environmental impacts of railway operations in Canada. The Rail Safety Program develops and enforces regulations, rules, standards and procedures governing safe railway operations. Additional information about the Program is available at: https://www.tc.gc.ca/eng/railsafety/menu.htm. Inquiries can be directed to RailSafety@tc.gc.ca or by calling (613) 998-2985.

- ***Transportation of Dangerous Goods Act (TDGA)*** – the transportation of dangerous goods by air, marine, rail and road is regulated under the TDGA. Transport Canada, based on risks, develops safety standards and regulations, provides oversight and gives expert advice on dangerous goods to promote public safety. Additional information about the transportation of dangerous goods is available at: https://www.tc.gc.ca/eng/tdg/safety-menu.htm. Inquiries can be directed to TDG-TMDOntario@tc.gc.ca or by calling (416) 973-1868.

- ***Aeronautics Act*** – this Act and the associated Canadian Aviation Regulations (CARs) govern civil aviation in Canada. Transport Canada should be notified of projects involving aerodromes and associated structures, or activities that could affect aviation safety. Elevated structures, such as wind turbines and communication towers, are examples of projects that must be assessed for lighting and marking requirements in accordance with the CARs. Transport Canada also has an interest in projects that have the potential to cause interference between wildlife and aviation activities. One example would be waste facilities, which may attract birds into commercial and recreational flight paths. Additional guidance can be found in the *Land Use In The Vicinity of Aerodromes* publication, available at: https://www.tc.gc.ca/eng/civilaviation/publications/tp1247-menu-1418.htm. Information about Transport Canada's

Civil Aviation program can be found at: https://tc.canada.ca/en/aviation. Inquires can be directed to aviation.ont@tc.gc.ca or by calling 1 (800) 305-2059 / (416) 952-0230.

Please advise if additional information is needed.

Thank you,

Environmental Assessment Program, Ontario Region
Transport Canada / Government of Canada / 4900 Yonge St., Toronto, ON M2N 6A5
EnviroOnt@tc.gc.ca

Programme d'évaluation environnementale, Région de l'Ontario
Transports Canada / Gouvernement du Canada / 4900, rue Yonge, Toronto, ON, M2N 6A5
EnviroOnt@tc.gc.ca

From: Carol Derrick <cderrick@rvanderson.com>
Sent: Wednesday, May 22, 2024 2:39 PM
Subject: [External/Externe]: Notice of Commencement & Public Information Centre for the Water and Wastewater Master Servicing Plan for the Township of Centre Wellington

On behalf of the Township of Centre Wellington, please see enclosed the Notice of Commencement and Public Information Centre for a Water and Wastewater Master Servicing Plan to service the future growth of Fergus and Elora/Salem.

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

Should you wish to stop receiving notices pertaining to this project or would like to direct it to an alternate recipient, please advise the undersigned.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Dania Chehab, P.Eng., M.Eng.
Project Manager
DChehab@rvanderson.com
(416) 497-8600 ext. 1456

Encls: Notice of Commencement

Hannah Groenewegen

From: Carol Derrick
Sent: May 27, 2024 10:42 AM
To: Hannah Groenewegen
Cc: Natasha Lee
Subject: FW: [External/Externe]: Notice of Commencement & Public Information Centre for the Water and Wastewater Master Servicing Plan for the Township of Centre Wellington

FYI – see below.

From: ONT Environment / Environnement ONT <EnviroOnt@tc.gc.ca>
Sent: Monday, May 27, 2024 10:21 AM
To: Carol Derrick <cderrick@rvanderson.com>
Subject: RE: [External/Externe]: Notice of Commencement & Public Information Centre for the Water and Wastewater Master Servicing Plan for the Township of Centre Wellington

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Please advise if additional information is needed.

Thank you,

Environmental Assessment Program, Ontario Region
Transport Canada / Government of Canada / 4900 Yonge St., Toronto, ON M2N 6A5
EnviroOnt@tc.gc.ca

Programme d'évaluation environnementale, Région de l'Ontario
Transports Canada / Gouvernement du Canada / 4900, rue Yonge, Toronto, ON, M2N 6A5
EnviroOnt@tc.gc.ca

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Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Dania Chehab, P.Eng., M.Eng.
Project Manager
DChehab@rvanderson.com
(416) 497-8600 ext. 1456

Encls: Notice of Commencement

Ontario

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

May 28, 2024

Ryan Maiden
Water and Wastewater Capital Manager
Township of Centre Wellington
Rmaiden@centrewellington.ca

BY EMAIL ONLY

Re: Water and Wastewater Master Servicing Plan for the Township of Centre Wellington
Township of Centre Wellington
Municipal Class Environmental Assessment, Master Plan Approach 1, Preliminary Phase 1 and 2
Acknowledgement of Notice of Commencement

Dear Ryan Maiden,

This letter is in response to the Notice of Commencement for the above noted Master Plan. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Township of Centre Wellington (proponent) has indicated that the study is following the approved environmental planning process for a Master Plan following Preliminary Phase 1 and 2 under the Municipal Class Environmental Assessment (Class EA).

The **updated (August 2022)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Information about the Notice of Completion is provided at the end of the Areas of Interest document.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing the projects identified in this Master Plan, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed Master Plan projects may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed projects**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed Master Plan projects:

- **Mississaugas of the Credit**
- **Six Nations of the Grand River (both elected and Haudenosaunee Confederacy Chiefs Council (HCCC) and Haudenosaunee Development Institute (HDI))**
    - both the elected council and HCCC claim to represent the Six Nations Community. The HCCC is the traditional council and the SNGR elected was established by Canada pursuant to the *Indian Act*, 1924.

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed projects are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances after initial discussions with the communities identified by the MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities;
- You have reason to believe that your proposed projects may adversely affect an Aboriginal or treaty right;

- Consultation with Indigenous communities or other stakeholders has reached an impasse; or
- A Section 16 Order request is expected based on impacts to Aboriginal or treaty rights

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

Please also ensure a copy of the Notice of Completion is sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca)

Should you or any members of your project team have any questions regarding the material above, please contact me at Joan.DelVillarCuicas@ontario.ca.

Sincerely,

Joan Del Villar Cuicas
Regional Environmental Planner – West Central Region
Project Review Unit, Environmental Assessment Branch

Cc: Aaron Todd, Manager, Guelph District Office, MECP
Dania Chehab, Project Manager, R. V. Anderson Associates Limited

Enclosed: Areas of Interest

Attached: Client's Guide to Preliminary Screening for Species at Risk
A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. August 2022)

It is suggested that you check off each section after you have considered / addressed it.

Planning and Policy

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed Master Plan projects adhere to the relevant policies in these plans.
    - Projects located in MECP Central, Eastern or West Central Region may be subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe** **(2020)**.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan** **(2017)** or the **Lake Simcoe Protection Plan** **(2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan** **(2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan** **(2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario** **(2011).**

- The **Provincial Policy Statement** **(2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed projects are consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

Source Water Protection

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- In October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

    - If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if these Master Plan projects are occurring within a vulnerable area, proponents can use Source Protection Information Atlas, which is an online mapping tool available to the public. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the "Map Legend" bar on the left. The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking**

water. Please document the results of that consultation within the report and include all communication documents/correspondence.

More Information
For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

Climate Change

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

    1. Consider during the assessment of alternative solutions and alternative designs, the following:
        a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
        b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
    2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of these Master Plan projects, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for these projects if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for a project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
  - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
  - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
  - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, for projects located in Central Region you may consider the provisions of the Rouge Park Management Plan if applicable.

Species at Risk

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

Surface Water

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:

  - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
  - Watershed information, drainage conditions, and other relevant background information
  - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
  - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the *Ontario Water Resources Act* (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed Master Plan projects and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the Master Plan projects involve groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

- All waste generated during construction must be disposed of in accordance with ministry requirements.

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
    - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the Master Plan projects.

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the Master Plan projects. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout the planning process. The report should also include copies of comments submitted on the Master Plan by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- There are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Section 16 Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- Any identified projects should also include information on the MCEA schedule associated with the project.

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and reference any relevant information in the report.

Notice of Completion
Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address.

The public can request a higher level of assessment on any of the Schedule B or Schedule C projects identified in the Master Plan if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project(s) within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project(s).

Therefore, the proponent cannot proceed with the Master Plan projects until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project(s).

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister of the Environment, Conservation and Parks

777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Samya Chams

From:	ONT Environment / Environnement ONT <EnviroOnt@tc.gc.ca>
Sent:	April 14, 2025 10:32 AM
To:	Samya Chams
Cc:	Ryan Maiden; John Tyrrell; Darika Sharma
Subject:	RE: [External/Externe]: Notice of PIC#2 - Water and Wastewater Master Servicing Plan for the Township of Centre Wellington
Categories:	Filed by Newforma

UNCLASSIFIED / NON CLASSIFIÉ

Greetings,

Thank you for your correspondence.

Please note Transport Canada does not require receipt of all Individual or Class EA related notifications. We request that project proponents self-assess whether their project:

1. Will interact with a federal property and/or waterway by reviewing the Directory of Federal Real Property, available at at www.tbs-sct.gc.ca/dfrp-rbif/; **and**
2. Will require approval and/or authorization under any Acts administered by Transport Canada* available at http://www.tc.gc.ca/eng/acts-regulations/menu.htm.

Proposed projects that will occur on federal property (including reserve lands or lands owned by federal departments other than Transport Canada) will be subject to an Impact Assessment per Section 82 of the *Impact Assessment Act, 2019* prior to exercising a federal power (including full or partial funding), and/or performing a function or duty (e.g. regulatory approval or issuance of a lease) in relation to that project.

If the criteria above do not apply, Transport Canada's Environmental Assessment program should not be included in any further correspondence, and future notifications will not receive a response. If there is a role under the program, correspondence should be forwarded to: EnviroOnt@tc.gc.ca with a **brief description of Transport Canada's expected role**.

*Below is a summary of the most common Acts that apply to projects in an Environmental Assessment context:

Canadian Navigable Waters Act (CNWA) **–** the Act applies primarily to works constructed or placed in, on, over, under, through, or across navigable waters set out under the Act. The Navigation Protection Program administers the CNWA through the review and authorization of works affecting navigable waters. Information about the Program, CNWA and approval process is available at: http://www.tc.gc.ca/eng/programs-621.html. Inquiries can be directed to NPPONT-PPNONT@tc.gc.ca or by calling (519) 383-1863.

Railway Safety Act (RSA) – the Act provides the regulatory framework for railway safety, security, and some of the environmental impacts of railway operations in Canada. The Rail Safety Program develops and enforces regulations, rules, standards and procedures governing safe railway operations. Additional information about the Program is available at: https://www.tc.gc.ca/eng/railsafety/menu.htm. Inquiries can be directed to RailSafety@tc.gc.ca or by calling (613) 998-2985.

Transportation of Dangerous Goods Act (TDGA) – the transportation of dangerous goods by air, marine, rail and road is regulated under the TDGA. Transport Canada, based on risks, develops safety standards and regulations, provides oversight and gives expert advice on dangerous goods to promote public safety. Additional information about the transportation of dangerous goods is available at: https://www.tc.gc.ca/eng/tdg/safety-menu.htm. Inquiries can be directed to TDG-TMDOntario@tc.gc.ca or by calling (416) 973-1868.

Aeronautics Act – this Act and the associated Canadian Aviation Regulations (CARs) govern civil aviation in Canada. Transport Canada should be notified of projects involving aerodromes and associated structures, or activities that could affect aviation safety. Elevated structures, such as wind turbines and communication towers, are examples of projects that must be assessed for lighting and marking requirements in accordance with the CARs. Transport Canada also has an interest in projects that have the potential to cause interference between wildlife and aviation activities. One example would be waste facilities, which may attract birds into commercial and recreational flight paths. Additional guidance can be found in the *Land Use In The Vicinity of Aerodromes* publication, available at: https://www.tc.gc.ca/eng/civilaviation/publications/tp1247-menu-1418.htm. Information about Transport Canada's Civil Aviation program can be found at: https://tc.canada.ca/en/aviation. Inquires can be directed to aviation.ont@tc.gc.ca or by calling 1 (800) 305-2059 / (416) 952-0230.

Please advise if additional information is needed.

Thank you,

Environmental Assessment Program, Ontario Region
Transport Canada / Government of Canada / 4900 Yonge St., Toronto, ON M2N 6A5
EnviroOnt@tc.gc.ca

Programme d'évaluation environnementale, Région de l'Ontario
Transports Canada / Gouvernement du Canada / 4900, rue Yonge, Toronto, ON, M2N 6A5
EnviroOnt@tc.gc.ca

From: Samya Chams <schams@rvanderson.com>
Sent: Thursday, April 10, 2025 4:03 PM
To: Samya Chams <schams@rvanderson.com>
Cc: Ryan Maiden <RMaiden@centrewellington.ca>; John Tyrrell <JTyrrell@rvanderson.com>; Darika Sharma <DSharma@rvanderson.com>
Subject: [External/Externe]: Notice of PIC#2 - Water and Wastewater Master Servicing Plan for the Township of Centre Wellington

Good afternoon,

On behalf of the Township of Centre Wellington, please see attached the Notice of Public Information Centre #2 for the Water and Wastewater Master Servicing Plan.

The PIC#2 details are as follows:

> **Date & Time:** April 24th, 2025, 6:00 pm – 8:00 pm
> **Location:** Elora Centre for the Arts, 75 Melville St, Elora, ON N0B 1S0

This notice is sent to your attention as it was deemed that you may be an interested stakeholder.

The project team values the participation of all stakeholders and wishes to ensure that the community's interests and concerns are taken into consideration. Please contact the project team members listed on the attached notice should you require further information on this project.

Thank you,

Samya Chams, B.A. (She/Her)
Administrative Assistant

R.V. Anderson Associates Limited
557 Southdale Road East, Suite 200
London ON N6E 1A2
t 519 681 9916 x5021
LinkedIn | Facebook | Website
PROUDLY 100% CANADIAN

Other Parties

John Tyrrell

From:	John Tyrrell <JTyrrell@rvanderson.com>
Sent:	March 6, 2025 3:58 PM
To:	Joseph Kamangu
Cc:	Ryan Maiden; 237318@projects.rvanderson.com
Subject:	RE: Elora - Water and Wastewater Servicing Master Plan
Categories:	Filed by Newforma

Hi Joseph,

The best person to address your questions is Ryan Maidan at the Township. His contact information is as follows:

> Ryan Maiden, P.Eng.
> Water and Wastewater Capital Manager
> Township of Centre Wellington
> 1 MacDonald Square
> Elora, ONN0B 1S0
> 519-846-9691 ext. 285
> Rmaiden@centrewellington.ca

John Tyrrell, M.Sc.(Eng.), P.Eng.
Principal, Regional Manager London

R.V. Anderson Associates Limited
557 Southdale Road East, Suite 200
London ON N6E 1A2
t 519 681 9916 x5038
LinkedIn | Facebook | Website

From: Joseph Kamangu <j.kamangu@homefieldcommunities.com>
Sent: March 4, 2025 4:39 PM
To: John Tyrrell <JTyrrell@rvanderson.com>
Subject: Elora - Water and Wastewater Servicing Master Plan

You don't often get email from j.kamangu@homefieldcommunities.com. Learn why this is important

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Hello John,

Hope you are well.

I left you a voicemail regarding the current servicing map for the city of Elora. Could you please provide me with a PDF version of the map? Additionally, I understand the city is working on a secondary plan – would you be able to share a copy of the draft servicing plan as well?

Kind regards,

Joseph Kamangu
Associate, Finance and Investments

T. 416-262-5089
1202 – 45 St. Clair Avenue West
Toronto ON M4V 1K9
homefieldcommunities.com

Residents

Draft Email to Dan Wilson, CAO, Township of Centre Wellington

Hello Dan,

On Monday, December 11, 2023 members of three households on Erb St., Elora were very glad to meet with our Township Councillor, Lisa MacDonald, to share & discuss the significant impact of municipal sewage drainage floods experienced in our basements on Saturday, November 11, 2023 & in February 2019.

As tax payers and strong supporters of our community, we need the municipality to work with us in understanding the next steps in our working with the municipality to resolve cost issues, and to assure us of appropriate follow-up with municipal drainage systems. Lisa advised that we share our information with you, and ask for direction on next steps in process.

On the afternoon of November 11, sewage water began to surge from our basement sewer drains, shower drains & toilets. Owners of 304 Erb St. managed to insert a blockage device in their sewage drain & stopped further drainage from entering their basement.

Two of the three houses involved (308 and 300 Erb St.) experienced significant damage from the drainage, requiring frantic & demanding initial emergency cleanup, further clean-up & decontamination by a restoration company, & continuing restoration work.

The significant concerns we have are as follows:

1. <u>Threats to Health</u>: Sewage water presents very significant threats to health, with two persons in one household contracting COVID within three days of the flooding.

2. <u>Costs</u>: Financial & other costs to homeowners are significant, including deductibles on our insurances, increased utility costs (with fans & dehumidifiers going 24x7 for days), installation of backwater valves, huge time demands & pressures in managing these situations.

3. <u>Insurance</u>: In follow-up to the 2019 municipal sewage flood in our basements, one owner had the deductible on their insurance increased from $1,000 to $2,000.

We are very concerned about the impact this second municipal flood will have on our deductibles and insurance rates. An even greater concern is that insurance coverage may be denied due to a second municipal sewage flood.

4. <u>Sewage System Maintenance</u>: We were informed in 2019 that the municipality was establishing a program & team to undertake regular assessment & maintenance of the municipal drainage systems. We would all appreciate being informed about this program.

5. <u>Backwater Valves</u>: Are backwater valves now required for all new builds in Centre Wellington? Is information available to homeowners on the Centre Wellington website regarding backwater valves? Is there a financial support program for such costs?

A number of municipalities (e.g. Tillsonburg, Toronto) require this and/or have programs providing information to their citizens and some cast support. Given our massively challenging experiences, the threat of sewage back-ups to health (from contaminants & stress), and the financial demands, it seems apparent that Centre Wellington must consider this carefully and provide information to its community.

Would you please inform us of the process to work with the municipality's insurance, and to follow up with the municipality regarding the questions we have outlined. We will very much appreciate your support in helping us through these steps, Dan.

Sincerely,

Tyra Duncan (308 Erb St.) tyravduncan@gmail.com
Neil & Dianne Wilson (304 Erb St.)
Tom & Carolyn Skimson (300 Erb St.)

Consultants

From: Dania Chehab
Sent on: June 18, 2024 10:55:14 AM
To: Hannah Groenewegen
Subject: FW: 2401807 422079 Water and Wastewater Service Master Plan PIC #1

From: Kroetsch, Angela <AKroetsch@geiconsultants.com>
Sent: Tuesday, June 18, 2024 10:43 AM
To: Ryan Maiden <RMaiden@centrewellington.ca>
Cc: Dania Chehab <dchehab@rvanderson.com>
Subject: 2401807 422079 Water and Wastewater Service Master Plan PIC #1

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Hi Ryan,

Thank you!

If you have any questions or require additional information, please do not hesitate to call.

Regards,

GEI
ANGELA KROETSCH, P.ENG.
Vice President, Senior Project Manager, Land Development Practice Lead
519.748.1440...4202 cell: 519.240.9959
330 Trillium Drive | Unit D | Kitchener, ON N2E 3J2

From: Ryan Maiden <RMaiden@centrewellington.ca>
Sent: Tuesday, June 18, 2024 8:57 AM
To: Kroetsch, Angela <AKroetsch@geiconsultants.com>
Cc: Dania Chehab <dchehab@rvanderson.com>
Subject: [EXT] RE: Water and Wastewater Service Master Plan PIC #1

EXTERNAL EMAIL

Good Morning Angela,

Apologies for not getting back to you sooner.

Below is a link to the project's ConnectCW page where all updates and project documents will be displayed. As of right now there is the Notice of Commencement and the PIC boards from the meeting.

Water and Wastewater Service Master Plan | Connect CW

Dania, can you please add Angela to the contact list.

Please let me know if you have any further questions.

Regards,

Ryan Maiden, P.Eng | Water and Wastewater Capital Project Manager

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
Office: 519.846.9691 x285 centrewellington.ca
Cell: 226.378.4476
Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Kroetsch, Angela <AKroetsch@geiconsultants.com>
Sent: Friday, May 31, 2024 9:28 AM
To: Ryan Maiden <RMaiden@centrewellington.ca>
Subject: Water and Wastewater Service Master Plan PIC #1

Ryan,

I was unfortunately not able to attend yesterday's PIC#1 for the Water and Wastewater Service Master Plan.

As such, would you be able to forward a copy of the background documents (including any handouts and/or presentations) from the PIC?

Also, would you be able to include me on the contact list for future notices?

If you have any questions or require additional information, please do not hesitate to call.

Regards,

GEI

ANGELA KROETSCH, P.ENG.
Senior Project Manager, LD Practice Lead
519.748.1440...4202   cell: 519.240.9959
330 Trillium Drive | Unit D | Kitchener, ON N2E 3J2

From: Dania Chehab
Sent on: June 27, 2024 1:21:29 PM
To: James Fletcher
CC: Matt Britton; Hannah Groenewegen; Rmaiden@centrewellington.ca
Subject: RE: Project Contact List - CW Water and Wastewater Master Plan

Hi James,
Confirming, yes, Matt Britton is also on the mailing list.
Thanks again for following up.

Dania

From: James Fletcher <jfletcher@cfcrozier.ca>
Sent: Thursday, June 27, 2024 12:46 PM
To: Dania Chehab <dchehab@rvanderson.com>
Cc: Matt Britton <mbritton@cfcrozier.ca>; Hannah Groenewegen <hgroenewegen@rvanderson.com>; Rmaiden@centrewellington.ca
Subject: RE: Project Contact List - CW Water and Wastewater Master Plan

Thanks Dania! Could you please also confirm that Matt Britton (cc'd) has been added as well?

Best,
James

James Fletcher
Engineering Intern, Land Development
Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Dania Chehab <dchehab@rvanderson.com>
Sent: Thursday, June 27, 2024 11:36 AM
To: James Fletcher <jfletcher@cfcrozier.ca>
Cc: Matt Britton <mbritton@cfcrozier.ca>; Hannah Groenewegen <hgroenewegen@rvanderson.com>; Rmaiden@centrewellington.ca
Subject: RE: Project Contact List - CW Water and Wastewater Master Plan

Hi James,
Confirming that we have added you to the project contact list.
Thanks,
Dania

From: James Fletcher <jfletcher@cfcrozier.ca>
Sent: Thursday, June 27, 2024 11:20 AM
To: Dania Chehab <dchehab@rvanderson.com>; Rmaiden@centrewellington.ca
Cc: Matt Britton <mbritton@cfcrozier.ca>
Subject: RE: Project Contact List - CW Water and Wastewater Master Plan

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Hi Ryan and Dania,

Just following up on this again. Could you please direct me to someone who can add me to the project contact list for the CW Water and Wastewater Master Plan if you two are not the correct contacts?

Thank you for your help with this and have a great long weekend!

Kind Regards,

James

James Fletcher
Engineering Intern, Land Development
Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

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CELEBRATING 20 YEARS SINCE 2004 CROZIER

From: James Fletcher <jfletcher@cfcrozier.ca>
Sent: Monday, June 17, 2024 10:10 AM
To: DChehab@rvanderson.com; Rmaiden@centrewellington.ca
Cc: Matt Britton <mbritton@cfcrozier.ca>
Subject: RE: Project Contact List - CW Water and Wastewater Master Plan

Good morning Ryan and Dania,

Just following up on this. Could you please confirm if Matt and I have been added to the project contact list for the CW Water and Wastewater Master Plan?

Thank you,

James

James Fletcher
Engineering Intern, Land Development

Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

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From: James Fletcher <jfletcher@cfcrozier.ca>
Sent: Friday, June 7, 2024 3:00 PM
To: DChehab@rvanderson.com; Rmaiden@centrewellington.ca
Cc: Matt Britton <mbritton@cfcrozier.ca>
Subject: Project Contact List - CW Water and Wastewater Master Plan

Hi Ryan and Dania,

I was reviewing the Notice of Study Commencement for the Centre Wellington Water and Wastewater Master Plan and it advised to reach out to you if we wanted to be added to the project contact list. Could you please add myself and Matt Britton (CC'd) to the project contact list?

Thanks in advance for your help with this!

Best,
James

James Fletcher
Engineering Intern, Land Development
Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Ryan Maiden
Sent on: September 18, 2024 12:58:27 PM
To: Hannah Groenewegen
CC: Darika Sharma
Subject: FW: Crozier request - sanitary network in Fergus

Categories: Filed by Newforma

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Good Afternoon Hannah,

Could we please add Jim Firth from Crozier and Associates to the contact list for our Master Plan.

Regards,

Ryan Maiden, P.Eng | Water and Wastewater Capital Project Manager

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
Office: 519.846.9691 x285 centrewellington.ca
Cell: 226.378.4476
Office located at: 7444 Wellington Road 21, Elora, ON N0B 1S0

From: Lee Wheildon <LWheildon@centrewellington.ca>
Sent: Wednesday, September 18, 2024 10:20 AM
To: Ryan Maiden <RMaiden@centrewellington.ca>
Subject: FW: Crozier request - sanitary network in Fergus

Ryan,

As briefly discussed, just an FYI.

Regards,

Lee Wheildon C.E.T.,rcca | Supervisor of Development Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Lee Wheildon
Sent: Wednesday, September 18, 2024 10:19 AM
To: 'Jim Firth' <jfirth@cfcrozier.ca>
Subject: RE: Crozier request - sanitary network in Fergus

Morning Jim,

Further to my email from yesterday, I did have an opportunity to follow up with Infrastructure Services Staff and the request provided would be a rather time consuming and potentially costly process to obtain all the information being requested.

It was recommended that Crozier can follow and request to be added to the contact list for the Water and Wastewater Service Master Plan where Staff will be analyzing and determining servicing constraints and requirements for the Township (including for future growth). I have attached the link below for your reference purposes.

https://www.connectcw.ca/WWSMP

Should you have any questions or concerns, please do not hesitate to contact me.

Regards,

Lee Wheildon C.E.T.,rcca | Supervisor of Development Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Lee Wheildon
Sent: Tuesday, September 17, 2024 12:26 PM
To: 'Jim Firth' <jfirth@cfcrozier.ca>
Subject: RE: Crozier request - sanitary network in Fergus

Afternoon Jim,

Staff did see your email from last week, but unfortunately have not had a chance to put any time towards providing a response to date.

Development Engineering is located within the Planning and Development Department at 1 MacDonald Square in Elora, but we do not have drawings, design information, etc. that would be relevant for a visit to our front counter.

This information may be available through a combination of our Infrastructure Services Department/Staff (and/or Triton Engineering Services). As there appears to be multiple locations where information is being requested, this could take time to track down a request of this nature. If the Township must engage Triton to look through their archives for such design information and drawings (should the Township not have this documentation readily available), this will result in additional timing and fees required to obtain said information (which will be AR rebilled to the Developer/Development Project).

It may be beneficial to have a phone call to confirm the exact request for information before moving forward with this request.

I have attached the Township's Information Request Form to this email, and this is to be filled out to identify the area(s) and materials required.

Should you have any questions or concerns, please do not hesitate to contact me.

Regards,

Lee Wheildon C.E.T.,rcca | Supervisor of Development Engineering

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Jim Firth <jfirth@cfcrozier.ca>
Sent: Tuesday, September 17, 2024 10:39 AM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Subject: Crozier request - sanitary network in Fergus

Hi Lee, following up my earlier request, can we come into your office to look at the sanitary sewer network in central – eastern Fergus?

Don't mean to pressure you and hoping to make this an easy process for the Town.

Jim Firth, P.Eng. | Partner
Vice President
Office: 905.693.7836
Collingwood | Milton | Toronto | Bradford | Guelph

From:	Ryan Maiden <RMaiden@centrewellington.ca>
Sent:	May 13, 2025 8:16 AM
To:	Michael Felinczak
Cc:	Marcus Gagliardi; Brendan Walton; John Tyrrell; Jeff Martens; Valentina Lazic
Subject:	RE: 49878-100: Elora Sands Development - Stakeholder Input into the Township's Water and Wastewater Servicing Master Plan

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Good Morning Michael,

Thank you for providing. I have downloaded and compiled with other comments received.

Regards,

Centre Wellington

Ryan Maiden, P.Eng
Project Manager | Engineering
1 MacDonald Square, Elora ON, N0B 1S0
T: 519-846-9691 x285 **C**: 226-378-4476
www.centrewellington.ca

From: Michael Felinczak <MFelinczak@mte85.com>
Sent: May 9, 2025 4:21 PM
To: Ryan Maiden <RMaiden@centrewellington.ca>
Cc: Marcus Gagliardi <marcus@cachethomes.com>; Brendan Walton <brendan@cachethomes.com>; JTyrrell@rvanderson.com; Jeff Martens <jmartens@mte85.com>; Valentina Lazic <vlazic@mte85.com>
Subject: 49878-100: Elora Sands Development - Stakeholder Input into the Township's Water and Wastewater Servicing Master Plan

Good afternoon Ryan,

Please find the attached letter and the link below to the compiled letter with attachments (due to large file size) as stakeholder input, on behalf of our client, regarding the Township’s Water and Wastewater Servicing Master Plan following the latest PIC held on April 24.

We are available to meet to discuss should you wish.

Please click on this link to download the attachment(s): 49878-100 Elora Sands Development
The attachment is available until: Friday, June 6, 2025.

FILES ATTACHED TO THIS LINK:
49878-100_ltr_2025-05-09_WWSMP_Stakeholder Input_compiled 10.7 MB

Have a great weekend!
Regards,
Michael

Michael Felinczak, P.Eng. | **Project Manager**
MTE Consultants Inc.
T: 519-743-6500 x1454 | MFelinczak@mte85.com
520 Bingemans Centre Drive, Kitchener, Ontario N2B 3X9
www.mte85.com | LinkedIn | Instagram |Facebook

MTE Consultants
520 Bingemans Centre Dr., Kitchener, Ontario N2B 3X9

May 9, 2025

MTE File No.: C49878-100

Ryan Maiden, P.Eng.
Township of Centre Wellington
1 MacDonald Square
Elora, Ontario N0B 1S0

Dear Ryan:

RE: Township of Centre Wellington Water and Wastewater Servicing Master Plan
Public Information Centre #2
Elora Sands Development - Stakeholder Input
Township File No.: OP003-2025
County File No.: OP-2025-06

MTE has been retained by Elora Sands Development Inc. (ESD) to provide preliminary engineering services for their development lands located in northwest Elora southeast of the intersection of Irvine Street and Woolwich Street East/Sideroad 15, herein referred to as the 'subject lands'. ESD along with their project consultant team have recently made an application to the Township of Centre Wellington (Township) and the County of Wellington (County) in support of a privately initiated settlement boundary expansion Official Plan Amendment (OPA) to include the subject lands and the adjacent Keating Farm within the settlement boundary of Elora. Refer to the attached Township Notice of Complete Application.

The Township has retained R.V. Anderson Associates Limited (RVA) to undertake a Water and Wastewater Servicing Master Plan (WWSMP) to gain a better understanding of the existing water and wastewater systems and determine any potential required upgrades for the present as well as the projected future growth to 2051. We understand that the 2051 planning horizon considered only the lands proposed to be brought into the Township settlement boundary under Draft OPA 126 of which the subject lands were not included. The WWSMP commenced in 2024 with a Public Information Centre (PIC) being held in May and the second and final PIC was held on April 24, 2025, with study completion aimed for the Spring 2025. The PIC#2 Notice which shows the study area is attached for reference.

On behalf of our client, ESD, this letter was prepared as stakeholder input into the WWSMP following PIC#2. Based on the documents submitted as part of the boundary expansion OPA application for the subject lands, we believe that the Elora Sands should be considered in the WWSMP study. Specifically, the existing infrastructure should be utilized to the maximum extent possible in accordance with the 2024 Provincial Planning Statement. The assessment of capacity in the Irvine Street sanitary sewer and its logical extension should be considered.

The proposed sanitary servicing strategy for the subject lands and the Keating Farm documented in the OPA application submitted by ESD recommended two trunk sanitary sewer outlets; the Irvine Street trunk sewer and the Steven Way trunk sewer proposed to be extended via the Ainley Farm Subdivision with sufficient size and depth to accommodate future development.

Prior to the OPA application, MTE prepared and submitted several technical memos, on behalf of ESD for the subject lands, between 2022 and 2024 to the Township as well as to the owner and consultant of the Ainley Farm Subdivision (same owner as the Keating Farm). These technical memos documented MTE's assessment of the available capacity of the north Elora sanitary sewer system up to the Elora Wastewater Treatment Plant (WWTP) with the recommendation of the sanitary servicing strategy for the development of the subject lands and Keating Farm proposed in the OPA application. The technical memos recommended utilizing the remaining capacity of the Irvine Street trunk sewer and that the Steven Way trunk sewer should be extended via the Ainley Farm Subdivision as a 300mm diameter allowing for sufficient capacity and depth to service the development lands north of the Ainley Farm Subdivision which optimizes the capacity of the existing Steven Way trunk sewer. The technical memos also proposed a cost-sharing rationale and financial commitment from ESD for the upsizing of this new trunk sewer with the owner of the Ainley Farm Subdivision.

The existing 200mm diameter sanitary trunk sewer on Irvine Street has capacity to accommodate some growth capacity. The existing sewer also has sufficient depth to service by gravity most of the subject lands. The Irvine Street sanitary trunk sewer flows south on Irvine and discharges west into the Colborne Street trunk sewer and then south on the North Queen Street sewer. Considering the ultimate development of north Elora in the fullness of time, the Irvine Street sewer should be considered for upgrades at this time, as shown on Figure MS1.1.

There are several other infrastructure projects that the Township already has planned surrounding the subject lands and specifically along the Irvine Street corridor whereby the sanitary trunk sewer upgrades should also be included, as noted in the following paragraphs.

The Township's 2020 Development Charges (DC) Background Study prepared by Watson & Associated Economists Ltd. identified several projects surrounding the subject lands to accommodate future growth of the Township. Notably, new watermains are proposed on Irvine Street from Bricker Avenue north (adjacent to the subject lands) to the proposed new municipal supply well Area 5 as well as along Gerrie Road. Additionally, Sideroad 15 and Gerrie Road along the frontage of the subject lands are proposed for road improvements in the near term.

In 2024, WSP Canada Inc. (WSP), on behalf of the Township, completed the Stormwater Management Master Plan for Centre Wellington (SWM MP) with the final report dated April 9, 2024. The SWM MP documented high priority storm sewer upgrade projects to be completed by the Township. These projects were recommended for implementation within the next 10 years. Two of the identified priority projects are Project 2c which includes upgrading the storm sewers on Irvine Street (between Sophia Street and the Grand River outlet) and Project 2b which includes upgrades on North Queen Street (between David Street and the Grand River outlet). Refer to attached Figure 9A from the SWM MP.

Considering the recommended priority project storm sewer improvements as well as other proposed DC infrastructure projects, we believe that the Township should plan for upgrading the Irvine Street sanitary trunk sewer through the WWSMP. Specifically, the trunk sewer should be upgraded as part of SWM MP Project 2c. Based on the design lifespan of municipal infrastructure, planning of infrastructure improvements should consider improvements in the fullness of time to maximize the utility of existing infrastructure. Completing sanitary upgrades in conjunction with storm sewer upgrades would allow for efficiency from a construction and economic perspective and should be considered at this time to avoid having to excavate the road again in the near future. When additional capacity in the Irvine Street trunk sewer is required, the portion of the trunk sewer north of Sophia Street up to the existing stub should be upgraded. These sanitary trunk sewer upgrades on Irvine Street should also be added to the next DC study update.

We would like to identify another area that should be reviewed as part of the WWSMP. The sanitary trunk sewer on North Queen Street (between Colborne Street and East Mill Street) currently appears to exhibit some surcharging based on theoretical flows under existing conditions. We understand that through the development of the Ainley Farm Subdivision, sewer upgrades were recommended on Colborne Street west of Steven Way. Based on the Township's DC Study, the Colborne Street trunk sewer is planned to be upgraded through the Ainley Farm Subdivision works in the near term. However, upgrades do not appear to be proposed as part of the DC study for Colborne Street west of Irvine Street or North Queen Street, although these sewers experience some surcharging based on theoretical flows.

Therefore, considering the recommended storm sewer upgrades in Project 2b of SWM MP, we believe the Township should review the trunk sanitary sewers within this project area prior to construction. Flow monitoring of the trunk sewers in this area under existing conditions, specifically at the intersection of Irvine Street and Colborne Street, would provide additional clarity on the capacity of downstream infrastructure and which upgrades may be necessary and added to the next DC study update.

Through this, we believe that the Irvine Street sanitary trunk sewer should be reviewed through the WWSMP for upgrades at this time in conjunction with the other infrastructure improvement projects already planned by the Township which would represent the ultimate sanitary servicing strategy for the ultimate development of north Elora in the fullness of time.

Please feel free to contact the undersigned if you have any questions, and we would be available to meet to discuss should you wish.

Yours truly,

MTE Consultants Inc.

Michael Felinczak, P.Eng.
Project Manager
519-743-6500 ext. 1454
mfelinczak@mte85.com

MXF:sgd

Encl.
cc: Marcus Gagliardi / Brendan Walton, Elora Sands Development Inc.
John Tyrrell, R.V. Anderson Associates Limited
Jeff Martens / Valentina Lazic, MTE

https://mte85.sharepoint.com/sites/49878-100/Shared Documents/01 - Correspondence/01-Preliminary/2025-05-09_WWSMP_Stakeholder Input/49878-100_ltr_2025-05-09_WWSMP_Stakeholder Input.docx

TOWNSHIP OF CENTRE WELLINGTON
NOTICE OF COMPLETE APPLICATION REGARDING
A PROPOSED OFFICIAL PLAN AMENDMENT

TAKE NOTICE that the Township of Centre Wellington has received a complete application for approval of an official plan amendment pursuant to Section 17 of the Planning Act, R.S.O. 1990. The Township's file number for this application is **OP003-2025.** The subject land is known municipally as 6574 Gerrie Road and 7581 Sideroad 15 in Elora as shown on the key map below.

Purpose and Effect
The purpose of the proposed official plan amendment is to bring land into the Elora/Salem Urban Centre and redesignate the lands to Residential and Core Greenlands. The effect of the amendment is to redesignate the lands for future residential development.

A related application has been filed to the County of Wellington at amend the County Official Plan (**File OP-2025-06**)

Notice of Passing
If you wish to be notified of the decision of the Township of Centre Wellington in respect of the proposed official plan amendment, you must make a written request to the Clerk of the Township of Centre Wellington, 1 MacDonald Square, Elora, Ontario, N0B 1S0.

If the official plan amendment is adopted, it will be forwarded to the County of Wellington for approval. If you wish to be notified of the decision of the Corporation of the County of Wellington in respect of the proposed official plan amendment, you must make a written request to the Director, Planning and Development Department, County of Wellington, 74 Woolwich Street, Guelph, Ontario, N1H 3T9.

Appeal Rights
TAKE NOTICE that if a person or public body would otherwise have an ability to appeal the decision of the County of Wellington to the Ontario Land Tribunal (OLT) but the person or public body does not make oral submissions at a public meeting or make written submissions to the Township of Centre Wellington before the official plan amendment is adopted, the person or public body is not entitled to appeal the decision.

AND TAKE NOTICE that if a person or public body does not make oral submissions at a public meeting, or make written submissions to the Township of Centre Wellington before the proposed official plan amendment is adopted, the person or public body may not be added as a party to the hearing of an appeal before the Ontario Land Tribunal (OLT) unless, in the opinion of the Tribunal, there are reasonable grounds to add the person or pubic body as a party.

Additional Information
For more information about this matter, including information about preserving your appeal rights, contact Chantalle Pellizzari, Supervisor of Development Administration at the contact information provided below.

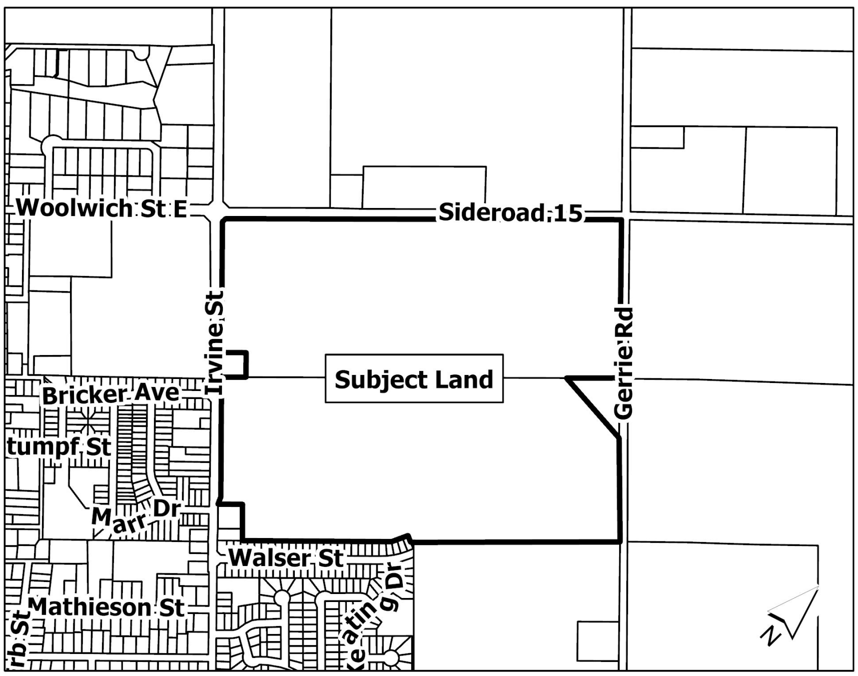
- By Phone at 519-846-9691 x241
- By Email at cpellizzari@centrewellington.ca

Comments on this application should be submitted by **May 30, 2025** and can be submitted to the Municipal Clerk (contact information below).

Details of this application can be viewed on the Township website at:
https://www.centrewellington.ca/currentapplications/

Notice of Collection of Personal Information
Personal information is being collected in order to gather feedback and communicate with interested parties regarding this development proposal. Information provided or presented at a public meeting is considered a public record and may be posted on the City's website or made public upon request.

This information is collected under the authority of the Planning Act, R.S.O. 1990, c. P.13. Questions about this collection should be directed to the Clerk's Office at 519-846-9691 or clerks@centrewellington.ca



Dated at the Township of Centre Wellington this 29th day of April, 2025.

Kerri O'Kane, Municipal Clerk
Township of Centre Wellington
1 MacDonald Square
Elora, Ontario
N0B 1S0
Phone: (519) 846-9691
Fax: (519) 846-2074
Email: kokane@centrewellington.ca

Notice of Public Information Centre #2

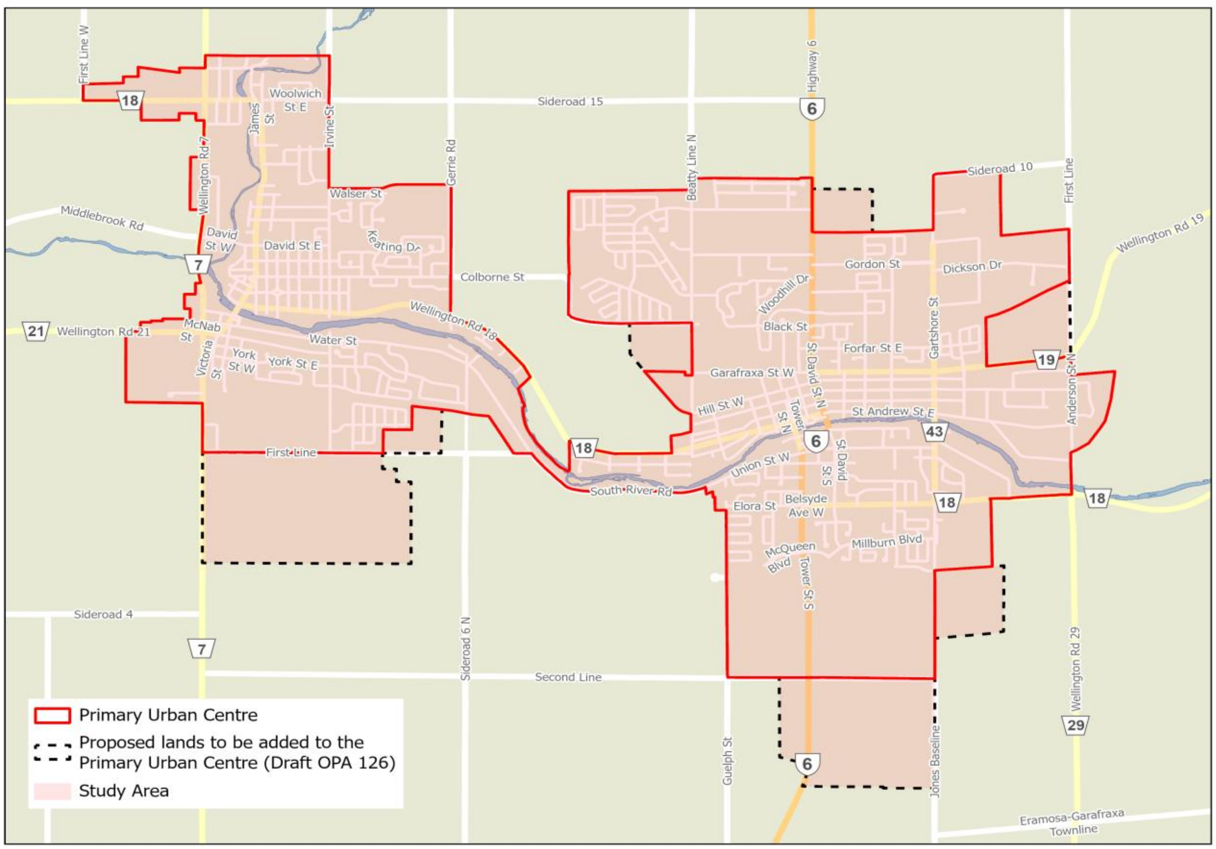
Municipal Class Environmental Assessment Study for a Water and Wastewater Servicing Master Plan

You Are Invited!

The Township of Centre Wellington welcomes your attendance at the second in-person Public Information Centre (PIC) meeting for the Municipal Class Environmental Assessment Study for the Water and Wastewater Servicing Master Plan. This PIC will be seeking feedback from the public on a preferred Water and Wastewater Servicing alternative and evaluation process.

Date & Time: April 24th, 2025, 6:00 pm – 8:00 pm

Location: Elora Centre for the Arts, 75 Melville St, Elora, ON N0B 1S0



The Project

The Township of Centre Wellington has initiated a Water and Wastewater Servicing Master Plan (WWSMP) to service future growth in the Township. This study will help identify capacities and constraints on the existing water and wastewater systems and potential future constraints caused by planned development. The study area aligns with Fergus and Elora / Salem urban boundaries, and proposed lands to be added to the Primary Urban Centre (Draft OPA 126), as illustrated in the figure above.

The Study Process

This Municipal Class Environmental Assessment Study is being carried out in accordance with the requirements for Master Plans as outlined in the Municipal Engineers Association's Municipal Class Environmental Assessment document (October 2000, as amended). This study will address Phases 1 and 2 of the Municipal Class Environmental Assessment Study process to identify any problems or opportunities within the Water and Wastewater systems, identify alternative solutions, and establish a preferred alternative.

Consultation and Input

At the PIC, the preliminary preferred water and wastewater servicing alternative and evaluation process will be presented, and attendees will have the opportunity to direct any comments or questions related to the project directly to the Project Team.

If you are unable to attend the PIC, a webpage containing study information is available. An online forum will be made available at this webpage from **April 24th to May 8th, 2025** to allow stakeholders to share, collaborate, exchange ideas and learn more about this project. To access the online forum and review ongoing project updates, visit the webpage at:

https://www.connectcw.ca/WWSMP

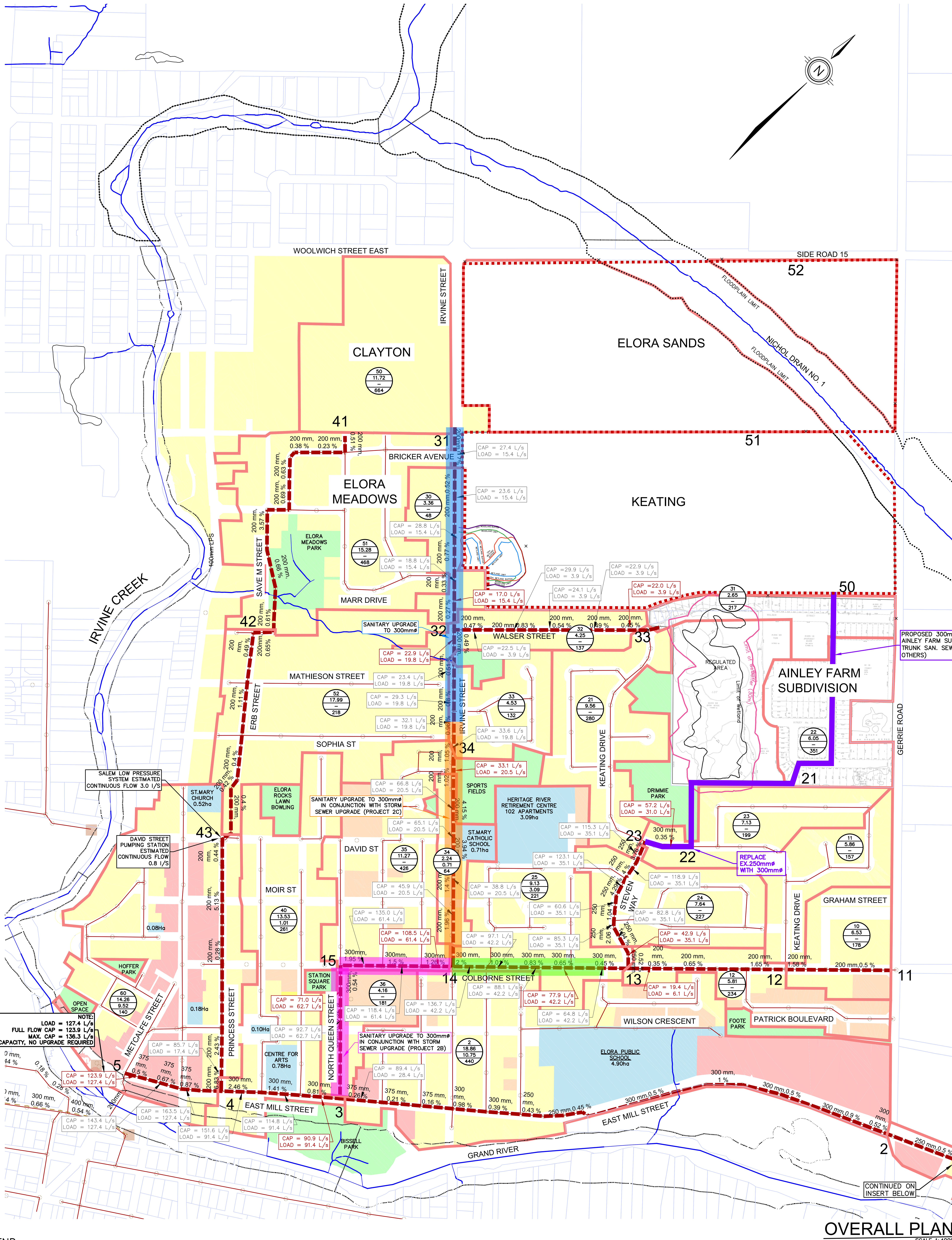
If you have questions or comments regarding the Study, or would like to be included on the mailing list to receive future notices and study updates, please contact one of the Project Team members below:

Ryan Maiden, P.Eng
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON N0B 1S0
519-846-9691 x 285
rmaiden@centrewellington.ca

John Tyrrell, M.Sc, P. Eng.
Consultant Project Manager
R.V. Anderson Associates Limited
519-691-9916 x 5038
JTyrrell@rvanderson.com

Information will be collected in accordance with the *Municipal Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

This notice was first issued on April 10, 2025



OVERALL PLAN

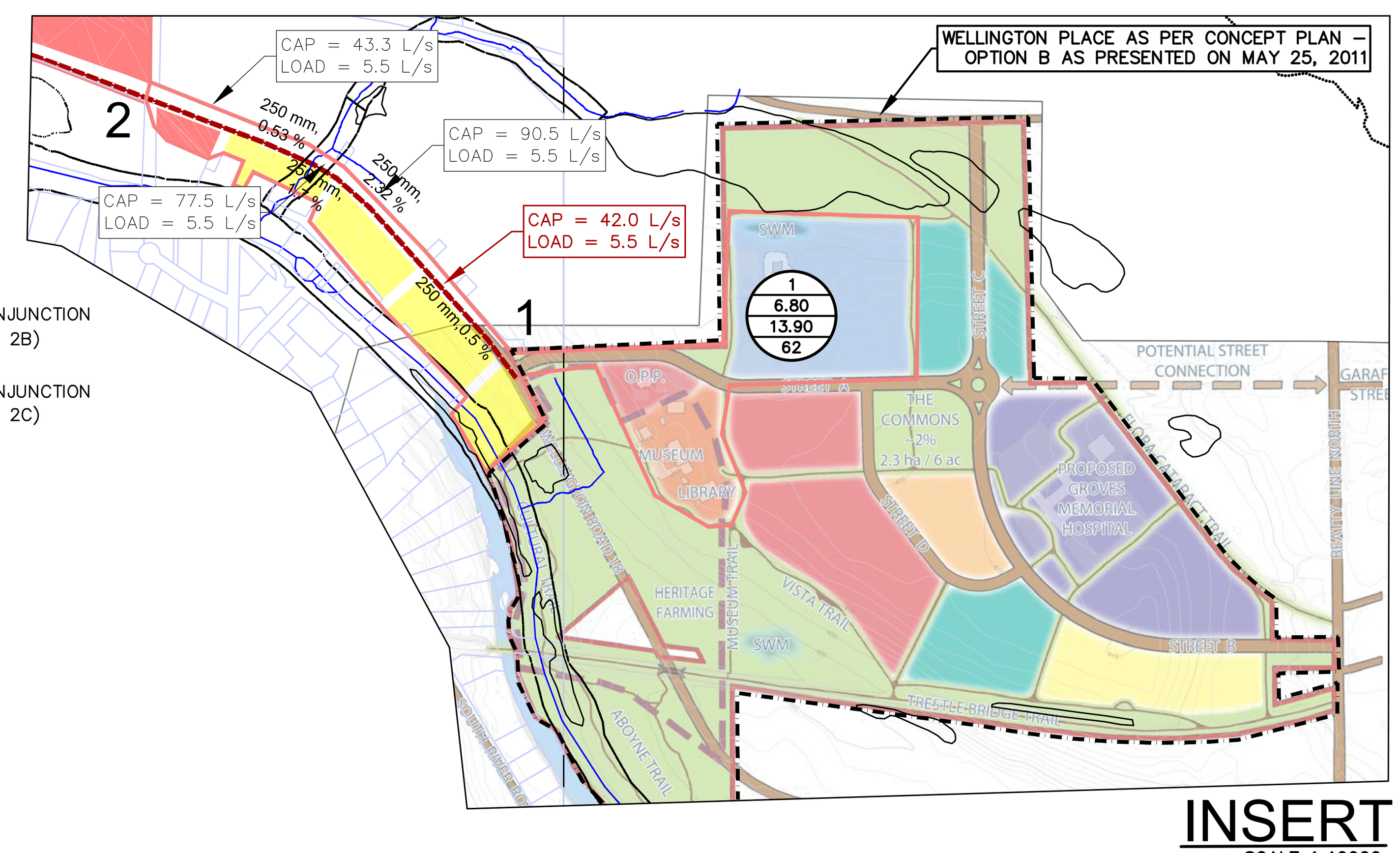
SCALE 1:4000

LEGEND

- 300 mm, 2.46% — EXISTING SANITARY SEWER TRUNK
- EXISTING SANITARY SEWER PIPE AND MANHOLE
- DRAINAGE AREA
- ID No. / RESIDENTIAL AREA (Ha) / NON-RESIDENTIAL AREA (Ha) / POPULATION (101 / 8.78 / 10.35 / 103)
- FUTURE DRAINAGE AREA: ID No. / AREA (Ha) / POPULATION (100 / 30 / 1390)
- REGULATION AREA LIMIT
- FLOODLINE LIMIT
- PUMPING STATION
- WASTEWATER TREATMENT PLAN
- × EXISTING GROUND ELEVATION
- ESTIMATED SANITARY CONNECTION CONDITIONS (OG=415.0, SAN OBV.=408.8±, DEPTH=6.2m±)
- 2 — JUNCTION NUMBER
- CAP = 39.9 L/s, LOAD = 28.4 L/s — CAPACITY AND FLOW LOAD WITHIN JUNCTIONS
- PROPOSED FORCEMAIN
- PROPOSED SANITARY SEWER
- UPGRADE ALREADY IN PROGRESS (SHOWING ASSUMED UPGRADED SIZE AND CAPACITY)
- SANITARY UPGRADE TO 300mmø IN CONJUNCTION WITH STORM SEWER UPGRADE (PROJECT 2B)
- SANITARY UPGRADE TO 300mmø IN CONJUNCTION WITH STORM SEWER UPGRADE (PROJECT 2C)
- SANITARY UPGRADE TO 300mmø

LAND-USE FOR SANITARY ANALYSIS BASED ON ELORA OFFICIAL PLAN

- RESIDENTIAL
- MULTI-RESIDENTIAL
- COMMERCIAL
- INSTITUTIONAL
- OPEN SPACE
- SUBJECT LANDS



INSERT

SCALE 1:10000

PRELIMINARY

Sources: May include data from the Grand River Conservation Authority, County of Wellington, Teranet (2004) and © 2021 of the Queens Printer For Ontario.

Data provided herein is derived from sources with varying levels of accuracy and currency.

This is not a survey product.

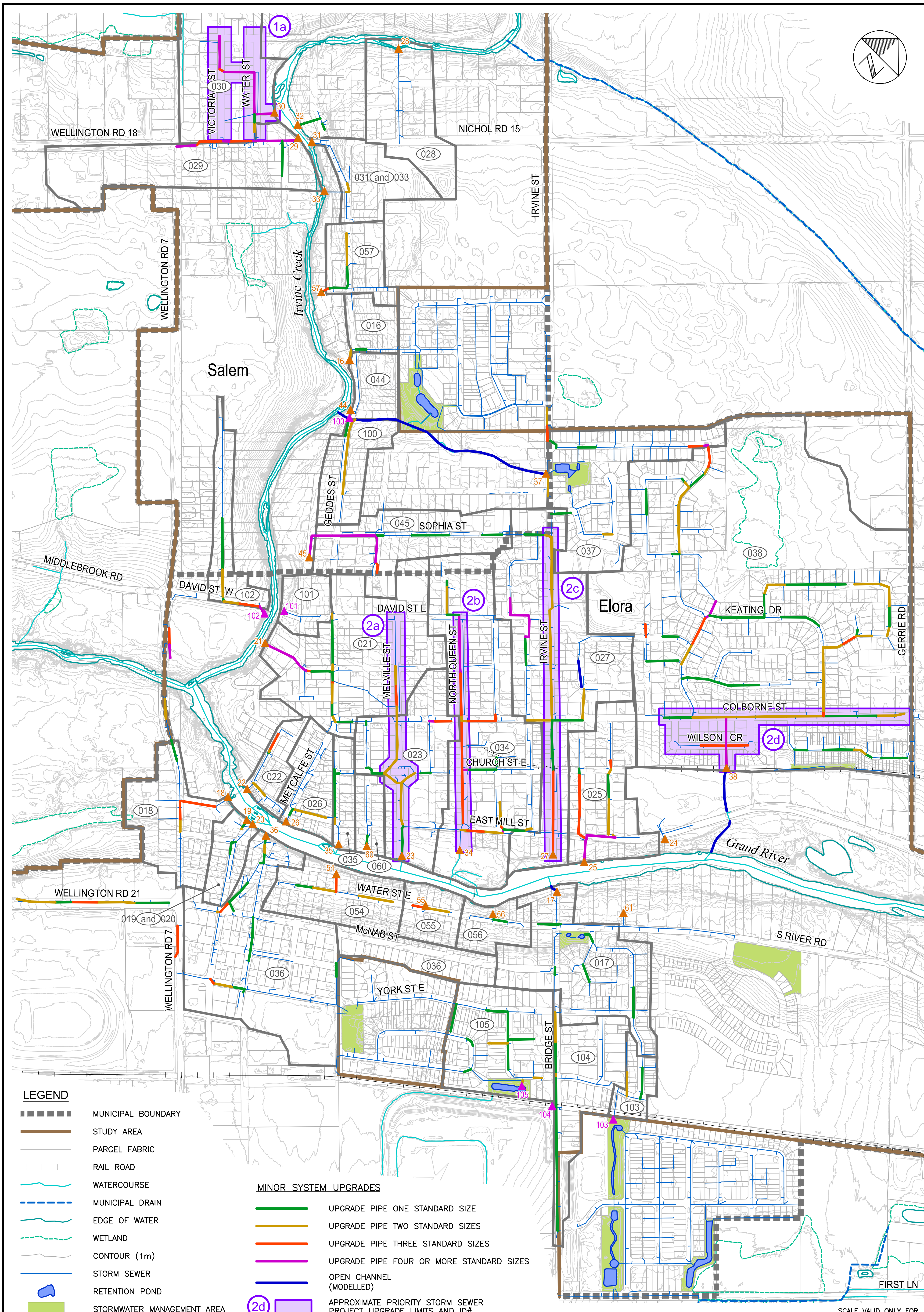
0 50 100 150 200 250m

MTE Engineers, Scientists, Surveyors

PROJECT	ELORA SANDS
TITLE	ULTIMATE CONDITIONS SANITARY ASSESSMENT
Drawn	ACH
Scale	1:4,000
Figure	MS1.1
Checked	MXF
Project No.	49878-100
Date (yyyy-mm-dd)	2025-01-31
Rev No.	0

Plot Date: May 8, 2025 – 4:17 PM

CAD: P:\P\49878\100\49878-100-MS1.DWG



CENTRE WELLINGTON
STORMWATER MASTER PLAN
TOWNSHIP OF CENTRE WELLINGTON

5 YEAR STORM EVENT
MINOR SYSTEM UPGRADES
(ELORA / SALEM)

wsp

Scale 1:5000
0 50 100 200

Consultant File No.
WW22011069

Figure No.
9A

Path: D:\PROJECT\2022\WW22011069 – Wellington SWM MP\14 CAD\CIV\WKS\WR\PROJ\2024-02\Fig9A MinSysUPG-5YR-EX(Elora).dwg
Last Saved: 2024-02-26 Last Saved By: wds_richard.bartolo Plotted: 2024-03-05 Plotted By: wds_richard.bartolo

Developers

Hannah Groenewegen

From:	Dania Chehab
Sent:	June 9, 2024 6:27 PM
To:	Hannah Groenewegen; Natasha Lee
Subject:	FW: Project Contact List - CW Water and Wastewater Master Plan

From: James Fletcher <jfletcher@cfcrozier.ca>
Sent: Friday, June 7, 2024 3:00 PM
To: Dania Chehab <dchehab@rvanderson.com>; Rmaiden@centrewellington.ca
Cc: Matt Britton <mbritton@cfcrozier.ca>
Subject: Project Contact List - CW Water and Wastewater Master Plan

[CAUTION EXTERNAL EMAIL] Make Sure that it is legitimate **before** Replying or Clicking on any links

Hi Ryan and Dania,

I was reviewing the Notice of Study Commencement for the Centre Wellington Water and Wastewater Master Plan and it advised to reach out to you if we wanted to be added to the project contact list. Could you please add myself and Matt Britton (CC'd) to the project contact list?

Thanks in advance for your help with this!

Best,
James

James Fletcher
Engineering Intern, Land Development
Office: 905.876.7132
Collingwood | Milton | Toronto | Bradford | Guelph

John Tyrrell

From: Ryan Maiden <RMaiden@centrewellington.ca>
Sent: June 30, 2025 11:23 AM
To: John Tyrrell
Cc: Darika Sharma
Subject: FW: Township Master Water and Wastewater Servicing Plan - Crozier Comments
Attachments: 2025.06.24 - Scotland Street_Sanitary Sewer Comments_Crozier.pdf

Importance: High

Good Morning,

Can we please add this letter from Crozier into the feedback section under appendix 2.

Regards,

Centre Welling
Ryan Maiden, P.Eng
Project Manager | Engineering
1 MacDonald Square, Elora ON, N0B 1S0
T: 519-846-9691 x285 **C**: 226-378-4476
www.centrewellington.ca

From: Amanda Pinto <apinto@cfcrozier.ca>
Sent: June 24, 2025 12:16 PM
To: Ryan Maiden <RMaiden@centrewellington.ca>
Cc: Jurgen Koehler <jkoehler@cfcrozier.ca>; Kevin Fergin <kfergin@cfcrozier.ca>; Adam Gilmore <AGilmore@centrewellington.ca>; Steven Wright <wrighthavenhomes@gmail.com>
Subject: Township Master Water and Wastewater Servicing Plan - Crozier Comments
Importance: High

Apologies for the second email Ryan, just copying in Adam and Steve as well.

Regards,

Amanda Pinto, P.Eng., MEL
Project Manager, Land Development

Office: 905.876.7091
Collingwood | Milton | Toronto | Bradford | Guelph

We've marked another milestone in our vision for growth. Learn how, here.

CROZIER

From: Amanda Pinto <apinto@cfcrozier.ca>
Sent: June 24, 2025 11:21 AM
To: Ryan Maiden <rmaiden@centrewellington.ca>
Cc: Jurgen Koehler <jkoehler@cfcrozier.ca>; Kevin Fergin <kfergin@cfcrozier.ca>
Subject: Township Master Water and Wastewater Servicing Plan - Crozier Comments
Importance: High

Good morning Ryan,

Thank you again for taking the time to meet with us earlier this month to discuss the changes to the proposed Master Water and Wastewater Servicing Plan for Centre Wellington.

As discussed during our call, we have outlined our comments and concerns in the attached letter for your review and record. We would appreciate your confirmation of receipt. Additionally, please keep us informed of any further changes to the Master Servicing Plan prior to its return to Council. Can you confirm that the Council meeting is still scheduled for June 30th?

Also, at this stage, would it be possible to share the Scotland Street sanitary sewer capacity analysis that was completed to confirm the available capacity for the FE4 area?

Regards,
Amanda Pinto, P.Eng., MEL
Project Manager, Land Development
Office: 905.876.7091
Collingwood | Milton | Toronto | Bradford | Guelph

We've marked another milestone in our vision for growth. Learn how, here.

CROZIER

This email was sent on behalf of C.F. Crozier & Associates Inc. and may contain confidential and/or privileged information for the sole use of the intended recipient. If you have received this email in error, please contact the sender and delete all copies. Any review or distribution by anyone other than the intended recipient is strictly prohibited.

JUNE 24, 2025

PROJECT NO: 2553 - 6858

SENT VIA: EMAIL
RMAIDEN@CENTREWELLINGTON.CA

Township of Centre Wellington
1 MacDonald Square
Elora, ON, N0B 1S0

Attention: **Ryan Maiden, P.Eng.**
Project Manager, Engineering

RE: **DRAFT MASTER WATER AND WASTEWATER SERVICING PLAN**
CROZIER COMMENTS
ON BEHALF OF THE OWNER OF 930 SCOTLAND STREET

Dear Ryan,

Crozier recently reviewed the final draft of the Water and Wastewater Master Servicing Plan, dated May 16, 2025, and the information presented at the Township Council meeting on May 26, 2025. We noted some significant changes being proposed regarding the preferred sanitary servicing approach for area FE4 (inclusive of 930 Scotland Street), fronting onto Scotland Street.

We note that the information presented at the May 26, 2025, Township Council meeting differed from the preferred sanitary servicing approach presented at the April 24, 2025, Public Information Centre (PIC) #2. Refer to the enclosed Figure 1 presented at PIC #2. The preferred sanitary servicing approach for area FE4 at PIC #2 proposed the extension of the existing sanitary sewer along Scotland Street that drains north by gravity to the existing Fergus Wastewater Treatment Plant. However, at the May 26, 2025 Council meeting, the preferred sanitary servicing approach was changed, such that area FE4 was proposed to be serviced via the extension of the future South Fergus gravity sanitary sewer to the future South Fergus Sewage Pumping Station (WW-F-SPS). Refer to the enclosed Figure 2 presented at the May 26, 2025, Township Council meeting.

These proposed changes have a significant impact on the proposed servicing strategy for area FE4. It was previously understood that the Scotland Street sanitary sewer had capacity allocated for FE4, as a significant portion of the area naturally drains northwest to its terminus.

In a virtual discussion with Township engineering staff (Staff) on June 13, 2025, Staff noted that they were of the original understanding that area FE4 was included in the design for the existing Scotland Street sanitary sewer. However, upon further analysis through this Master Servicing Plan process, it was determined that there is insufficient sanitary sewer capacity for the entirety of area FE4 based on currently contemplated land use planning densities. During this discussion, Staff explained that they conservatively calculated the existing sanitary sewer pipe capacity using a sanitary flow design sheet, with a population factor of 53 people/ha and a 15% capacity buffer for the sewer. The sanitary flow design sheet also accounted for flows from the existing nearby school and the surrounding area, with some of these flows being estimated. According to Staff, there is potential for approximately 10 ha (or approximately 530 people) of area FE4 that could outlet to the existing Scotland Street sanitary sewer.

55 Wyndham St. N., Suite 215
Guelph, ON N1H 7T8
T. 548.708.0022
cfcrozier.ca

To maximize the sewer infrastructure use for its serviceable capacity, we request that the Township include an acknowledgment in their final Water and Wastewater Master Servicing Plan Report that a portion, or the entirety of the FE4 area, as may be determined through future study, may outlet to the existing Scotland Street sanitary sewer.

The final draft of the Water and Wastewater Master Servicing Plan (dated May 16, 2025), notes that the connection to the sanitary sewer on Scotland Street would require 1,200m of new sanitary sewer along Scotland Street, Belsyde Avenue and Elgin Street, at an estimated capital cost of $3.3 million. If only a portion of area FE4 drains to the existing Scotland Street sanitary sewer, this cost will be avoided and maximizes the use of existing infrastructure that has already been designed, built, and paid for.

Prior to the Council meeting on June 30, 2025, Crozier is submitting the above comments for review and consideration regarding the Final Water and Wastewater Master Servicing Plan and sanitary servicing options for area FE4.

Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

Jurgen Koehler, P.Eng.
Partner

C.F. CROZIER & ASSOCIATES INC.

Kevin Fergin, P.Eng.
Vice President

AP:KF/tc

c.c. Adam Gilmore, Manager of Engineering, Township of Centre Wellington
Steven Wright, Property Owner – 930 Scotland Street

Enclosures:

- Figure 1 - Preferred Water/Wastewater Solutions [Public Information Centre #2, April 24, 2025]
- Figure 2 - Proposed Collection System Upgrades [Draft Master Water and Wastewater Servicing Plan, May 16, 2025]

J:\2500\2553 - WrightHaven Homes Limited\6858 - Scotland Street Subdivision\Letters\Master Water and Wastewater Servicing Plan\2025.06.24 - Scotland Street_Sanitary Sewer Comments_Crozier.docx

FIGURES

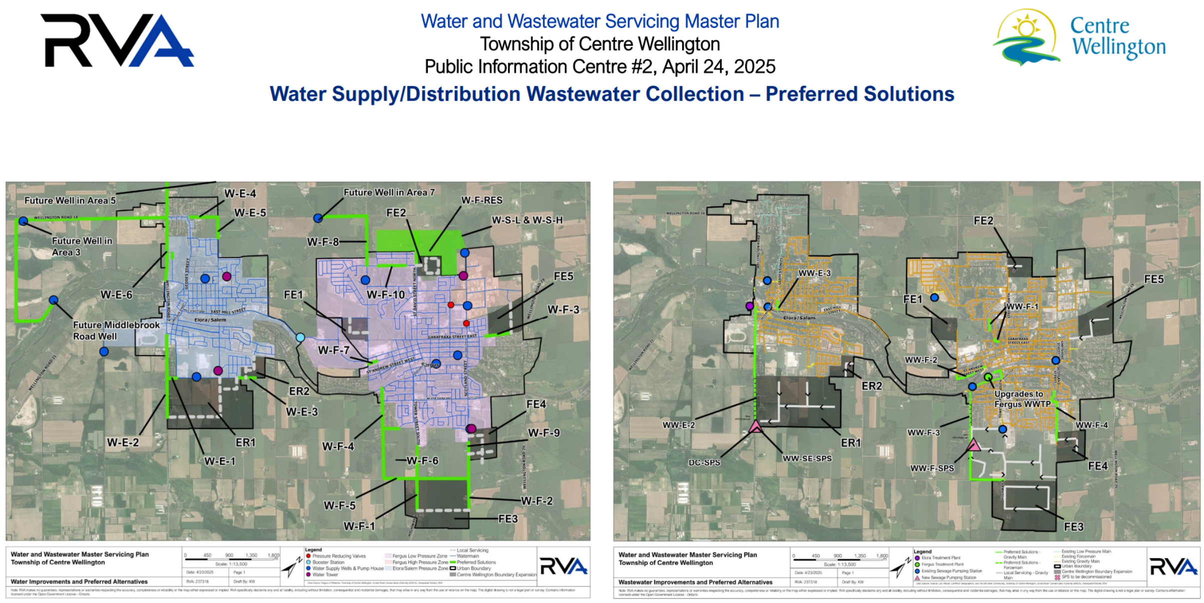


Figure 1 - Preferred Water/Wastewater Solutions
[Public Information Centre #2, April 24, 2025]

Water and Wastewater Servicing Master Plan
Master Plan Report

ES - 14

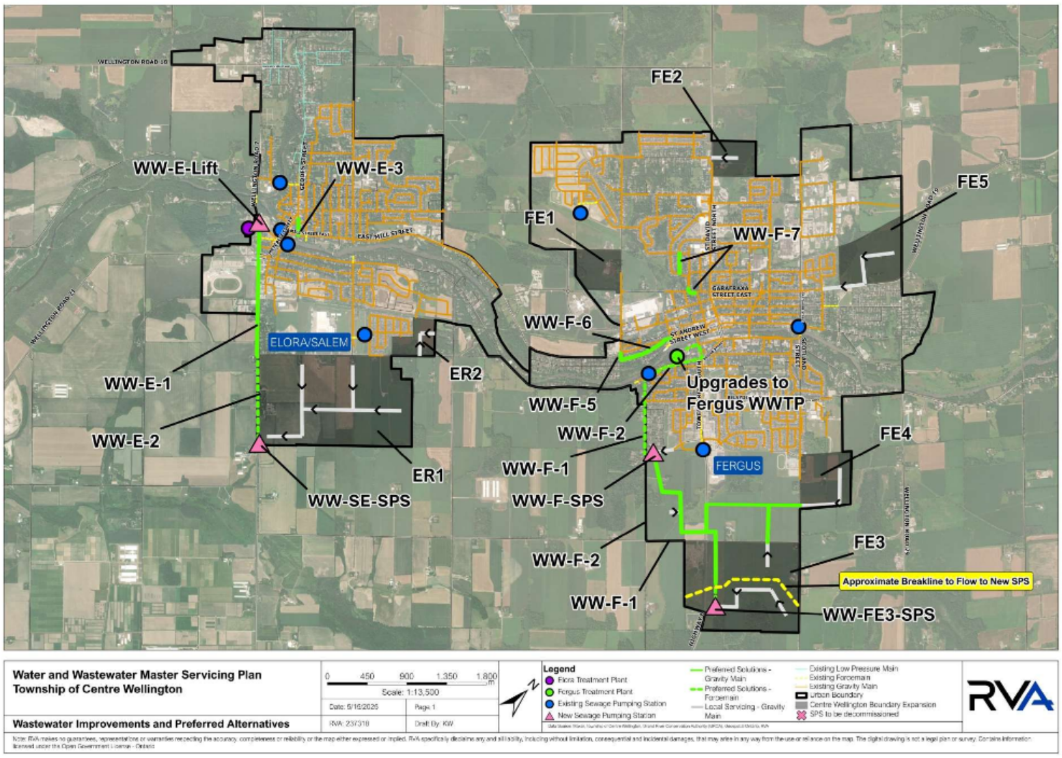


Figure ES-5 Proposed Collection System Upgrades for Servicing to 2051

Township of Centre Wellington
May 16, 2025

RVA 237318
DRAFT

Figure 2 - Proposed Collection System Upgrades
[Draft Master Water and Wastewater Servicing Plan, May 16, 2025]

Matthew Cory
905 513 0170 x116
MCory@mgp.ca

June 30, 2025

MGP File: 22-3192

Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0

via email: rmaiden@centrewellington.ca

Attention: Mr. Ryan Maiden
Water and Wastewater Capital Project Manager

Dear Mr. Maiden:

RE: Comments on Staff Report IS2025-21 (Water & Wastewater Servicing Master Plan)
Elora Sands Developments Inc.
7581 Nichol Road 15, Centre Wellington

Malone Given Parsons Ltd. ("MGP") is the planning consultant for Elora Sands Developments Inc. ("Elora Sands"), the owner of property municipally known as 7581 Nichol Road 15 ("Elora Sands Lands"), in the Township of Centre Wellington.

The purpose of this letter is to provide comments behalf of Elora Sands in response to Staff Report IS2025-21, which outlines a preferred servicing strategy to support population and employment growth to the 2051 planning horizon. The strategy is informed by proposed urban expansion areas associated with Official Plan Amendment 126 (OPA 126), which are areas that have not yet been finalized and remain subject to change pending Provincial approval.

On April 24, 2025, the County of Wellington adopted OPA 126 to implement recommendations of the County's Land Needs Assessment and Growth Management Plan. OPA 126 proposes to redesignate and expand settlement area boundaries to address urban land needs in Centre Wellington, accommodate a mix of land uses, update housing policies, and introduce new employment area policies. The proposed amendment is currently under review by the Ministry of Municipal Affairs and Housing, with the commenting period open until July 18, 2025.

Elora Sands has made a formal submission to the Ministry expressing concern over the exclusion of its lands from the proposed expansion and requesting that the Subject Lands be included within the urban boundary, which was deemed complete in May 2025. The submission outlines how the inclusion of these lands would represent a more appropriate and efficient location for growth, better aligning with the settlement area expansion criteria within the Provincial Planning Statement 2024 and the County's own settlement area expansion criteria, than other areas identified in OPA 126. As part of this application, Elora Sands hosted a community open house on June 24, 2025, which was attended by over 50 local residents and stakeholders. The event provided an opportunity to share information, answer questions, and gather feedback related to the proposal. Elora Sands has formally requested that the Province include its lands within the urban boundary.

As OPA 126 has not yet been approved, and the proposed expansion areas remain subject to change, it is premature to finalize a servicing strategy that is based on an unconfirmed urban boundary. Should the Province modify the proposed boundary, which it has full authority to do, the servicing assumptions and infrastructure planning laid out in the current Master Plan may no longer align with the final approved settlement areas. Proceeding with the Master Plan now could limit the Township's flexibility and reduce its ability to service growth efficiently and cost-effectively once OPA 126 is finalized.

As such, we respectfully request that the Township consider deferring finalizing the Master Plan until the Province has rendered a decision on OPA 126. Should you have any questions or require further information, please do not hesitate to contact the undersigned.

Yours very truly,
Malone Given Parsons Ltd.

Matthew Cory, MCIP, RPP, PLE, PMP
Principal, Planner, Land Economist, Project Manager

WALTERFEDY

MEMO

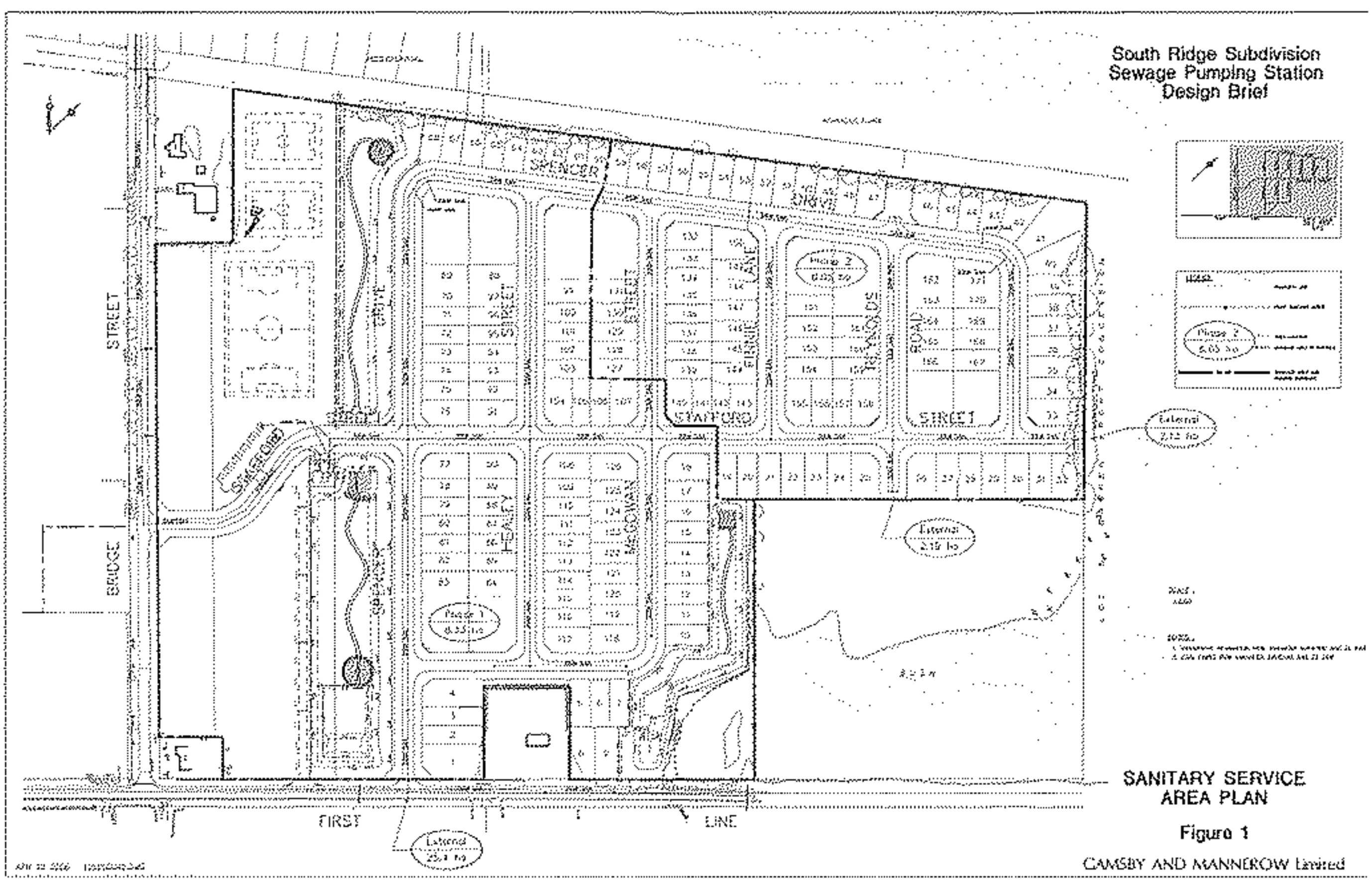
To:	Township of Centre Wellington c/o Ryan Maiden, P.Eng. John Tyrrell, M.Sc. (Eng.), P.Eng.	Project No.:	2025-0082-10	Date:	June 30, 2025
Subject:	Sanitary Capacity Analysis	Project:	159 1st Line, Elora Ontario		
		From:	Erika Woods, P.Eng., Dan Ferguson, P.Eng., MBA.		

On behalf of our client, we respectfully submit this letter for your consideration regarding the sanitary servicing strategy for future development of the lands located at 159 1stLine in Elora. As part of the Township's ongoing Water and Wastewater Strategy, presented at the Public Information Meeting #2 on April 24, 2025, we understand that a new sanitary pumping station is being proposed to service the future growth south of 1st Line in Elora.

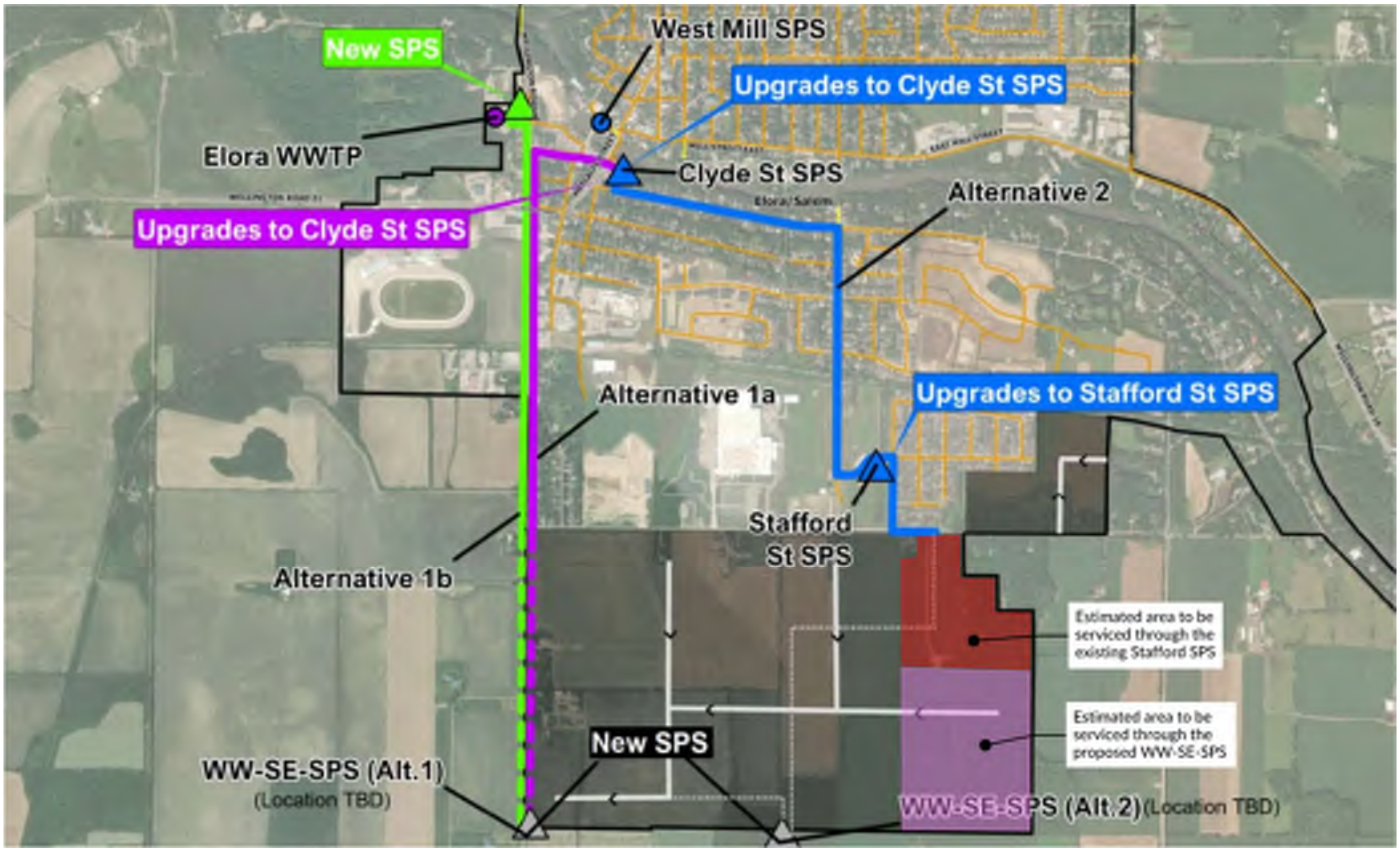
The Township's Water and Wastewater Master Servicing Plan (MSP), presented at Public Information Centre #2 on April 24, 2025, outlines a comprehensive strategy to accommodate growth to the year 2051. Within this plan, the lands south of 1st Line are identified as part of the South Elora expansion area, requiring new wastewater infrastructure. The MSP evaluates multiple servicing alternatives, including the construction of new forcemains and gravity sewers along Wellington Road 7, and upgrades to existing infrastructure including the Stafford Sanitary Pumping Station (SPS).

The existing Stafford SPS was designed and constructed with sufficient capacity to accommodate the South Ridge Subdivision and external lands, including those located south of First Line. According to the Final Design Brief prepared by Gamsby and Mannerow Ltd. in April 2008, the Stafford SPS was designed to handle a total peak flow of 41.7 L/s. This flow includes 21.4 L/s allocated to Phase 1, 2, 3, and designated external areas, and 20.3 L/s reserved for future combined flows, specifically including the lands south of 1st Line. The design brief also notes that the station was sized to service 274 residential units within Phase 1, 2, 3 and adjacent external areas, excluding the lands south of 1st Line. Given the comparable peak flow values, it is reasonable to conclude that the lands south of 1st Line could support a similar unit count.

It is our understanding that the external areas located east and south of the South Ridge Subdivision (2.12 hectares and 2.19 hectares respectively), have been accounted for through alternate connections to the South River development to the north. As a result, the remaining capacity at the Stafford SPS can be fully directed to the 25.4 hectares of land located south of 1st Line.



An existing 200-mm-diameter sanitary sewer is located along 1st Line and terminates northeast of the subject property. This sewer is connected to the Stafford SPS via a forcemain. From a high-level servicing perspective, we propose that Phase 1 of the development be serviced by connecting directly to this existing sewer on 1st Line. Phase 2 of the development could then be serviced through the Township's proposed SPS (WW-SE-SPS). This phased approach could be achieved either by raising the north portion of the site to allow a full gravity connection to the existing sewer or by implementing a private temporary pumping station to convey flows from Phase 1 to 1st Line until the proposed SPS is constructed.



In addition to utilizing the remaining design capacity at the South Ridge SPS, the Township could consider pump station upgrades including but not limited to wet well expansion, pump size/configuration, and forcemain twinning upgrades. Furthermore, continued efforts to reduce inflow and infiltration in the upstream collection system would help preserve capacity for new development. These measures, combined with the station's existing infrastructure and strategic location, present a cost-effective opportunity to maximize the utility of the Stafford SPS before investing in new facilities.

In light of these findings, we respectfully request that the Township prioritize the use of the existing Stafford SPS to its full design capacity before diverting flows to the newly proposed sanitary pumping station. This approach supports the efficient use of existing infrastructure and reduces the need for early capital investment in new facilities. We also request confirmation that the remaining sanitary capacity, as outlined in the 2008 Design Brief, be allocated to the lands south of 1st Line. We are eager to collaborate with Township staff to ensure a coordinated, cost-effective, and sustainable servicing strategy that aligns with the Township's infrastructure planning goals and housing targets.

We would welcome the opportunity to meet with Township staff to discuss this matter further and provide any additional technical documentation required. Thank you for your time and consideration.

APPENDIX

Supporting Documents

SOUTH RIDGE SUBDIVISION
SEWAGE PUMPING STATION

FINAL DESIGN BRIEF

TOWNSHIP OF CENTRE WELLINGTON

GAMSBY AND MANNEROW LIMITED
CONSULTING PROFESSIONAL ENGINEERS
GUELPH – KITCHENER – LISTOWEL – OWEN SOUND

April 2008
Our File: 105-050

TABLE OF CONTENTS

APPENDICES

Appendix "A"	Service Area Plan
Appendix "B"	Water Hammer Calculations
Appendix "C"	Floatation Check
Appendix "D"	Pump and System Head Curve
Appendix "E"	Emergency Storage

Gamsby and Mannerow
ENGINEERS

SOUTH RIDGE SUBDIVISION
SEWAGE PUMPING STATION
FINAL DESIGN BRIEF
TOWNSHIP OF CENTRE WELLINGTON
April 18, 2008
Our File: 105-050

1.0 INTRODUCTION

The proposed South Ridge Sewage Pumping Station is intended to provide sanitary service to the South Ridge Subdivision located at the southern boundary of the Town of Elora. This area is outside the existing drainage boundary, which can be serviced by gravity. The outlet for the South Ridge Sewage Pumping Station is an existing sanitary sewer on Bridge Street. The pumping station will serve the proposed development as well as the lands adjacent to the development that is captured in the natural drainage area. This includes external land to the east and south of the Phase 3 area. In the future, this pumping station could also accommodate additional flows from areas south of First Line.

2.0 THE PROPOSED WORKS

The proposed pumping station will be equipped with duplex submersible sewage pumps (100% mechanical standby), pumping sewage via approximately 200m of 150ϕ forcemain to an outlet manhole on Bridge Street.

A standby diesel generator will be provided for emergency power in the event of an extended power failure. The generator, appurtenances and control panel will be housed in the control building adjacent to the wet well in order to protect the equipment from weather, humidity and vandalism. As per Township recommendations, the site will have a 1.8m high chain link fence and access gate for security.

Operation of the station will be fully automatic with alarms sent to the Township of Centre Wellington's SCADA system.

people engineering environments
Gamsby and Mannerow Limited • Guelph, Kitchener, Listowel, Owen Sound
255 Woodlawn Road W., Suite 210, Guelph, ON N1H 8J1 519-824-8150 fax 519-824-8089 www.gamsby.com

3.0 DESIGN FLOW

3.1 CURRENT SERVICE AREA

The sewage pumping station is sized to service a total of 274 units (21.1 hectares), including external areas and industrial lands. The subdivision is planned to be constructed in three phases with 67, 76, 83 units in Phase 1, 2 and 3 respectively (refer to Service Area Plan in Appendix 'A'). An allowance for additional 48 residential units in external areas and industrial lands has been made for possible future development.

3.2 POPULATION SERVED

In order to estimate the service area population, an allowance of 3.3 persons/unit per single family dwelling and town home has been used.

Phase 1:
Number of units = 59 single family dwellings, 8 town homes
= 67 units
= 67 x 3.3 = 221 persons

Phase 2:
Number of units = 58 single family dwellings, 18 town homes
= 76 units
= 76 x 3.3 = 251 persons

Therefore, Phase 1 + Phase 2 = 472 persons

Phase 3:
Number of units = 66 single family dwellings, 17 town homes
= 83 units
= 83 x 3.3 = 274 persons

Therefore, Phase 1 + Phase 2 + Phase 3 = 746 persons

External Areas:
Number of units = 25 single family dwellings (External area 1) + 23 single family dwellings (External area 2)
= 48 units
= 48 x 3.3 = 158 persons

Therefore, design population for this development including external areas is:
Phase 1 + Phase 2 + Phase 3 + External Areas = 904 persons

3.3 PER CAPITA SEWAGE FLOW

Per capita sewage flow = 450 L/cap·d

3.4 INFILTRATION

Infiltration allowance = 0.15 L/ha·s

Service area:

Phase 1	= 5.42 ha,	Service area (Phase 1) = 5.42 ha
Phase 2	= 4.97 ha,	Service area (Phase 1 + 2) = 10.39 ha
Phase 3	= 6.40 ha,	Service area (Phase 1 + 2 + 3) = 16.79 ha
Phase 3 + External Areas	= 4.31 ha,	Service area (Phase 1 + 2 + 3+External) = 21.1 ha

3.5 OTHER FLOWS

Phase 1: Church flow = 0.0002 m^3/s = 0.2 L/s

3.6 AVERAGE DAY FLOW

Average day flow = Residential flow + Infiltration + Other flows

Phase 1

$$= \frac{221 \times 450}{1000 \times 86400} + \frac{5.42 \times 0.15}{1000} + 0.0002$$

$$= 0.0022\ m^3/s = 2.2\ L/s$$

Phase 1 + 2

$$= \frac{472 \times 450}{1000 \times 86400} + \frac{10.39 \times 0.15}{1000} + 0.0002$$

$$= 0.0042\ m^3/s = 4.2\ L/s$$

Phase 1 + 2 + 3

$$= \frac{746 \times 450}{1000 \times 86400} + \frac{16.79 \times 0.15}{1000} + 0.0002$$

$$= 0.0066\ m^3/s = 6.6\ L/s$$

Phase 1 + 2 + 3 + External areas

$$= \frac{904 \times 450}{1000 \times 86400} + \frac{21.10 \times 0.15}{1000} + 0.0002$$

$$= 0.0081\ m^3/s = 8.1\ L/s$$

3.7 PEAKING FACTOR

Peaking factor	= Harmon formula
	$= 1 + \left(\dfrac{14}{4+\sqrt{P}}\right)$ where, P is population in 1000's.
Phase 1	= 4.132
Phase 1 + 2	= 3.987
Phase 1 + 2 + 3	= 3.879
Phase 1 + 2 + 3 + external area	= 3.828

3.8 PEAK FLOW

Peak flow = (Residential flow x Peaking factor) + Infiltration + Other flows

Phase 1 (population = 221 persons)	= 0.0058 m^3/s =	5.8 L/s
Phase 1 + 2 (population = 472 persons)	= 0.0116 m^3/s =	11.6 L/s
Phase 1 + 2 + 3 (population = 746 persons)	= 0.0178 m^3/s =	17.8 L/s
Phase 1 + 2 + 3 + External Area (population = 904 persons)	= 0.0214 m^3/s =	21.4 L/s

3.9 FUTURE SERVICE AREA

The Township has identified development areas south of First Line that could be serviced by the South Ridge Sewage Pumping Station in the future. Provision has been made in the pumping station design to effectively accommodate this future service area at minimum cost. The Township has indicated that these lands are classified as employment lands and will be utilized for commercial and industrial purposes. As per MOE guidelines for commercial areas, a minimum allowance of 28 m^3/ha•d of average day flow and a peaking factor of 2 will be used.

Future service area = 25.4 ha

Therefore,

Average day flow = Flow for commercial areas + Infiltration

$$= \frac{25.4 \text{ x } 28}{86400} + \frac{25.4 \text{ x } 0.15}{1000}$$

$$= 0.0120 \text{ m}^3/\text{s} = 12.0 \text{ L/s}$$

Peak flow = (Flow for commercial areas x peaking factor) + Infiltration

$$= \frac{25.4 \text{ x } 28}{86400} \text{ x } 2.0 + \frac{25.4 \text{ x } 0.15}{1000}$$

$$= 0.0203 \text{ m}^3/\text{s} = 20.3 \text{ L/s}$$

3.10 SUMMARY OF DESIGN FLOWS

The design flows expected at the end of each phase of development are summarized in the Table below.

	Avg. Day Flow (L/s)	Peaking Factor	Peak Flow (L/s)
Phase 1	2.2	4.1	5.8
Phase 1 + 2	4.2	4.0	11.6
Phase 1 + 2 + 3	6.6	3.9	17.8
Phase 1 + 2 + 3 + External	8.1	3.8	21.4
Future Combined Flows (Including areas south of First Line)	20.1	2.0	41.7

4.0 PUMPING STATION

4.1 GENERAL

The pumping station is designed for a peak flow of 21.4 L/s with considerations for future flows of up to 41.7 L/s. To reduce the impact of this pumping station on downstream receptors, the station is designed to operate at minimum forcemain scouring velocity in the initial years of operation. To accomplish this, each sewage pump will be equipped with a variable frequency drive (VFD).

The proposed duplex pumping station will include the following major components:

i) Precast concrete wet well (3.6m x 2.4m)
ii) Aluminium access hatches and landing platform
iii) Two submersible sewage pumps complete with variable speed drives
iv) Basket screen on a 300ϕ inlet sewer
v) Portable lifting davit
vi) Precast concrete manhole (2.4m diameter) for bypass and extra storage capacity
vii) Precast concrete valve chamber (3.6 m x 2.4 m)
viii) Control building to house mechanical and electrical equipments
ix) Standby diesel generator
x) Electrical, instrumentation and control

4.2 FORCEMAIN DESIGN

4.2.1 Forcemain Sizing

In accordance with the MOE design criteria, forcemain velocities are to be maintained within the range of 0.8 m/s to 2.5 m/s. For the current and future design capacities of 21.4 L/s and 41.7 L/s, consideration has been given to the 100ϕ and 150ϕ PVC pipe sizes.

	Min. Flow in 100ϕ F/M (7.3 L/s)	Min. Flow in 150ϕ F/M (15.1 L/s)	Current Design Flow (21.4 L/s)	Max. Flow in 100ϕ F/M (22.9 L/s)	Future Design Flow (41.7 L/s)	Max. Flow in 150ϕ F/M (47.2 L/s)
100ϕ F/M	0.80 m/s	1.65 m/s	2.34 m/s	2.50 m/s	4.55 m/s	5.15 m/s
150ϕ F/M	0.39 m/s	0.80 m/s	1.13 m/s	1.21 m/s	2.21 m/s	2.50 m/s

* Shaded areas do not meet MOE scouring velocity requirements (0.8-2.5 m/s)
** Actual PVC DR18 inside pipe diameters are 108 mm and 155 mm

The 150ϕ PVC forcemain is selected based on the Township's recommendations. The 150ϕ PVC forcemain maintains the velocity within the acceptable range at the current and future design flows. This would allow the station to be operated at a minimum rate of 15.1 L/s in the initial years.

Wet well, valve chamber and underground station piping will be ductile iron (DI).

4.2.2 Water Hammer

As shown in Appendix 'B', the maximum pressure in the pipe, including water hammer pressure, is 1040.4 kPa (150.9 PSI) for 150ϕ forcemain at future design flow of 41.7 L/s. The DR 18 PVC forcemain, with safety factor of 2.5, can withstand pressure up to 1,298 kPa (188.2 PSI).

Since the sewage pumps will operate with a VFD, this allows the pumps to start and stop under controlled conditions with no surge pressures created. Therefore, it is expected that surge pressures would only occur under an emergency shutdown condition such as a power failure.

4.3 WET WELL

A 3.6m × 2.4m rectangular pre-cast concrete wet well with an extended base (0.5m) and aluminum access hatch is proposed. The added weight of the overburden on the base extension will be adequate to counteract buoyant forces on the wet well (Appendix 'C'). As shown in Appendix 'C', the factor of safety against floatation of the pumping station is 1.94.

Wet well ventilation will be provided by a portable fan during manned entry to the wet well. The fan will be engaged manually to provide 30 air exchanges per hour. A basket screen is proposed to trap and contain solids. A manual chain hoist will allow the basket screen to be raised above ground for cleaning without entering the wet well.

Wet Well Volume:

The working volume in the wet well was determined by calculating the volume required to prevent excessive pump cycling. The following equation applies when operating with constant speed pumps and have been used here to size the wet well for the initial design condition. During actual operation, the pumps will be controlled with a VFD and thus the liquid level will be maintained at an acceptable level.

Volume required for a single constant-speed pump to maintain a given minimum cycle time is calculated as follows:

$$V = \frac{T_{min} Q_{out}}{4}$$

For a minimum of 10 minute cycling time (6 starts per hour), the volume of wet well for the design flow of 21.4 L/s is:

$$\text{Volume of wet well (V)} = \frac{21.4 \times 10 \times 60}{4}$$

$$= 3210 \text{ L} = 3.21 \text{ m}^3$$

Therefore, working depth (from pump start to pump stop) of wet well is:

$$= \frac{3.210}{3.658 \times 2.438} = 0.36 \text{ m} \qquad \text{(use 0.40 m)}$$

To accommodate ultimate (future) flows, the wet well is designed for 6255 L of working volume and 0.7 m of the working depth.

The proposed operating levels for the pumps and alarms for the current and future flow conditions are as follows:

	Current Peak Flow of 21.4 L/s		**Future Peak Flow of 41.7 L/s**	
	Ultrasonic Level Sensor	**Float Level Switches**	**Ultrasonic Level Sensor**	**Float Level Switches**
High Level Alarm	395.14	395.24	395.44	395.54
Lag Pump On	395.04	395.14	395.34	395.44
Lead Pump On	394.84	394.94	395.14	395.24
All Pumps Off	394.44	394.34	394.44	394.34
Low Level Alarm	394.39	394.29	394.39	394.29

4.4 PUMP SELECTION

4.4.1 Static Head

Static head is based on the proposed operating levels in the wet well and the obvert elevation of the forcemain discharging into manhole 'D' on Bridge Street.

Forcemain obvert elevation at manhole 'D'	= 400.78 m
Overflow elevation in wet well	= 399.46 m
Normal water elevation in wet well	= 394.64 m
Low water elevation in wet well	= 394.39 m
Low static head	= 1.32 m
Normal static head	= 6.14 m
High static head	= 6.39 m

4.4.2 Dynamic Head

The system curves are developed by calculating the total dynamic head (TDH) at various flow rates, where:

$$TDH = \text{Static Head} + \text{Dynamic Head}$$

Dynamic head is estimated using the Hazen Williams equation,

$$Q = 0.35 \times C \times D^{0.63} \times S^{0.54} \times A$$

$$S = \left(\frac{Q}{0.35 \times C \times D^{0.63} \times A}\right)^{1.85} = \left(\frac{4 \times Q}{0.35 \times C \times D^{2.63} \times \Pi}\right)^{1.85}$$

$$\text{Dynamic Head} = S \times \text{Equivalent length}$$

The calculation for the equivalent length and pump system head is shown in Appendix 'D'.

System curves are developed for one pump discharging through 150ϕ forcemain. System curves are plotted with the pump performance curves in Appendix 'D'.

4.4.3 Pump Selection

As shown on the pump and system head curves (Appendix 'D'), a Flygt Model NP-3153-HT 63-465-00-3050 submersible pump (15 hp) can meet both the current and future design conditions. The pump motor shall be rated for Class 1, Division 1 locations (i.e. explosion proof).

The Flygt N-series sewage pump is selected for its efficiency, reliability and trouble-free operation over long duty periods. The semi-open impeller and relief groove in the volute reduces the risk of clogging while maintaining pumping efficiency.

Duplex pumps with each pump capable of pumping the design (peak) flow via the 150ϕ forcemain are provided. The pumps will be controlled by means of an ultrasonic transducer, with float switches as back-up. A Hand/Off/Auto switch will be provided for operation of each pump. In the normal mode of operation (Auto), the pumps will be automatically alternated. Each pump will be equipped with a variable frequency drive for optimum flow control.

4.4.4 VFD Control

It is proposed that each pump be equipped with a variable frequency drive. On pump start, the pump will start at minimum speed that maintains scouring velocity in the forcemain. If the level in the wet well continues to rise, the VFD controller will be programmed to increase the speed of the pump to match incoming sewage flow rate. At sewage flows above 15.1 L/s (scouring velocity), pump operation will be continuous while at sewage flows below 15.1 L/s, pump operation will be intermittent. Ideally, the pumps will be operated at a minimum flow rate of 20 L/s which corresponds to a forcemain flow velocity of approximately 1.1 m/s.

4.5 ALUMINIUM ACCESS HATCH, LANDING AND LIFTING SYSTEM

An aluminium access hatch equipped with 4 access covers, and air inlet and exhaust ducts are provided.

An aluminium landing will be located in the wet well, above the high water level. Access to the pumping station will be via a full depth ladder with fall arrest system.

A portable lifting davit is proposed to facilitate daily removal of the basket screen and for removal of pumps for direct loading onto a service vehicle.

4.6 CONTROL BUILDING

4.6.1 Flow Monitoring

The forcemain will be equipped with a 150ϕ magnetic flowmeter in the control building. The maximum, minimum and average day flows will be accessible through the SCADA system.

4.6.2 Electrical, Instrumentation and Controls

Electrical Distribution System

The electrical service to the proposed pumping station will be through a new transformer. The transformer will be installed near the building with the co-ordination of Ontario Power. The electrical service includes a new underground 3-phase service from a new 600V, 3-phase transformer. The underground feed will run to a utility meter, automatic transfer switch and electrical distribution system within the control building.

Power distribution will be completed with a main disconnect, metering and a 600 volt 3 phase splitter. A lighting transformer and lighting panel will fulfill all 120/240 volt requirements. Motor controls for pumps, mixers, and other process equipment will be housed in a control panel along with the PLC and other control equipment. All lighting and equipment within the control building will be suitable for Class 1 Division 2 areas. A floodlight will be mounted on the control building to assist during night time maintenance.

The proposed electrical distribution system consists of the following major items:

i. Main disconnect switch;
ii. Utility meter;
iii. Automatic transfer switch;
iv. Sewage pumps (2);
v. Lighting panel;
vi. Unit heaters (2);
vii. Motor control centre;
viii. Ventilation fans (2);
ix. Station lighting;
x. Wall receptacles.

Proposed Instrumentation and Control

The proposed pumping station includes installation of new instrumentation and control systems. A Bristol PLC, with UPS backup, will be utilized to control the process. An operator interface will be provided to simplify controls and assist in troubleshooting.

The proposed pumping station includes the following equipment and instrumentation that will be controlled by the on-site PLC system:

i. VFDs;
ii. Pump monitoring system;
iii. Ultrasonic level controller;
iv. Float alarms;
v. Magnetic flow meter;
vi. Damper actuators;
vii. Generator status;
viii. Fuel tank leak detection;
ix. Fuel tank low level and high level switch;
x. Door switch;
xi. Motion detectors;
xii. Building temperature;
xiii. Building fire/smoke detection;
xiv. Station power fail detection

Power supply for the pumps and alarms shall be via an underground power supply from the pump control cubicle near the wet well. Communication for transmission of alarms will be via radio modem to the Township's SCADA system. The nearest communication point is the nearby water tower.

Standby Power

Standby power facilities will be required and a diesel generator provides a reliable source of auxiliary power. Under full load, the required capacity of the standby generator is 40 kW (3-phase). The generator will supply power to all essential equipment needed to run the pumping station. For this application, Caterpillar D40–4 generator is selected with a 72 hour of fuel capacity at 100% load. The generator will be located within the control building. An automatic transfer switch will be provided for auto start of the generator on a power failure.

4.7 EMERGENCY OVERFLOW/ BYPASS OPERATION

The pumping station bypass pipe will be located inside the valve chamber. The bypass piping allows bypassing of the station in case of unforeseen events such as pump failure or forcemain break.

Emergency bypass of the station would be carried out by using a portable pump to pump the sewage from the wet well and by connecting the discharge pipe to the bypass pipe connection. In the event the pumping station had to be taken out of service completely, bypass operations would be provided by closing the valve on the inlet sewer entering the wet well and installing a temporary pump in manhole "OO" located within the property limits of the pumping station.

If the forcemain needs to be bypassed, the sewage could be pumped to a tanker truck using station pumps and hauled to the nearest wastewater treatment plant or downstream sewer.

The building floor drains will be directed into the wet well. A building flood alarm float switch will alert the operator via the alarm system.

4.8 ALARM AND FAILSAFE FEATURES

This station will be equipped with a radio modem and will communicate alarms directly into the Township's SCADA system. The following major alarm conditions will be reported to emergency response staff:

1. High and Low Level alarm in wet well
2. Flood condition in the control building. A float switch will activate an alarm in the event of a pipe breakage inside the control building
3. Keyed entry switch
4. Pump failure, overloads or seal leaks
5. Low temperature in control building (heater malfunction)
6. High temperature in control building
7. Power Failure
8. Generator Failure

5.0 EMERGENCY STORAGE

5.1 GENERAL

In the event of a total failure of both sewage pumps, approximately four hours of emergency storage is proposed in order to mobilize men and equipment needed to handle the emergency. Storage is provided by the 3.6 m x 2.4 m wet well, 2.4 m diameter onsite manhole, unused capacity in the gravity sewers and subdivision manholes.

The total storage required for the average day flow of 8.1 L/s (refer to section 3.6) would be:

$$\frac{8.1}{1000} \text{ x } (4 \text{ x } 3600) = 116.6 \text{ m}^3$$

Storage is provided by allowing the sewers to surcharge to a maximum elevation of 399.42 m ASL which accounts for the lowest basement at Lot Nos. 8 and 9 (400.3 m ASL) and providing 0.88 m of freeboard. This freeboard will account for headloss in sewers at the future design flow (refer to section 3.9). Total available storage is the sum of pipe storage, storage in manholes and storage in the station wet well.

5.2 STORAGE IN PIPES

The size of the pipe required to service the area is in the order of 200-300ϕ. The available storage is computed by determining the normal flow area in the pipe and using the remainder of the cross-sectional area of the pipe for storage.

The computations for storage capacity in sewers are shown in Appendix 'E'. Full-flow capacity (Q_f) and Full-flow velocity (V_f) presented in the Table were calculated using Manning's formula based on actual diameter of the pipe,

$$\text{Velocity } (V_f) = \frac{1.0}{N} \text{ x } R^{2/3} \text{ x } S^{1/2} \quad \text{and,}$$

$$Q_f = V \text{ x } A \text{ x } 10^3 \text{ (L/sec)}$$

Where, V_f = Full-flow velocity (m/s)
Q_f = Full-flow capacity (L/s)
R = hydraulic radius (D/4) with D in m
S = slope of hydraulic grade line (m/m)
N = roughness coefficient = 0.013

The ratio V_d/V_f and A_d/A_f were calculated from hydraulic-elements graph for circular sewers, where V_d and A_d are design flow velocity and design pipe area and A_f is pipe area.

Storage volume in each segment of pipe was then calculated as,

= cross-sectional area of pipe x length of pipe x unused area of the pipe
= cross-sectional area of pipe x length of pipe x $(1-A_d/A_f)$

The total pipe storage available is 45.3 m^3.

5.3 STORAGE IN MANHOLES

The size of the manhole required for 300ϕ pipe is 1200 mm in diameter. The extra storage has been provided by over-sizing the manhole 'E' and 'F' to 1800 mm diameter and providing additional oversized manhole 'OO' of 2400 mm diameter beside the wet well.

The space between obvert of the pipe at manholes and the surcharge elevation becomes the available storage in manholes. The available storage at manholes is provided in Appendix 'E'.

Total storage volume in all available manholes below surcharge elevation is 49.5 m^3

5.4 STORAGE AT PUMPING STATION

Surcharge Elevation	=	399.42 m ASL
Alarm Elevation	=	395.14 m ASL
Storage Depth	=	4.28 m
Wet well Size	=	3.658 m x 2.438 m
	=	8.92 m^2
Storage Volume	=	8.92 x 4.28
	=	38.2 m^3

5.5 SUMMARY

Total storage volume available:

Pipes	=	45.3 m^3
Manholes	=	49.5 m^3
Wet Well	=	38.2 m^3
Total	=	**132.9 m^3**

The total storage volume available provides 4.6 hours of emergency response time based on average day flow.

The available emergency storage of 132.9 m^3 would provide approximately 1.8 hours of emergency response time at future average day flow of 20.1 L/s. If four hours of emergency storage is required, the Township will have to plan for additional storage when future development occurs.

5.6 GRAVITY BY-PASS PIPE

A gravity by-pass pipe is provided to permit overflow to the Storm Water Management (SWM) facility once the "in-house" emergency storage has been exhausted. The gravity by-pass pipe is located within the emergency storage manhole 'OO' and is supplied with a rubber curved bill check valve to prevent backflow of storm water into the pumping station during significant storm events. In order for the gravity bypass procedure to be feasible, the two lowest basements at Lot Nos. 8 and 9 were raised to 400.30 m.

It is proposed that the overflow sewer outlet in the SWM pond be located at the 2-year storm elevation of 399.42 m. The backwater curve calculation from the overflow sewer outlet to the lowest basement is as follows.

Overflow sewer outlet invert (in SWM pond)	=	399.42 m
Headloss through Tideflex Ultralight Check Valve (Published data from manufacturer @ 41.7 L/s)	=	0.25 m
Headloss in surcharged sewer @ 41.7 L/s (MH 'OO' to critical basement)	=	0.35 m
Surcharge elevation at critical basement	=	400.02 m

This provides a freeboard of 0.28 m with respect to the critical basement. The water levels in the SWM pond during the 2-year, 5-year, 100-year and regional storm events are predicted to reach 399.42 m, 399.48 m, 399.88 m and 400.13 m respectively.

All of which is respectfully submitted.

GAMSBY AND MANNEROW LIMITED
Per:

Paul McLennan, P.Eng.

Per:

Matthew Ballaban, M.Sc., P.Eng.

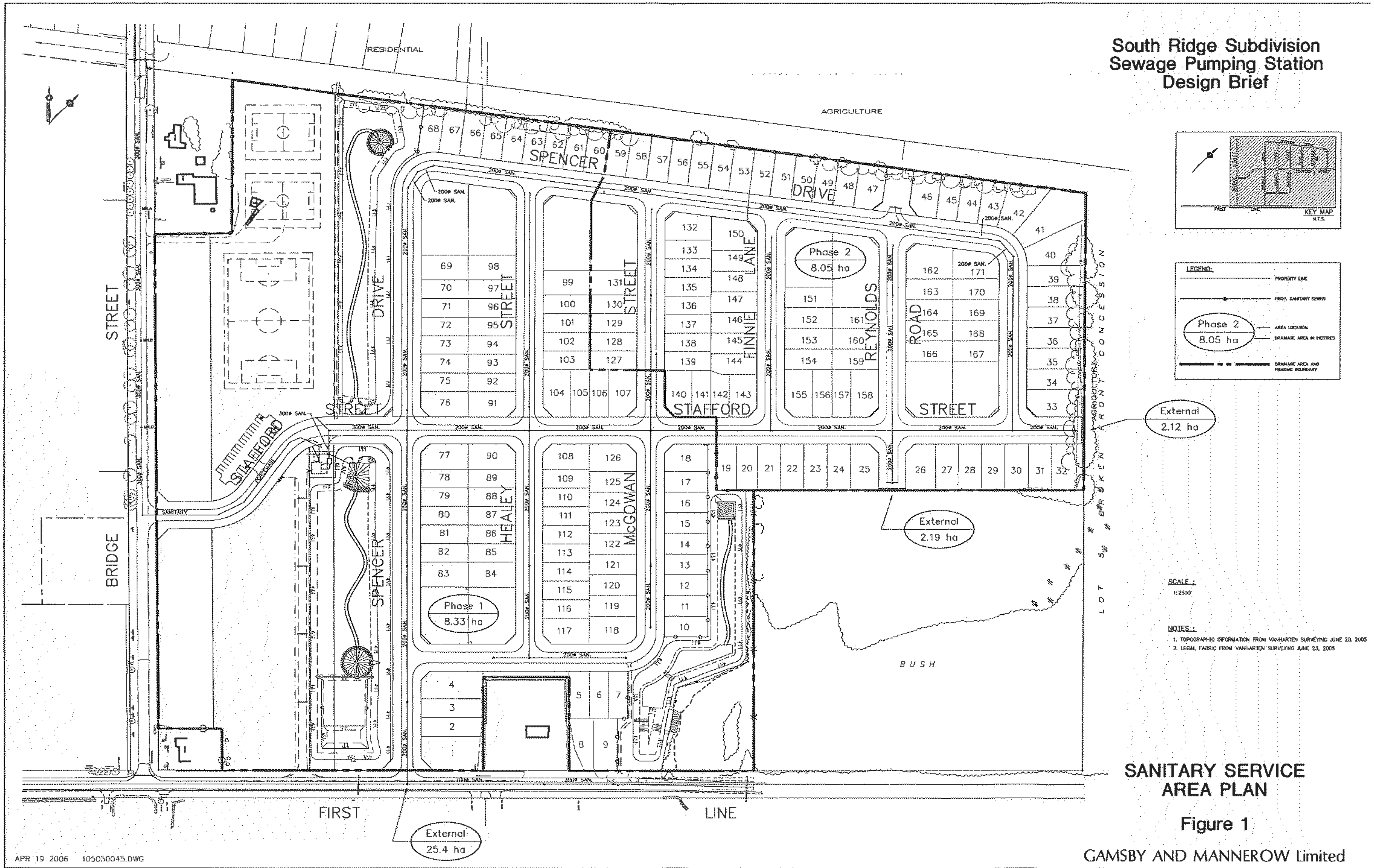
SOUTH RIDGE SUBDIVISION
SEWAGE PUMPING STATION

FINAL DESIGN BRIEF

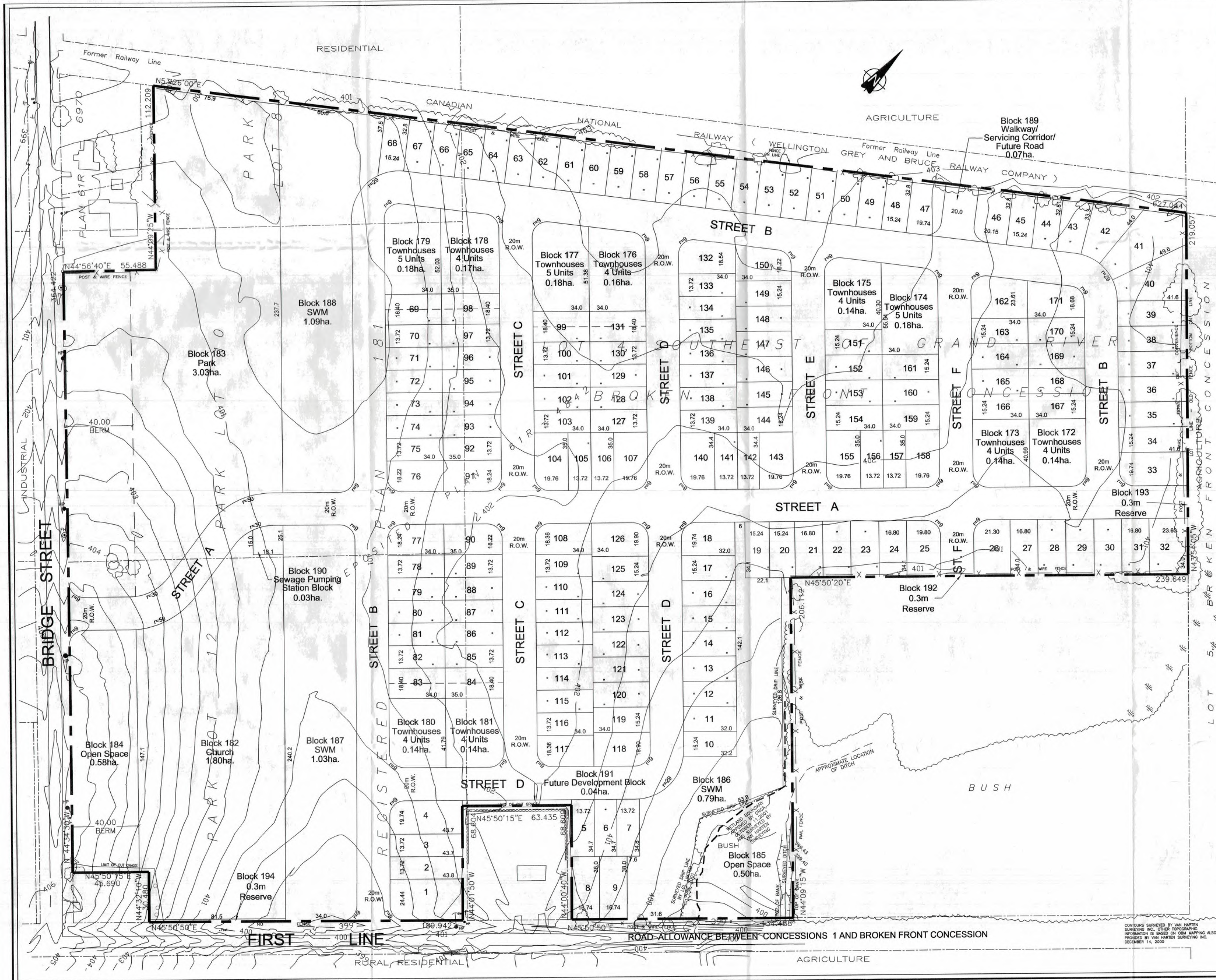
TOWNSHIP OF CENTRE WELLINGTON

APPENDIX 'A'

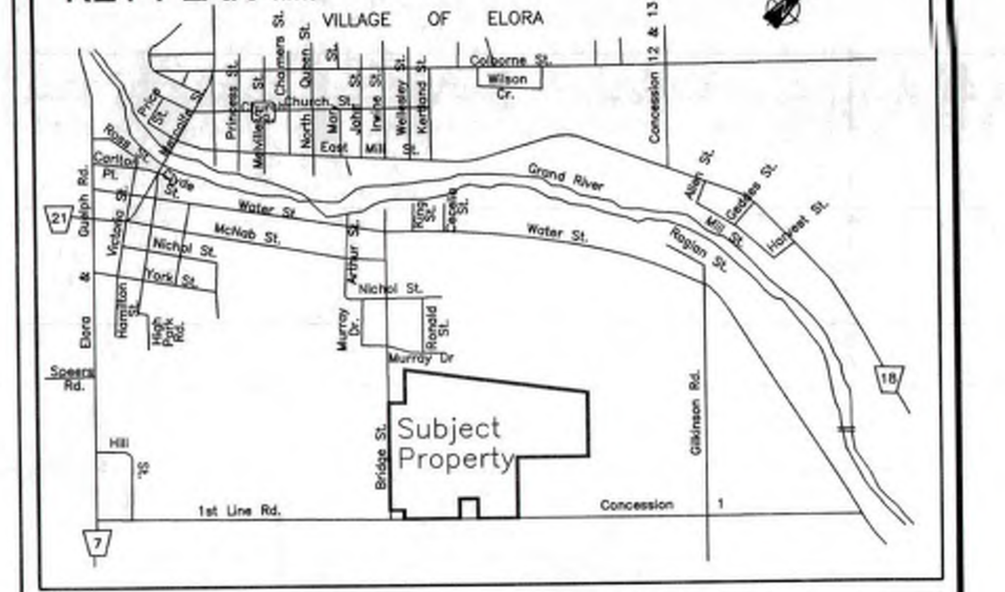
SERVICE AREA PLAN



South Ridge Subdivision
Sewage Pumping Station
Design Brief
RESIDENTIAL
AGRICULTURE
SPENCER DRIVE
STREET
DRIVE
STAFFORD STREET
STAFFORD
FINNIE LANE
REYNOLDS ROAD
HEALEY STREET
McGOWAN
SPENCER
BRIDGE STREET
FIRST LINE
Phase 1
8.33 ha
Phase 2
8.05 ha
External
2.12 ha
External
2.19 ha
External
25.4 ha
BUSH
LOT 5 BROKEN FRONT CONCESSION
AGRICULTURAL
KEY MAP
LEGEND:
PROPERTY LINE
PROP. SANITARY SEWER
AREA LOCATION
DRAINAGE AREA IN HECTARES
DRAINAGE AREA AND PHASING BOUNDARY
SCALE :
1:2500
NOTES :
1. TOPOGRAPHIC INFORMATION FROM VANHARTEN SURVEYING JUNE 20, 2005
2. LEGAL FABRIC FROM VANHARTEN SURVEYING JUNE 23, 2005
SANITARY SERVICE
AREA PLAN
Figure 1
GAMSBY AND MANNEROW Limited
APR 19 2006 105050045.DWG



KEY PLAN
N.T.S.



DRAFT PLAN OF SUBDIVISION

Part of Lot 4,
Broken Front Concession
Southeast of Grand River
and Part of Park Lots 8, 10 & 12
East of Arthur Road
Registered Plan 181
Geographic Township of Nichol
Township of Centre Wellington
County of Wellington

23T-20006

LAND USE SCHEDULE

Description	Units/Lots	Lots/Blocks	Area (Ha)	Percentage of Total Area
Single Detached (45' Lots)	65	2,3,5–7,70–82,85–97,100–103, 105,106,108–117,127–130,132–139, 141,142,150,156,157,171	3.42	13.4
Single Detached (50' Lots)	85	4,10–20,25,33–68,104,107,118–126, 140,143–149,151–155,158–161,163–170	4.83	18.5
Single Detached (55' Lots)	15	1,8,9,21–24,26–32,162	0.90	3.5
Semi Detached (60' Lots)	12	69,83,84,98,99,131	0.45	1.4
On-street Townhouses	43	172–181	1.42	6.3
Church	–	182	1.80	7.0
Park (includes berm)	–	183	3.03	11.8
Open Space	–	184,185	1.08	4.2
SWM	–	186–188	2.91	11.4
Walkway/Servicing Corridor/ Future Road	–	189	0.07	0.3
Sewage Pumping Station Block	–	190	0.03	0.1
Future Development Block	–	191	0.04	0.1
0.3m Reserve	–	192–194	0.00	0.0
Roads	–	–	5.63	22.0
Total	220		25.57	100

ADDITIONAL INFORMATION
(UNDER SECTION 51(17) OF THE PLANNING ACT)

INFORMATION REQUIRED BY CLAUSES a,b,c,d,e,f,g,j ARE AS SHOWN ON DRAFT PLAN.
h) MUNICIPAL WATER
i) SANDY SILT
k) MUNICIPAL SANITARY AND STORM
l) NONE

OWNER'S CERTIFICATE

I AUTHORIZE GREEN SCHEELS PIDGEON PLANNING CONSULTANTS LIMITED TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO

STEVEN WRIGHT
ELORA RIDGE DEVELOPMENTS LIMITED
Dec. 19, 2000
DATE

Tom Krizsan
TOM KRIZSAN
ELORA RIDGE DEVELOPMENTS LIMITED
Dec. 18, 2000
DATE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

LEN VAN HARTEN, O.L.S.
VAN HARTEN SURVEYING INC.
DECEMBER 8, 2000
DATE

GSP group

Guelph Office
295 Southgate Drive, P.O.Box
Guelph, Ontario N1H 6N3
T 519 837 8547
F 519 837 1951

Kitchener-Waterloo Office
1208–72 Victoria Street South
Kitchener, Ontario N2G 4Y9
T 519 569 8883
F 519 569 8643

Hamilton Office
102–21 Hunter Street East
Hamilton, Ontario L8N 1M2
T 905 522 4847
F 905 522 5280

www.gspgroup.ca

REVISIONS
November 4, 2003
July 7, 2004
August 4, 2004
September 24, 2004
April 7, 2005
April 22, 2005
May 2, 2005

Date: October 18, 2000	Drawn By: S.L.
Scale: 1:1000 metric	Project No.: 9968.40

WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

Appendix 2-5 Centre Wellington Council Endorsement of Master Plan

Township of Centre Wellington

Council Agenda
Monday, June 30, 2025
6:00 pm
Council Chamber, 1 MacDonald Square, Elora

Consent Agenda Items are considered routine in nature and are voted on collectively. However, any Member of Council may request one or more items be removed from the Consent Agenda for separate discussion and/or action.

Recommendation:
THAT the Council of the Township of Centre Wellington approve consent agenda items 10.1 through 10.6.

AND THAT Council allocate $20,000 from the DEI Capital Project to execute the Reconciliation-Focused Policy Pathway to Respectful Indigenous Representation.

8.2 Elora Greenspace Sculpture Addition — 47 - 59
Report from K. Bettiol, Manager of Community Development
CS2025-14 - Pdf

Recommendation:
THAT the Council of the Township of Centre Wellington approve the installation of a new sculpture, "Mo, the Moose Fawn", in the Elora Green Space and a plaque recognizing the sculpture in memory of Stephanie Minarovich;

AND THAT Council authorize a $6,000 contribution in support of this project, funded from the General Capital Reserve;

AND THAT Council delegate authority to the Managing Director of Community Services to execute the required agreements to facilitate the project.

8.3 2024 Audited Financial Statements — 60 - 125
Report from M. Bradey, Manager of Finance & Deputy Treasurer
COR2025-36 - Pdf

Recommendation:
THAT the Council of the Township of Centre Wellington approve the December 31, 2024 audited draft consolidated financial statements as presented by KPMG LLP Chartered Professional Accountants.

8.4 Water and Wastewater Servicing Master Plan - Notice of Study Completion — 126 - 129
Report from R. Maiden, Water and Wastewater Capital Project Manager
IS2025-21 - Pdf

Recommendation:
THAT the Council of the Township of Centre Wellington endorses the Water and Wastewater Servicing Master Plan and directs staff to publish a Notice of Study Completion for the Study, as outlined in Report IS2025-21;

AND THAT Council directs staff to bring forward programs, studies and projects included in the Water and Wastewater Servicing Master Plan for consideration in capital and operating budget deliberations.

9. BY-LAWS

9.1 2025-43, A By-law to amend the Township of Centre Wellington Zoning By-law 2009-045, as amended, to change the zoning of certain lands from

Report to Council

To: Mayor Watters and Members of Council

Report: IS2025-21

Prepared By: Ryan Maiden, Water and Wastewater Capital Project Manager

Date: 30 Jun 2025

RE: Water and Wastewater Servicing Master Plan - Notice of Study Completion

Recommendation:

THAT the Council of the Township of Centre Wellington endorses the Water and Wastewater Servicing Master Plan and directs staff to publish a Notice of Study Completion for the Study, as outlined in Report IS2025-21;

AND THAT Council directs staff to bring forward programs, studies and projects included in the Water and Wastewater Servicing Master Plan for consideration in capital and operating budget deliberations.

Report:

The Township of Centre Wellington has prepared its first Water and Wastewater Servicing Master Plan (WWSMP). The WWSMP identifies the preferred water and wastewater servicing strategy to service population and employment growth to the 2051 planning horizon.

The WWSMP has been prepared under the Municipal Class Environmental Assessment (MCEA) process for master plans. The WWSMP addresses the MCEA Phase 1 (purpose statement) and Phase 2 (alternative assessment) and has included public and agency consultation. The WWSMP provides a summary of recommended water and wastewater studies and projects and recommended Class Environmental Assessment (EA) schedules.

On February 21, 2024, the Township retained R.V. Anderson and Associates to assist in preparing the WWSMP. The WWSMP tasks were presented in Report No. IS2025-18 and separated into the following categories:

- Task 1 - Review and Summarize Background Information
- Task 2 - Establish Design Criteria & Levels of Service
- Task 3 - Future Population and Employment Growth Projections
- Task 4 - Water and Wastewater System Modeling
- Task 5 - Development and Evaluation of Servicing Alternatives

- Task 6 - Preferred Water and Wastewater Servicing Alternatives and Capital Implementation Plan

Through Report No. IS2025-18, presented on May 26, 2025, the Project Team presented the preferred servicing scenario to service growth to the 2051 timeframe. This scenario is available within the Project File Report.

Feedback on the preferred alternative was received from various stakeholders following the presentation to Council on May 26, 2025. In response, staff conducted meetings with the interested parties to better understand their concerns and clarify technical aspects of the Master Plan. Inquiries and feedback received during this period are included in the project file report.

All tasks are now complete, and all relevant documentation is available on the project website, www.connectCW.ca/WWSMP. Upon approval by Council, the WWSMP will be placed on public record for a 45-day review period in accordance with the requirements of the MCEA process. Pending Council approval, the review period will begin on July 3, 2025, and end on August 17, 2025. The Notice of Study Completion; included as **Attachment 1.**

Corporate Strategic Plan:
Create the conditions for economic prosperity
Championing environmental stewardship
Provide innovative & sustainable governance

Financial Implications:
There are no financial implications as a result of this report at this time. Growth projects associated with the preferred water and wastewater servicing alternative will be considered through the Township's Development Charges Background Study. New projects identified through this study will be added to the Township's budget and 10-year Capital Forecast through the 2026 Budget Development process.

Consultation:
This report was prepared in consultation with the Managing Director of Infrastructure Services, Colin Baker, Manager of Engineering, Adam Gilmore, Manager of Water Services and Environmental Sustainability, Dino Masiero and the Manager of Wastewater Services, Gerry Atkinson.

Attachments:
- Attachment #1 - CW W WW Servicing Master Plan - Notice of Study Completion

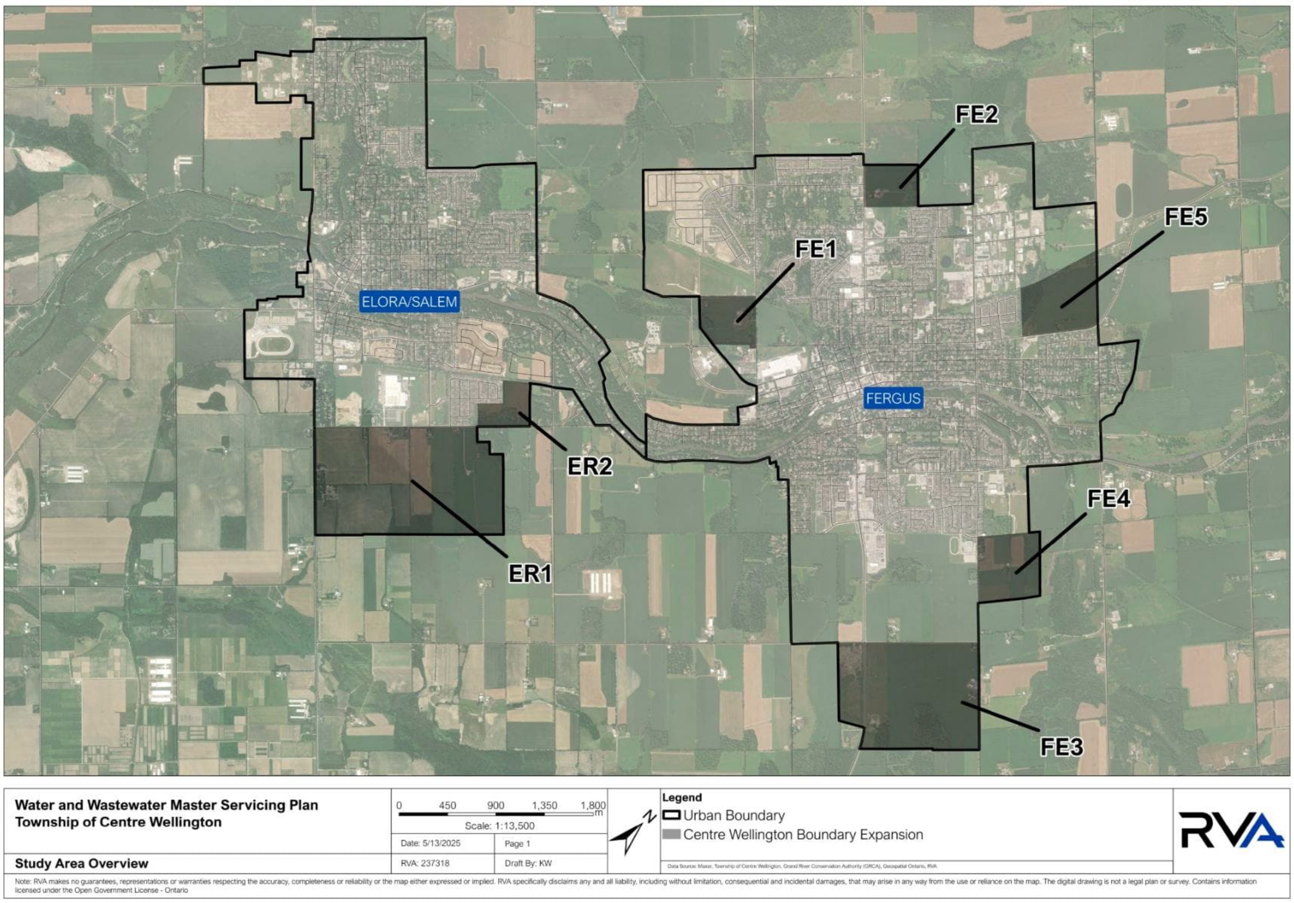
Approved By:
Colin Baker, Managing Director of Infrastructure Services
Dan Wilson, Chief Administrative Officer

Notice of Study Completion
Water and Wastewater Servicing Master Plan
for the Township of Centre Wellington

The Project

The Township of Centre Wellington has developed a Water and Wastewater Servicing Master Plan (WWSMP). A key objective of this Master Plan is to identify short-term and long-term strategies for expanding water and wastewater infrastructure to service future growth in the Township to 2051.

The Study Area for the WWSMP is shown below:



The Study Process

This study was carried out in accordance with the Municipal Class Environmental Assessment Study process (amended in 2023), which is an approved process under Ontario's *Environmental Assessment Act*. This study fulfilled the requirements of Approach #1 (Phases 1 and 2) of the Municipal Class Environmental Assessment process.

The preferred servicing alternative was presented to Township Council through Report IS2025-18 on May 26, 2025, outlining the approach to meet current and future servicing needs. This strategy was developed based on a comprehensive evaluation of existing infrastructure, projected growth, environmental considerations and community input.

The Project File Report for the WWSMP is being placed on the public record for review starting **July 3, 2025**, to **August 17, 2025**. The report is available on the project website. https://www.connectcw.ca/WWSMP .

Comments

Interested persons may provide written comments to the following project contacts by **August 17, 2025**:

Ryan Maiden, P.Eng
Water and Wastewater Capital Project Manager
Township of Centre Wellington
RMaiden@centrewellington.ca

John Tyrrell, M.Sc.(Eng.), P.Eng.
Principal
R.V. Anderson Associates Limited
jtyrrell@rvanderson.com

In addition, Section 16 of the *Environmental Assessment Act* allows a person to submit a request to the Ministry of the Environment, Conservation and Parks to issue an order requiring a higher level of study (i.e., requiring an individual / comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. For Master Plans, this request would be possible only for those projects identified in the Master Plan, which are subject to the Municipal Class Environmental Assessment process, and not the Master Plan itself.

Comments and Information is collected in accordance with the *Municipal Act*, s.11. With the exception of personal information, all comments will become part of public record. If you have any questions regarding the collection of the information, please contact Ryan Maiden, Water and Wastewater Capital Project Manager 519-846-9691 x259

Township of Centre Wellington

Council Agenda
Monday, May 26, 2025
6:00 pm
Council Chamber, 1 MacDonald Square, Elora

Page

1. CALL TO ORDER

2. LAND ACKNOWLEDGEMENT

3. ADDENDUMS AND CORRECTIONS TO THE AGENDA

3.1 Addendum: Inclusion of a Report from Adam McNabb, Managing Director of Corporate Services & Treasurer re 2025 Tax Rates By-law Amendment (Item 8.11)

Recommendation: THAT Council permits the inclusion of a Report from Adam McNabb, Managing Director of Corporate Services & Treasurer re 2025 Tax Rates By-law Amendment as agenda item 8.11.

4. DISCLOSURE OF PECUNIARY INTEREST UNDER THE MUNICIPAL CONFLICT OF INTEREST ACT

5. PRESENTATIONS AND ANNOUNCEMENTS

5.1 Introduction of Artist - Patti Wilcox to introduce the works of David Wilcox

5.2 Mayor's Update

5.3 Councillor's Committee Updates

6. DELEGATIONS

6.1 Cindy Lindsay, Centre Wellington re Item 8.1 - Decision Report - RZ05/24, 6235 Guelph Street (Aypa Power)

6.2 Jason MacDonald, Canadian Union of Skilled Workers re Item 8.1 - Decision Report - RZ05/24, 6235 Guelph Street (Aypa Power)

7. CONSENT ITEMS

Consent Agenda Items are considered routine in nature and are voted on collectively. However, any Member of Council may request one or more items be removed from the Consent Agenda for separate action.

Recommendation:
THAT the Council of the Township of Centre Wellington approve consent agenda items 7.1 through 7.5.

Recommendation:
THAT the Council of the Township of Centre Wellington receives for information Report No. IS2025-14: Bridge and Transportation Network Study for Bridges 21-WG, 29-WG, and 30-WG - Study Initiation.

Recommendation:
THAT the Council of the Township of Centre Wellington approves rezoning application RZ003/2025 for the property at 7735 Sixth Line, Nichol, and that the corresponding Zoning By-law amendment be given three readings.

8. CONSIDERATION OF REPORTS

Recommendation:
THAT the Council of the Township of Centre Wellington recommends that the County of Wellington adopts an Official Plan Amendment (File OP-2024-04) to allow a Battery Energy Storage System facility at 6235 Guelph Street, Nichol, and that the recommendation be forwarded to the County of Wellington;

AND THAT the Council of the Township of Centre Wellington approves application RZ05/24 to amend Township Zoning By-law 2009-045 to allow a Battery Energy Storage System facility at 6235 Guelph Street, Nichol.

Recommendation:
THAT the Council of the Township of Centre Wellington receive for information Report IS2025-18: Centre Wellington Water and Wastewater Servicing Master Plan Preliminary Preferred Alternative.

Recommendation:
THAT the Council of the Township of Centre Wellington approve the Recreation Priority Registration Policy as presented in Council Report CS2025-09;

AND THAT Council approve the revised Township RZone – Respect and Responsibility Policy CS25-001 as presented in Council Report CS2025-09

Recommendation:
THAT the Council of the Township of Centre Wellington approves the Guaranteed Maximum Price and Overall Construction Budget for the new Operations Centre as outlined in Report IS2025-15, and authorizes staff to reach agreement with the Design-Builder (Ball Construction Ltd.) on the Guaranteed Maximum Price in the form of a change order to the existing Design-Build Contract;

AND THAT Council directs staff to proceed with construction of the new Township Operations Centre with substantial completion anticipated by December 2026;

AND THAT Council directs staff to further investigate solar power generation opportunities for the site and report back to Council with a recommended option and financial analysis;

AND THAT Council directs staff to submit an application for grant funding

Report to Council

To: Mayor Watters and Members of Council	**Report:** IS2025-18
Prepared By: Ryan Maiden, Water and Wastewater Capital Project Manager	**Date:** 26 May 2025

RE: Water and Wastewater Servicing Master Plan - Preliminary Preferred Alternative

Recommendation:
THAT the Council of the Township of Centre Wellington receive for information Report No. IS2025-18: Centre Wellington Water and Wastewater Servicing Master Plan Preliminary Preferred Alternative.

Summary:
The Township is currently undertaking a Water and Wastewater Servicing Master Plan in accordance with the Municipal Class Environmental Assessment (MCEA) Study process to identify a preferred water and wastewater servicing strategy to service population and employment growth to the 2051 Planning horizon.

The purpose of this report is present the preliminary preferred water and wastewater servicing alternative, and to provide Township Council with an opportunity to review and comment on the Project File Report, which documents all aspects of the Study.

Based on the detailed evaluation results and considering feedback from interested parties, the project team has established a preliminary preferred water and wastewater servicing alternative that will support growth in the Township to 2051.

Report:
Introduction
The Township is currently undertaking a Water and Wastewater Servicing Master Plan in accordance with the Municipal Class Environmental Assessment (MCEA) Study process to identify a preferred water and wastewater servicing strategy to service population and employment growth to the 2051 Planning horizon.

The main objectives of the Study are to:

- provide the Township with an understanding of how the existing water and wastewater networks are functioning;
- identify current and future capacity constraints;
- evaluate opportunities to increase system capacity;

- inform short and long range planning to maintain or improve levels of service and accommodate future growth in the Township; and,
- develop a capital program and capital implementation plan to build the infrastructure needed to service growth.

The purpose of this report is present the preliminary preferred water and wastewater servicing alternative, and to provide Township Council with an opportunity to review and comment on the Project File Report, which documents all aspects of the Study. The Project File Report can be downloaded from the project website: https://www.connectcw.ca/WWSMP. The Executive Summary for the Project File Report has been included as **Attachment 1**. An overview presentation has been included as **Attachment 2**.

Below is a summary of the key tasks and outcomes associated with the Water and Wastewater Servicing Master Plan.

Review and Summarize background Information
At the outset of the study, the Consultant and Township worked collaboratively to collect background information on the existing water and wastewater systems. This information formed the basis for creating computer models for the water and wastewater systems, which are used to assess current and future system performance.

Establish Design Criteria & Levels of Service
A critical element to the Study process is establishing realistic design criteria and levels of service for the system. Design criteria specify per capita water consumption and wastewater generation rates to predict how much additional capacity is needed as the serviced population grows. Levels of service are metrics such as water pressure, or the frequency of sewage backups that describe what serviced customers experience.

The general servicing strategy for the Water and Wastewater Servicing Master Plan aims to maintain or enhance levels of service for existing customers and ensure that servicing is adequate to accommodate future growth. Opportunities to optimize current system performance, such as the reduction of inflow and infiltration to the sanitary sewer network, were also investigated through the study.

Future Population and Employment Growth Projections
Through the County of Wellington's OPA 126, the Township has population and employment forecasts to 2051 and has identified locations where this growth will take place. An evaluation of existing developments within the current built-up areas was conducted with the intensification target of 20% to determine population allocation between the Designated Greenfield Areas and Built Urban Areas.

Water and Wastewater System Modeling
Using InfoWater Pro for the water system and PCSWMM for the wastewater system, the Consultant modelled two scenarios of the water and wastewater systems. The first

was an evaluation of the existing system under current conditions and the second was a future model with 2051 growth projections in the areas outlined in OPA 126. The model outputs were used to assess current system constraints and define requirements to service future growth.

The modelling results indicated that the existing water and wastewater systems are functioning well and capable of meeting desired levels of service. As expected, the future model identified capacity constraints in the water and wastewater systems due to growth to 2051.

Development and Evaluation of Servicing Alternatives

To address future system capacity constraints attributed to growth to 2051, and to establish preferred alternatives for extending services to new growth areas, various servicing alternatives were developed and evaluated. Alternatives were evaluated based on technical, social and cultural, environmental, and economic criteria.

Public Consultation

This project included two Public Information Centres. The first was at the Key Projects Open House on May 30, 2024, at the Centre Wellington Sportsplex in Fergus. This meeting was an opportunity to introduce the project to the public, display the project objectives and project study area. The second was held at the Elora Centre for the Arts on April 24, 2025. This meeting was an opportunity to present servicing alternatives, the detailed evaluation, and the preliminary preferred alternative. All comments and questions received at the two PICs are documented in the Project File Report.

Preliminary Preferred Water and Wastewater Servicing Alternatives and Capital Implementation Plan

Based on the detailed evaluation results and considering feedback from interested parties, the project team has established a preliminary preferred water and wastewater servicing alternative that will support growth in the Township to 2051. Project drivers, high-level estimated costs, and implementation timing and/or triggers are included with the project descriptions in the Project File Report along with Project Fact Sheets in Appendix 6.

The total high-level capital cost to implement the preferred alternative to 2051 is as follows:

- Water Projects - $68,850,000
- Wastewater Projects - $130,400,000

Next Steps

Township Staff will return to Township Council at the June 16, 2025, meeting seeking endorsement of the preferred water and wastewater servicing alternative and authorization to publish of a Notice of Study Completion, as required through the Municipal Class Environmental Assessment Study process.

Corporate Strategic Plan:
Create the conditions for economic prosperity
Championing environmental stewardship
Provide innovative and sustainable governance

Financial Implications:
There are no financial implications as a result of this report at this time. Growth projects associated with the preferred water and wastewater servicing alternative will be considered through the Township's Development Charges Background Study. New projects identified through this Study will be added to the Township's Budget and 10-year Capital Forecast through the 2026 Budget development process.

Consultation:
This report was prepared in consultation with the Managing Director of Infrastructure Services, Colin Baker, Manager of Engineering, Adam Gilmore, Manager of Water Services and Environmental Sustainability, Dino Masiero and the Manager of Wastewater Services, Gerry Atkinson.

Attachments:
- Attachment 1 - Executive Summary
- Attachment 2- Council Presentation

Approved By:
Colin Baker, Managing Director of Infrastructure Services
Dan Wilson, Chief Administrative Officer

WATER AND WASTEWATER MASTER PLAN

Appendix 2 Master Plan Consultation

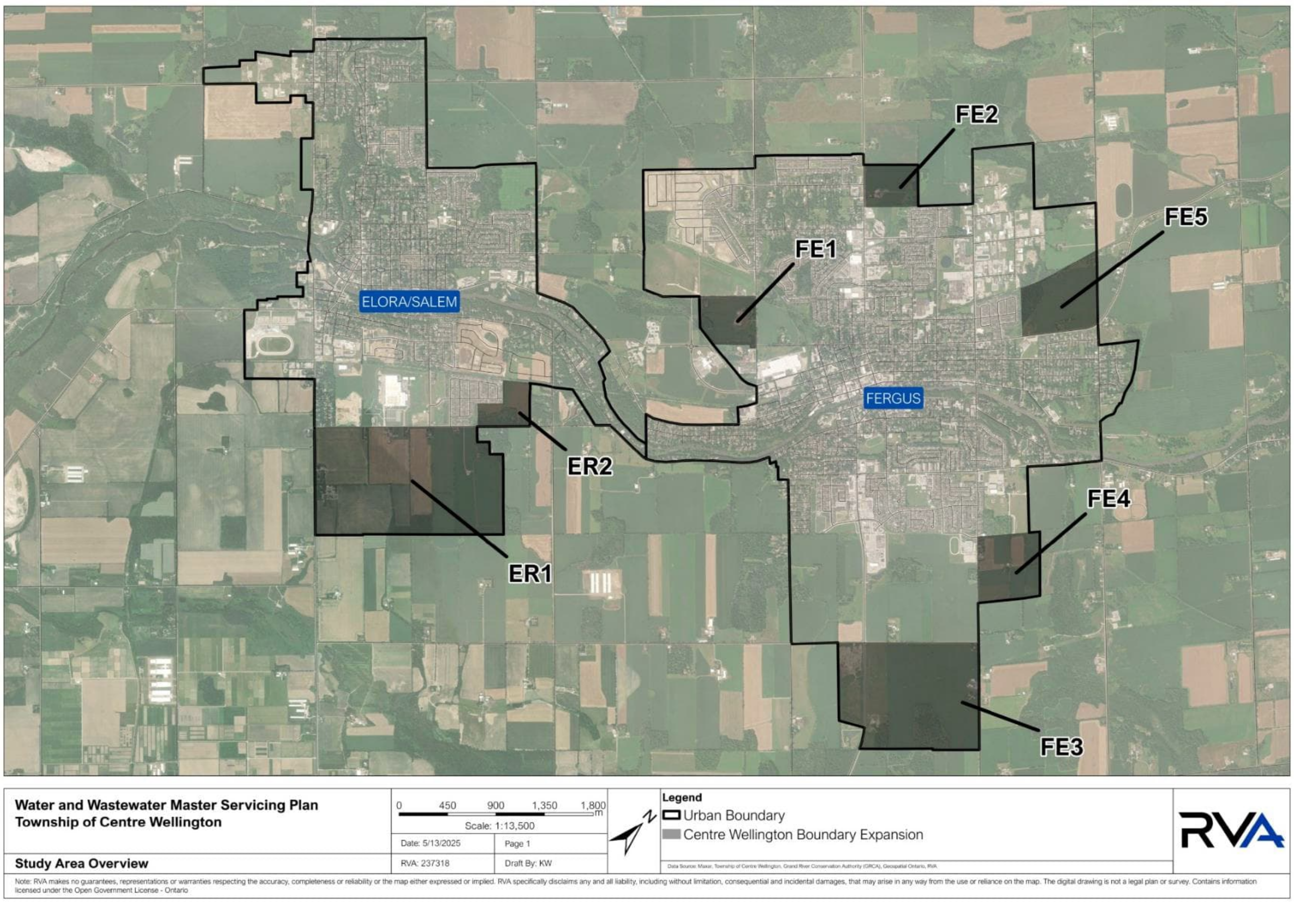
Appendix 2-6 Notice of Completion

Notice of Study Completion
Water and Wastewater Servicing Master Plan
for the Township of Centre Wellington

The Project

The Township of Centre Wellington has developed a Water and Wastewater Servicing Master Plan (WWSMP). A key objective of this Master Plan is to identify short-term and long-term strategies for expanding water and wastewater infrastructure to service future growth in the Township to 2051.

The Study Area for the WWSMP is shown below:



The Study Process

This study was carried out in accordance with the Municipal Class Environmental Assessment Study process (amended in 2023), which is an approved process under Ontario's *Environmental Assessment Act*. This study fulfilled the requirements of Approach #1 (Phases 1 and 2) of the Municipal Class Environmental Assessment process.

The preferred servicing alternative was presented to Township Council through Report IS2025-18 on May 26, 2025, outlining the approach to meet current and future servicing needs. This strategy was developed based on a comprehensive evaluation of existing infrastructure, projected growth, environmental considerations and community input.

The Project File Report for the WWSMP is being placed on the public record for review starting **July 3, 2025**, to **August 17, 2025**. The report is available on the project website. https://www.connectcw.ca/WWSMP .

Comments

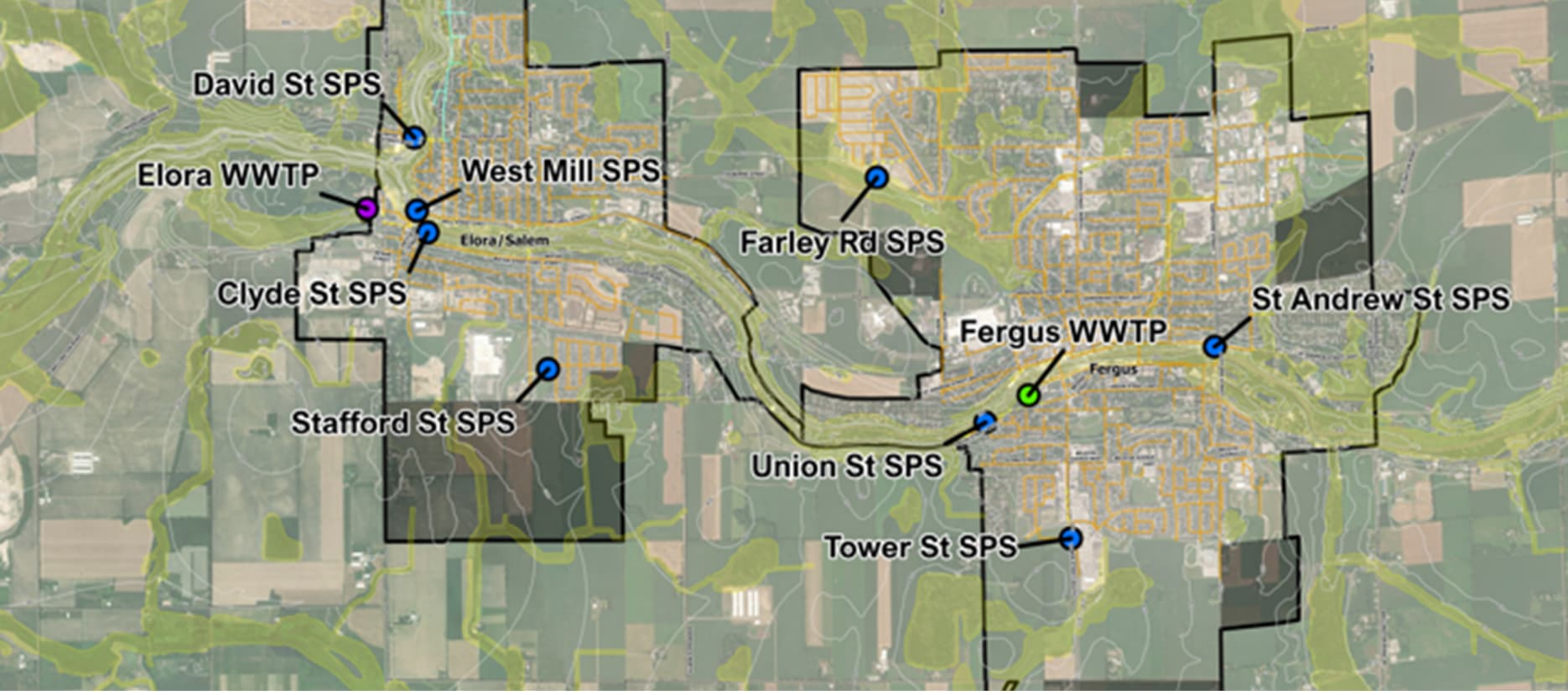
Interested persons may provide written comments to the following project contacts by **August 17, 2025**:

Ryan Maiden, P.Eng
Water and Wastewater Capital Project Manager
Township of Centre Wellington
RMaiden@centrewellington.ca

John Tyrrell, M.Sc.(Eng.), P.Eng.
Principal
R.V. Anderson Associates Limited
jtyrrell@rvanderson.com

In addition, Section 16 of the *Environmental Assessment Act* allows a person to submit a request to the Ministry of the Environment, Conservation and Parks to issue an order requiring a higher level of study (i.e., requiring an individual / comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. For Master Plans, this request would be possible only for those projects identified in the Master Plan, which are subject to the Municipal Class Environmental Assessment process, and not the Master Plan itself.

Comments and Information is collected in accordance with the *Municipal Act*, s.11. With the exception of personal information, all comments will become part of public record. If you have any questions regarding the collection of the information, please contact Ryan Maiden, Water and Wastewater Capital Project Manager 519-846-9691 x259



TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 3

Water and Wastewater Servicing Master Plan Hydraulic Model

June 30, 2025

RVA
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rvanderson.com

PROUDLY 100% CANADIAN

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APPENDICES

1.0 INTRODUCTION

1.1 Background

R.V. Anderson Associates Limited (RVA) has been retained by the Township of Centre Wellington (Township) to develop a Water and Wastewater Servicing Master Plan (WWSMP) for the Township. The current WWSMP is being prepared in accordance with the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans. This WWSMP will cover Phases 1 and 2 of the Class EA process. The WWSMP will be carried out under Approach #1 as described in Section 4.4 of the MEA Class EA document.

1.2 Purpose

The purpose of this report is to provide the relevant details related to the development and calibration/validation of the water distribution and wastewater collection hydraulic models for Elora and Fergus service areas. Furthermore, this report summarizes the results of the system analysis completed for existing and future conditions. This report documents the following key components related to water and wastewater modeling:

- Water distribution and wastewater collection system model development procedure;
- Data used for the water and wastewater model calibration, calibration procedure and results;
- Demand and flow estimation and allocation;
- The evaluation of the water distribution and wastewater systems performance under existing and future growth conditions; and
- Recommended system improvements to resolve system capacity constraints and ensure both systems are able to meet the desired level of service for water distribution and wastewater collections systems.

1.3 Organization

This Report is organized into the following two sections:

1. Water Distribution Hydraulic Modeling and Analysis, which details the development and calibration of the hydraulic water model developed as part of this study. This includes a brief overview of the background data reviewed, demand estimation and allocation and model calibration results based on the field testing completed as part of this program.

The section provides details on systems performance under existing and future growth conditions as well the proposed improvements needed to maintain adequate pressures and fire flows for existing and future developments.

2. Wastewater Collection Hydraulic Modeling and Analysis, which details the development and calibration of the hydraulic wastewater models developed for Elora and Fergus as part of this study. This includes a brief overview of the background data reviewed, flow estimation and allocation and model calibration results based on the flow and rainfall monitoring data collected as part of a previous flow monitoring program conducted by the Township. The section also provides details on systems performance under existing and future growth conditions as well the proposed improvements needed to resolve any system capacity constraints.

2.0 WATER DISTRIBUTION SYSTEMHYDRAULIC MODELING AND ANALYSIS

This section is broken down into the following sub-sections:

- Background data review;
- Field Testing;
- Model development;
- Demand estimation and allocation;
- Model Calibration;
- System Analysis; and
- Recommendations.

2.1 Background Data Review

The background data review involved the acquisition and evaluation of a number of key pieces of information which included:

- GIS water infrastructure inventory including watermains, valves, hydrants, pump stations, and storage facilities;
- Drawings and operational manuals for the pump stations and storage facilities;
- Digital elevation data;
- Historical water billing data;
- Operational SCADA data (flow, pressure, and water levels);
- Pumps design data and operational control set points;
- Pressure reducing valve (PRV) information, such as size, setting and location;
- Proposed capital projects related to watermain upgrades/new installations;
- Previous reports and design criteria; and
- Population projections.

2.2 Field Testing

As part of this modeling exercise, RVA implemented an extensive field-testing program to collect sufficient field data for model calibration purposes. The field-testing program comprised ten (10) hydrant flow tests and six (6) C-factor tests, which were completed on October 10, 2024, at strategic locations to maximize coverage of the water distribution network to gain a better understanding of the water pressure distribution and target watermains based on age and material. An overview of the flow test and C-factor test locations in Elora and Fergus is shown in Error! Not a valid bookmark self-reference. and Figure 2-2 respectively.

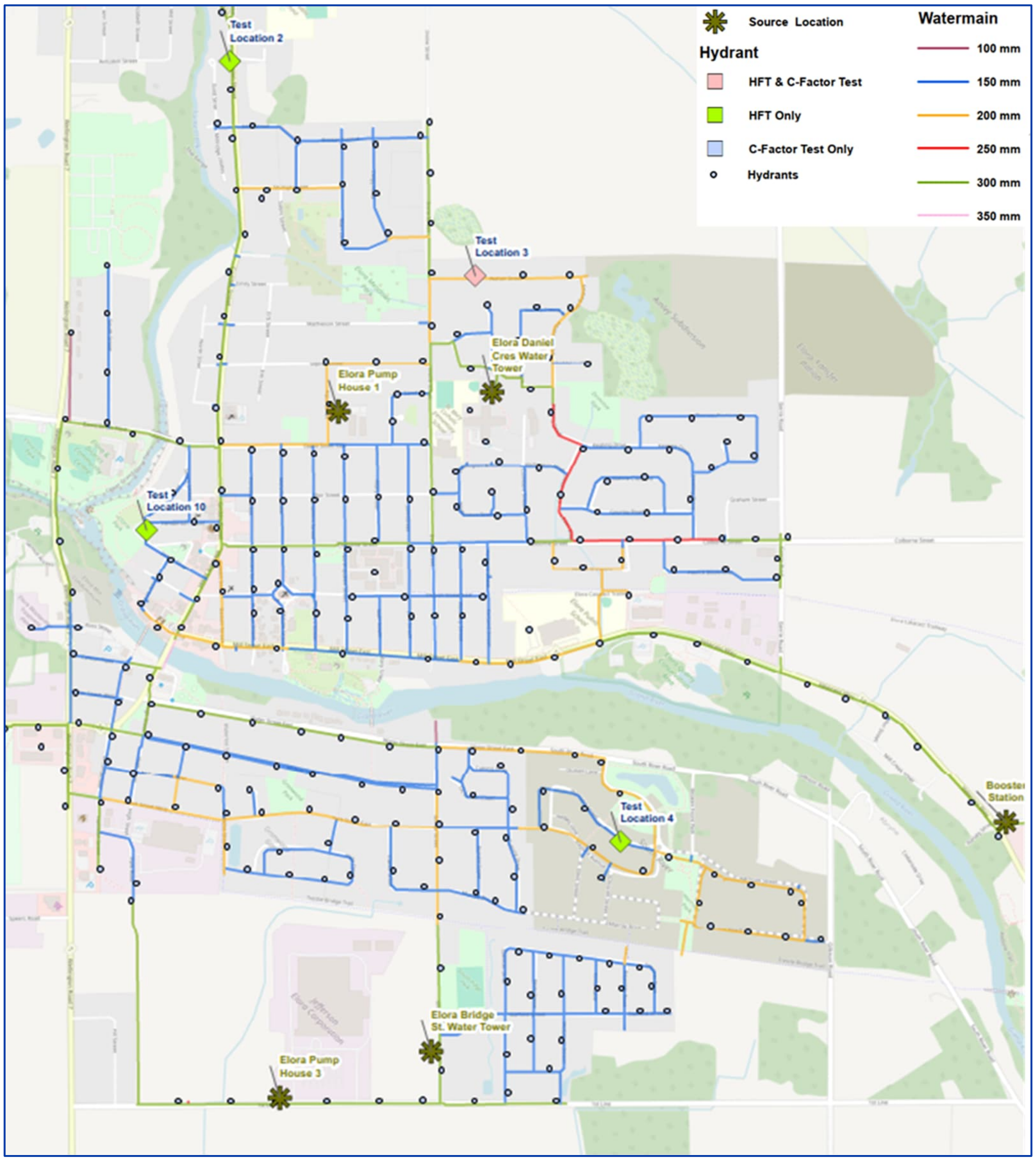


Figure 2-1: Hydrant Flow and C-Factor Test Locations – Elora

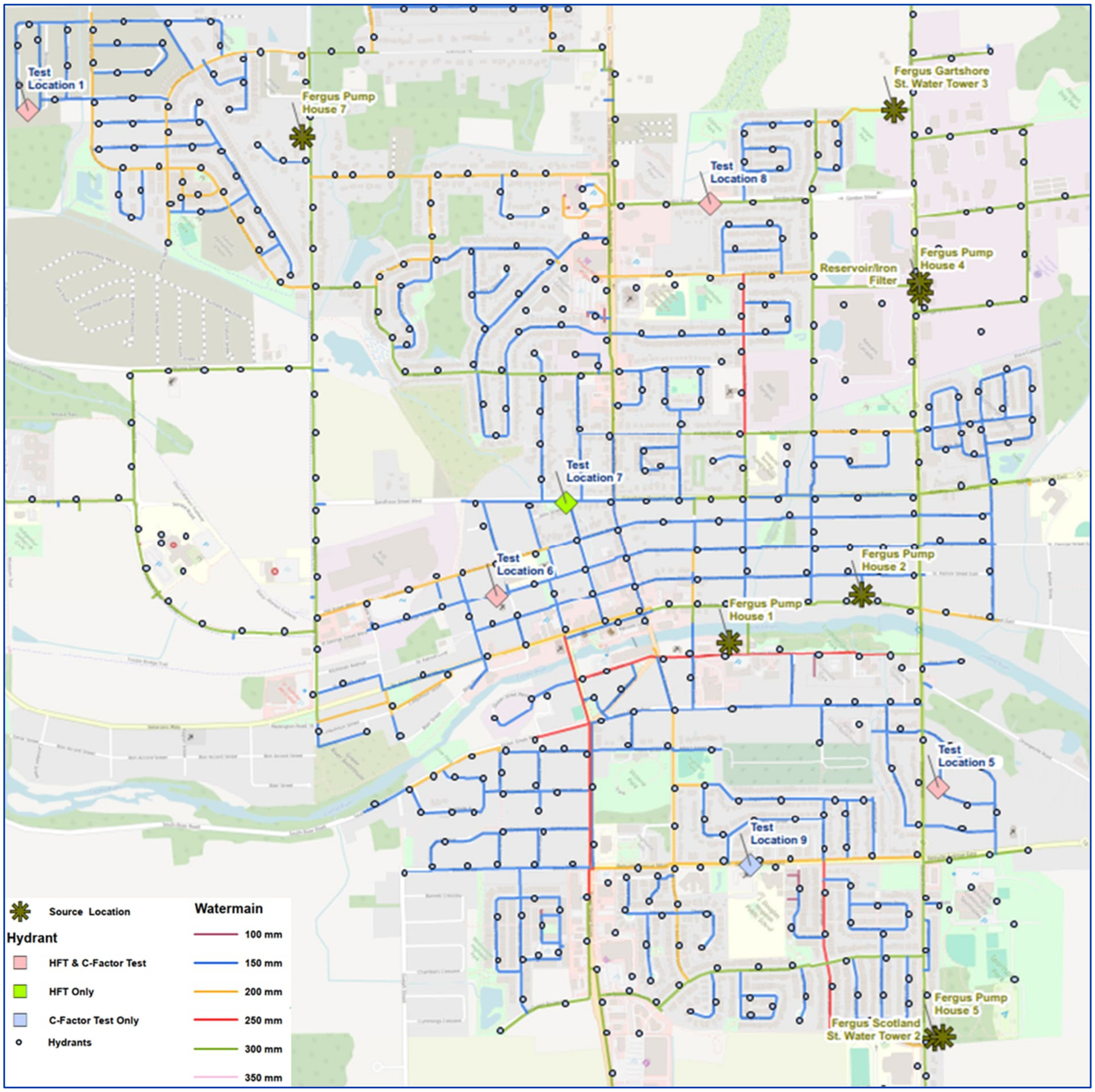


Figure 2-2: Hydrant Flow and C-Factor Test Locations – Fergus

A summary of the locations and the field test results has been provided in Table 2-1 below. Based on the review of the test results, it was determined that the results were of good quality and sufficient for the model calibration.

Table 2-1: Hydrant Flow Tests – Results Summary

Test #	Flow Hydrant	Residual Hydrant	Pipe Diameter (mm)	Pipe Material	Static Pressure (psi)	Residual Pressure (psi) - Two Port	Pressure Drop (psi)	Pressure Drop (%)
1	339 Rear Dr. Fergus	311 Rear Dr. Fergus	150	PVC	55	28	27	49
2	450 Geddes St, Salem	471 Geddes St, Salem	300	PVC	65	54	11	17
3	38 Walser St, Elora	70 Walser St, Elora	200	PVC	47	42	5	10
4	135 Harrison St, Elora	91 Harrison St, Elora	150	PVC	62	45	17	27
5	536 Harvey St, Fergus	572 Harvey St, Fergus	150	Ductile Iron	68	58	10	15
6	415 St. Patrick St W, Fergus	330 St George St W, Fergus	150	Cast Iron	59	45	14	24
7	210 Garafraxa St W, Fergus	140 Garafraxa St E, Fergus	150	Cast Iron	58	53	5	9
8	266 Gordon St, Fergus	338 Gordon St, Fergus	300	Ductile Iron	42	36	6	14
9	290 Belsyde Ave E, Fergus	218 Belsyde Ave E, Fergus	200	Cast Iron	54	49	5	9
10	107 James St, Elora	190 Victoria Cres, Elora	150	Cast Iron	84	68	16	18

2.3 Model Development

The water distribution model was developed in the InfoWater Pro modeling platform. As a first step, the GIS shapefiles of watermains, as provided by the Township, were imported into the software. The node elevation data was added based on the DEM data provided by the Township. Once all the model components were imported and updated, the model was reviewed to fix any data gaps and connectivity issues. Furthermore, the pumps and storage facilities were added to the model based on the information/relevant drawings provided by the Township.

The information regarding the water distribution network, storage facilities, and pump houses located in Elora and Fergus can be found in Appendix 4 of the Master Plan Report.

2.4 Demand Estimation and Allocation

2.4.1 Existing Conditions

Table 2-2 below provides the summary of the demands allocated as part of the Average Day Demand (ADD), Maximum Day Demand (MDD) and Peak Hour Demand (PHD) conditions under the existing scenario based on the population and total water consumption analysis completed as part of TM#3.

Table 2-2: Demand Estimation - Existing Conditions

Service Area	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
Elora	23.2	41.9[1]	62.6[3]
Fergus	43.8	59.1[2]	118.3[3]

1 Maximum Day Peaking Factor of 1.8 was used for the Elora system based on historical data
2 Maximum Day Peaking Factor of 1.4 was used for the Fergus system based on historical data
3 Peak Hour Peaking Factor of2.7 was used for both systems based on historical data

The estimated demand was allocated evenly amongst the junctions found within each service area, excluding junctions located on transmission mains.

2.4.2 Future Conditions

As part of the future demand conditions, the following two (2) modeling scenarios were developed,

1. **Growth Scenario 1**: Included demand from the proposed developments that will be completed by 2051; and

2. **Growth Scenario 2**: Ultimate build out conditions which included demands from the Boundary Expanded Areas (BEA).

Table 2-3 below provides a summary of the additional demands added as part of the future modeling scenarios.

Table 2-3: Demand Estimation - Future Conditions

Service Area	Growth Scenario 1			Growth Scenario 2		
	Average Day Demand (L/s)	Maximum Day Demand (L/s)[1]	Peak Hour Demand (L/s)[2]	Average Day Demand (L/s)	Maximum Day Demand (L/s)[1]	Peak Hour Demand (L/s)[2]
Elora	18.2	34.6	51.9	21.9	41.6	62.4
Fergus	54.2	103.0	154.5	19.9	37.8	56.7

1 Maximum Day Peaking Factor = 1.9 from MECP Guidelines
2 Maximum Day Peaking Factor = 2.85 from MECP Guidelines

The estimated demands were allocated to the nearest junction corresponding to the proposed development or a new junction was created to represent the approximate location where the demands may be allocated in the future.

2.5 Model Calibration

Model calibration is the process of comparing the model results with actual field measurements and using these field test results to improve the overall accuracy of the hydraulic model. The intent is to bring the modeling results as close as possible to real-world conditions by comparing the model results with actual field measurements and adjusting the model parameters (if necessary) to match the field test data from the hydrant flow testing. The calibration of the model was completed as per the steps below:

- Complete a flow balance exercise using the SCADA data provided to determine the demands and operational settings that were observed during the calibration (field-testing) period.
- Assign the demands to the model nodes and ensure that all pump house and storage facilities operational set points align with the observed set points from the SCADA data review for the calibration period.

- Compare the measured static pressure from the field testing and the simulated pressure from the model. The static pressure is defined as the hydraulic grade at the test location when the hydrant is not flowing.
- Compare the measured residual pressure and the modeled pressure on the test location and the model junction, respectively for each test. The residual pressure is defined as the hydraulic grade at the test hydrant location when the hydrant is flowing at a specific flow rate.

Table 2-4 below summarizes the results of the model calibration completed as part of this program.

Table 2-4: Summary of Model Calibration Results

Test No.	Static Pressure (psi)			Residual Pressure (psi)			
	Field	Model	% Difference	Two Port Flow (L/s)	Field	Model	% Difference
1	55	56	2%	80	28	27	-5%
2	65	65	0%	115	54	53	-2%
3	47	46	-2%	86	42	40	-6%
4	62	60	-2%	88	45	43	-4%
5	68	68	0%	80	58	54	-6%
6	59	59	0%	84	45	43	-4%
7	58	59	1%	84	53	51	-4%
8	42	44	4%	90	36	36	-1%
9	54	56	4%	106	49	45	-8%
10	84	84	0%	95	68	68	-1%

As seen from the table above, the static pressure difference ranges from -2 to 4%, however, the residual pressure difference ranges from -1 to -8%. The results indicate a good match in the modelled static and residual pressures for all test locations, which confirms that the model is well calibrated and can be used for the system analysis.

2.6 System Analysis

As part of the analysis, the design guidelines and requirements for water distribution systems stipulated in the Townships of Center Wellington's Development Manual (June 2024) were considered and are as follows

1. Under normal operating conditions, the acceptable pressures are between minimum and maximum pressures of 275 kPa (40 psi) and 700 kPa (100 psi), respectively.
2. A fire flow requirement of 67 L/s was assumed based on the Fire Underwrites Survey guidelines and should not exceed the available flows in the municipal watermains under existing and future Maximum Day Demand plus Fire Flow (MDD+FF) conditions with a minimum maintaining residual pressure of 140 kPa (20 psi) within the system.
3. The water supply system should be designed to satisfy the greater of peak hour demand or maximum day demand plus fire flow under existing and future development conditions.

The steady-state model simulations were performed to determine the hydraulic conditions of the distribution system under the existing and future demand conditions. The obtained results were then utilized to determine the recommended upgrades to resolve any issues related to capacity or fire flow availability.

2.6.1 Existing Conditions

Table 2-5 shows the results summary of the simulated pressures under the existing conditions. Based on the results of the hydraulic analysis, the service pressures range from 305 kPa (44 psi) to 682 kPa (99 psi) within the Elora water distribution network and 296 kPa (43 psi) to 659 kPa (96 psi) within the Fergus water distribution network under existing demand conditions. Accordingly, the resulting pressures are within the acceptable range for water distribution systems under normal operations. The results of the model simulations have been summarized in Appendix 3-1 of this report

Table 2-5: Simulated Pressures Under Existing Conditions

Service Area	Average Day Demand (kPa)	Maximum Day Demand (kPa)	Peak Hour Demand (kPa)
Elora	308- 682	307 - 682	305 - 675
Fergus	310 - 659	303 - 655	296 - 641

Under the existing conditions, a fire flow simulation was carried out to identify locations where the hydrant available fire flow is less than equal to the proposed minimum fire protection value of 67 L/s. The results of the hydraulic modelling showed that under existing conditions, the available fire flows on most areas within the system can achieve the minimum fire flow requirement of 67 L/s, except on areas with small diameter and/or dead-end watermains which is to be expected since the fire flow availability in these cases are normally lower compared to larger diameter watermain and/or properly looped watermain connections. Figure 2-3 below shows the locations where the minimum fire flow requirements of 67 L/s were not met under the existing conditions.

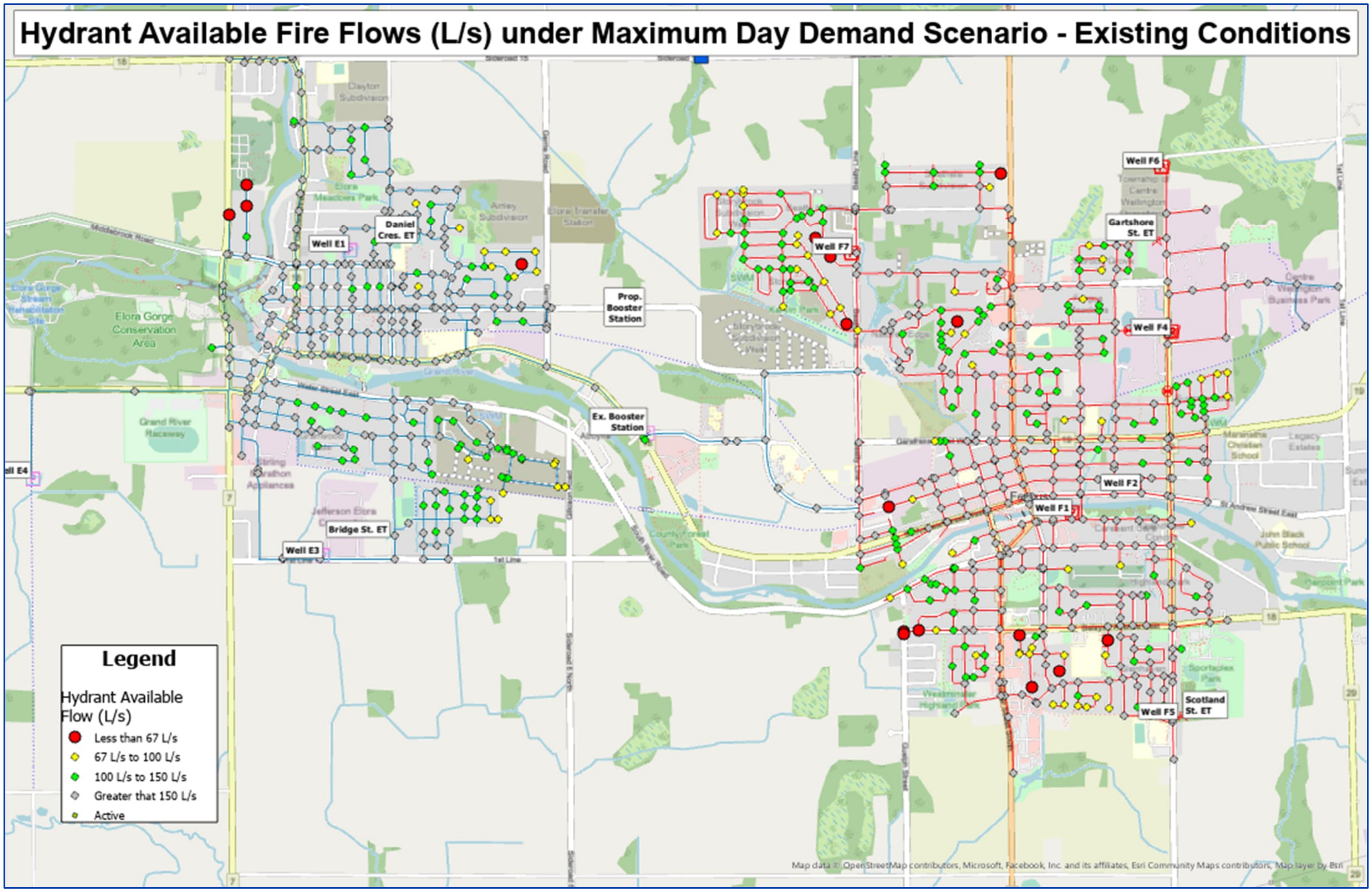


Figure 2-3: Locations With Less Than Required Minimum Fire Flow of 67 l/s

2.6.2 Future Conditions – Growth Scenario 1

The following section provides a summary of the hydraulic performance under the Growth Scenario 1 demand conditions, which included the additional demands related to the proposed developments that are anticipated to be completed by 2051. Furthermore, the scenario also included the addition of three (3) new well sources to the model, out of which two (2) were located in Elora (Area 3 and Area 5) and one (1) located in Fergus (Area 7). As mentioned in TM#3, as per the Township's New Well Exploration Feasibility Study completed in 2024, each of the new wells will be able to provide an additional 2,592 m3/d (30 L/s) of water to their respective systems. For the purposes of the model simulations, the proposed wells were modeled as junctions with a negative demand allocation of 30 L/s at each location. This would indicate that the junction will act as a supply point rather than a demand point during the model simulations. **Figure 2-4** below, shows the locations of the three (3) new wells proposed for the system. Additional details regarding the new wells can be found in TM#3.

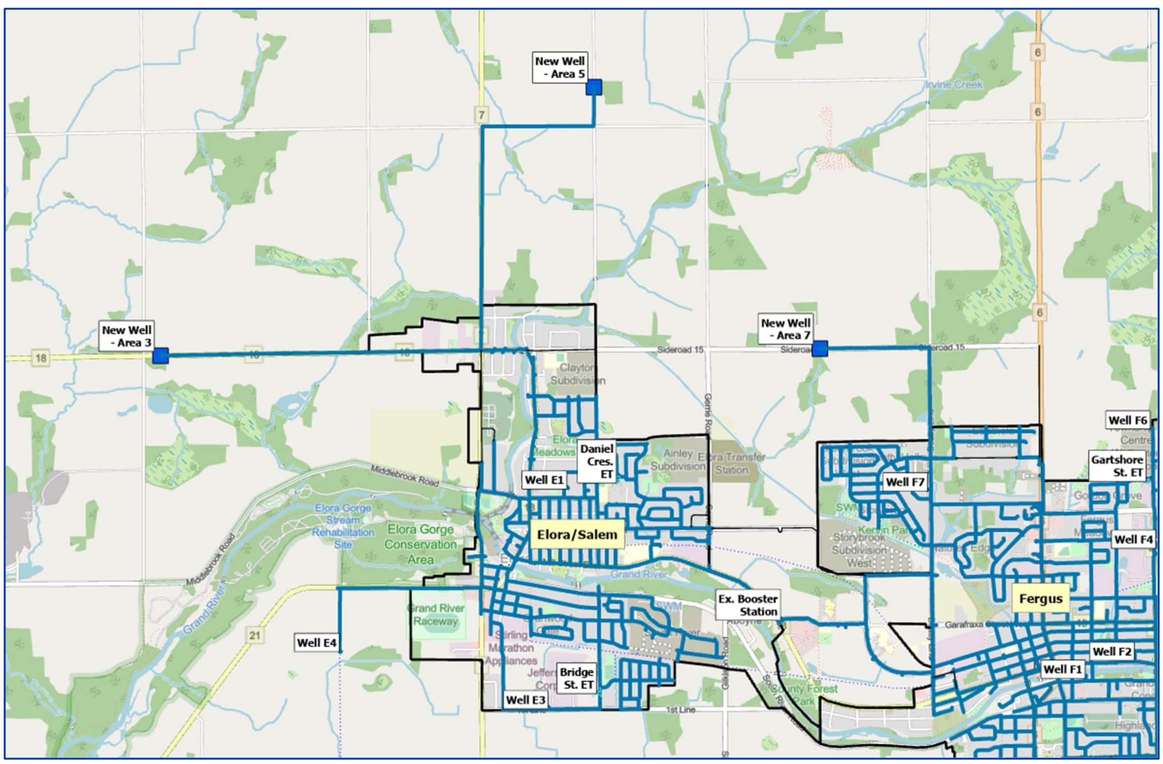


Figure 2-4: Proposed well locations

Table 2-6 shows the results summary of the simulated pressures under the Growth Scenario 1 conditions. Based on the results of the hydraulic analysis, the service pressures range from 303 kPa (44 psi) to 682 kPa (99 psi) within the Elora water distribution network and 280 kPa (41 psi) to 641 kPa (93 psi) within the Fergus water distribution network under Growth Scenario 1 demand conditions. Accordingly, the resulting pressures are within the acceptable range for water distribution systems under normal operations. The results of the model simulations have been summarized in Appendix 3-1 of this report.

Table 2-6: Simulated Pressures Under Growth Scenario 1

Service Area	Average Day Demand (kPa)	Maximum Day Demand (kPa)	Peak Hour Demand (kPa)
Elora	307 - 682	303 - 682	303 - 681
Fergus	296 - 641	289 - 634	276 – 621

Under the Growth Scenario 1, a fire flow simulation was carried out to identify locations where the hydrant available fire flow is less than equal to the proposed minimum fire protection value of 67 L/s. The results of the hydraulic modelling showed that no further locations showed fire flow deficiencies other than the ones identified under the existing conditions (Figure 2-3).

2.6.3 Future Conditions – Growth Scenario 2

Similar to the Growth Scenario 1 conditions, additional demands identified in Section 2.4.2 for Growth Scenario 2 were allocated to the nearest junctions in addition to the demands identified for the existing and Growth Scenario 1 conditions. Table 2-7 shows the results summary of the simulated pressures under the Growth Scenario 1 conditions. Based on the results of the hydraulic analysis, the service pressures range from 303 kPa (44 psi) to 682 kPa (99 psi) within the Elora water distribution network and 280 kPa (41 psi) to 641 kPa (93 psi) within the Fergus water distribution network under Growth Scenario 2 demand conditions. Accordingly, the resulting pressures are within the acceptable range for water distribution systems under normal operations. The results of the model simulations have been summarized in Appendix 3-1 of this report

Table 2-7: Simulated Pressures under Growth Scenario 2

Service Area	Average Day Demand (kPa)	Maximum Day Demand (kPa)	Peak Hour Demand (kPa)
Elora	303 - 682	303 - 682	303 - 681
Fergus	296 - 641	283 - 631	276 - 614

Under the Growth Scenario 2, a fire flow simulation was carried out to identify locations where the hydrant available fire flow is less than equal to the proposed minimum fire protection value of 67 L/s. The results of the hydraulic modelling showed that no further locations that showed fire flow deficiencies other than the ones identified under the existing conditions (Figure 2-3).

2.7 Recommendation and Summary

Based on the hydraulic modeling results, the Elora and Fergus water distribution systems have sufficient capacity to service the future demand growth in terms of pressures, and as a result, no infrastructure upgrades are required to meet the system pressure requirements. However, the fire flow simulations indicated fire flow deficiency in both systems, mainly at dead-end watermain scenarios, where the available fire flow is below the minimum required fire flow of 67 L/s. Table 2-8 presents a summary of the recommended watermain upgrades (alternatives 1 and 2), which are required to remediate the identified fire flow deficiencies.

Table 2-8: Proposed Watermain Upgrades to Resolve Fire Flow Deficiencies

Service Area	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Fergus	Inett Way and Harcourt Place	150	54	67	Add 107 m of 150 mm PVC watermain to create a looped watermain from Inett Way and Harcourt Place to Tobe Terrace and Florence Ave.	121	-	-
Fergus	Pattison Pl	150	58	67	Add 100 m of 150 mm PVC watermain from Pattison Pl to the 200 mm PVC on St. David St. S, through the Pattison Park	90	Upsize 221m of 150 mm PVC watermain on Pattinson Pl. to 200 mm PVC watermain	79
Fergus	Cherry Hill Pl	150	60	67	Add 100 m of 150 mm PVC watermain from Cherry Hill Pl to the 200 mm PVC on St. David St. S, through the trail	144	Upsize 243 m of 150 mm PVC watermain on Cherry Hill Pl. to 200 mm PVC watermain	125
Fergus	Davison Pl	150	65	67	Add 88 m of 150 mm PVC watermain from Davison Pl to the 300 mm PVC on Milburn Blvd., through the trail	142	Upsize 216 m of 150 mm PVC watermain on Davison Pl. to 200 mm PVC watermain	148

Service Area	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Fergus	Heritage Ln	150/100	53	67	Upsize 62 m of 100 mm PVC watermain to 150 mm PVC watermain. Add new 150 mm watermain to connect watermain to 200 mm DI watermain on Belsyde Ave E	138	Upsize 265 m of 150 mm PVC watermain on Scott St. and 62 m of 100 mm PVC watermain on Heritage Ln to 200 mm PVC watermain	100
Fergus	St. George St W	150	53	67	Add 179 m of 150 mm PVC watermain to make a connection to the 300 mm PVC watermain on Beatty Line N.	129	Add 162 m of 150 mm PVC to connect the 150 mm watermain on Johnston St. N	120
Fergus	Goodall Crt	150	54	67	Upsize 136 m of 150 mm PVC watermain on Goodall Crt to a 200 mm PVC watermain	91	Upsize 150 mm PVC watermains on Courtney St., Ryan St., Sadlet St. Goodall Crt. And Aitken Crt to 200 mm PVC watermains	93
Fergus	Collie Crt	150	59	67	Upsize 191 m of 150 mm PVC watermain on Collie Crt with a 200 mm PVC watermain	111	-	-

Service Area	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Fergus	Duncan Crt	150	51	67	Add 107 m of 150 mm PVC watermain to make a connection to the 150mm PVC watermain on Harpin Way E.	75	Upsize 240 m of 150 mm PVC watermain on Duncan Crt to 200 mm PVC watermain	84
Fergus	Conlin Crt.	150	60	67	Upsize 59 m of 150 mm PVC watermain on Conlin Crt. To 200 mm PVC watermain Upsize 726 m of 150 mm PVC watermain on Harpin Way E to 200 mm PVC watermain	76	-	-
	Harpin Way E	150	58	67	Upsize 726 m of 150 mm PVC watermain on Harpin Way E to 200 mm PVC watermain	83	-	-
	Guelph St.	150	55	67	No improvement suggested as of now. Additional water main data required for Guelph St.to accurately analyze fire flows in the area.	-	-	-
Elora	Watermain parallel to Wellington Rd. 7	100	20	67	Upsize 261 m of 100 mm PVC watermain to a 150 mm PVC watermain	82	-	-

Service Area	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Elora	South St.	150	44-109	150	Replace 471 m of 150 mm PVC watermain on South St. with a 200 mm PVC watermain	103-237	-	-

3.0 WASTEWATER COLLECTION HYDARULIC MODELING AND ANALYSIS

This section is broken down into the following sub-sections:

- Background data review;
- Flow and rainfall data review;
- Model development;
- Flow estimation and allocation;
- Model Calibration;
- System Analysis; and
- Recommendations.

3.1 Background Data Review

A detailed review of the existing collection system infrastructure (such as pipes, manholes, and pumps) was performed based on the information presented in the GIS database as provided by the Township. The background data review included the following items:

- Sewer infrastructure inventory (GIS database including pipes and manholes);
- General GIS data including land parcels;
- Pump station drawings and operation manuals;
- Pump curves and operational set points;
- Wastewater treatment plant historical flows;
- Planned subdivisions; and
- Existing and future population projections.

In addition to the background data reviewed, a detailed breakdown of the various attributes of the wastewater collection networks has been summarized in the main body of the Master Plan Report. The design criteria and the population analysis utilized for the hydraulic modeling scenarios have been summarized in the main body of the Master Plan Report.

3.2 Flow and Rainfall Monitoring Data Review

To assist with the model calibration of the newly developed models for the Elora and Fergus service area, RVA utilized the flow and rainfall monitoring data collected by the Township in 2018 and 2019 to support an inflow and Infiltration study.

The Elora flow monitoring program was completed between March and August 2019 and comprised of eight (8) flow and one (1) rainfall monitoring locations. The details of the flow and rainfall monitoring locations are summarized in Error! Not a valid bookmark self-reference. below.

Table 3-1: Flow and Rainfall Monitoring Location Summary – Elora

Site ID/MH ID	Location	Pipe Size (mm)
E01_01244	Erb St Southeast of Sophia St	200
E02_00215	Colborne St and Kertland St	200
E03_00200	Mill St E and N Queen St	375
E04_01131	Geddes St and Church St E	200
E05_00186	North of E Mill St and Metcalfe St	375
E06_00175	Clyde St and Metcalfe St	375
E07_00017	South of High St and Water St E	250
E08_00046	North of Clyde St and Water St E	375
E_RG01	Rain gauge installed at Elora WWTP	

The Fergus flow monitoring program was conducted over two separate monitoring periods, with the first taking place between September and December 2018 and the second between May and August 2019 The flow monitoring program comprised of eleven (11) flow and one (1) rainfall monitoring locations. The details of the monitoring locations are summarized in Error! Not a valid bookmark self-reference. below.

The flow and rainfall monitoring data were obtained from Cole Engineering (currently Arcadis) for this study. The data was thoroughly reviewed and were compared against the information in the Rain Derived Inflow and Infiltration (RDII) Study report, Cole, 2020. Overall, the quality of the data was deemed to be suitable for model calibration and further reviewed to obtain the dry and wet weather parameters. Table 3-3 and Table 3-4 presents a summary of dry weather flow (DWF) and wet weather flow (WWF) for selected events for model calibration purposes.

Table 3-2: Flow Monitoring Location Summary – Fergus

Site ID/MH ID	Location	Pipe Size (mm)
FERG-FM01_00533	Southwest of Black St and Holman Cr	450
FERG-FM02_00535	Northwest of Woodhill Dr and Black St	450
FERG-FM03_00737	East of East of Provost Ln and St. Patrick St W	525
FERG-FM04_00776	St. Patrick St E and St David St N	300
FERG-FM05_01474	Northeast of St George St E and Cameron St	400
FERG-FM06_00704	Intersection of Maiden Lane and St Andrew St W	525
FERG-FM07_00362[1]	Southeast of Tower St S and McQueen Blvd	250
FERG-FM07_00364[1]	Northwest of Tower Street Pumping Station	250
FERG-FM08_00889	Northeast of Tower St S and Albert St W	300
FERG-FM09_01205	Northwest of Ferrier St and Elgin St	275
FERG-FM10_01414	Southeast of Tower St S and Queen St W	350
FERG-RG01_WWTP	Rain gauge installed at Fergus WWTP	

Table 3-3: Flow Monitoring Observed Flow Summary – Elora

Flow Monitoring ID	Observed Peak DWF (L/s)	Observed Peak WWF (L/s)		
		18-Apr-19	26-Apr-19	25-May-19
E01_01244	3.5	4.5	5.7	3.2
E02_00215	5.7	13.8	14.9	8.2
E03_00200	27.6	31.6	47.1	28.1
E04_01131	12.7	18.9	20.3	15.8
E05_00186	37.6	52.3	57.8	39.8
E06_00175	23.3	25.3	26.3	21.9
E07_00017	4.9	10.7	14.8	6.4
E08_00046	23.2	30.4	28.3	24.1

Table 3-4: Flow Monitoring Observed Flow Summary – Fergus

Flow Monitoring ID	Observed Peak DWF (L/s)	Observed Peak WWF (L/s)		
		25-May-19	13-Jun-19	17-Aug-19
FERG-FM01_00533	5.3	10.6	8.0	6.4
FERG-FM02_00535	10.9	13.8	12.3	12.9
FERG-FM03_00737	49.3	93.4	57.7	47.6
FERG-FM04_00776	8.2	14.5	11.3	15.4
FERG-FM05_01474	19.2	25.9	30.0	20.0
FERG-FM06_00704	17.4	23.0	18.8	No observed flow at this location
FERG-FM07_003621	No observed flow at this location			
FERG-FM07_003641	29.8	34.9	30.9	53.6
FERG-FM08_00889	5.5	9.0	6.0	6.8
FERG-FM09_01205	14.2	31.5	16.4	24.2
FERG-FM10_01414	52.5	57.2	53.2	No observed flow at this location

3.3 Model Development

As mentioned, previously two separate models were developed for the Elora and Fergus wastewater collection systems using the steady state method in PCSWMM. The model was developed using the sewer and manhole GIS data as well as the SPS data provided by the Township. Any missing elevation data was added based on the DEM data provided by the Township. Once all the model components were imported and updated, the model was reviewed to fix any data gaps and connectivity issues as well as to add all pump stations and WWTP facilities based on the relevant drawings provided by the Township.

The information regarding the wastewater collection network, pump stations and wastewater treatment plants can be found in Appendix 5 of the Master Plan Report.

3.3.1 Sub-Catchment Delineations

In a wastewater hydraulic model, subcatchments are used to represent the sanitary population-based flows, groundwater infiltration, and rainfall-derived inflow and infiltration. The contributing area of the subcatchments includes land use areas and roads.

Sanitary subcatchments were delineated on a manhole-to-manhole basis in GIS software. A total of 319 subcatchments were delineated for Elora, and 543 subcatchments were delineated for Fergus based on the received parcel layer to allocate the flows to the appropriate sewer segments. The subcatchment boundaries were generally aligned with the parcel lot boundaries. The gross area of the subcatchments included the area of the residential/ non-residential parcel, green areas, and roads.

The inflow and infiltration were calculated from the contributing area of each subcatchments. The contributing area was estimated by subtracting approximate green areas from the gross area of each subcatchments. Green areas in each subcatchments were assessed based on the aerial base map for the study area. The contributing area of the subcatchments included the area of the residential/ non-residential parcel, and the roads if any.

3.4 Flow Estimation and Allocation

3.4.1 Baseline Wastewater Flows

In the absence of land use data, the base wastewater flow generated by the population was estimated using the billing data provided by the Township. The billing records provided comprised water usage data of individual customers for the Elora and Fergus water distribution systems from January 2021 to June 2024. To obtain the average daily billed usage, water usage for each customer account was added to obtain the total billed water consumption and then divided by the total number of usage days.

The average daily billed consumption for each customer account was used to estimate the average wastewater flow. As a standard practice, it was assumed that 80% of the average daily billed consumption of each customer converts to wastewater. This wastewater represents the dry weather flow (DWF) in the model. The converted wastewater flow was compared against the wastewater treatment plant data to verify the total wastewater generation for each service area.

The billing records provided by the Township were in Excel format with no spatial information. To estimate wastewater flow generated by each subcatchment, RVA geocoded each customer account. By using ArcGIS software, an analysis was conducted to spatially join each customer to their corresponding subcatchments. Furthermore, the contributing area of each subcatchment was used to calculate inflow and infiltration generated by the subcatchments. The DWF and inflow, and infiltration together represent the wet weather flow (WWF) for each subcatchment in the model.

3.4.2 Future Flows

As part of the future demand conditions, the following two (2) modeling scenarios were developed,

1. **Growth Scenario 1**: Included demand from the proposed developments that will be completed by 2051; and
2. **Growth Scenario 2**: Ultimate build out conditions which included demands from the Boundary Expanded Areas (BEA).

Table 3-5 below provides a summary of the additional flows added as part of the future modeling scenarios.

Table 3-5: Flow estimation - Future Conditions

Collection Area	Growth Scenario 1		Growth Scenario 2	
	Wastewater Flows (L/s)	Peak DWF (L/s)	Wastewater Flows (L/s)	Peak DWF (L/s)
Elora	19.5[1]	55.80[2]	23.5[1]	67.4[2]
Fergus	54.2[3]	140.0[4]	19.9[3]	51.2[4]

1 Per capita wastewater generation rate of 300 L/cap/day, based on historical data
2 Harmon Peaking Factor of 2.86 based on growth in Elora population
3 Per Capita wastewater generation rate of 270 L/cap/day, based on historical data
4 Harmon Peaking Factor of 2.58 based on growth in Fergus population

The estimated flows were allocated to the nearest manhole corresponding to the proposed development.

3.5 Model Calibration

3.5.1 Dry Weather Flow (DWF) Calibration

Dry weather model calibration was performed to reasonably match the average dry weather flow and flow diurnal pattern that were estimated based on the flow monitoring data. A sample DWF calibration chart is shown in Figure 3-1 below. The remaining dry weather calibration result graphs are shown in **Appendix 3-2**.

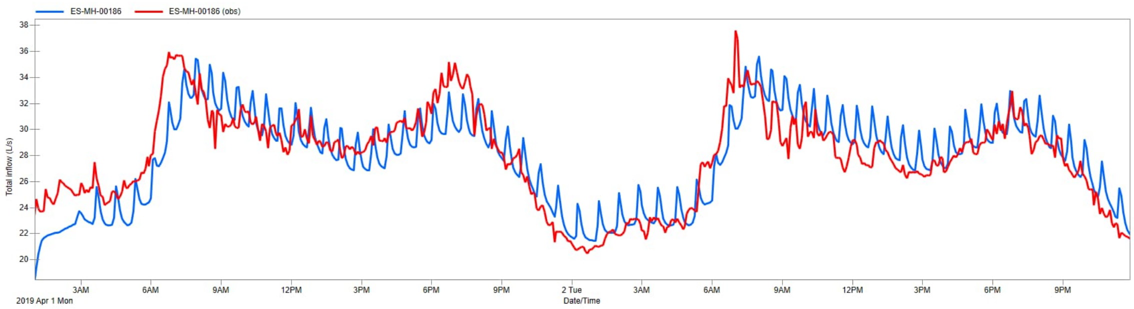


Figure 3-1 Sample Dry Weather Flow (DWF) Calibration Chart

3.5.2 Wet Weather Calibration

In wet weather flow conditions, the sanitary system encounters the inflow of additional water due to storm events, which is referred to as Rainfall-Derived Inflow and Infiltration (RDII). The wet weather model calibration was performed using the RTK method. In this method, the shape and volume of runoff entering the sanitary sewer is described by the following three parameters:

- “R” is the fraction of rainfall volume that enters the sewer system.
- “T” is the time from the onset of rainfall to the peak of the hydrograph.
- “K” is the ratio of time to recession of the unit hydrograph to the time to peak.

From the flow monitoring data provided, three (3) isolated rainfall events data were identified in Elora and Fergus for the wet weather model calibration of each individual model. Table 3-6 presents the details on the magnitude and intensity of these events.

Table 3-6: Selected Rainfall Events for Model Calibration

Event	Event Date	Duration (hrs)	Rainfall Depth (mm)
Elora Rain Events			
1	April 19, 2019	49.0	38.3
2	April 26, 2019	10.0	24.8
3	May 25, 2019	12.0	23.5
Fergus Rain Events			
1	May 25, 2019	12.0	23.5
2	June 13, 2019	13.1	16.3
3	August 18, 2019	21.0	45.3

3.6 System Analysis

The calibrated PCSWMM model was used to evaluate the existing sanitary sewer performance under the existing and future flow conditions. For this purpose, an extreme wet weather event (25-year storm) was used following the RFP requirements. It should be noted, manholes with less than 1.8 m freeboard were considered as locations that do not meet the desired level of service and require improvements.

3.6.1 Existing Conditions

Based on the model results under the existing conditions, the majority of the Elora and Fergus wastewater collection system met the desired level of service (Freeboard is more than 1.8 m) under the 25-year storm event. However, the results indicated that the existing sewer would experience some surcharging at a few locations in both networks. Figure 3-2 and Figure 3-3 illustrate the results of the existing system performance under the 25-year storm event in Elora and Fergus networks. respectively. Please note that manholes that shown with red cross indicates that the desired level of service was not met at this location.

3.6.2 Growth Scenario 1 and 2

The calibrated PCSWMM model was executed to evaluate the existing sanitary sewer performance under Growth Scenario 2 conditions. For this purpose, the estimated future flow from the proposed developments was added to the model as an inflow. As expected, with introduction of additional flows into the existing system, there was an increase in the number of locations where the desired level service was not met. Figure 3-4 and Figure 3-5 illustrate the results of the existing system performance under the 25-year storm event in Elora and Fergus networks. respectively. Please note that manholes that shown with red cross indicates that the desired level of service was not met at this location.

3.7 Recommendation and Summary

As discussed in the sections above, the existing wastewater collection system was found to have some capacity constraint issues and would not be sufficient to handle the future flows related to the proposed developments. To mitigate the capacity constraints, the PCSWMM model was utilized to complete a number of simulations to determine the proposed upgrades for the problematic sections in the network. In addition to the sewer upgrades, to further mitigate the capacity constraints, upgrades to the existing pump stations were also recommended. Please note that all proposed improvements recommended as part of this study were determined based on the 25-year storm event. Figure 3-6 and Figure 3-7 illustrate the proposed improvements within the Elora and Fergus networks, respectively.

Figure 3-2: Wastewater Collection System Performance: Existing Conditions (Elora)

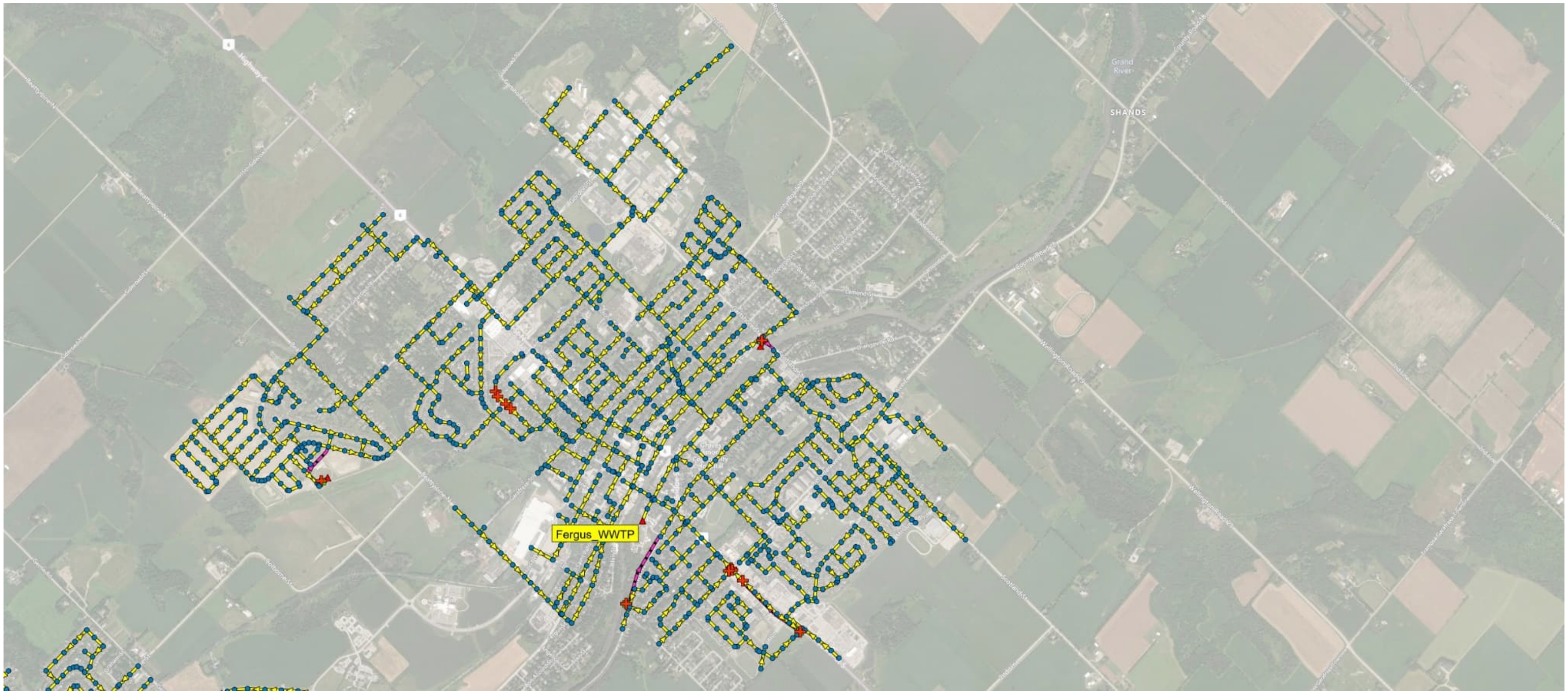


Figure 3-3: Wastewater Collection System Performance: Existing Conditions (Fergus

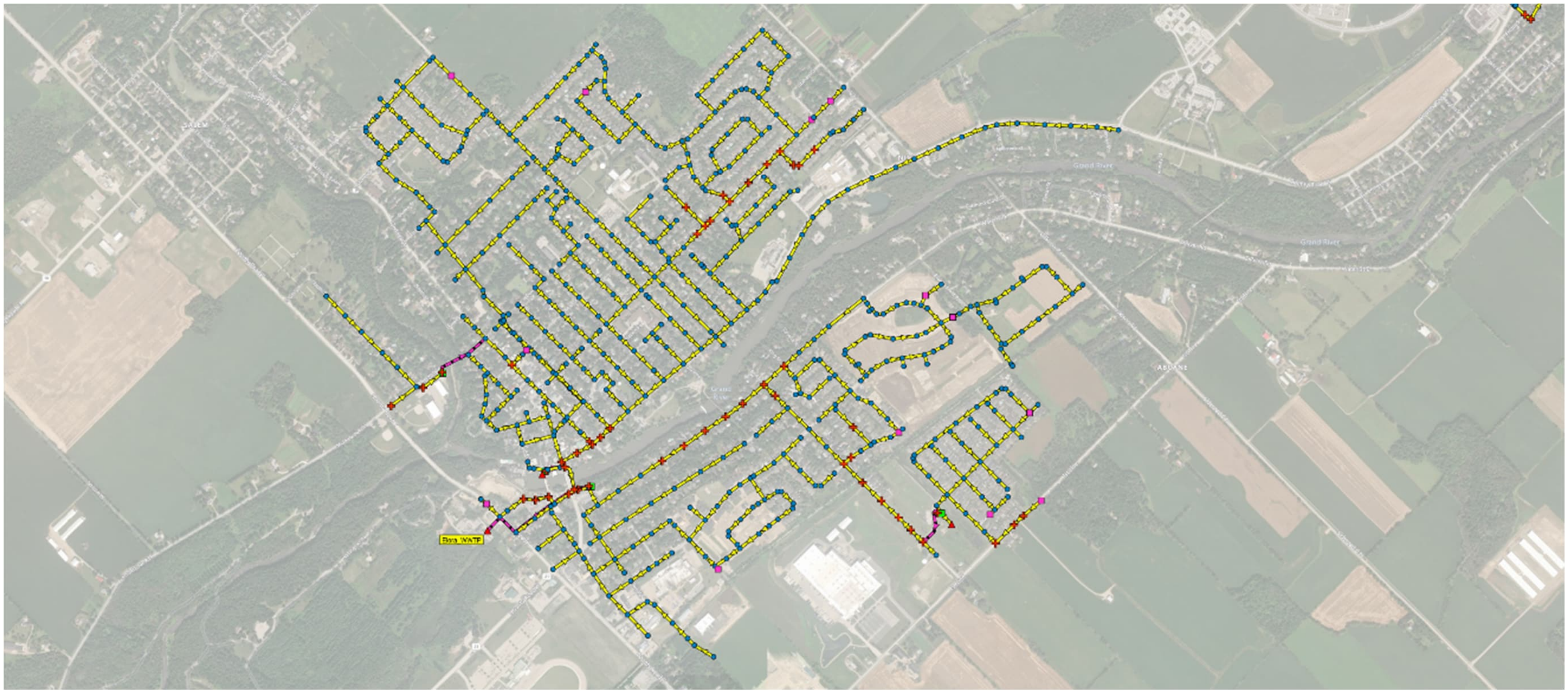


Figure 3-4: Sanitary Sewer Performance: Growth Scenario 2 Conditions (Elora)

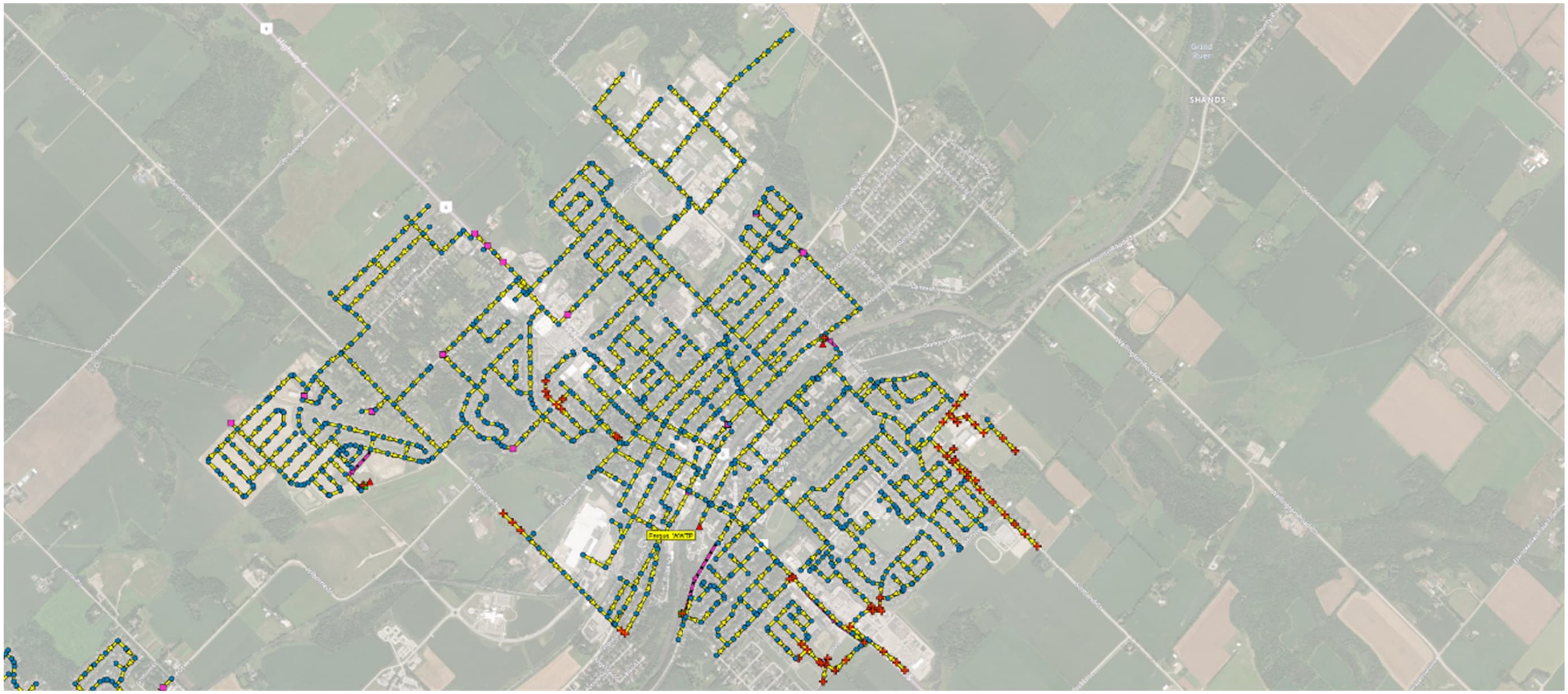
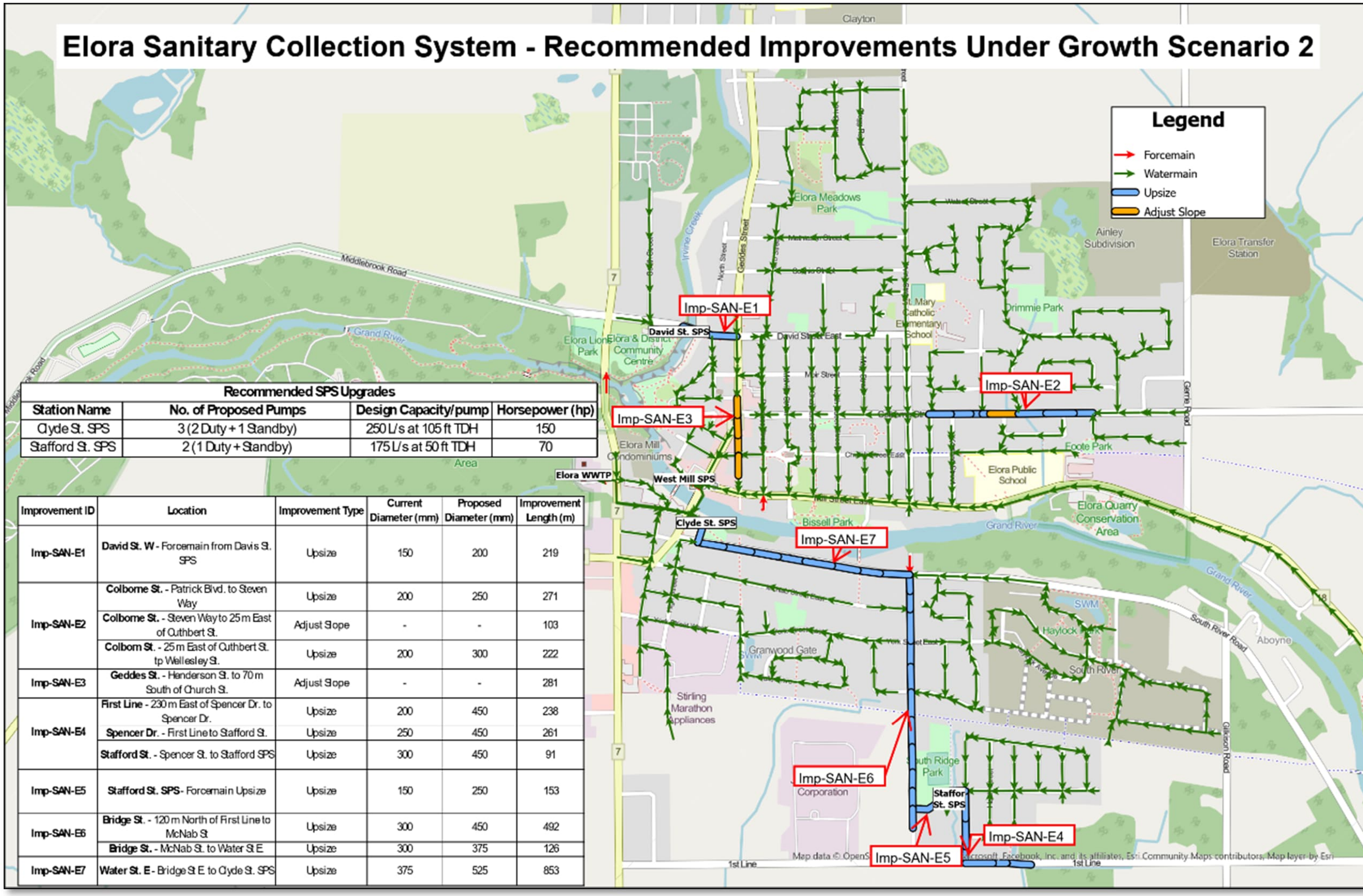


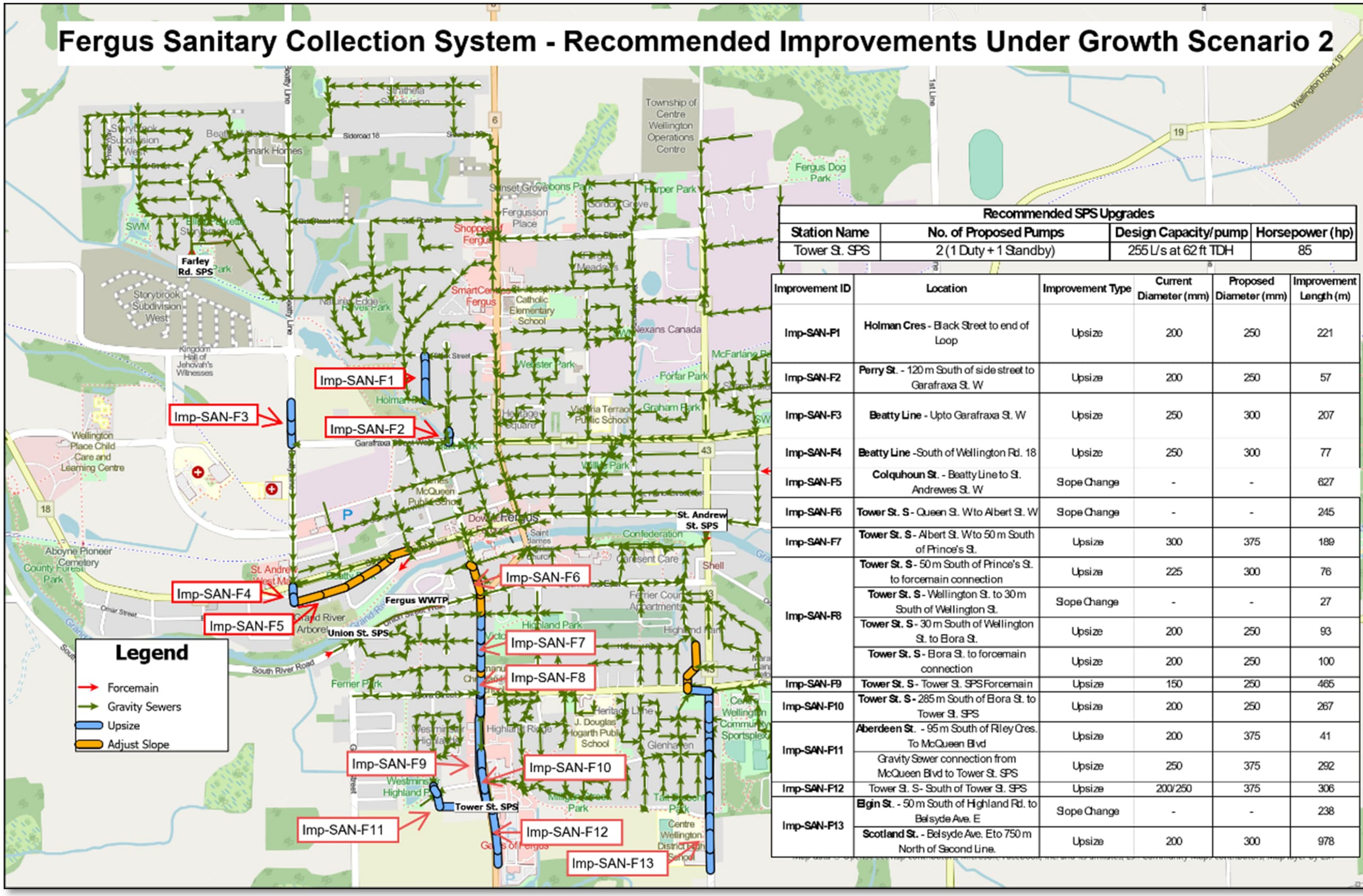
Figure 3-5: Sanitary Sewer Performance: Growth Scenario 2 Conditions (Fergus)



Recommended SPS Upgrades			
Station Name	**No. of Proposed Pumps**	**Design Capacity/pump**	**Horsepower (hp)**
Clyde St. SPS	3 (2 Duty + 1 Standby)	250 L/s at 105 ft TDH	150
Stafford St. SPS	2 (1 Duty + Standby)	175 L/s at 50 ft TDH	70

Improvement ID	Location	Improvement Type	Current Diameter (mm)	Proposed Diameter (mm)	Improvement Length (m)
Imp-SAN-E1	**David St. W** - Forcemain from Davis St. SPS	Upsize	150	200	219
Imp-SAN-E2	**Colborne St.** - Patrick Blvd. to Steven Way	Upsize	200	250	271
	Colborne St. - Steven Way to 25 m East of Cuthbert St.	Adjust Slope	-	-	103
	Colborn St. - 25 m East of Cuthbert St. tp Wellesley St.	Upsize	200	300	222
Imp-SAN-E3	**Geddes St.** - Henderson St. to 70 m South of Church St.	Adjust Slope	-	-	281
Imp-SAN-E4	**First Line** - 230 m East of Spencer Dr. to Spencer Dr.	Upsize	200	450	238
	Spencer Dr. - First Line to Stafford St.	Upsize	250	450	261
	Stafford St. - Spencer St. to Stafford SPS	Upsize	300	450	91
Imp-SAN-E5	**Stafford St. SPS** - Forcemain Upsize	Upsize	150	250	153
Imp-SAN-E6	**Bridge St.** - 120 m North of First Line to McNab St	Upsize	300	450	492
	Bridge St. - McNab St. to Water St E	Upsize	300	375	126
Imp-SAN-E7	**Water St. E** - Bridge St E to Clyde St. SPS	Upsize	375	525	853

Figure 3-6: Recommended Sanitary Sewer and PS Upgrades (Elora)



Recommended SPS Upgrades			
Station Name	**No. of Proposed Pumps**	**Design Capacity/pump**	**Horsepower (hp)**
Tower St. SPS	2 (1 Duty + 1 Standby)	255 L/s at 62 ft TDH	85

Improvement ID	Location	Improvement Type	Current Diameter (mm)	Proposed Diameter (mm)	Improvement Length (m)
Imp-SAN-F1	**Holman Cres** - Black Street to end of Loop	Upsize	200	250	221
Imp-SAN-F2	**Perry St.** - 120 m South of side street to Garafraxa St. W	Upsize	200	250	57
Imp-SAN-F3	**Beatty Line** - Upto Garafraxa St. W	Upsize	250	300	207
Imp-SAN-F4	**Beatty Line** -South of Wellington Rd. 18	Upsize	250	300	77
Imp-SAN-F5	**Colquhoun St.** - Beatty Line to St. Andrewes St. W	Slope Change	-	-	627
Imp-SAN-F6	**Tower St. S** - Queen St. W to Albert St. W	Slope Change	-	-	245
Imp-SAN-F7	**Tower St. S** - Albert St. W to 50 m South of Prince's St.	Upsize	300	375	189
Imp-SAN-F8	**Tower St. S** - 50 m South of Prince's St. to forcemain connection	Upsize	225	300	76
	Tower St. S - Wellington St. to 30 m South of Wellington St.	Slope Change	-	-	27
	Tower St. S - 30 m South of Wellington St. to Elora St.	Upsize	200	250	93
	Tower St. S - Elora St. to forcemain connection	Upsize	200	250	100
Imp-SAN-F9	**Tower St. S** - Tower St. SPS Forcemain	Upsize	150	250	465
Imp-SAN-F10	**Tower St. S** - 285 m South of Elora St. to Tower St. SPS	Upsize	200	250	267
Imp-SAN-F11	**Aberdeen St.** - 95 m South of Riley Cres. To McQueen Blvd	Upsize	200	375	41
	Gravity Sewer connection from McQueen Blvd to Tower St. SPS	Upsize	250	375	292
Imp-SAN-F12	Tower St. S- South of Tower St. SPS	Upsize	200/250	375	306
Imp-SAN-F13	**Elgin St.** - 50 m South of Highland Rd. to Belsyde Ave. E	Slope Change	-	-	238
	Scotland St. - Belsyde Ave. E to 750 m North of Second Line.	Upsize	200	300	978

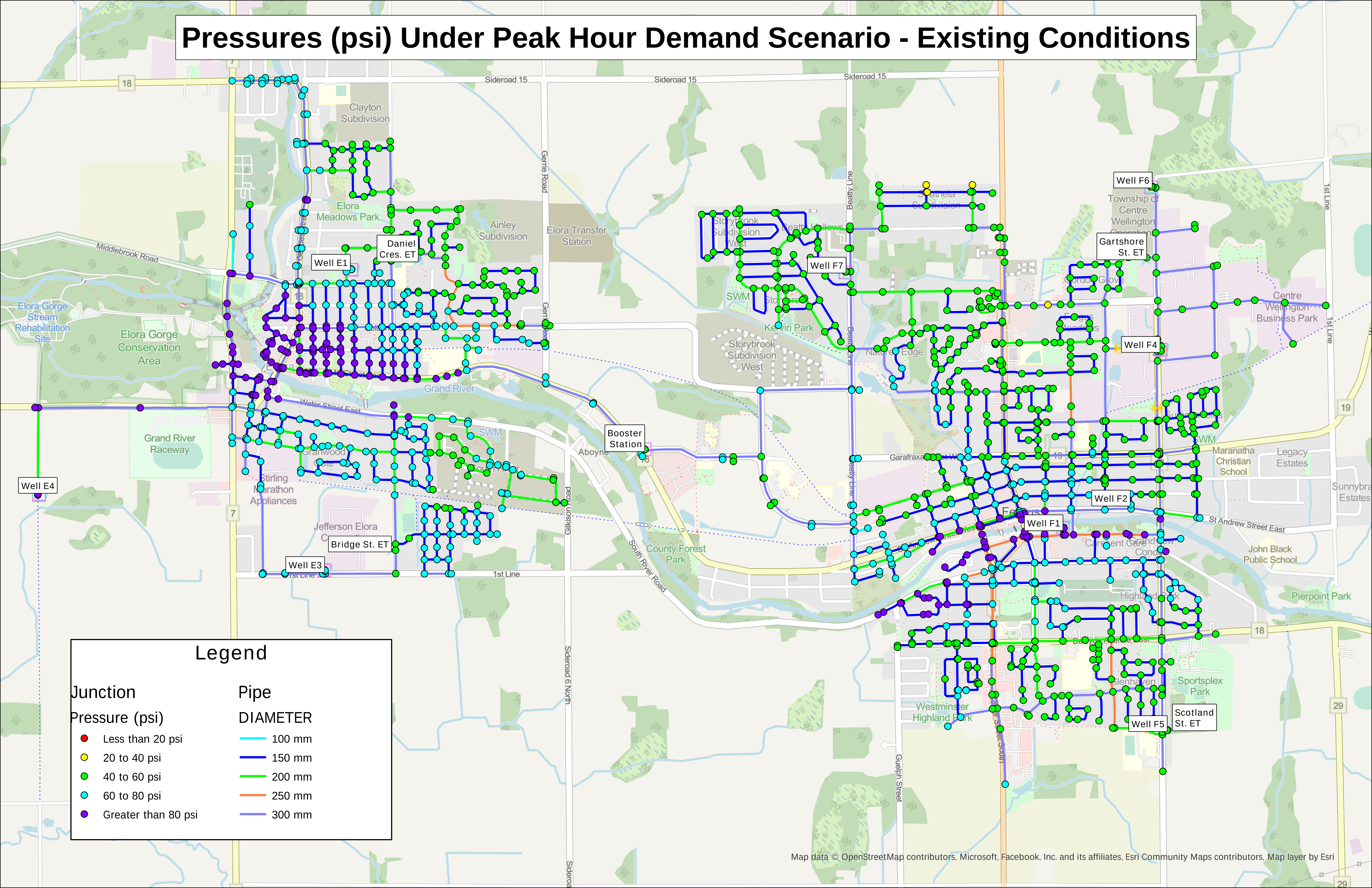
Figure 3-7: Recommended Sanitary Sewer and PS Upgrades (Fergus)

WATER AND WASTEWATER MASTER PLAN

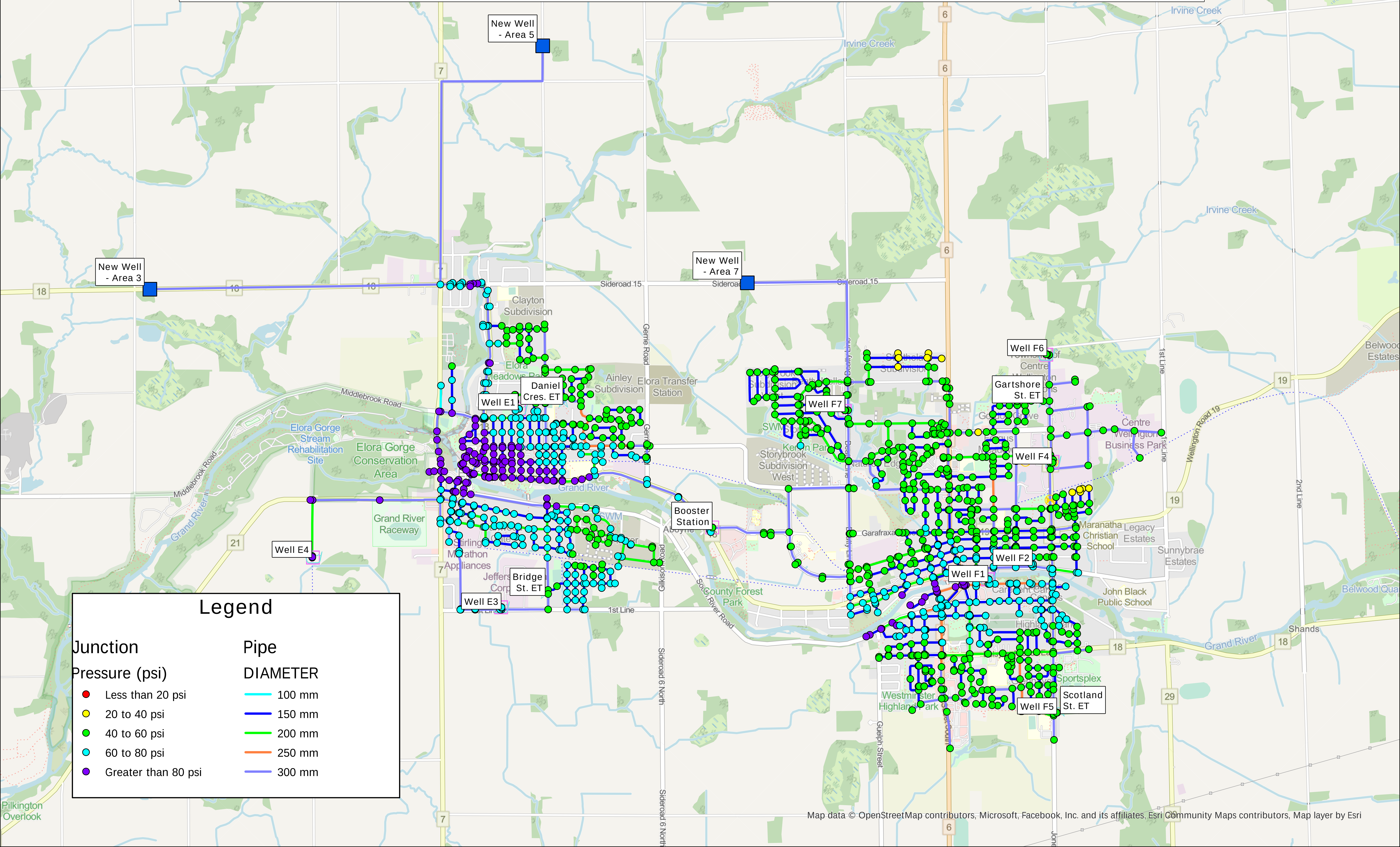
Appendix 3 Hydraulic Model

Appendix 3-1
Water Distribution Hydraulic Analysis Results

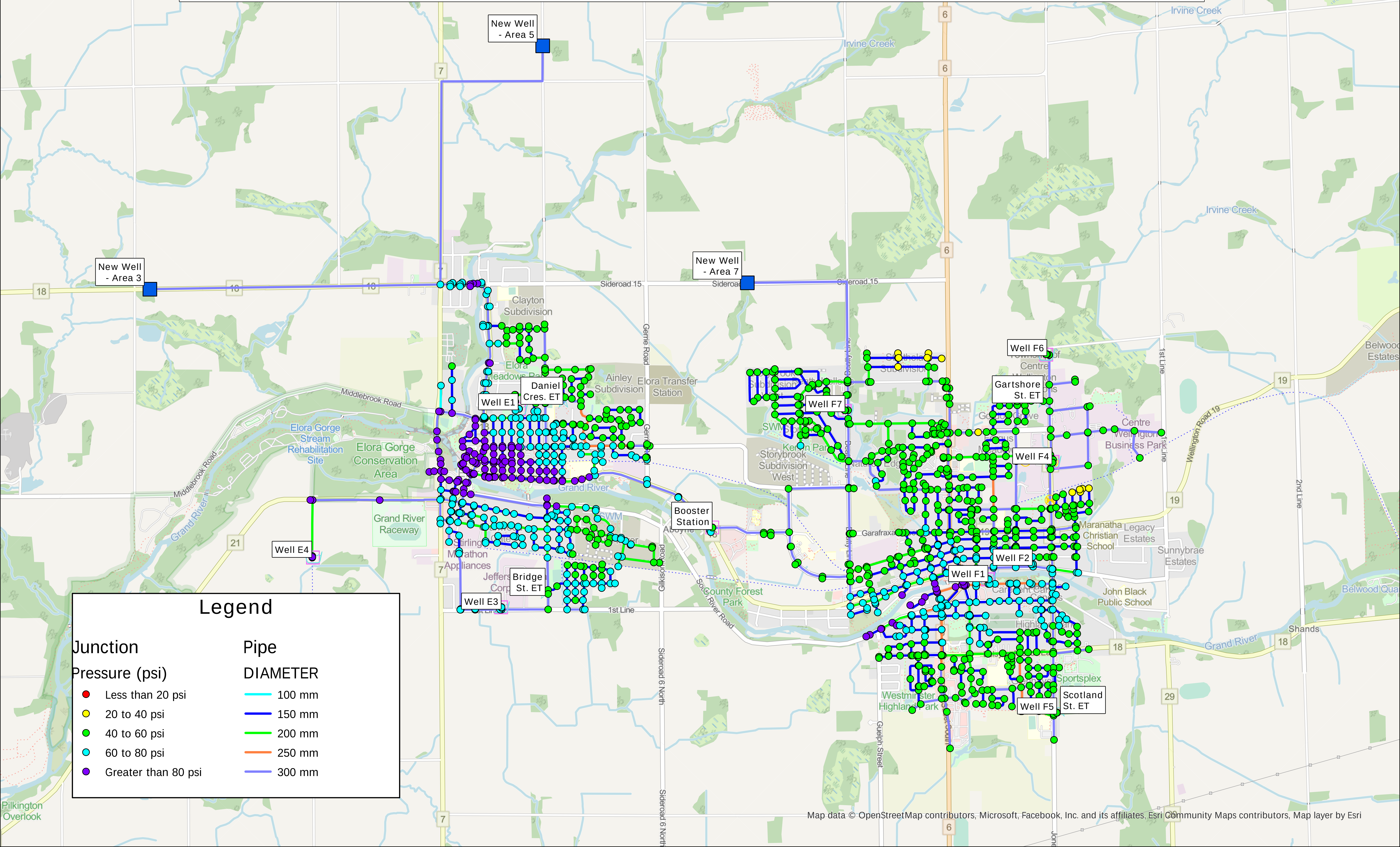
Pressures (psi) Under Peak Hour Demand Scenario - Existing Conditions



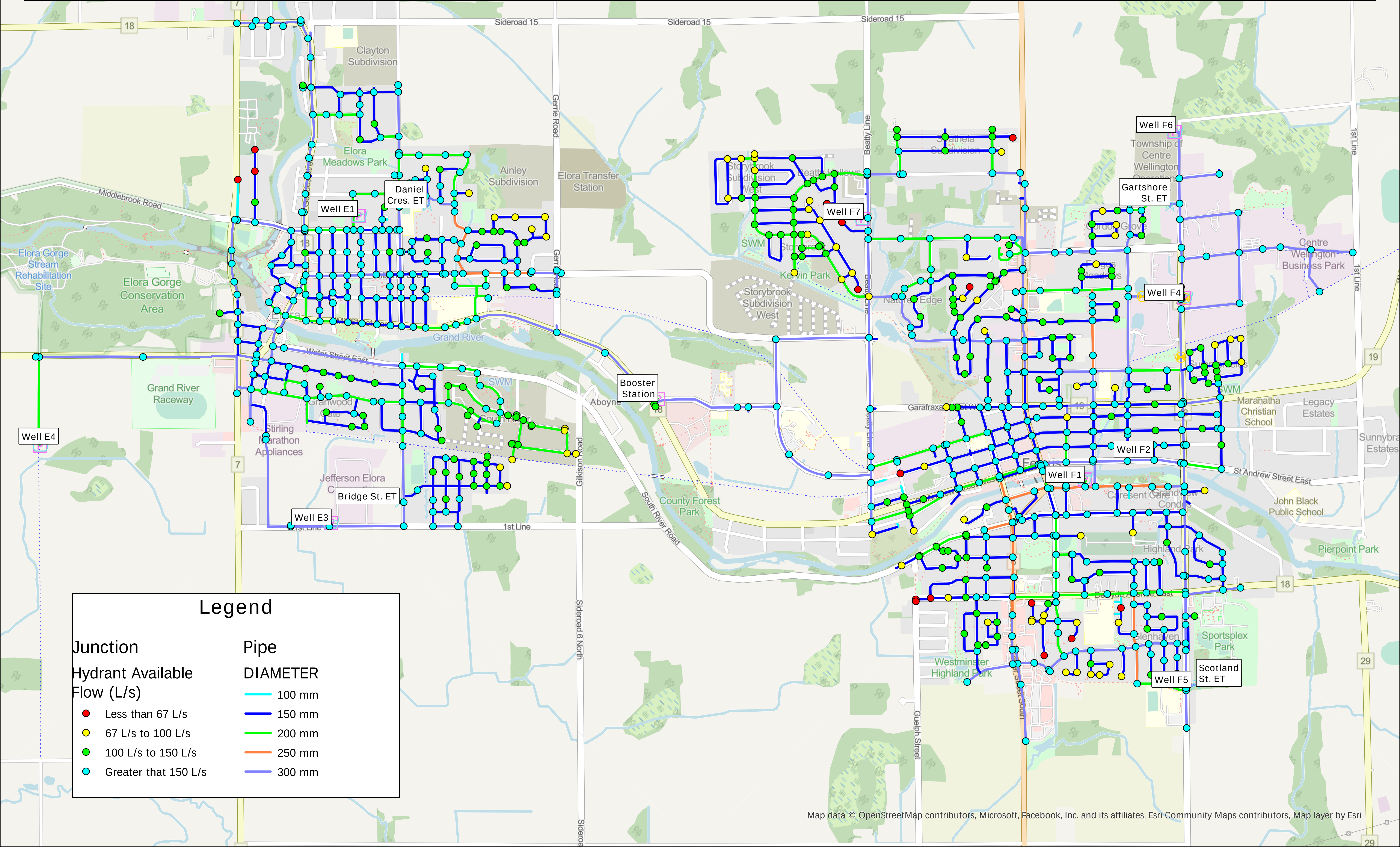
Pressures (psi) Under Peak Hour Demand Scenario - Growth Scenario 1



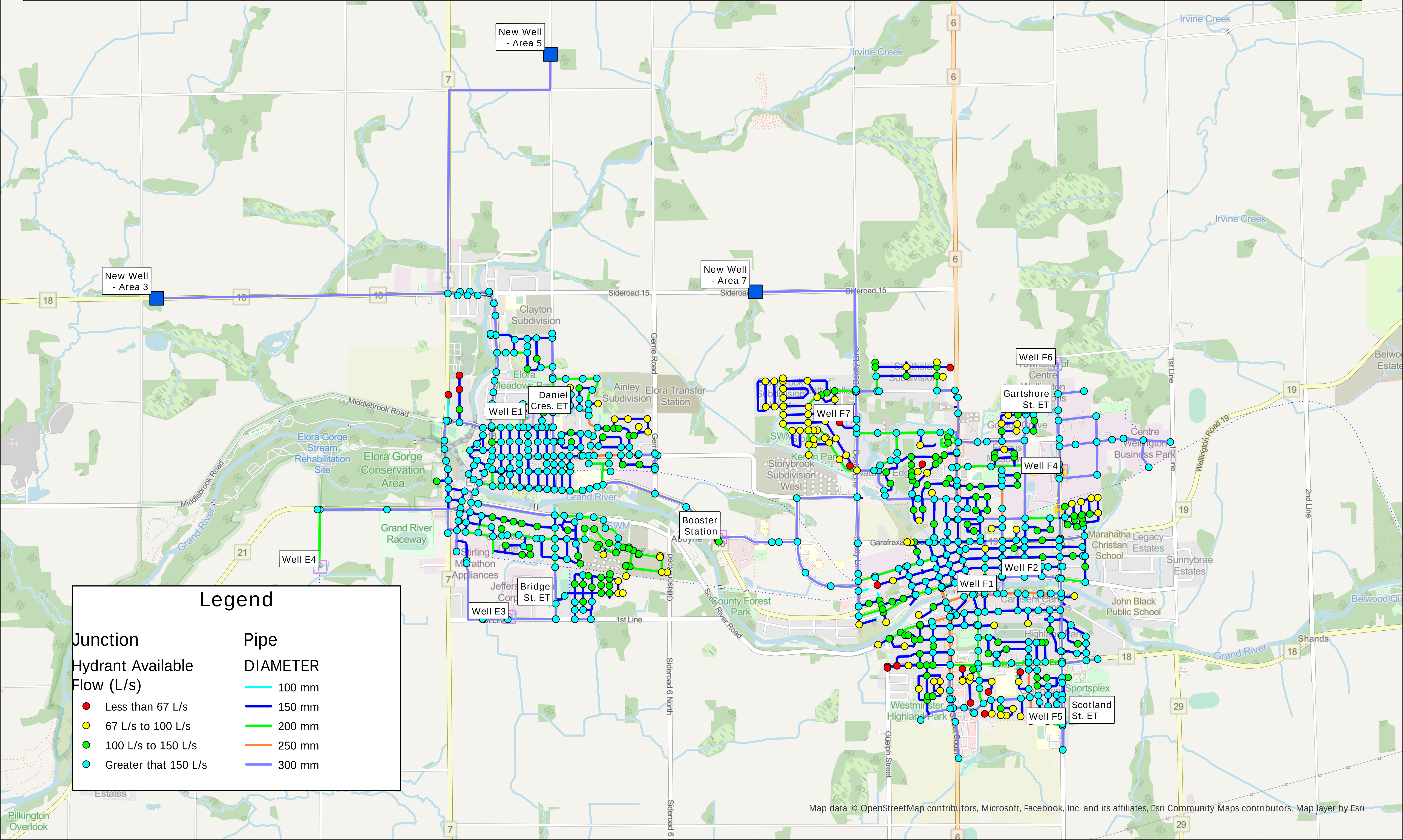
Pressures (psi) Under Peak Hour Demand Scenario - Growth Scenario 2



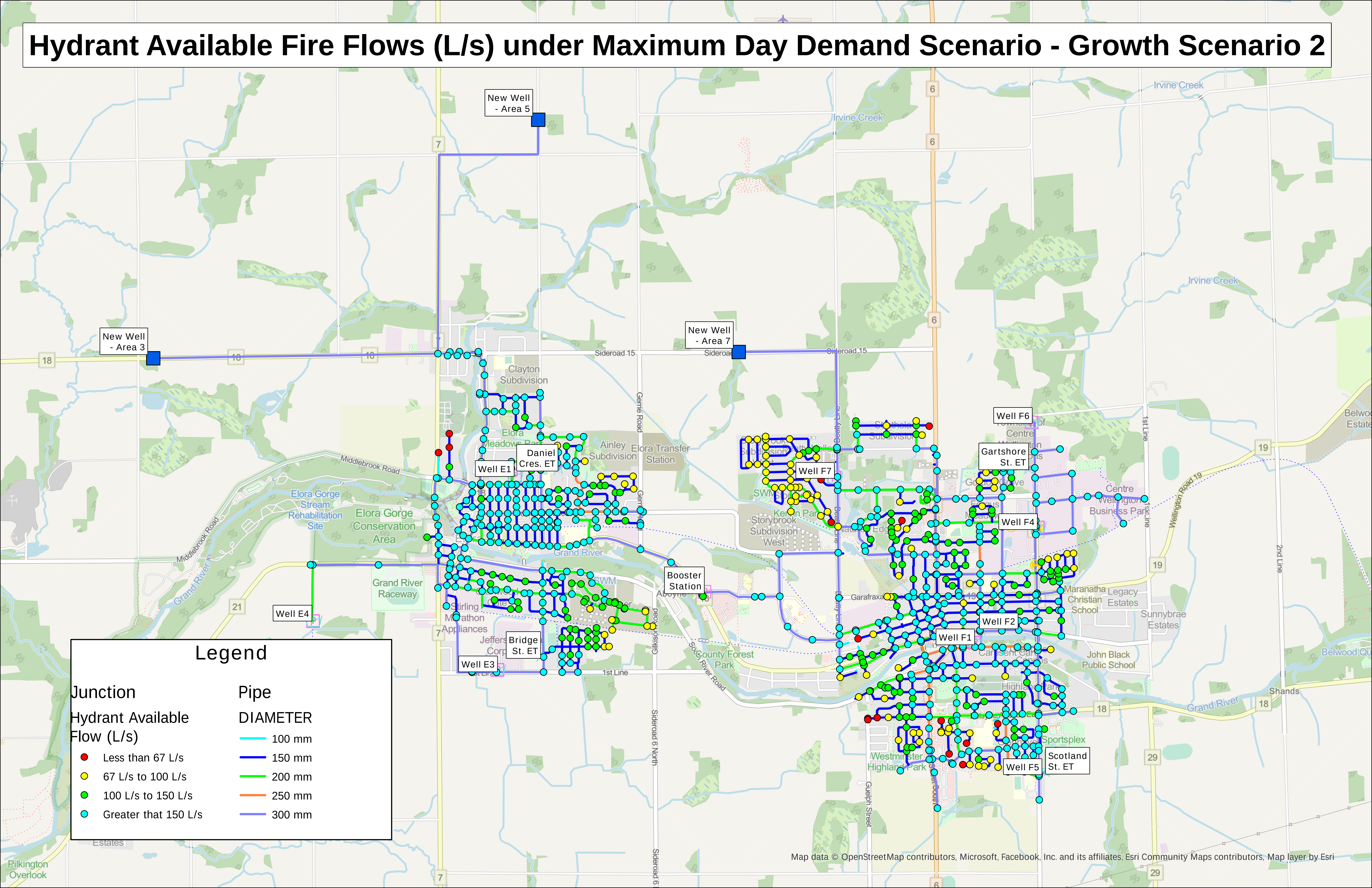
Hydrant Available Fire Flows (L/s) under Maximum Day Demand Scenario - Existing Conditions



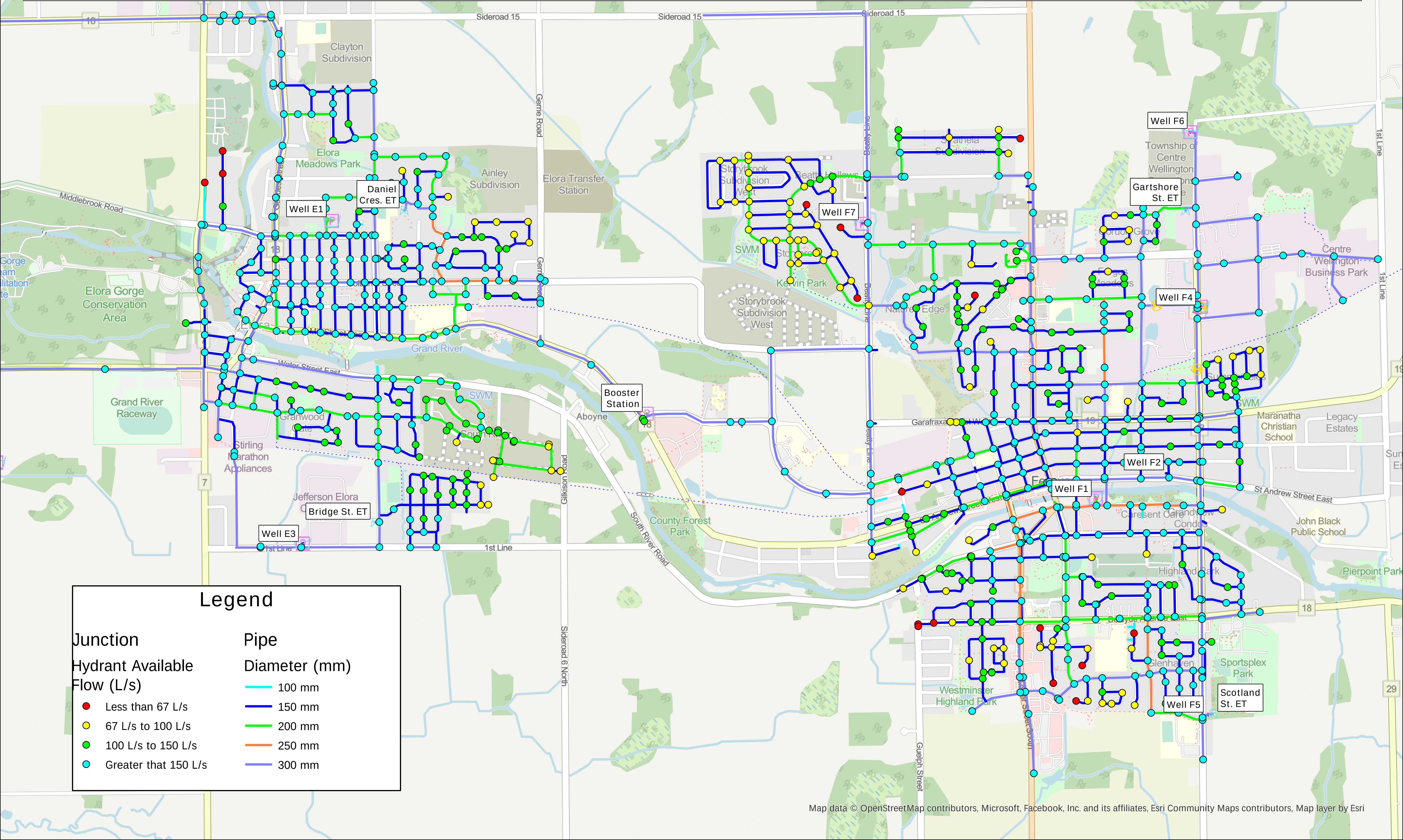
Hydrant Available Fire Flows (L/s) under Maximum Day Demand Scenario - Growth Scenario 1



Hydrant Available Fire Flows (L/s) under Maximum Day Demand Scenario - Growth Scenario 2



Hydrant Available Fire Flows (L/s) under Maximum Day Demand Scenario - Growth Scenario 2



Legend

Junction

Hydrant Available Flow (L/s)

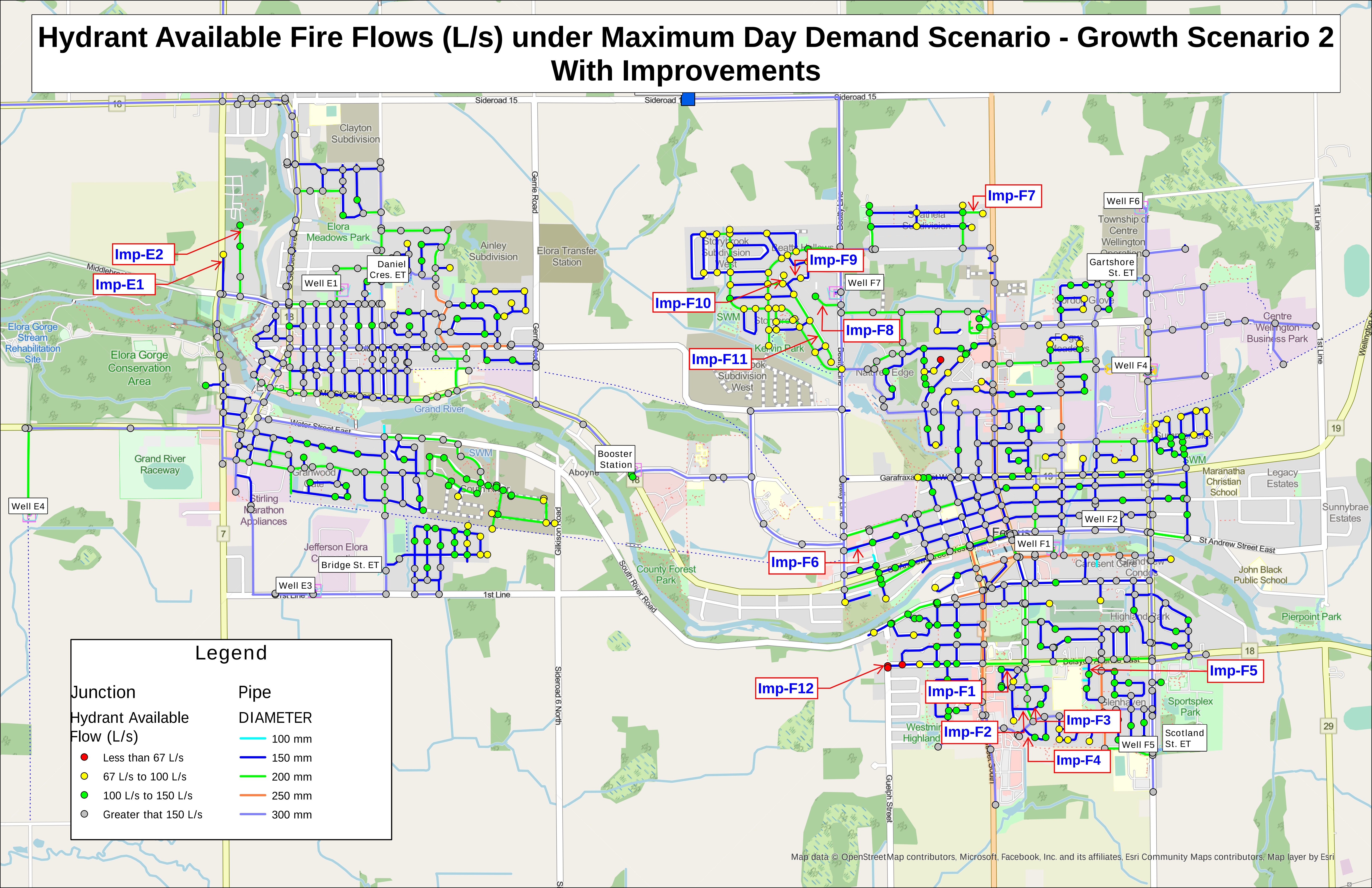
- Less than 67 L/s
- 67 L/s to 100 L/s
- 100 L/s to 150 L/s
- Greater that 150 L/s

Pipe

Diameter (mm)

- 100 mm
- 150 mm
- 200 mm
- 250 mm
- 300 mm

Hydrant Available Fire Flows (L/s) under Maximum Day Demand Scenario - Growth Scenario 2 With Improvements



Improvement ID	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Imp-F1	Inett Way and Harcourt Place	150	54	67	Add 107 m of 150 mm PVC watermain to create looped watermain from Inett Way and Harcourt Place to Tobe Terrace and Florence Ave.	121	-	-
Imp-F2	Pattison Pl	150	58	67	Add 100 m of from 150 mm PVC watermain from Pattison Pl to the 200 mm PVC on St. David St. S, through the Pattison park	90	Upsize 221m of 150 mm PVC watermain on Pattinson Pl. to 200 mm PVC watermain	79
Imp-F3	Cherry Hill Pl	150	60	67	Add 100 m of from 150 mm PVC watermain from Cherry Hill Pl to the 200 mm PVC on St. David St. S, through trail	144	Upsize 243 m of 150 mm PVC watermain on Cherry Hill Pl. to 200 mm PVC watermain	125
Imp-F4	Davison Pl	150	65	67	Add 88 m of from 150 mm PVC watermain from Davison Pl to the 300 mm PVC on Milburn Blvd., through trail	142	Upsize 216 m of 150 mm PVC watermain on Davison Pl. to 200 mm PVC watermain	148
Imp-F5	Heritage Ln	150/100	53	67	Upsize 62 m of 100 mm PVC watermain to 150 mm PVC watermain. Add new 150 mm watermain to connect watermain to 200 mm DI watermain on Belsyde Ave E	138	Upsize 265 m of 150 mm PVC watermain on Scott St. and 62 m of 100 mm PVC watermain on Heritage Ln to 200 mm PVC watermain	100
Imp-F6	St. George St W	150	53	67	Add 179 m of 150 mm PVC watermain to make connection to the 300 mm PVC watermain on Beatty Line N.	129	Add 162 m of 150 mm PVC to connect the 150 mm watermain on Johnston St. N	120
Imp-F7	Goodall Crt	150	54	67	Upsize 136 m of 150 mm PVC watermain on Goodall Crt to a 200 mm PVC watermain	91	Upsize 150 mm PVC watermains on Courtney St., Ryan St., Sadlet St. Goodall Crt. And Aitken Crt to 200 mm PVC watermains	93

Improvement ID	Location	Current Diameter	Current Fire Flow (L/s)	Required Fire Flow (L/s)	Proposed Improvement 1	Fire Flow with Improvement 1 (L/s)	Proposed Improvement 2	Fire Flow with Improvement 2 (L/s)
Imp-F8	Collie Crt	150	59	67	Upsize 191 m of 150 mm PVC watermain on Collie Crt with a 200 mm PVC watermain	111	-	-
Imp-F9	Duncan Crt	150	51	67	Add 107 m of 150 mm PVC watermain to make connection to the 150mm PVC watermain on Harpin Way E.	75	Upsize 240 m of 150 mm PVC watermain on Duncan Crt to 200 mm PVC watermain	84
Imp-F10	Conlin Crt.	150	60	67	Upsize 59 m of 150 mm PVC watermain on Conlin Crt. To 200 mm PVC watermain Upsize 726 m of 150 mm PVC watermain on Harpin Way E to 200 mm PVC watermain	76	-	-
Imp-F11	Harpin Way E	150	58	67	Upsize 726 m of 150 mm PVC watermain on Harpin Way E to 200 mm PVC watermain	83	-	-
Imp-12	Guelph St.	150	55	67	No improvement suggested as of now. Additional watermian data requried for Guelph St.to accuratly analyze fire flows in the area.	-	-	-
Imp-E1	Watermain parallel to Wellington Rd. 7	100	20	67	Upsize 261 m of 100 mm PVC watermain to a 150 mm PVC watermain	82	-	-
Imp-E2	South St.	150	44-109	150	Replace 471 m of 150 mm PVC watermian on South St. with a 200 mm PVC watermain	103-237	-	-

WATER AND WASTEWATER MASTER PLAN

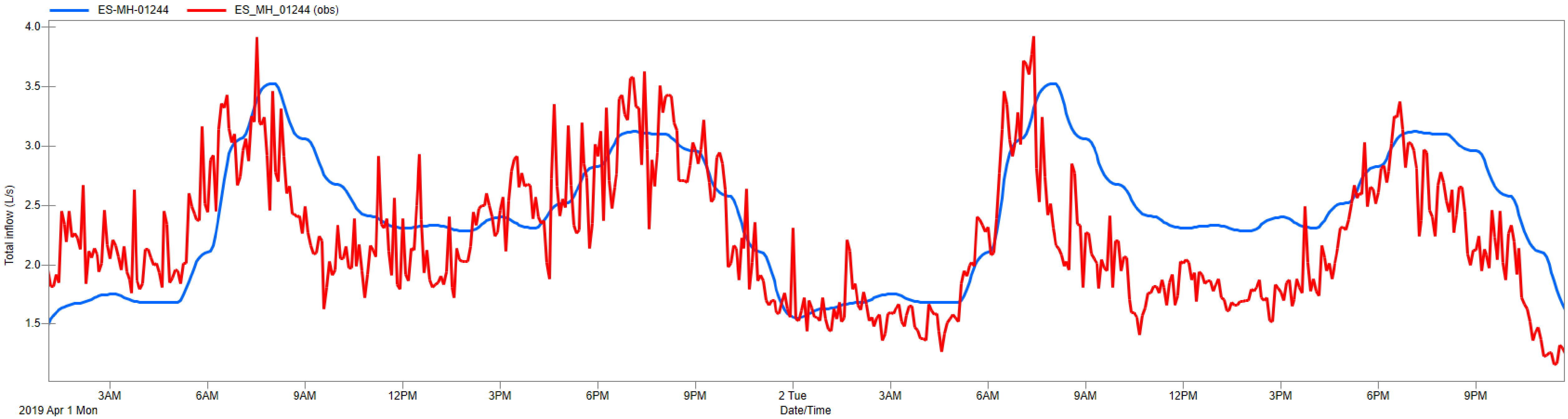
Appendix 3 Hydraulic Model

Appendix 3-2
Wastewater Collection Hydraulic Model Calibration Results

Dry Weather Calibration Results

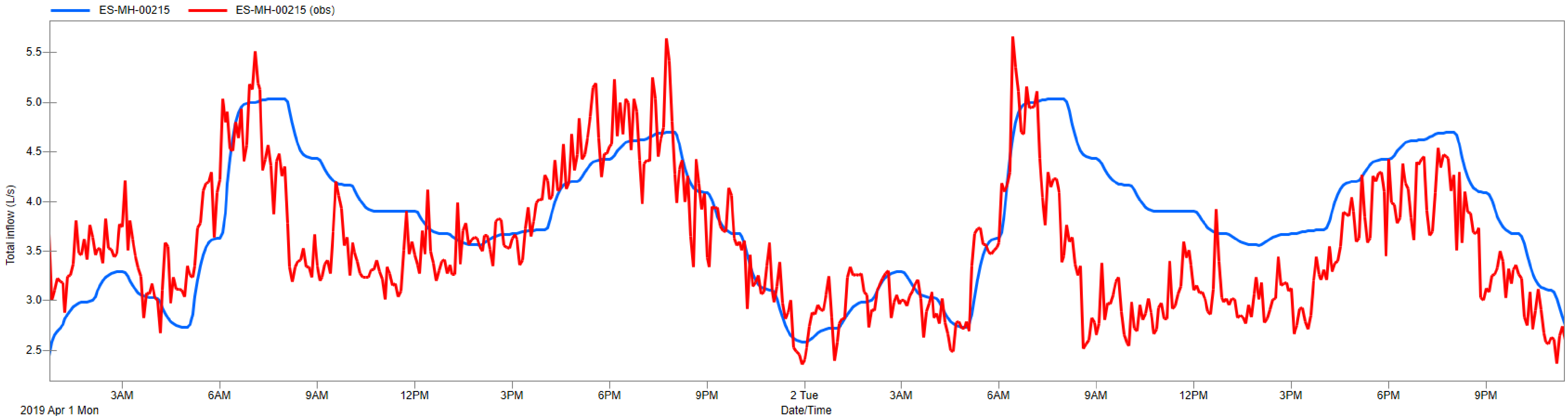
Elora

E01_01244



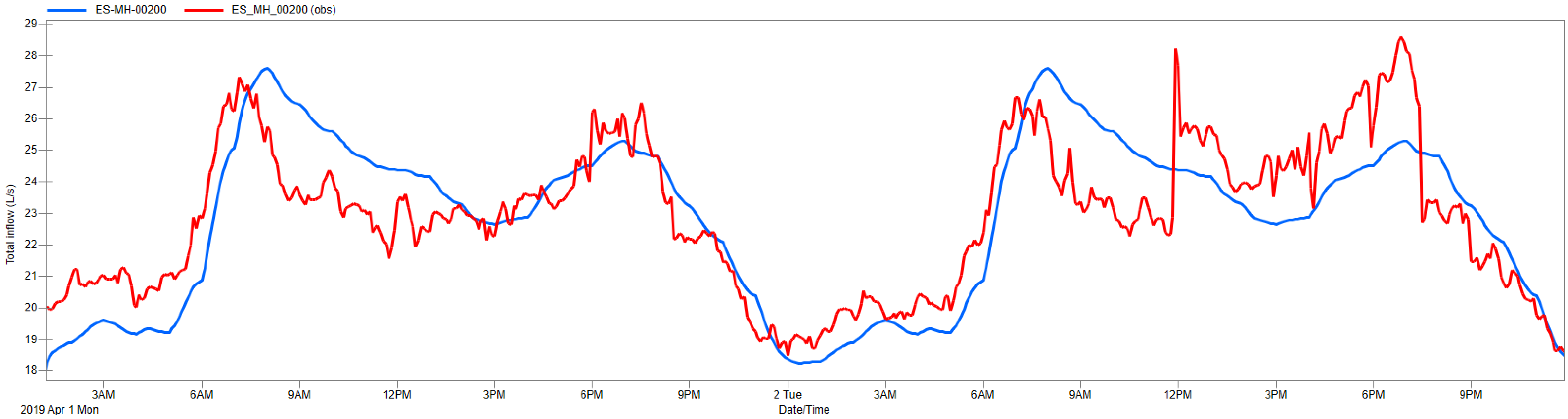
ES-MH-01244
ES_MH_01244 (obs)
Total inflow (L/s)
4.0
3.5
3.0
2.5
2.0
1.5
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E02_00215



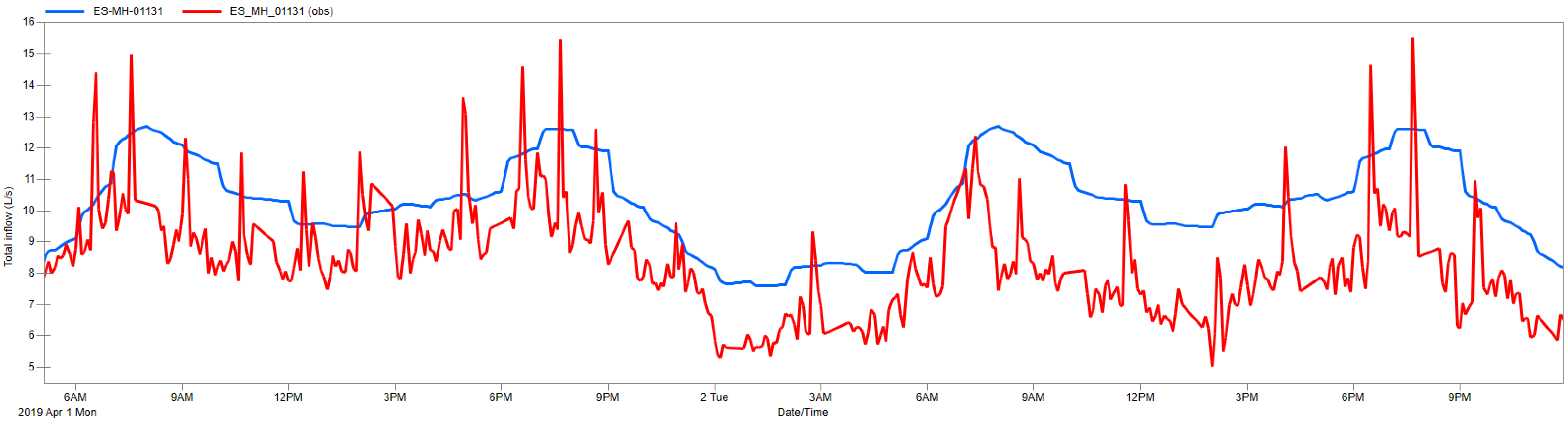
ES-MH-00215
ES-MH-00215 (obs)
Total inflow (L/s)
5.5
5.0
4.5
4.0
3.5
3.0
2.5
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E03_00200



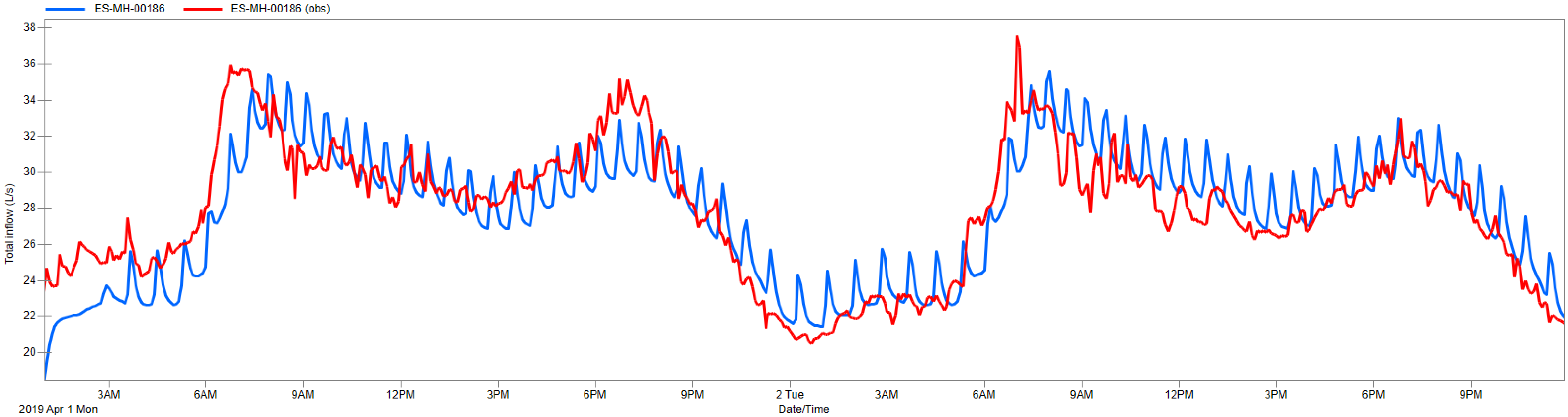
ES-MH-00200
ES_MH_00200 (obs)
29
28
27
26
25
24
23
22
21
20
19
18
Total inflow (L/s)
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E04_01131



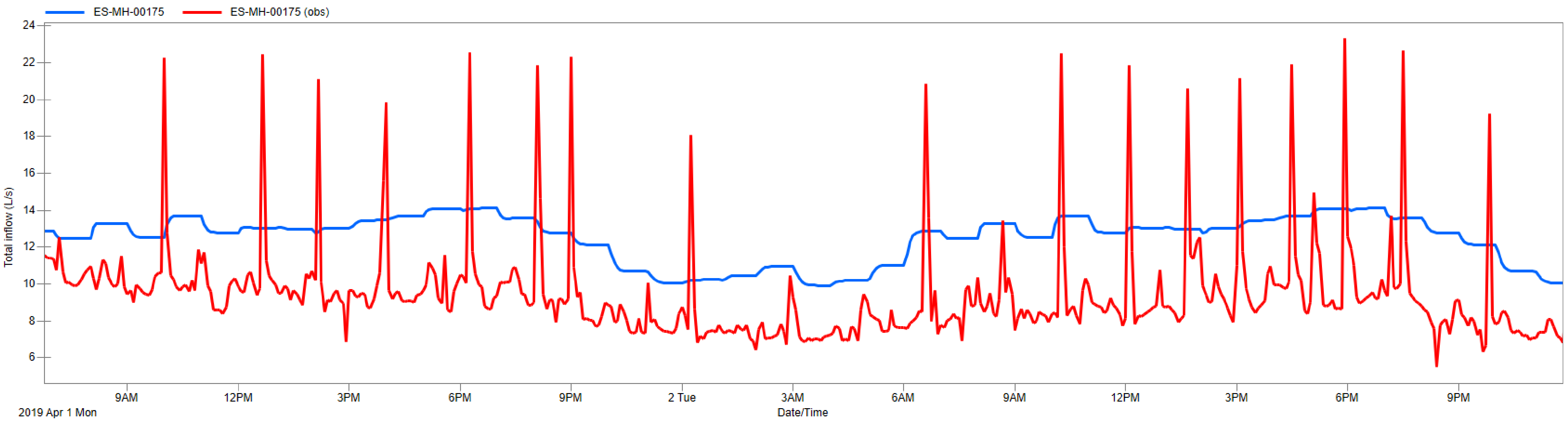
ES-MH-01131
ES_MH_01131 (obs)
Total inflow (L/s)
16
15
14
13
12
11
10
9
8
7
6
5
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E05_00186



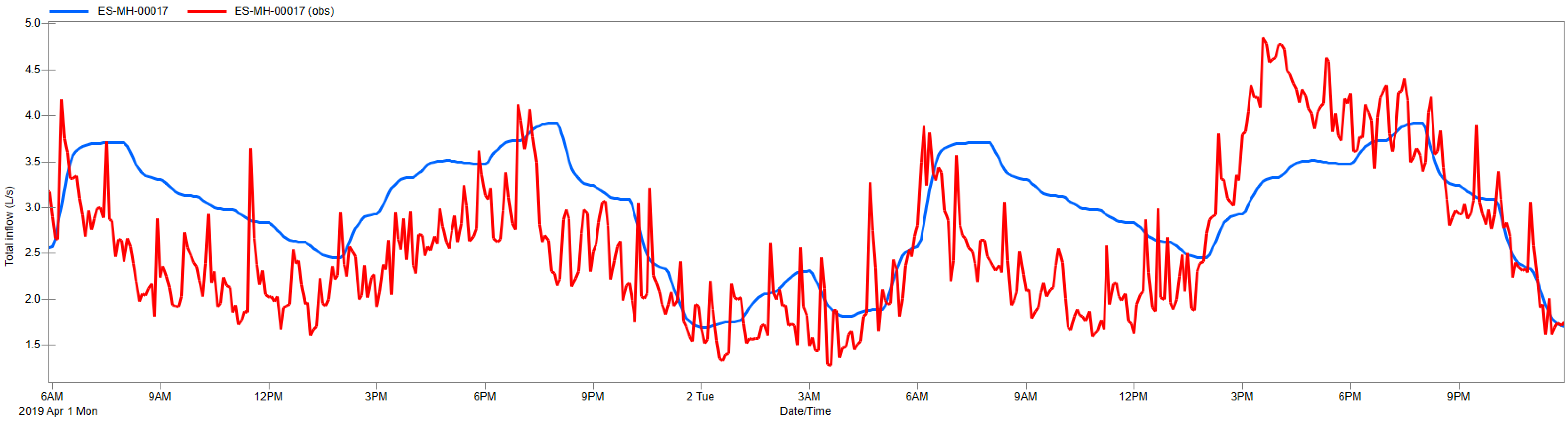
ES-MH-00186
ES-MH-00186 (obs)
Total inflow (L/s)
38
36
34
32
30
28
26
24
22
20
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E06_00175



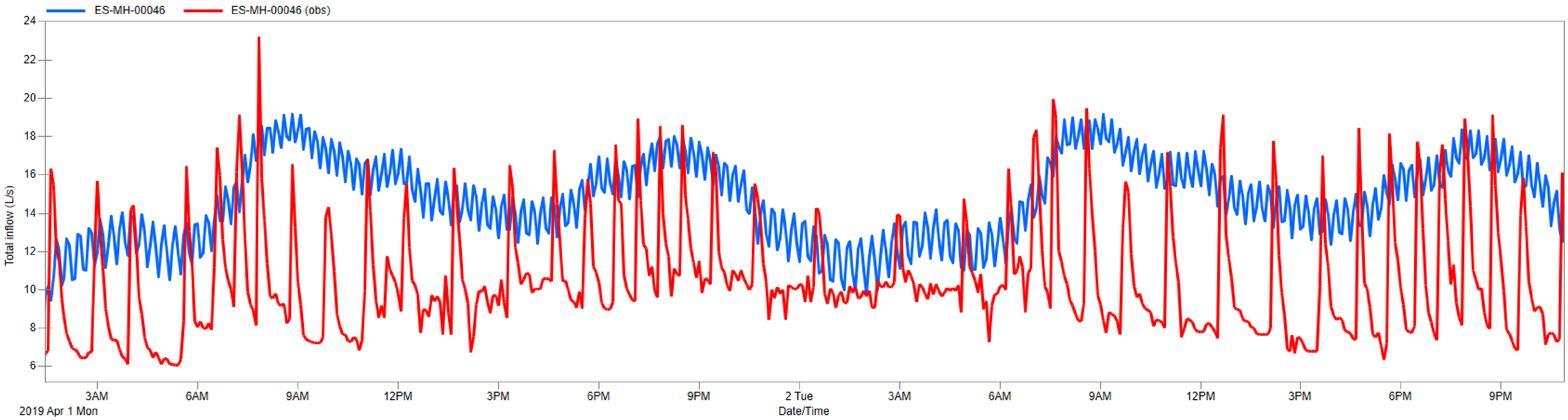
ES-MH-00175
ES-MH-00175 (obs)
Total inflow (L/s)
24
22
20
18
16
14
12
10
8
6
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

E07_00017



ES-MH-00017
ES-MH-00017 (obs)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
Total inflow (L/s)
6AM
2019 Apr 1 Mon
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
Date/Time

E08_00046



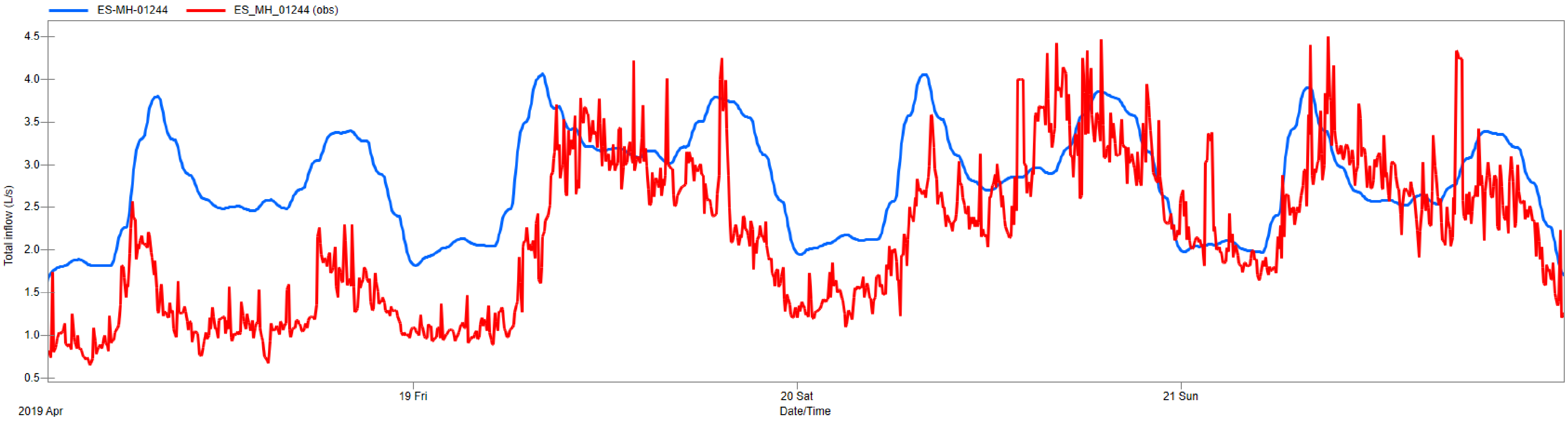
ES-MH-00046
ES-MH-00046 (obs)
Total inflow (L/s)
24
22
20
18
16
14
12
10
8
6
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 1 Mon
Date/Time

Wet Weather Calibration Results

Elora

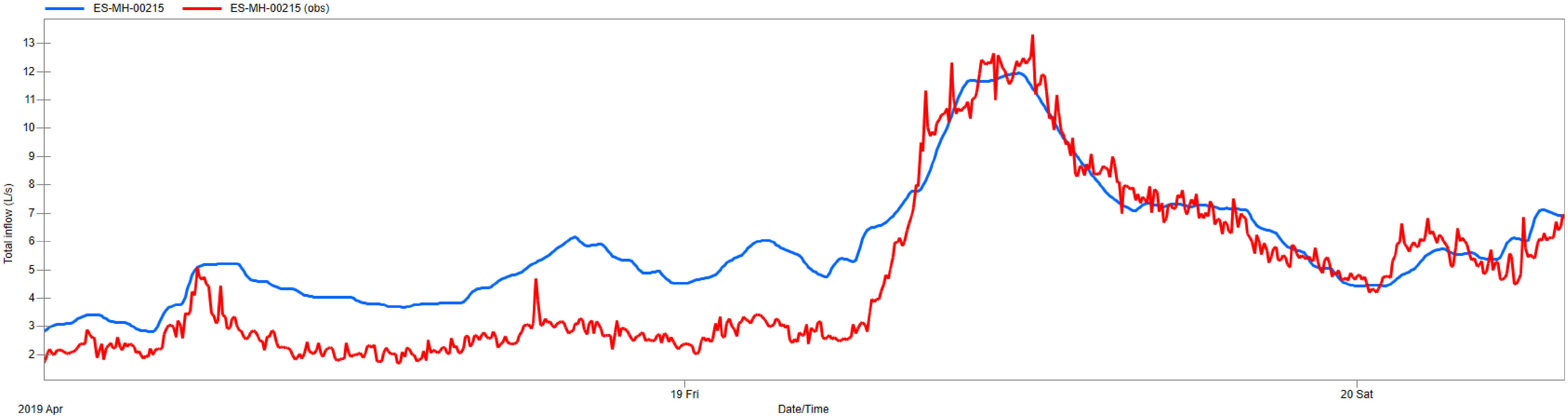
April 18, 2019

E01_01244



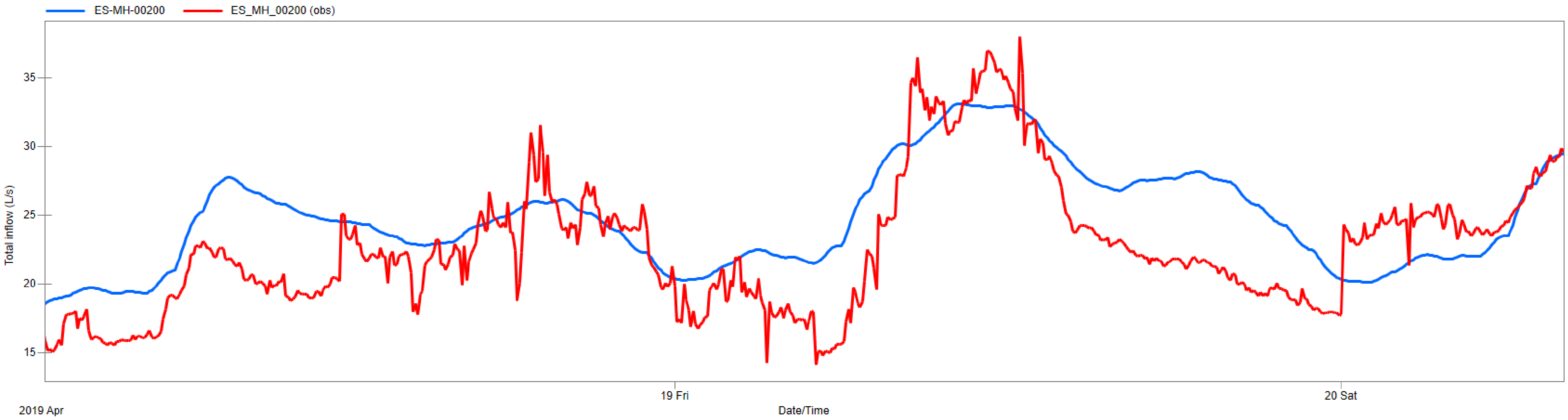
ES-MH-01244
ES_MH_01244 (obs)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
Total inflow (L/s)
19 Fri
20 Sat
21 Sun
2019 Apr
Date/Time

E02_00215



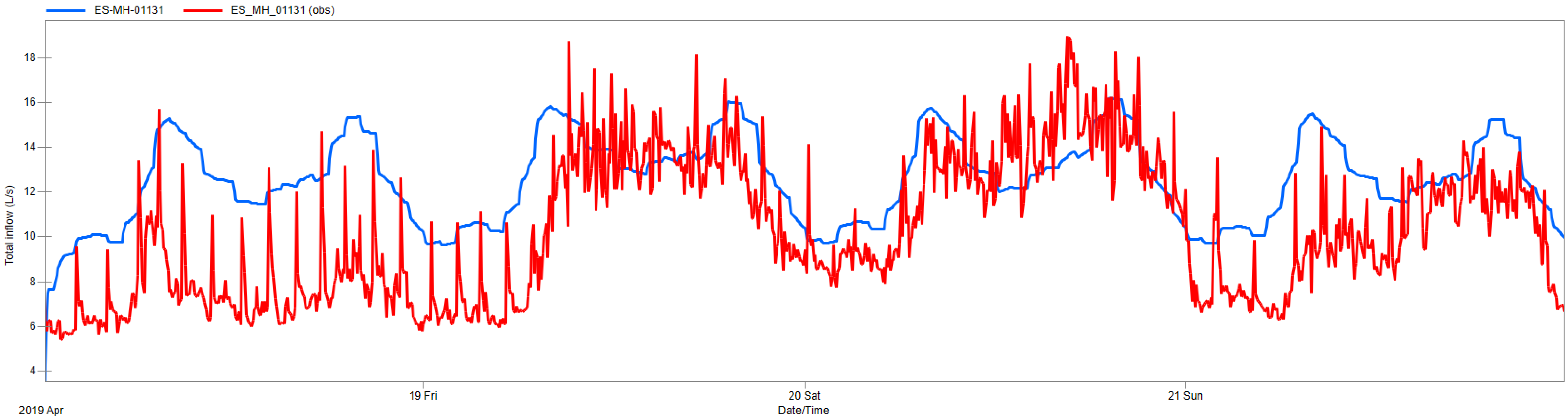
ES-MH-00215
ES-MH-00215 (obs)
Total inflow (L/s)
13
12
11
10
9
8
7
6
5
4
3
2
19 Fri
20 Sat
2019 Apr
Date/Time

E03_00200

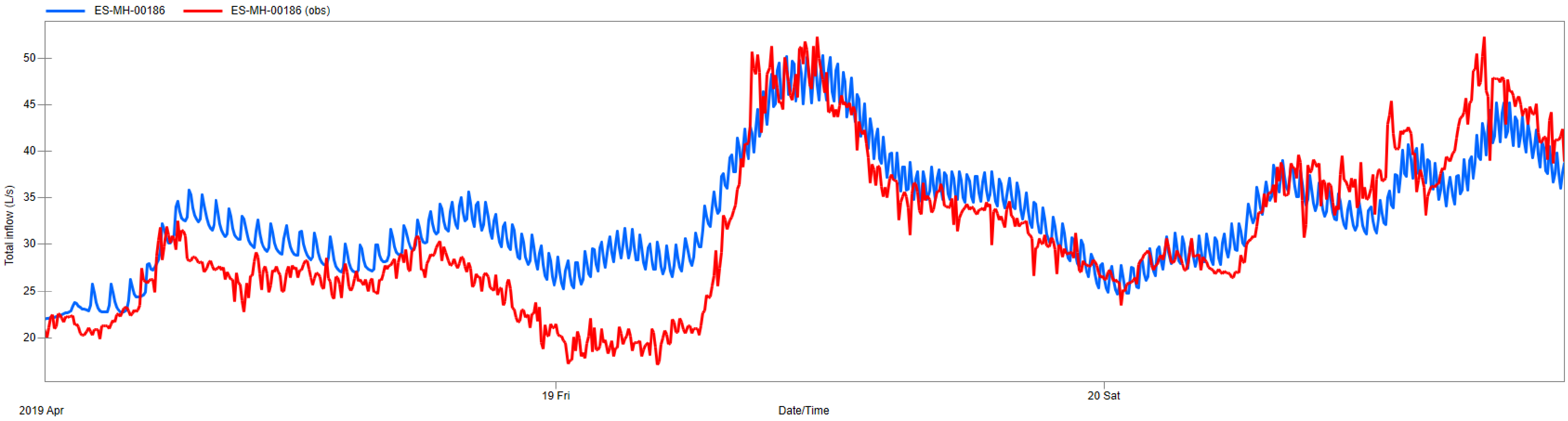


ES-MH-00200
ES_MH_00200 (obs)
35
30
25
20
15
Total inflow (L/s)
19 Fri
20 Sat
2019 Apr
Date/Time

E04_01131

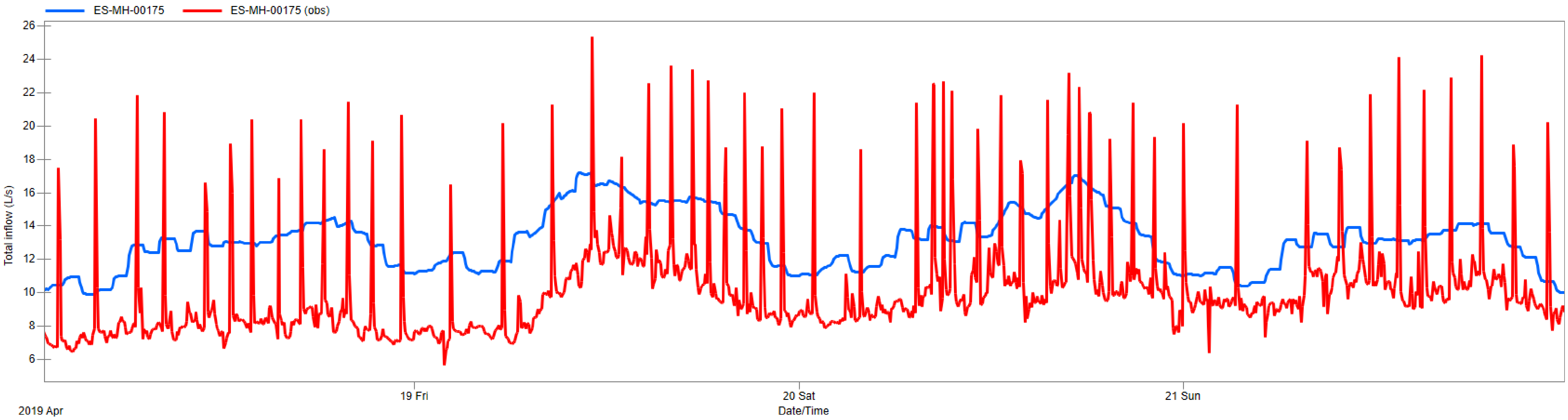

ES-MH-01131
ES_MH_01131 (obs)
Total inflow (L/s)
18
16
14
12
10
8
6
4
19 Fri
20 Sat
21 Sun
2019 Apr
Date/Time

E05_00186



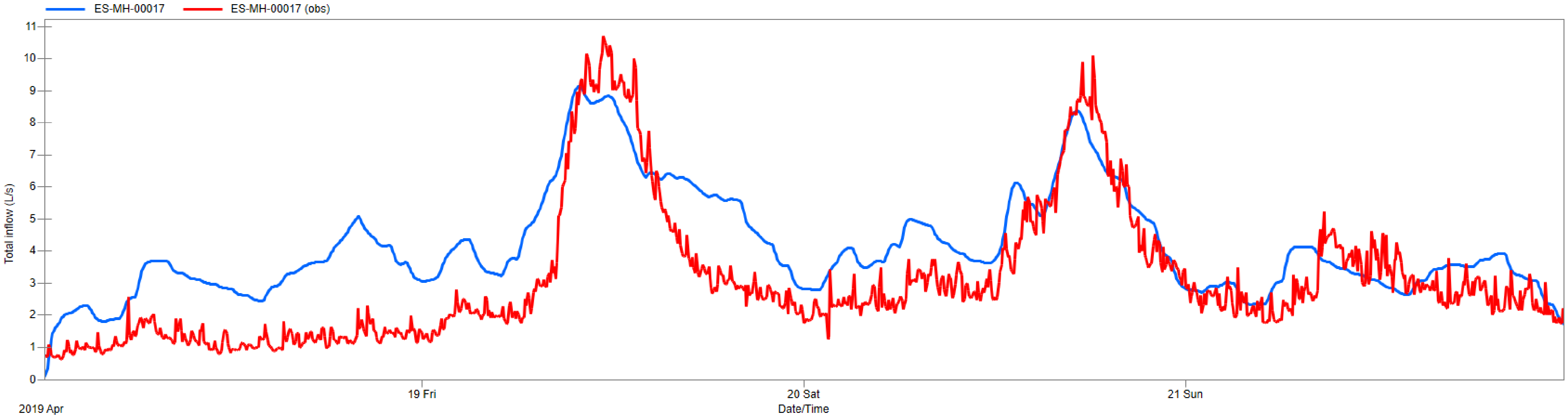
ES-MH-00186
ES-MH-00186 (obs)
Total inflow (L/s)
50
45
40
35
30
25
20
19 Fri
20 Sat
2019 Apr
Date/Time

E06_00175



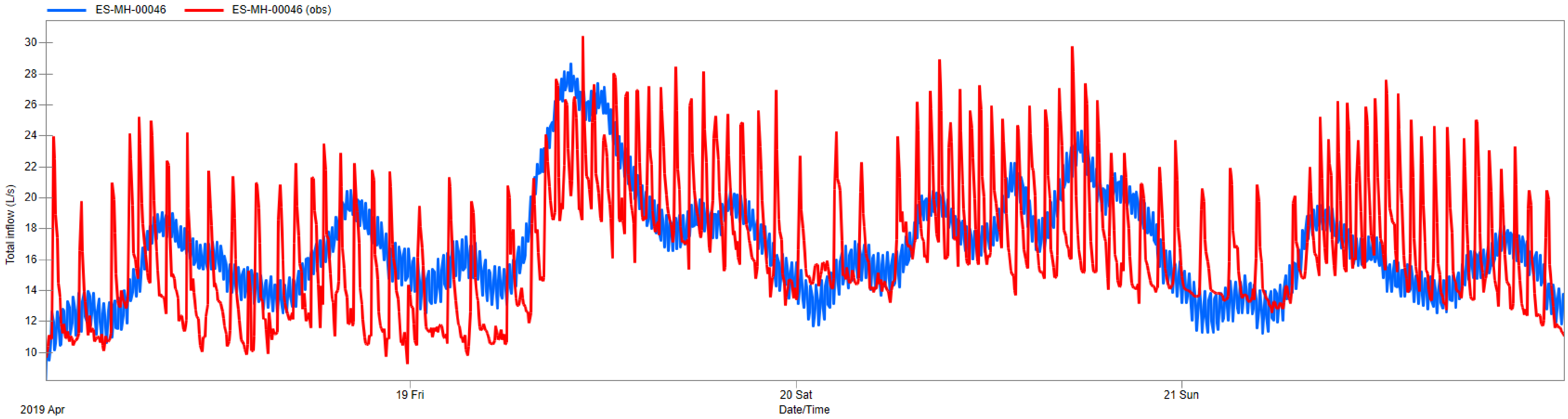
ES-MH-00175
ES-MH-00175 (obs)
Total inflow (L/s)
26
24
22
20
18
16
14
12
10
8
6
19 Fri
20 Sat
21 Sun
2019 Apr
Date/Time

E07_00017



ES-MH-00017
ES-MH-00017 (obs)
Total inflow (L/s)
11
10
9
8
7
6
5
4
3
2
1
0
19 Fri
20 Sat
21 Sun
2019 Apr
Date/Time

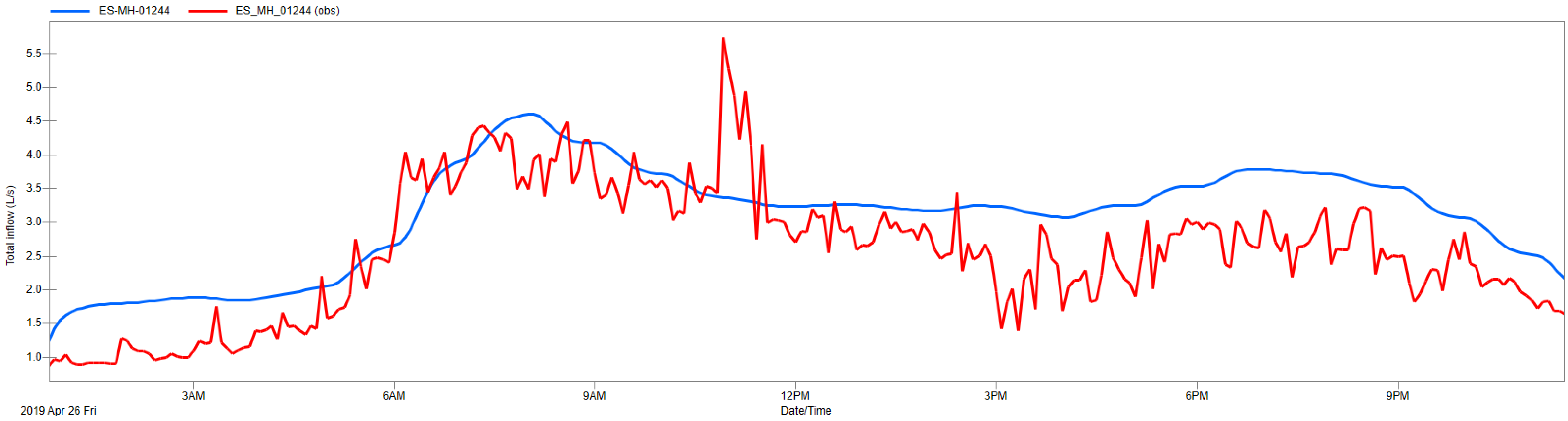
E08_00046



ES-MH-00046
ES-MH-00046 (obs)
Total inflow (L/s)
30
28
26
24
22
20
18
16
14
12
10
19 Fri
20 Sat
21 Sun
2019 Apr
Date/Time

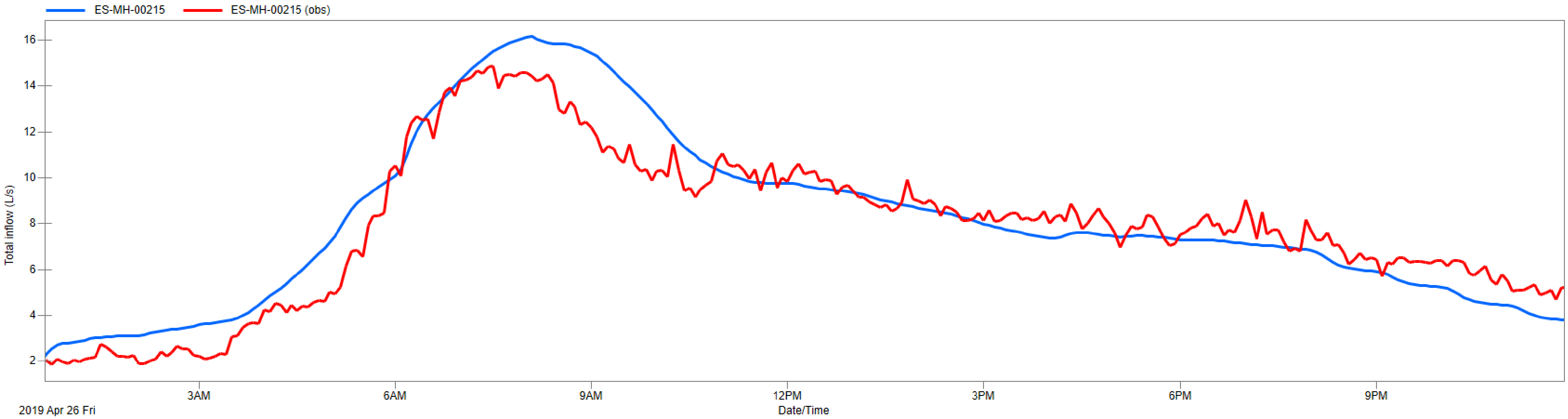
April 26, 2019

E01_01244



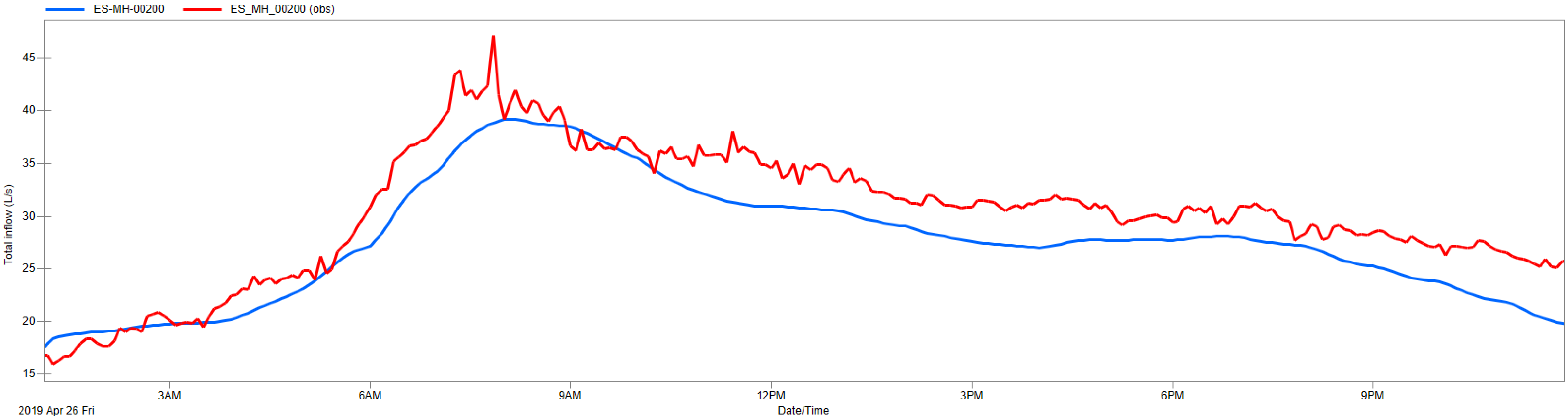
ES-MH-01244
ES_MH_01244 (obs)
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Total inflow (L/s)
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E02_00215



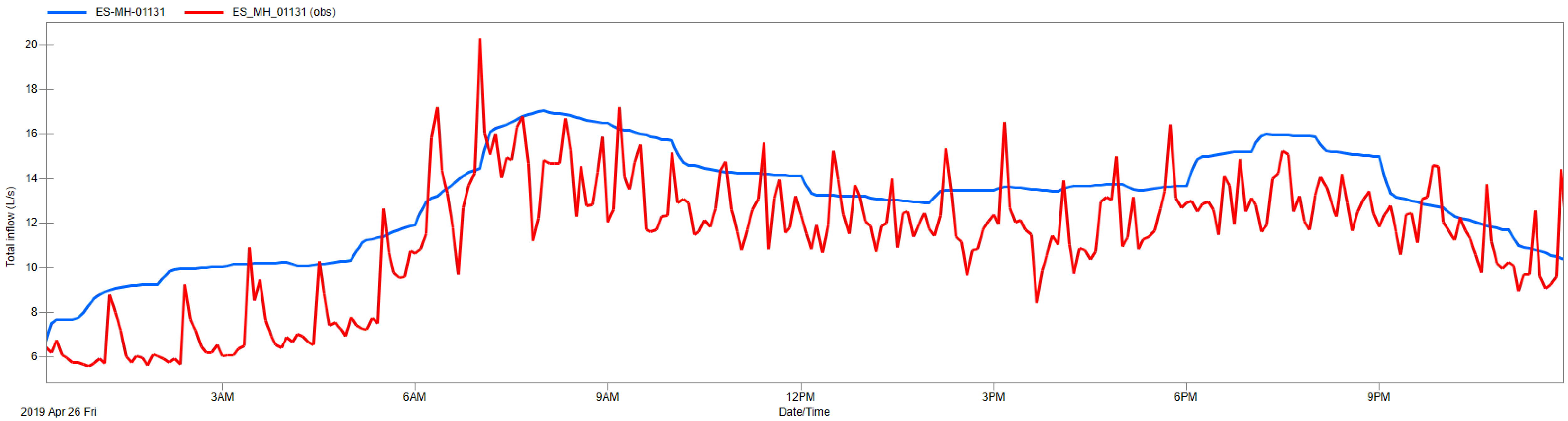
ES-MH-00215
ES-MH-00215 (obs)
Total inflow (L/s)
16
14
12
10
8
6
4
2
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E03_00200



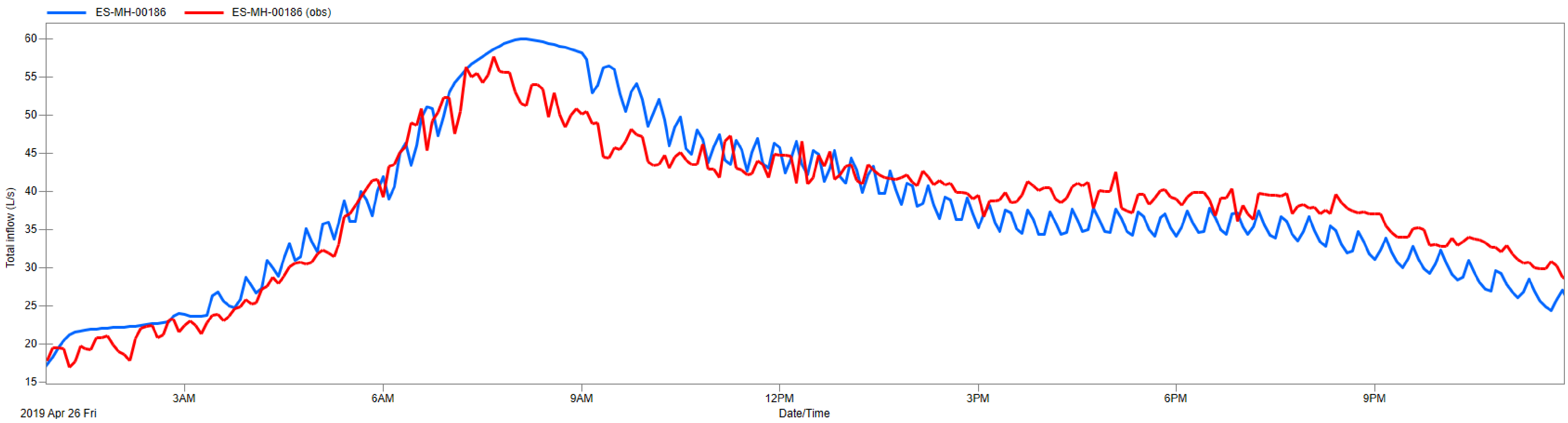
ES-MH-00200
ES_MH_00200 (obs)
45
40
35
30
25
20
15
Total inflow (L/s)
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E04_01131



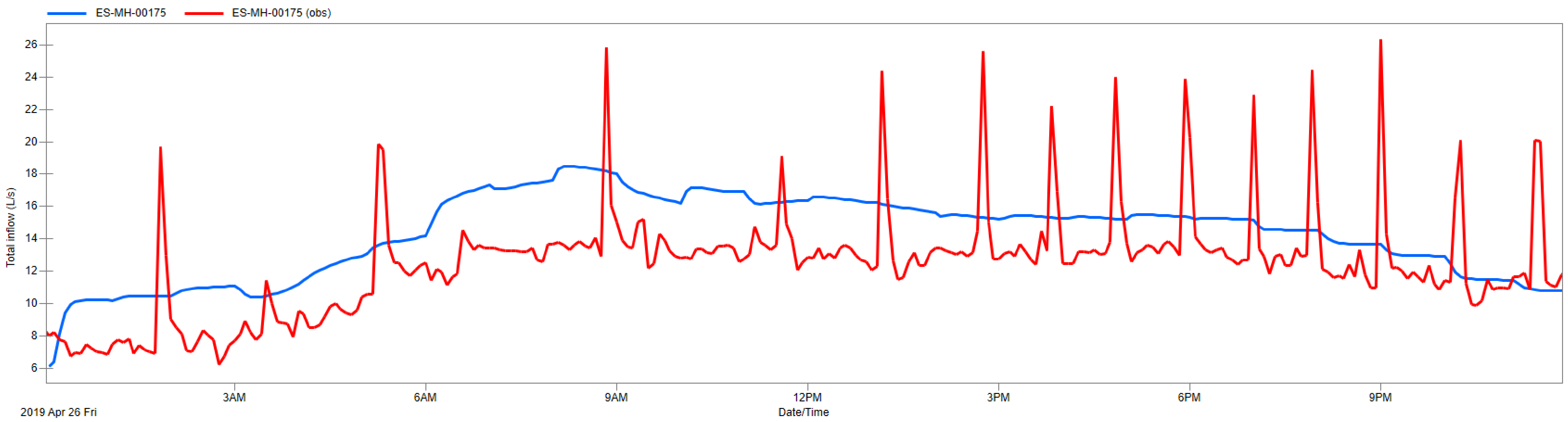
ES-MH-01131
ES_MH_01131 (obs)
Total inflow (L/s)
20
18
16
14
12
10
8
6
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E05_00186



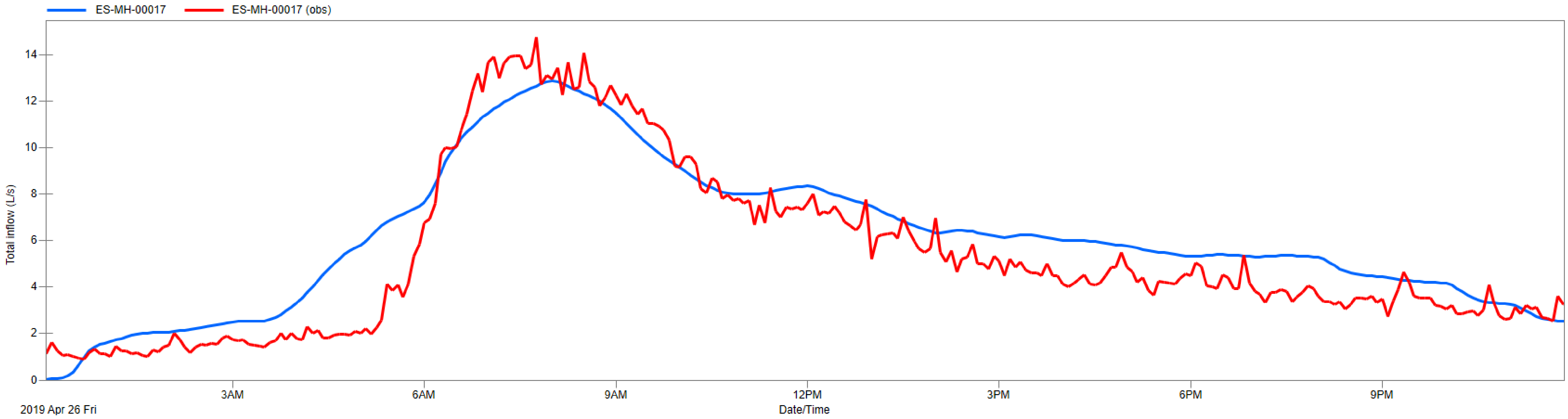
ES-MH-00186
ES-MH-00186 (obs)
Total inflow (L/s)
60
55
50
45
40
35
30
25
20
15
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E06_00175



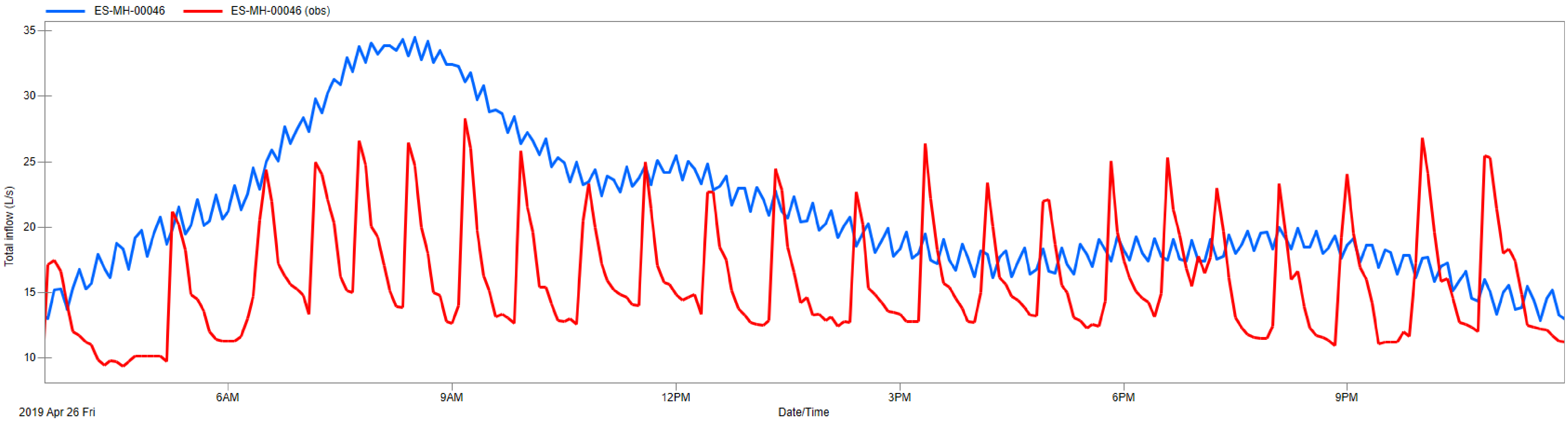
ES-MH-00175
ES-MH-00175 (obs)
Total inflow (L/s)
26
24
22
20
18
16
14
12
10
8
6
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

E07_00017



ES-MH-00017
ES-MH-00017 (obs)
Total inflow (L/s)
14
12
10
8
6
4
2
0
3AM
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

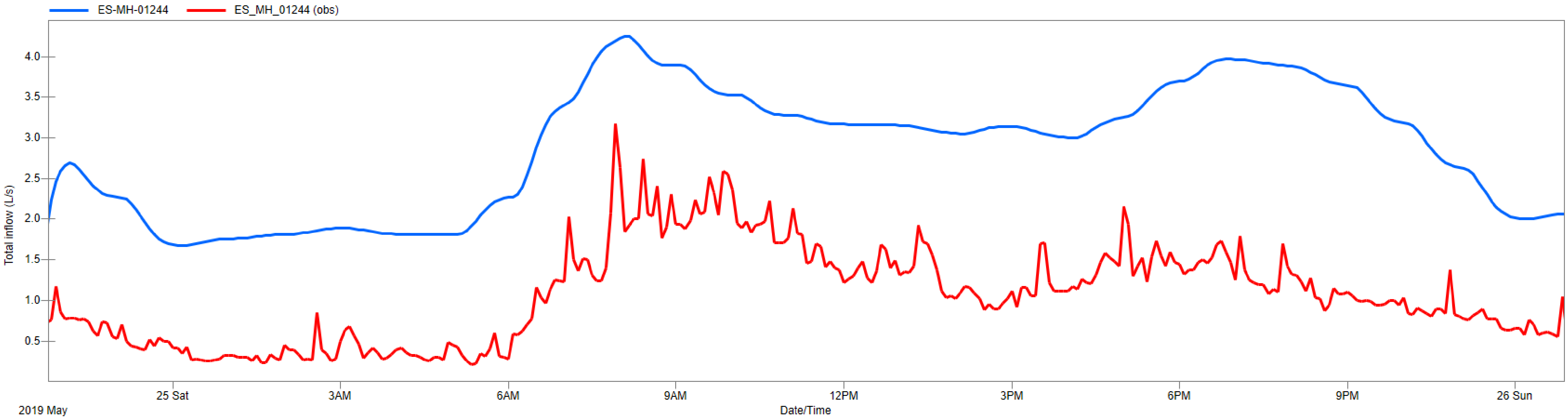
E08_00046



ES-MH-00046
ES-MH-00046 (obs)
35
30
25
20
15
10
Total inflow (L/s)
6AM
9AM
12PM
3PM
6PM
9PM
2019 Apr 26 Fri
Date/Time

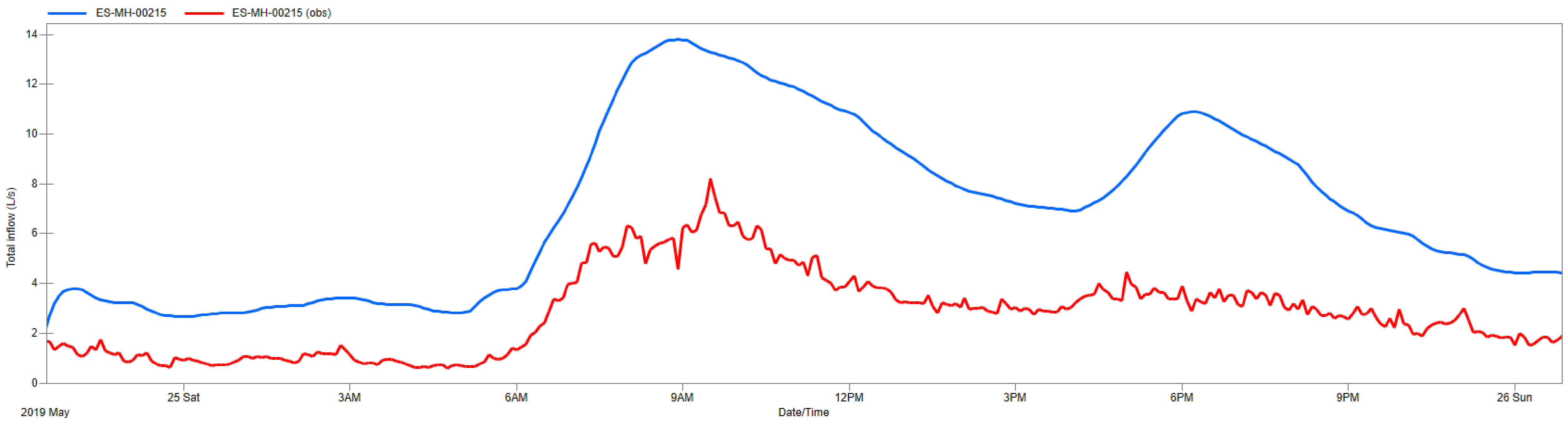
May 25, 2019

E01_01244



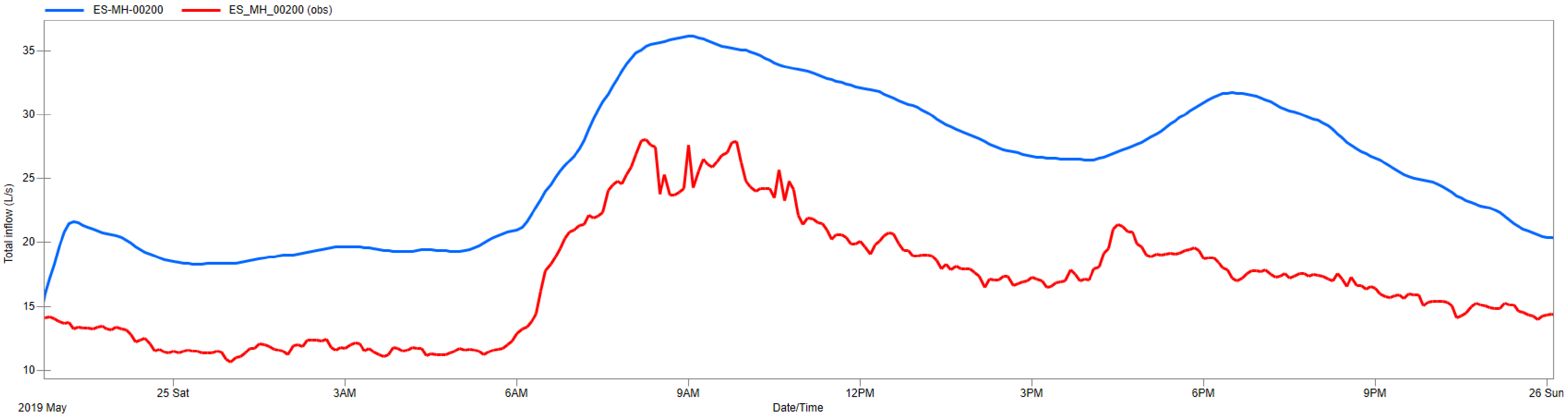
ES-MH-01244
ES_MH_01244 (obs)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
Total inflow (L/s)
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E02_00215



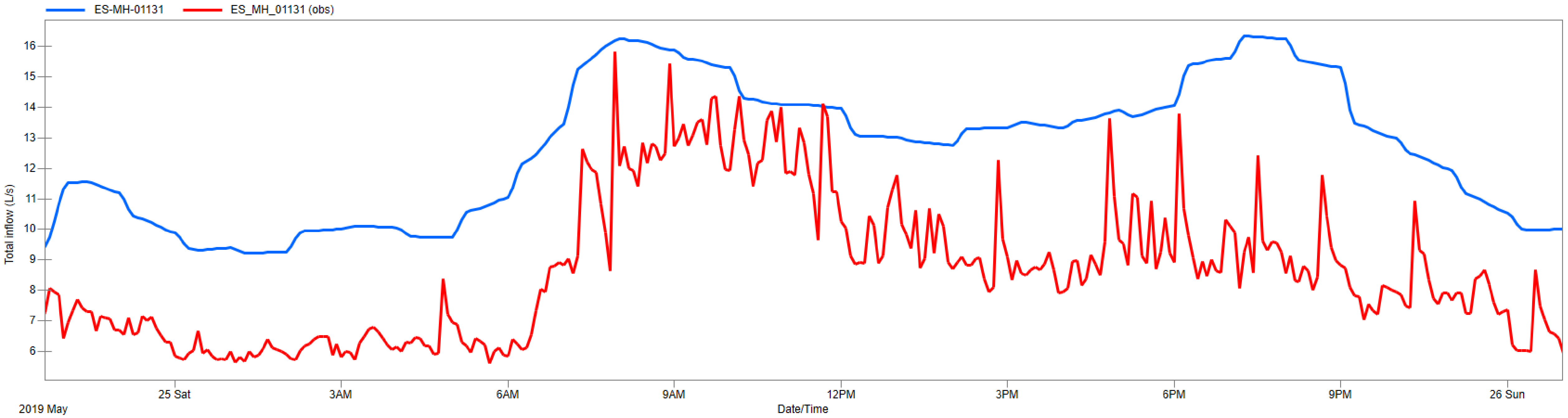
ES-MH-00215
ES-MH-00215 (obs)
Total inflow (L/s)
0
2
4
6
8
10
12
14
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E03_00200



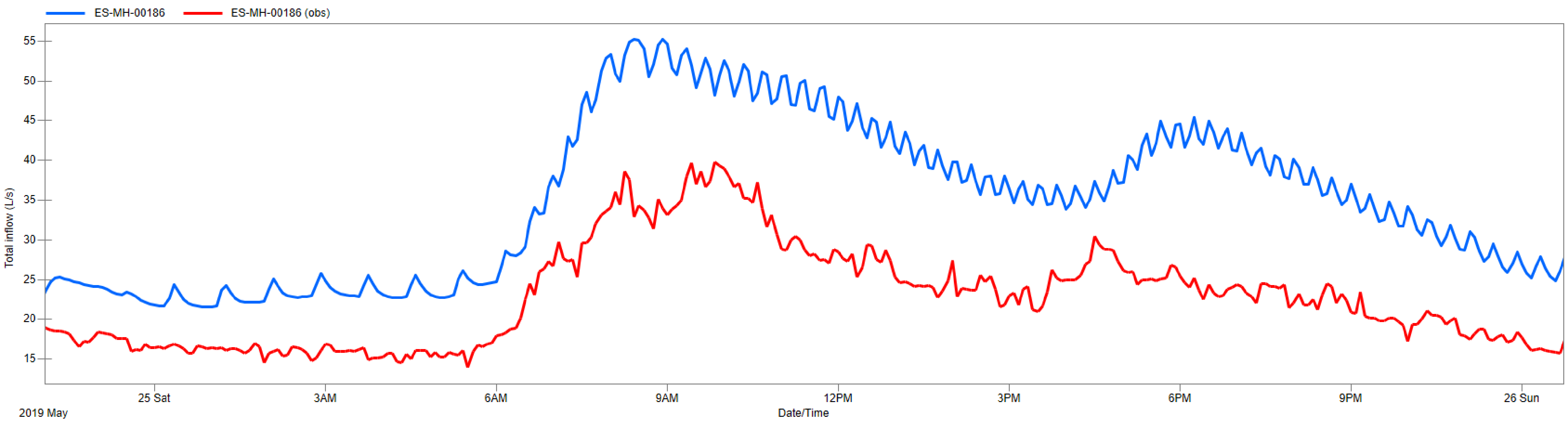
ES-MH-00200
ES_MH_00200 (obs)
Total inflow (L/s)
35
30
25
20
15
10
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E04_01131



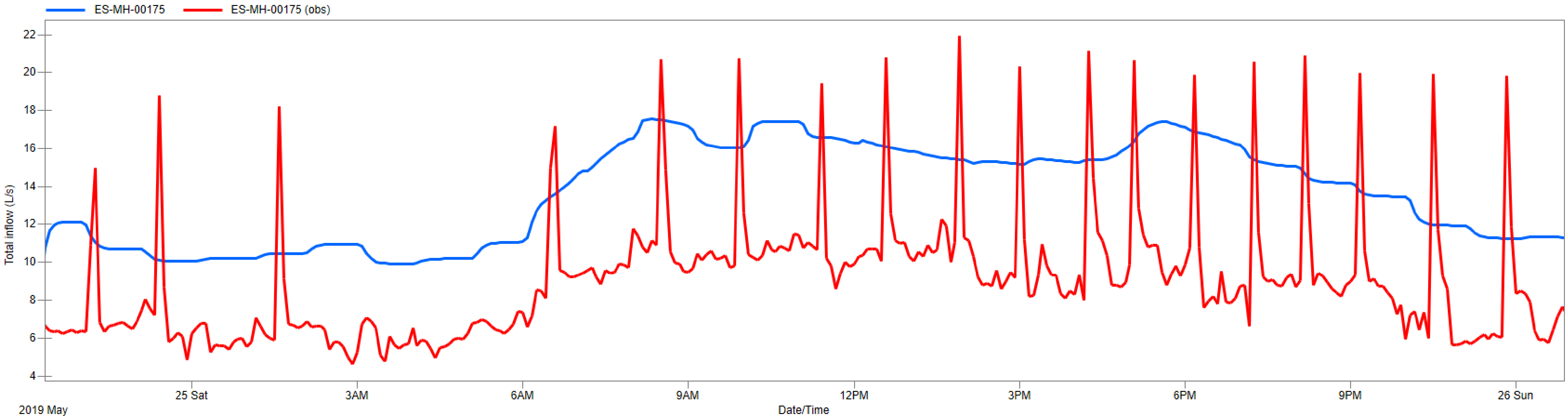
ES-MH-01131
ES_MH_01131 (obs)
Total inflow (L/s)
16
15
14
13
12
11
10
9
8
7
6
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E05_00186



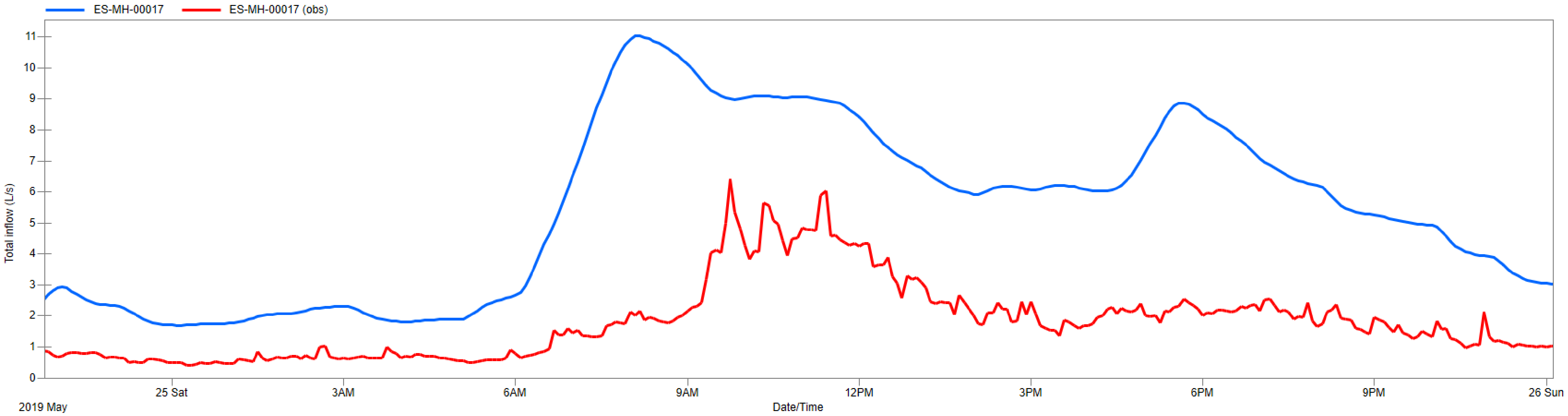
ES-MH-00186
ES-MH-00186 (obs)
55
50
45
40
35
30
25
20
15
Total inflow (L/s)
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E06_00175



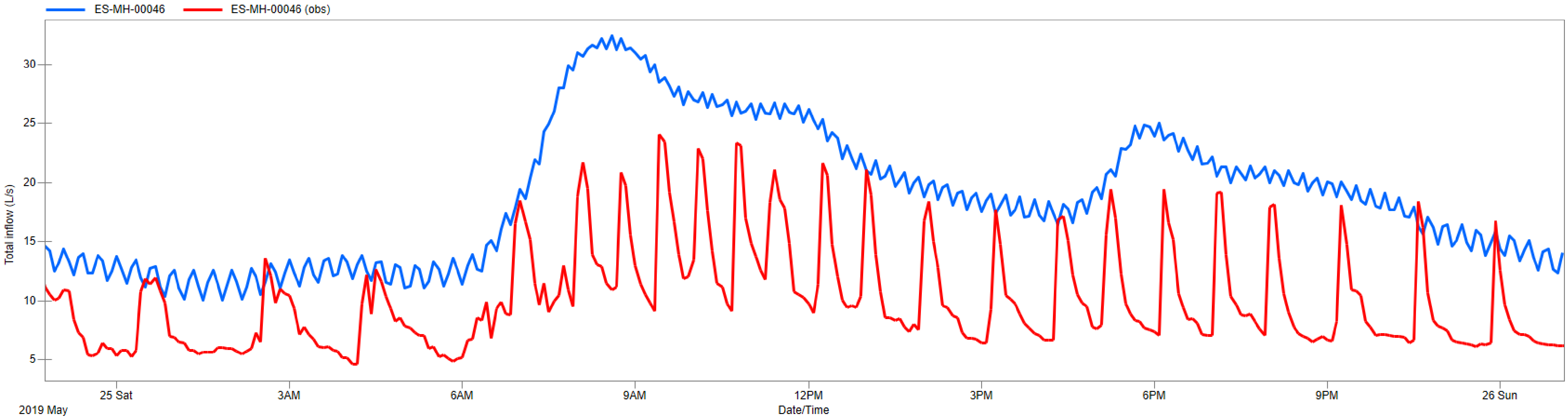
ES-MH-00175
ES-MH-00175 (obs)
Total inflow (L/s)
22
20
18
16
14
12
10
8
6
4
2019 May
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
Date/Time

E07_00017



ES-MH-00017
ES-MH-00017 (obs)
Total inflow (L/s)
0
1
2
3
4
5
6
7
8
9
10
11
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

E08_00046

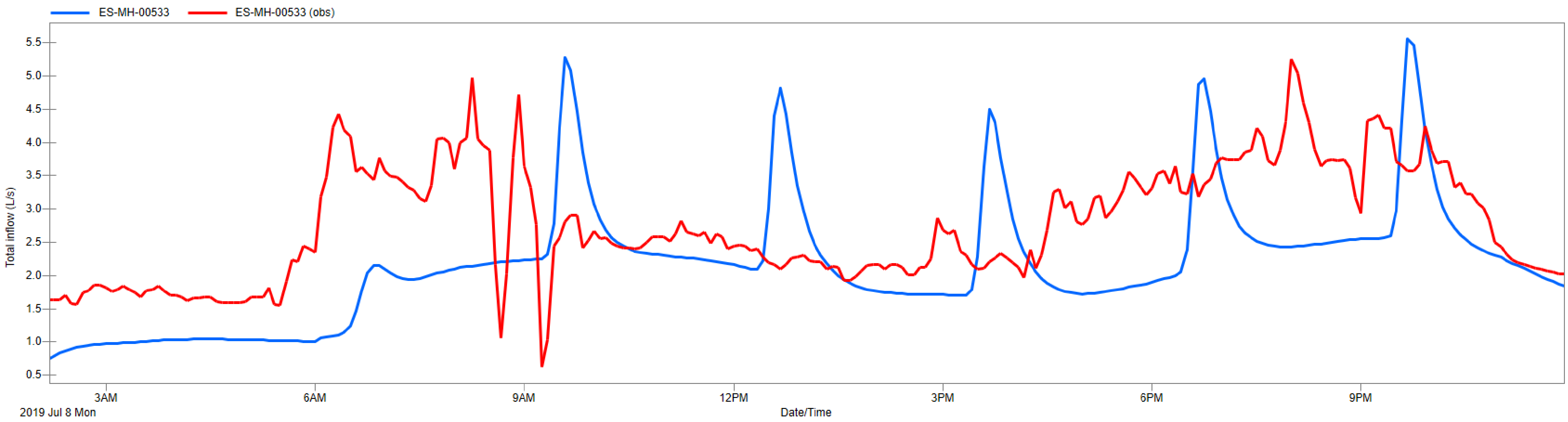


ES-MH-00046
ES-MH-00046 (obs)
Total inflow (L/s)
30
25
20
15
10
5
25 Sat
3AM
6AM
9AM
12PM
3PM
6PM
9PM
26 Sun
2019 May
Date/Time

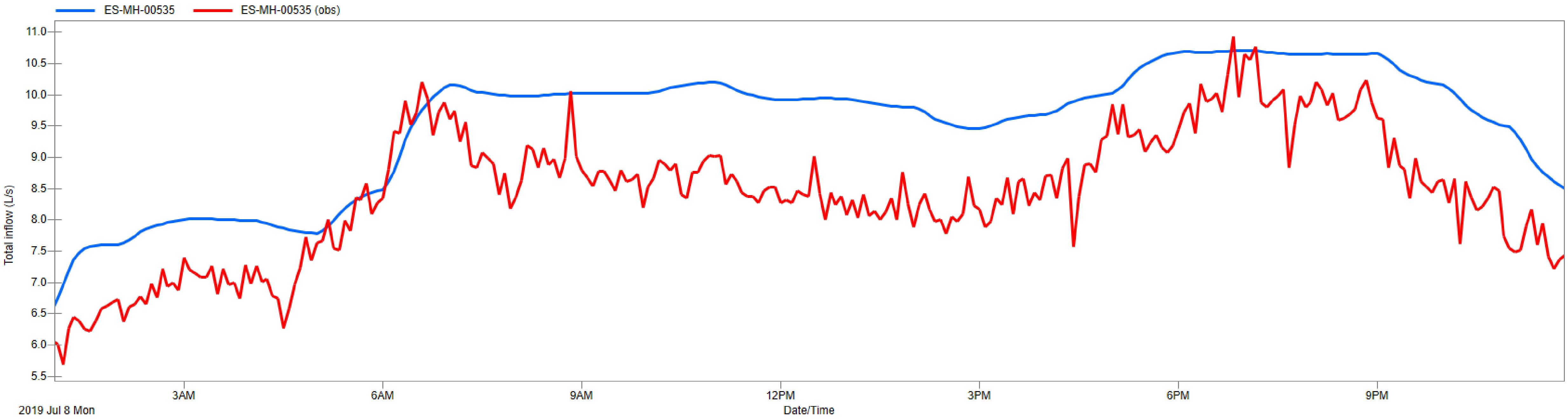
Dry Weather Calibration Results

Fergus

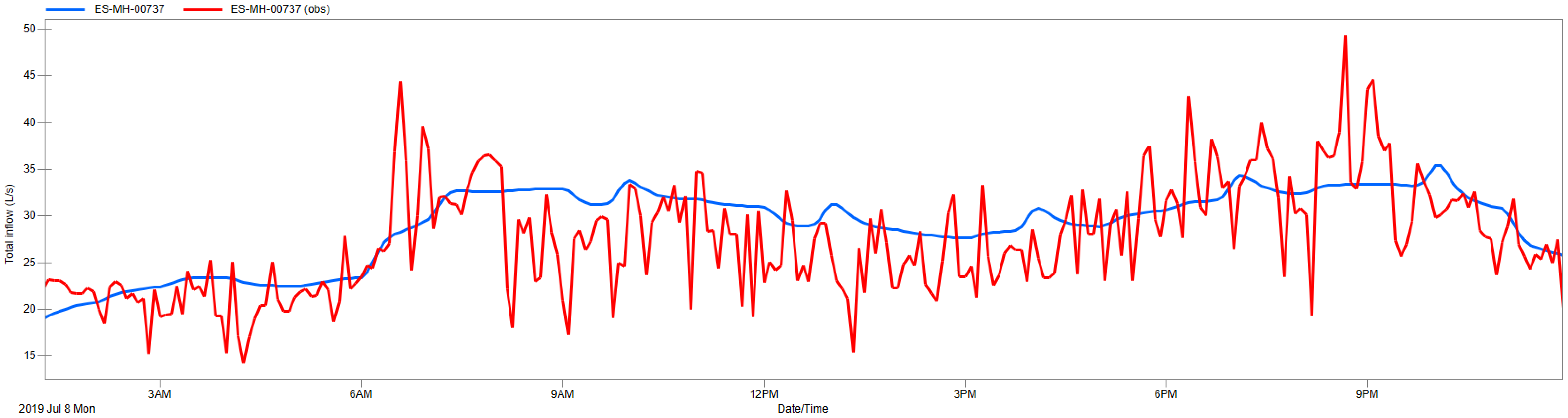
FERG-FM01_00533



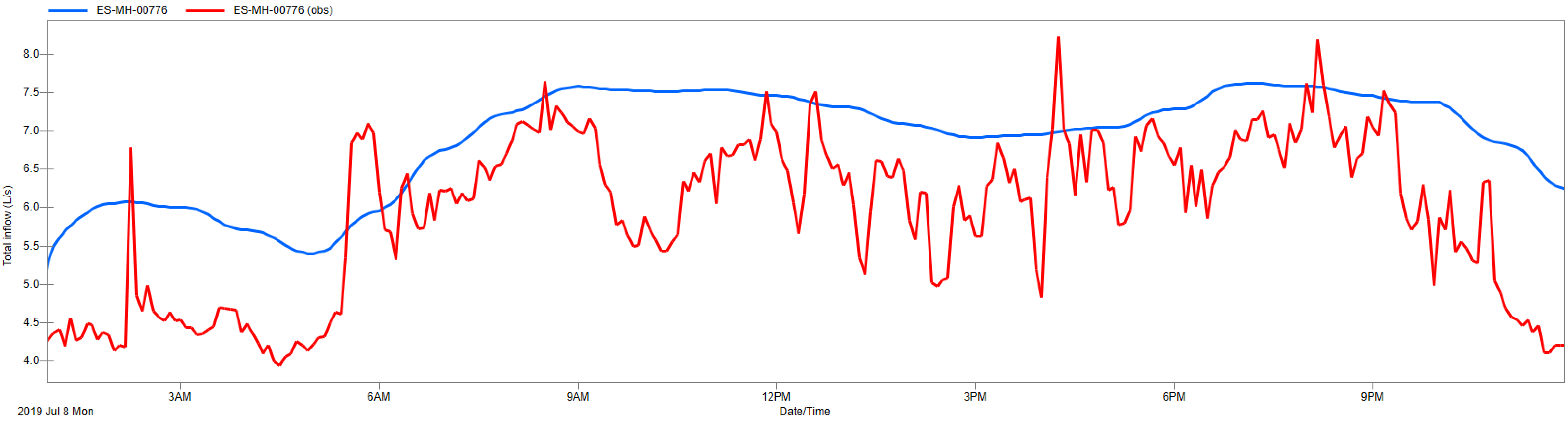
FERG-FM02_00535



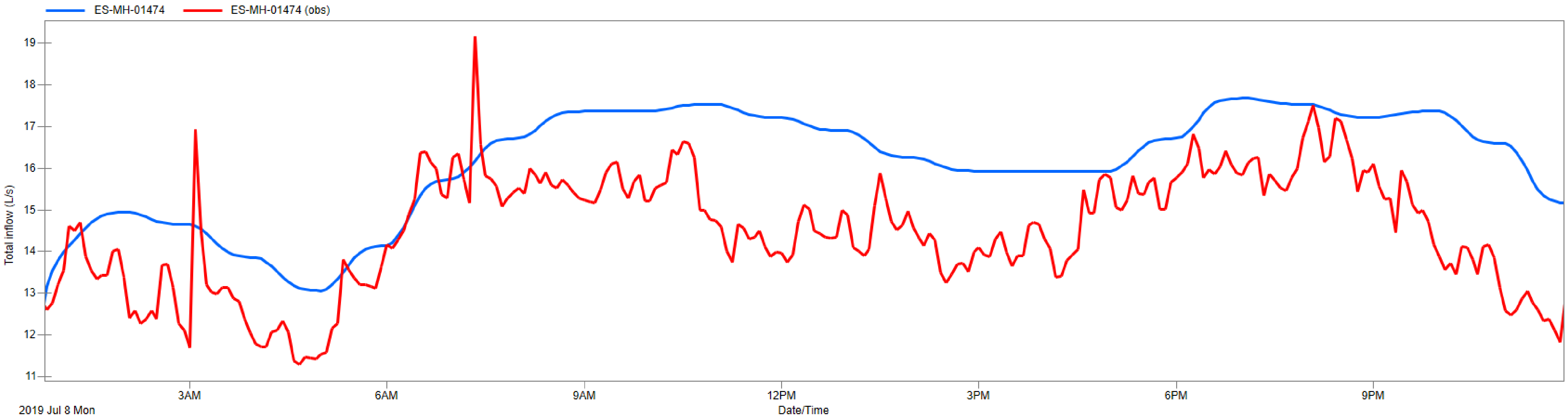
FERG-FM03_00737



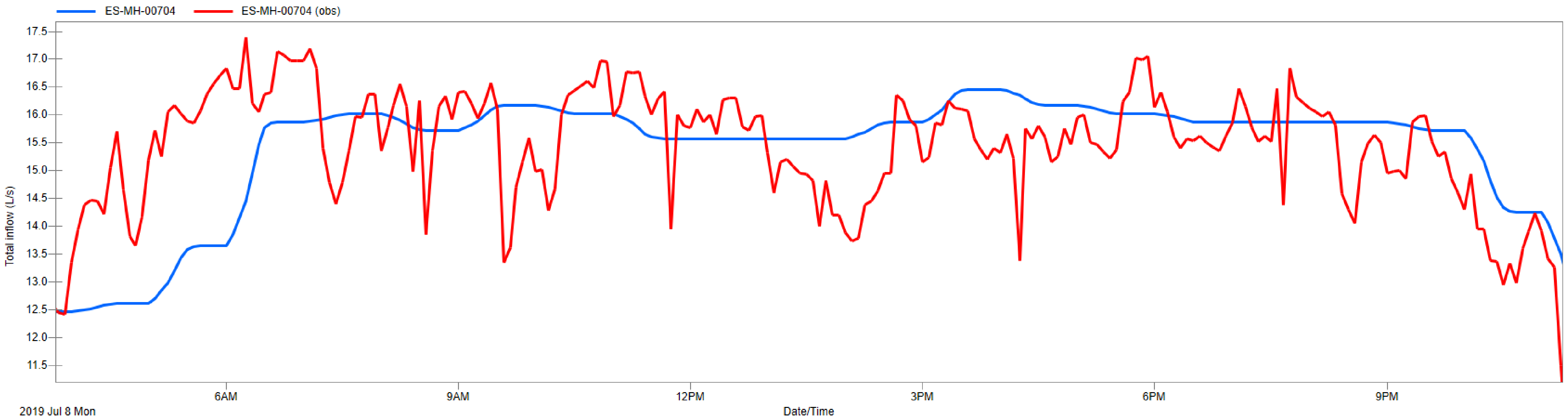
FERG-FM04_00776



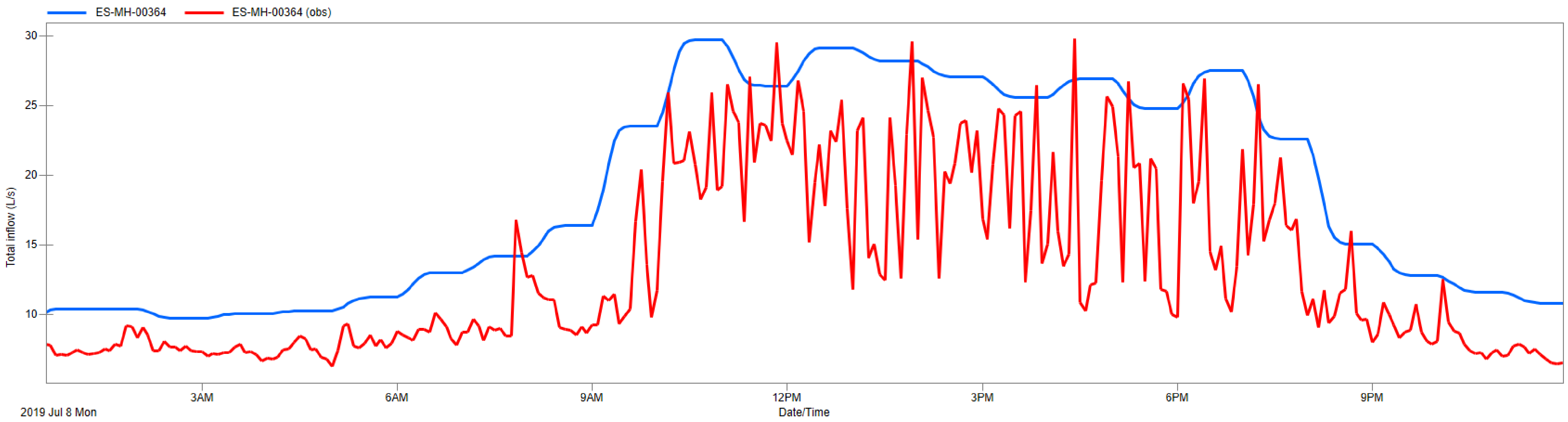
FERG-FM05_01474



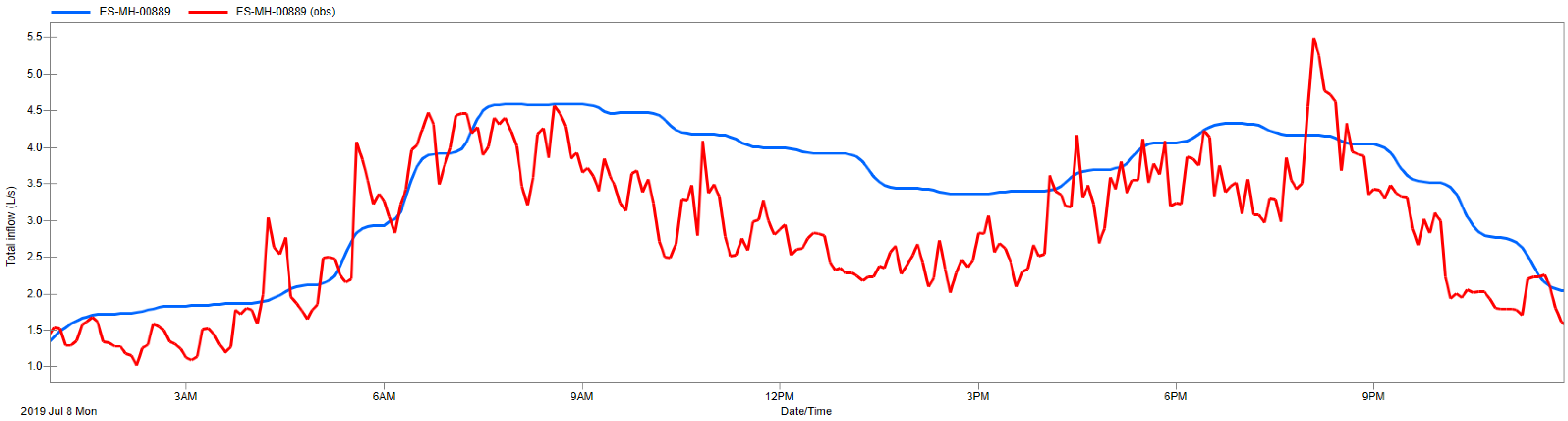
FERG-FM06_00704



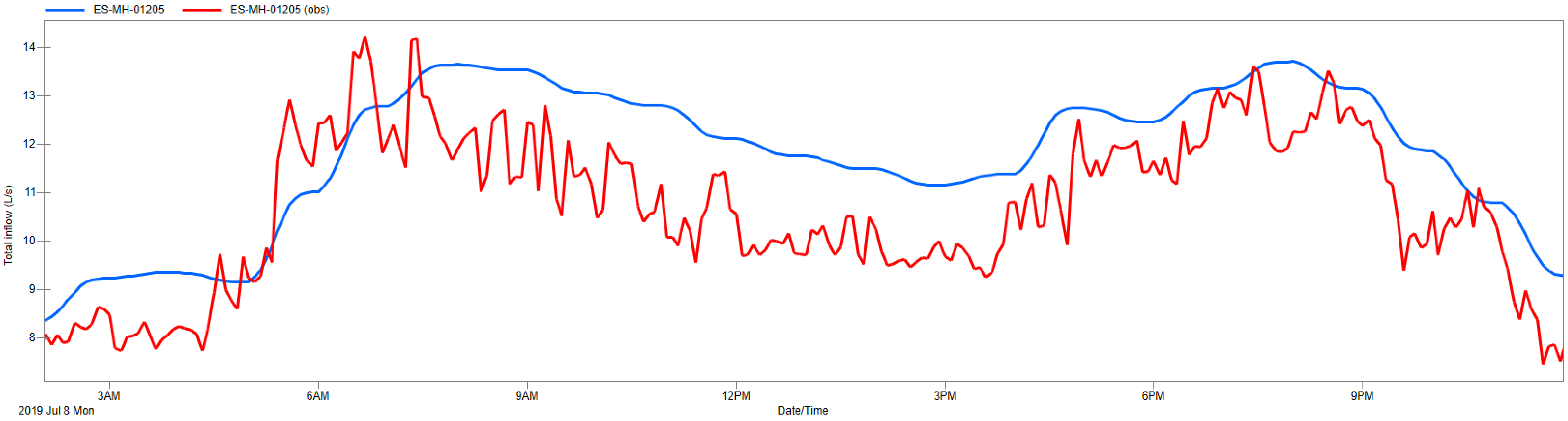
FERG-FM07_00364



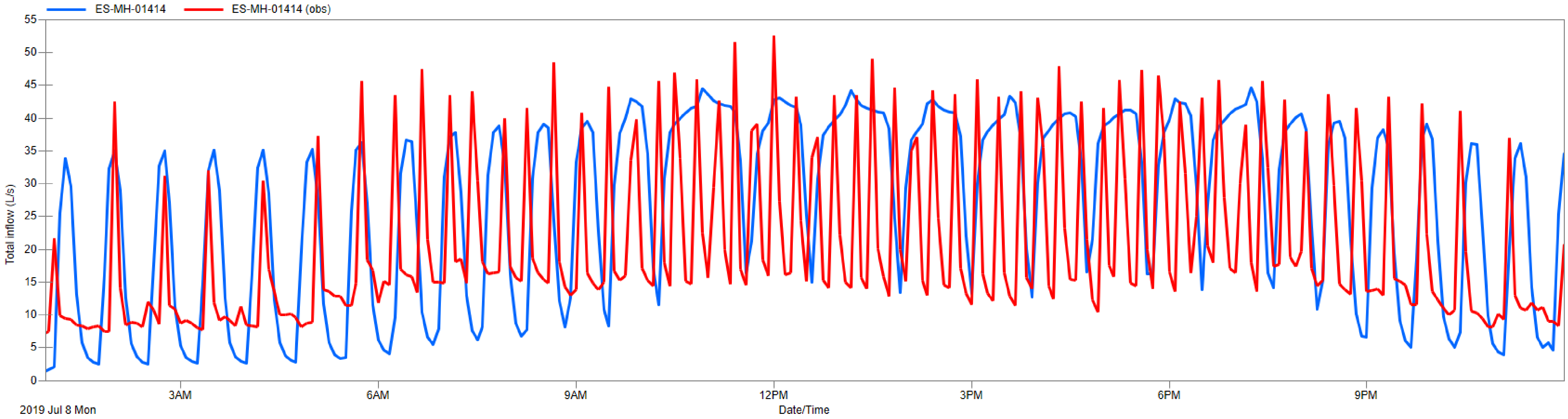
FERG-FM08_00889



FERG-FM09_01205



FERG-FM10_01414

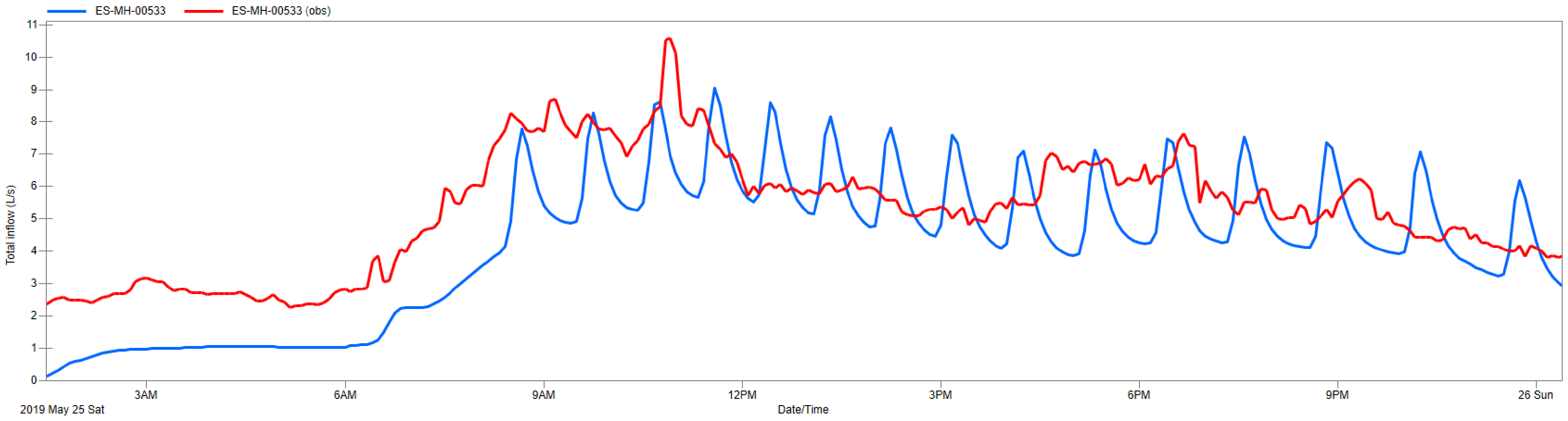


Wet Weather Calibration Results

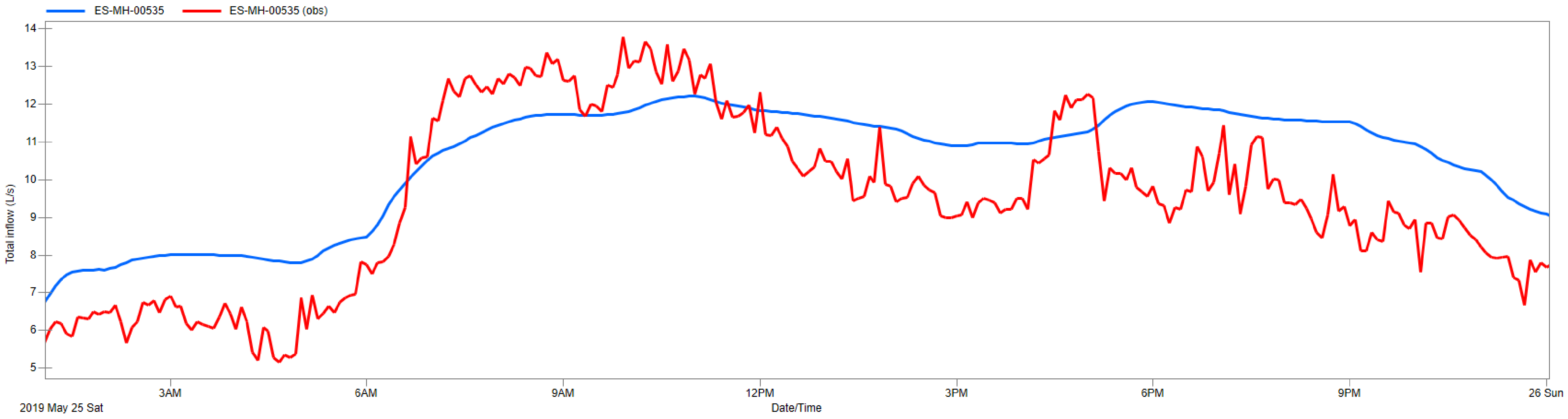
Fergus

May 25, 2019

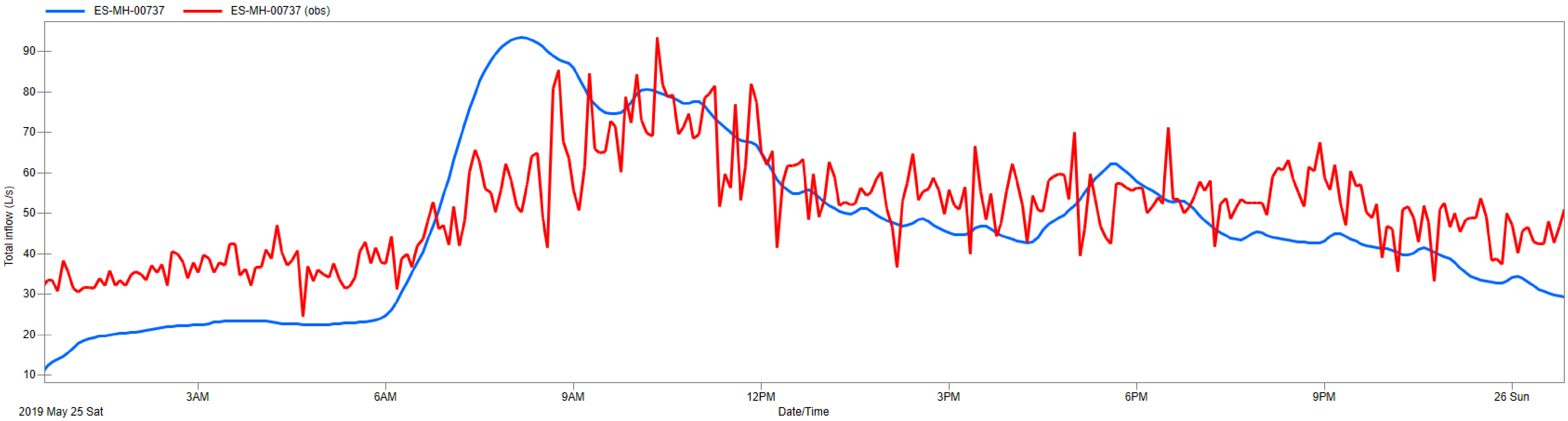
FERG-FM01_00533



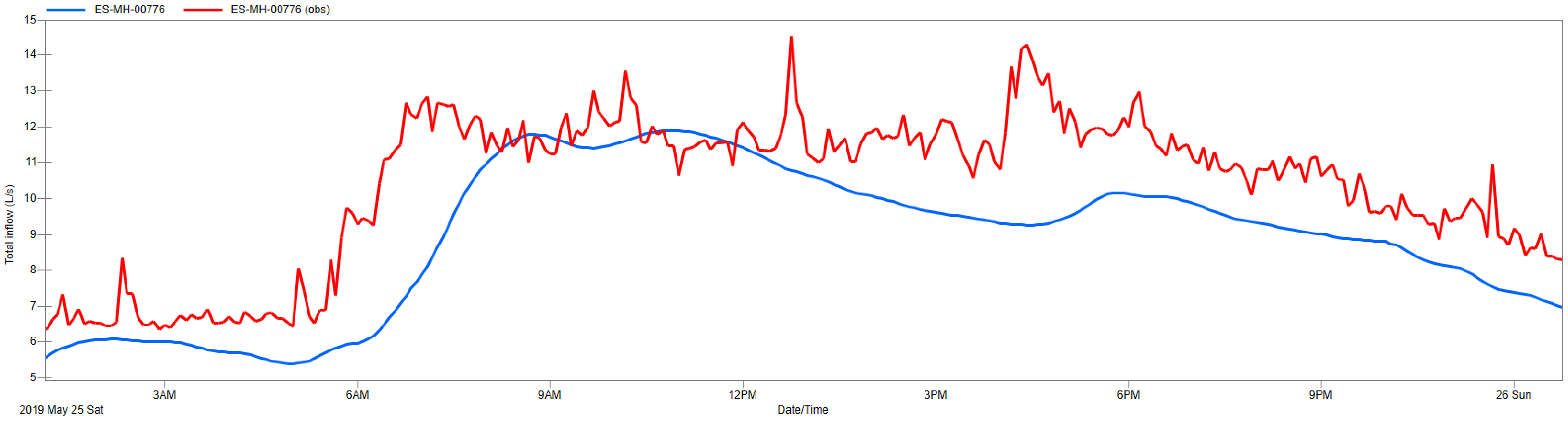
FERG-FM02_00535



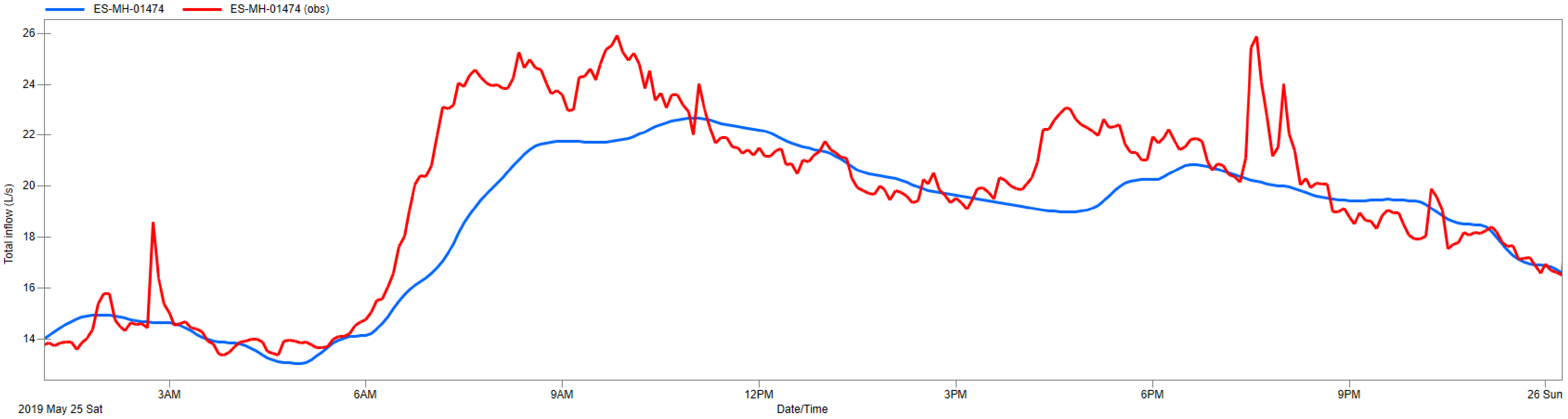
FERG-FM03_00737



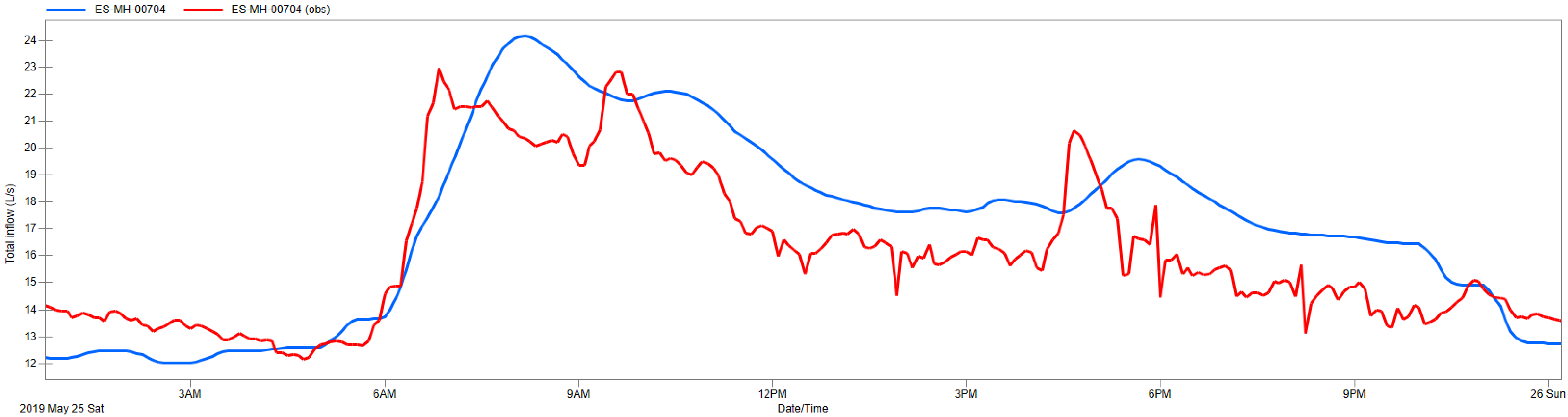
FERG-FM04_00776



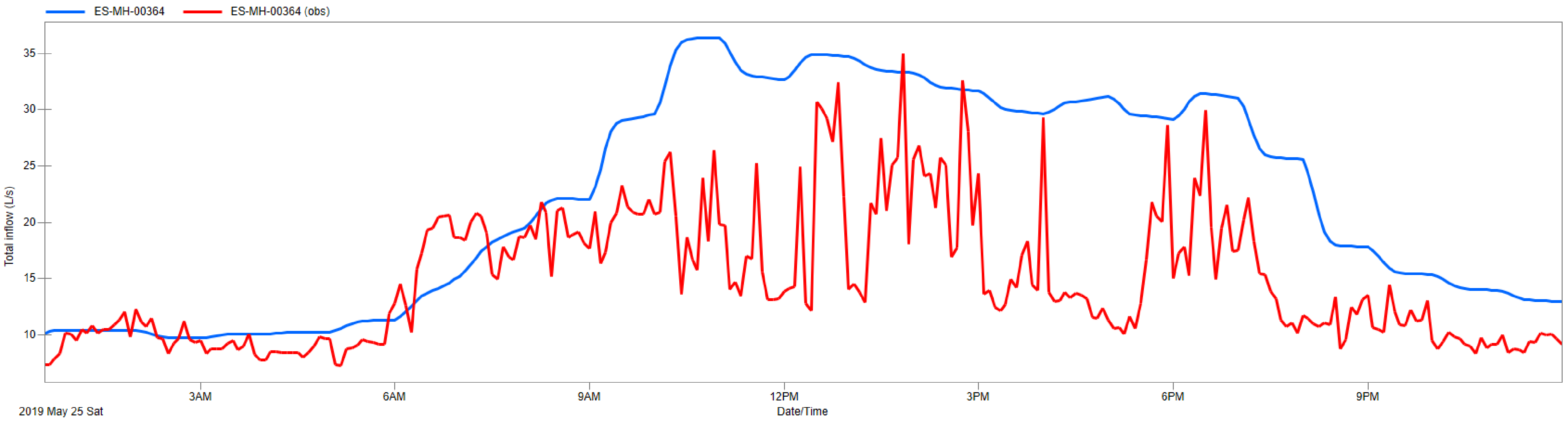
FERG-FM05_01474



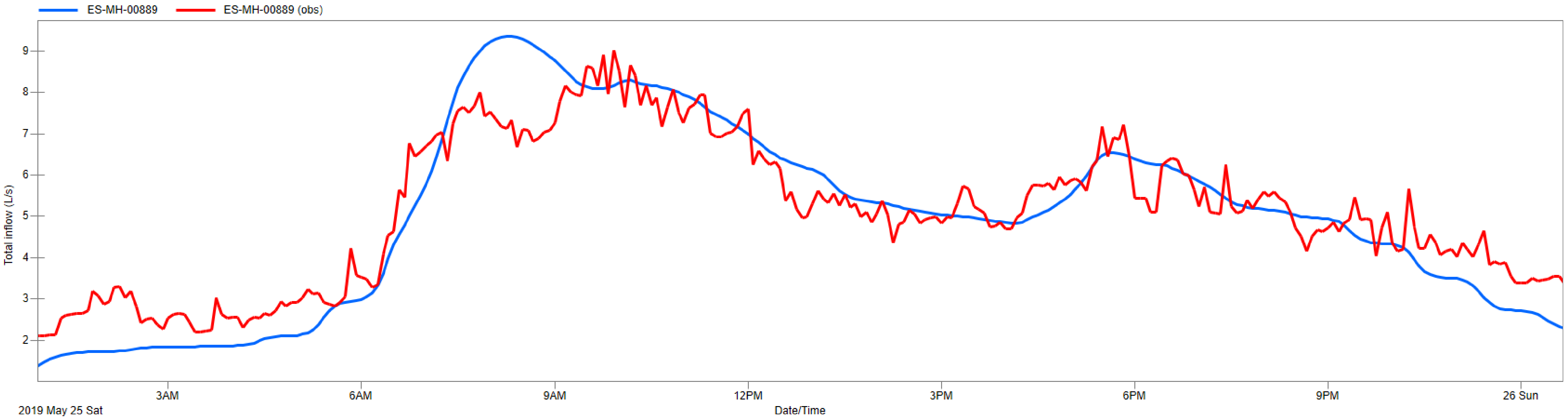
FERG-FM06_00704



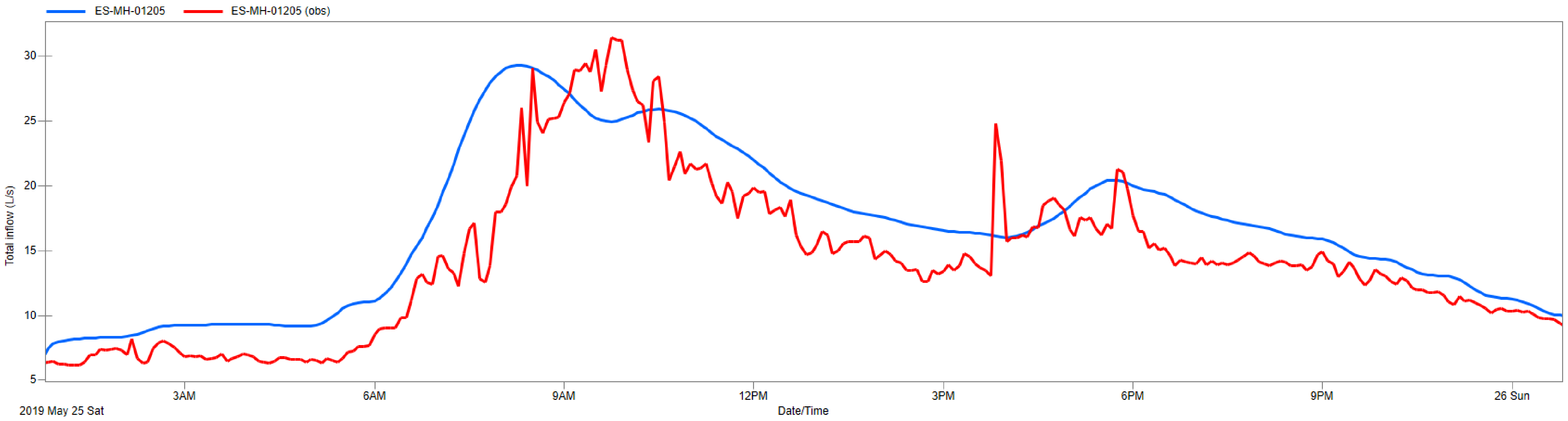
FERG-FM07_00364



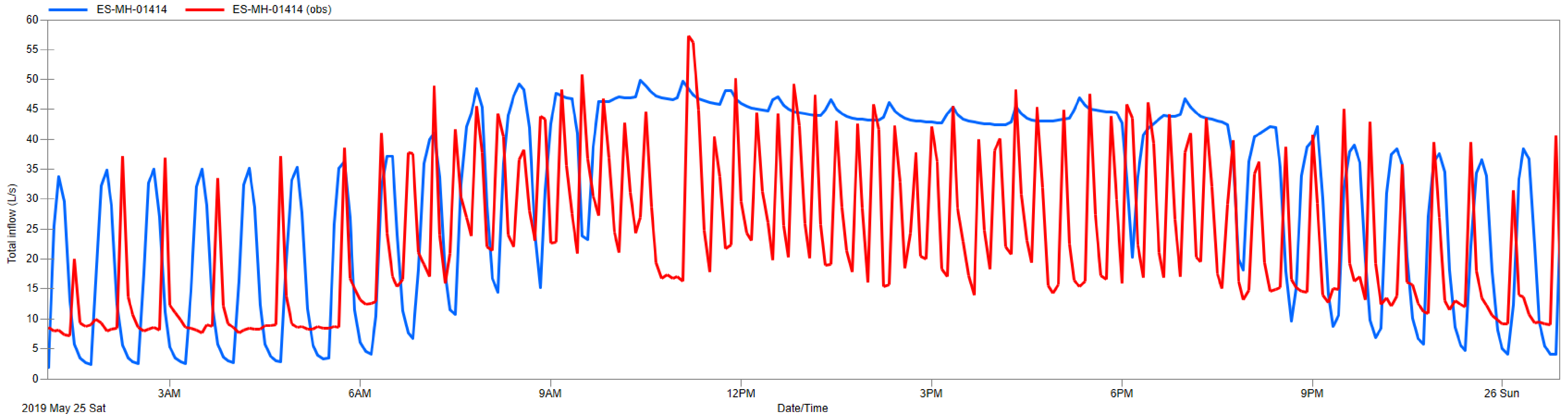
FERG-FM08_00889



FERG-FM09_01205

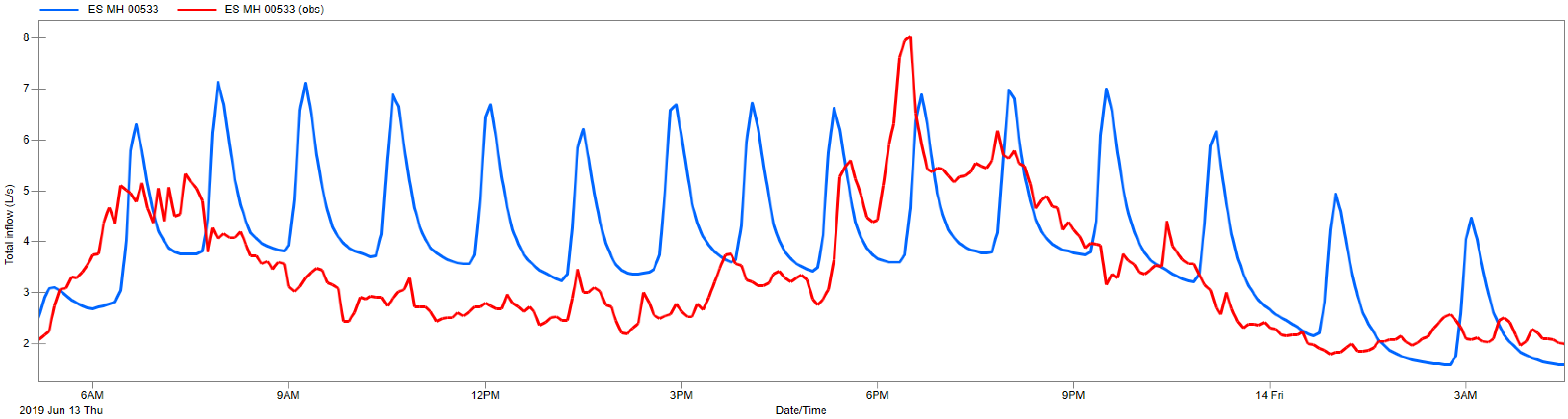


FERG-FM10_01414



June 13, 2019

FERG-FM01_00533



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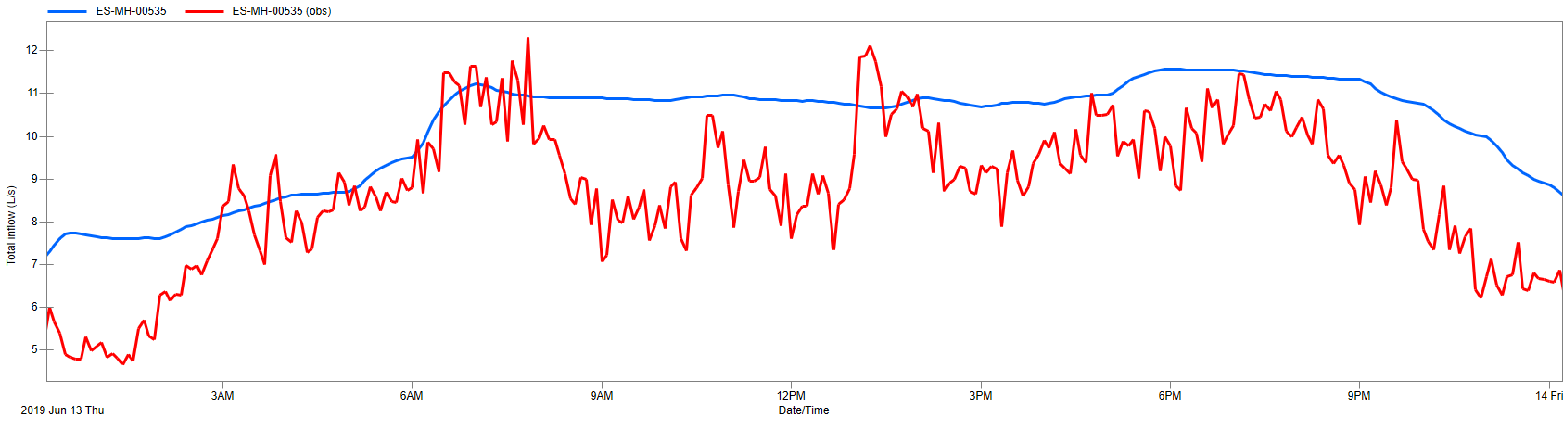

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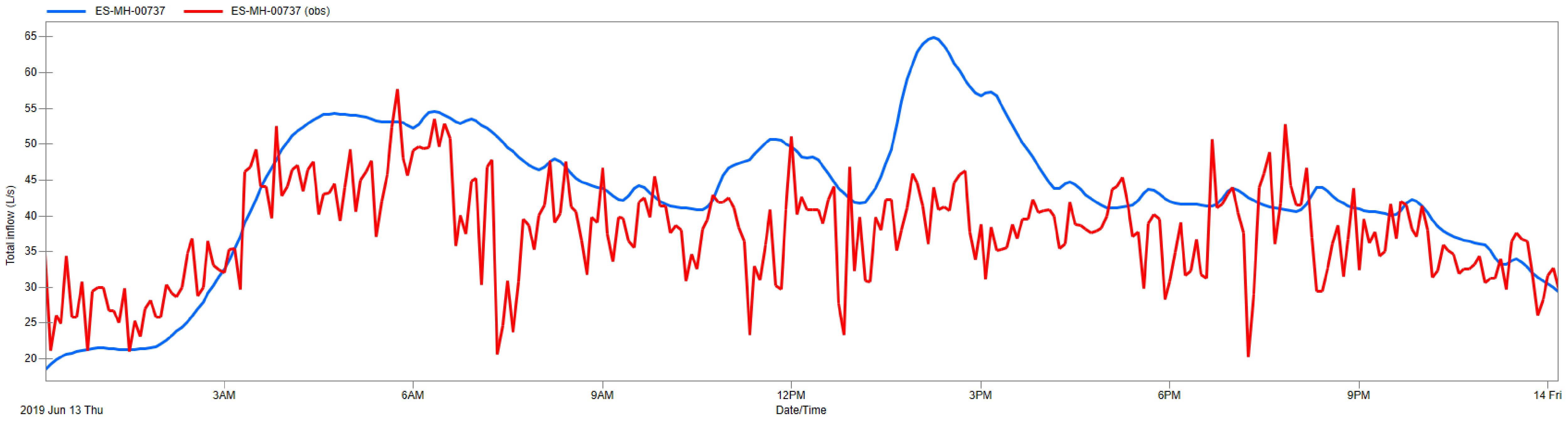

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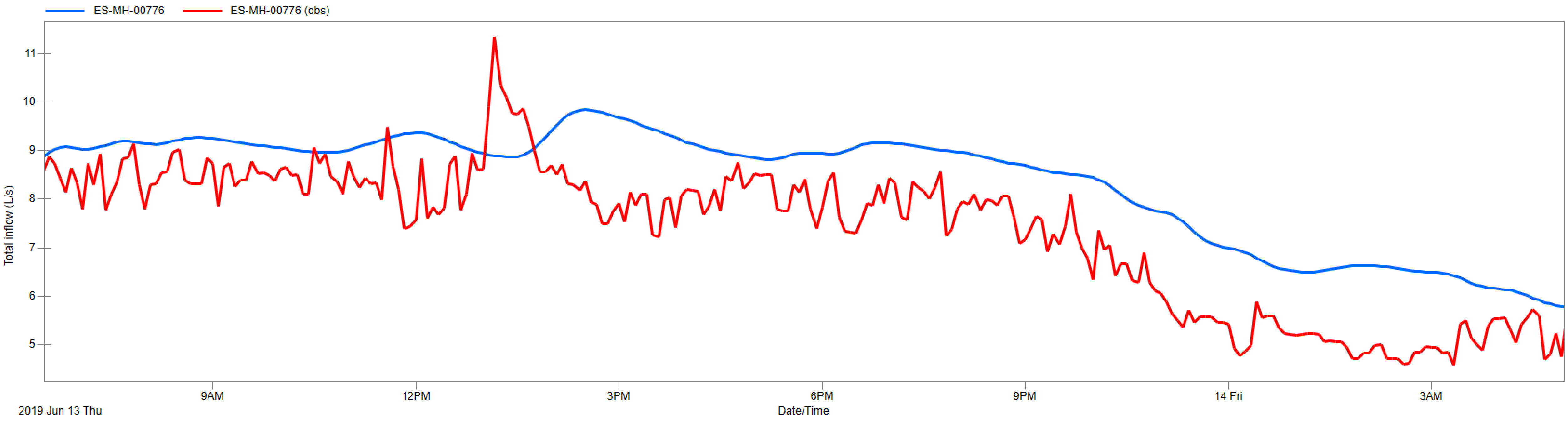

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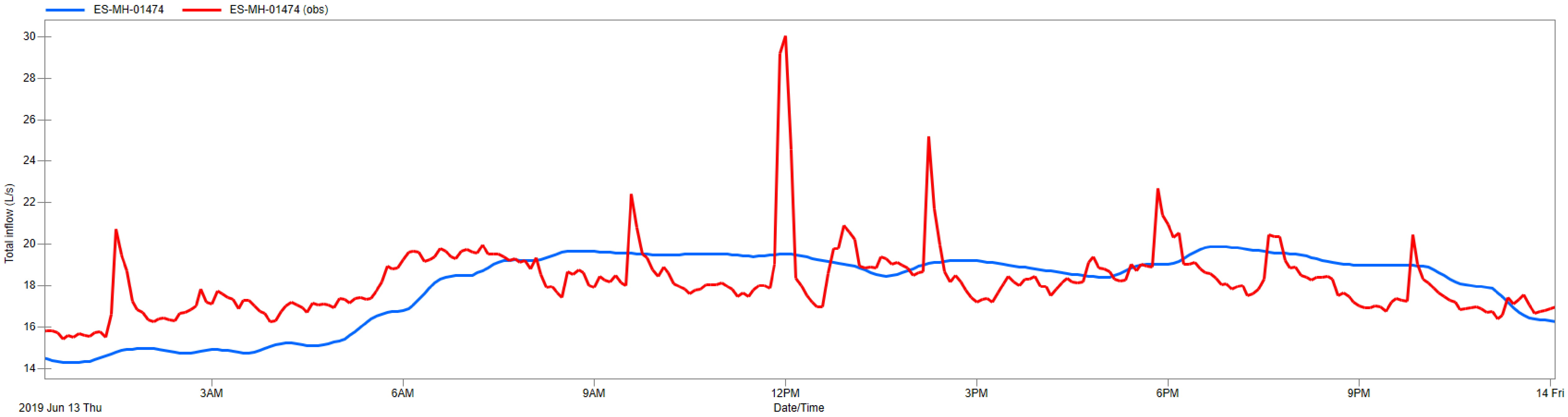

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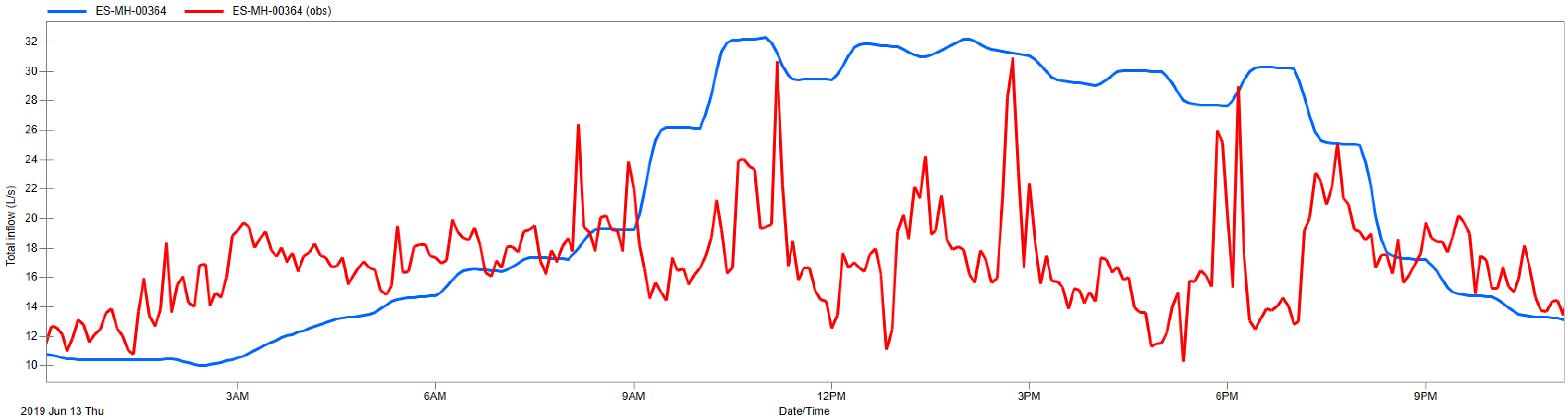

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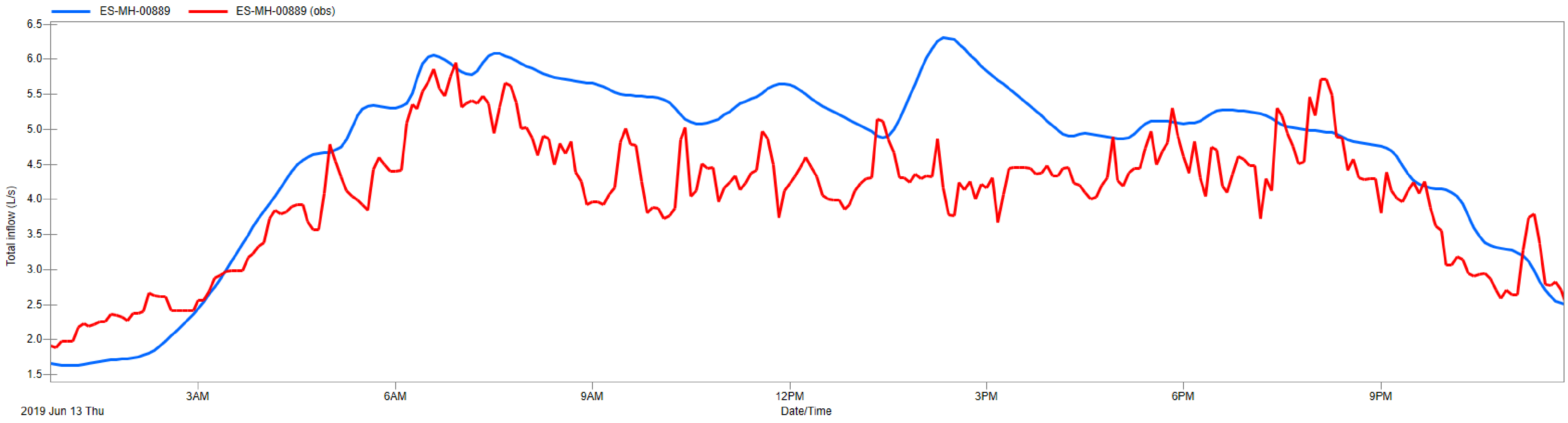

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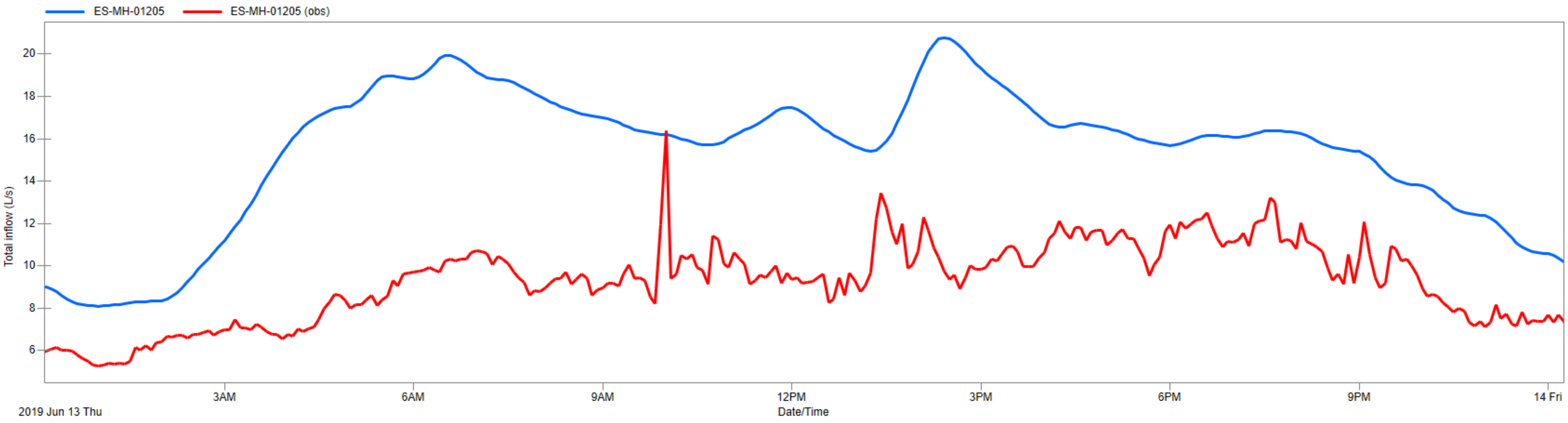

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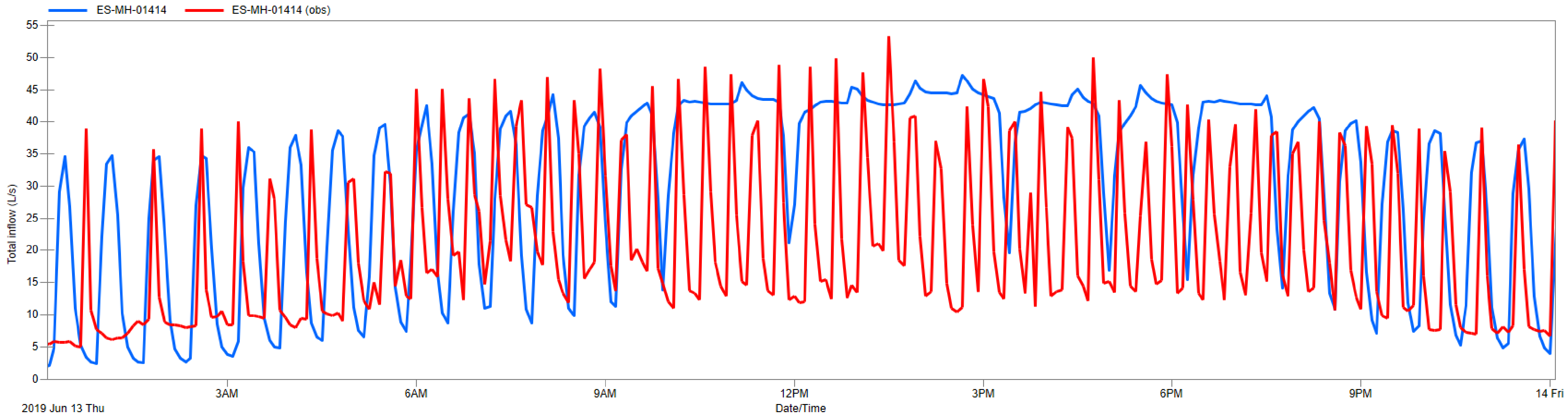

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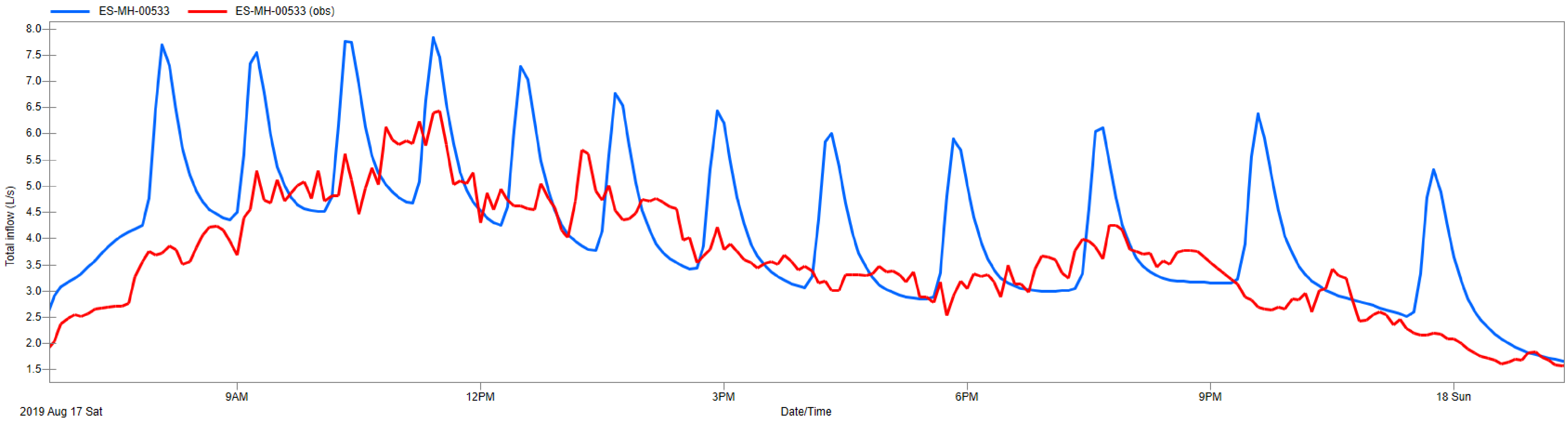

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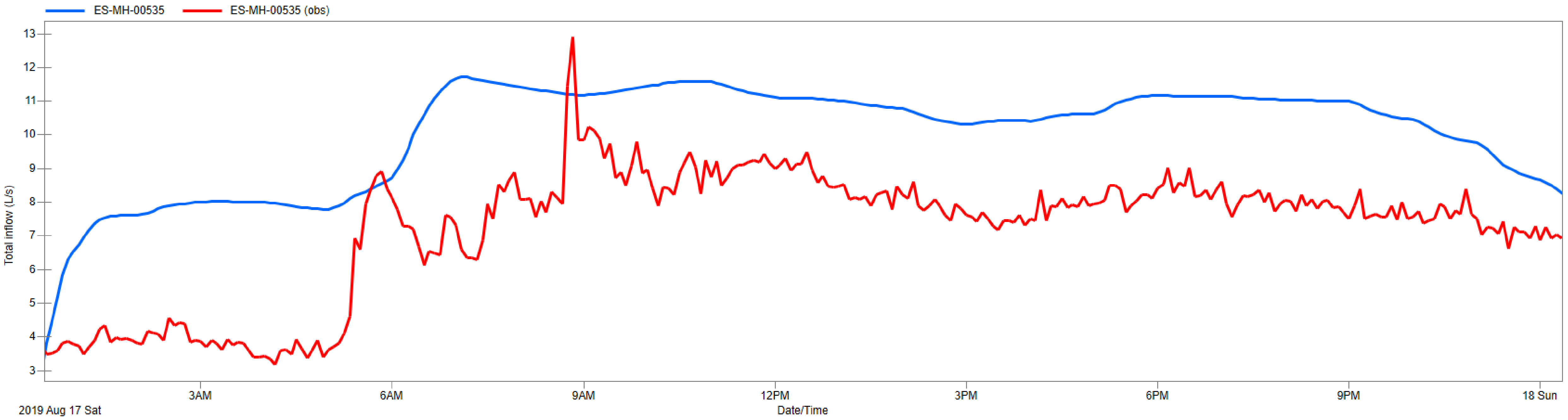

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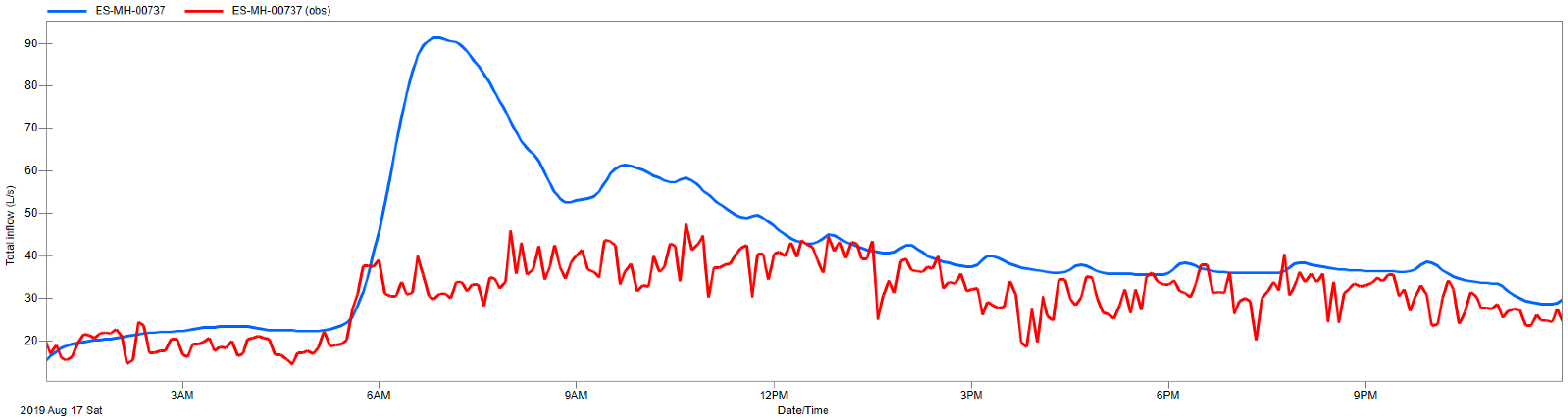

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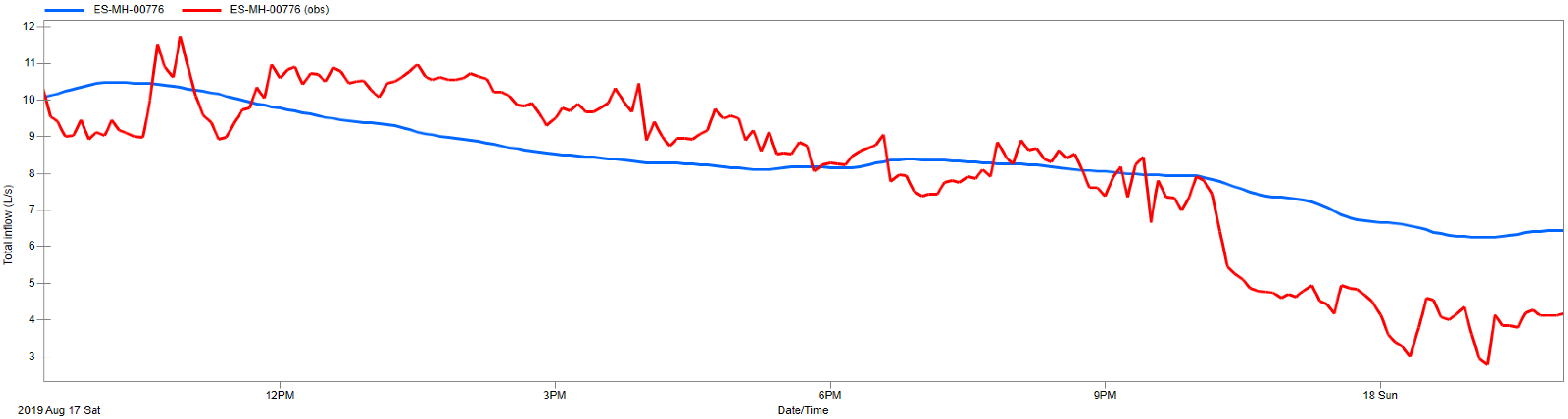

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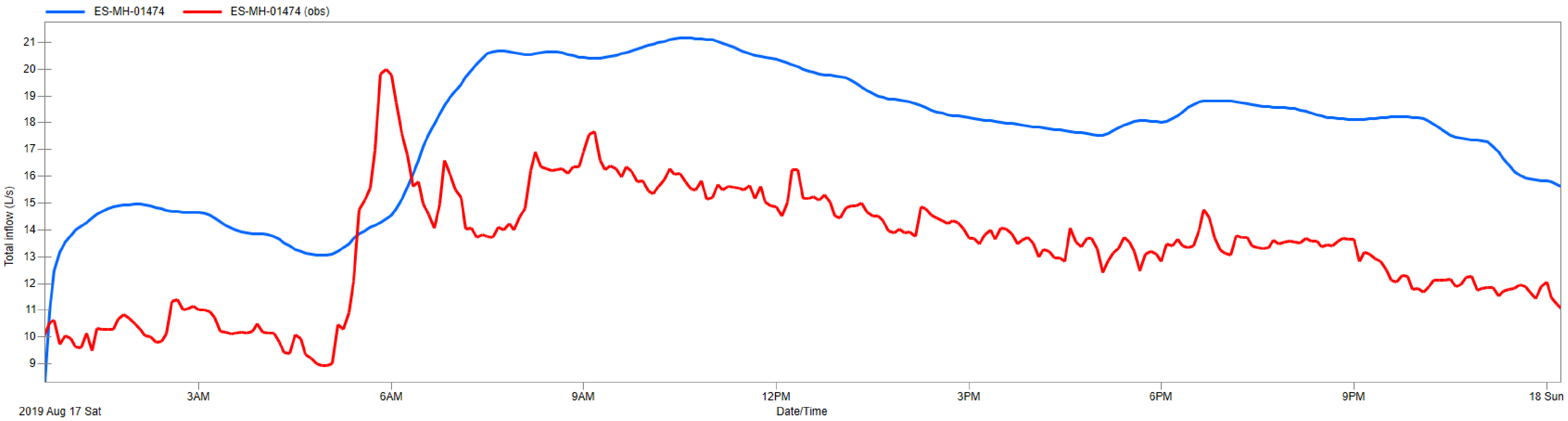

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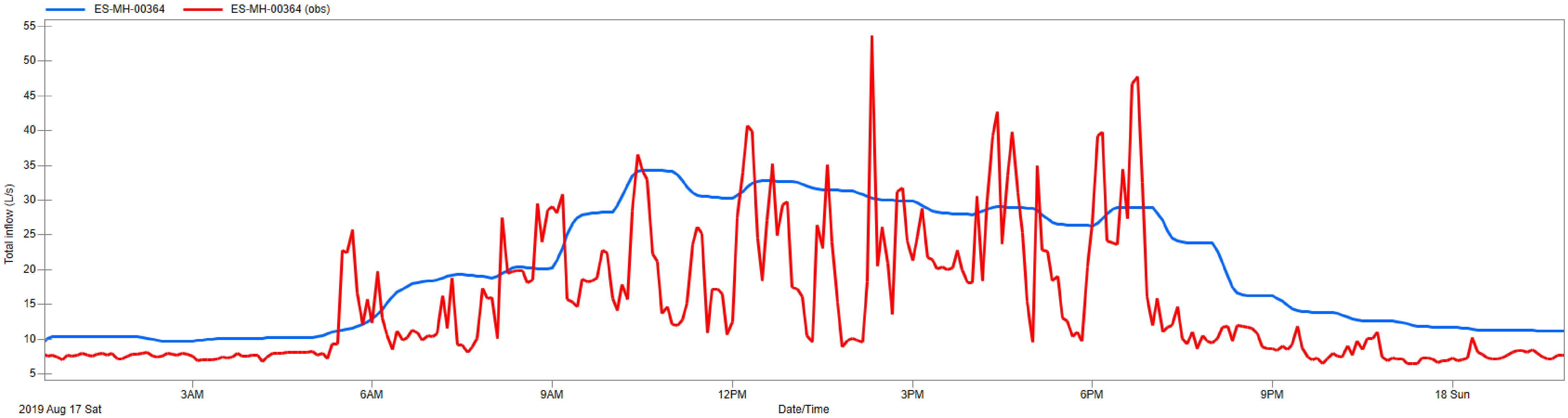

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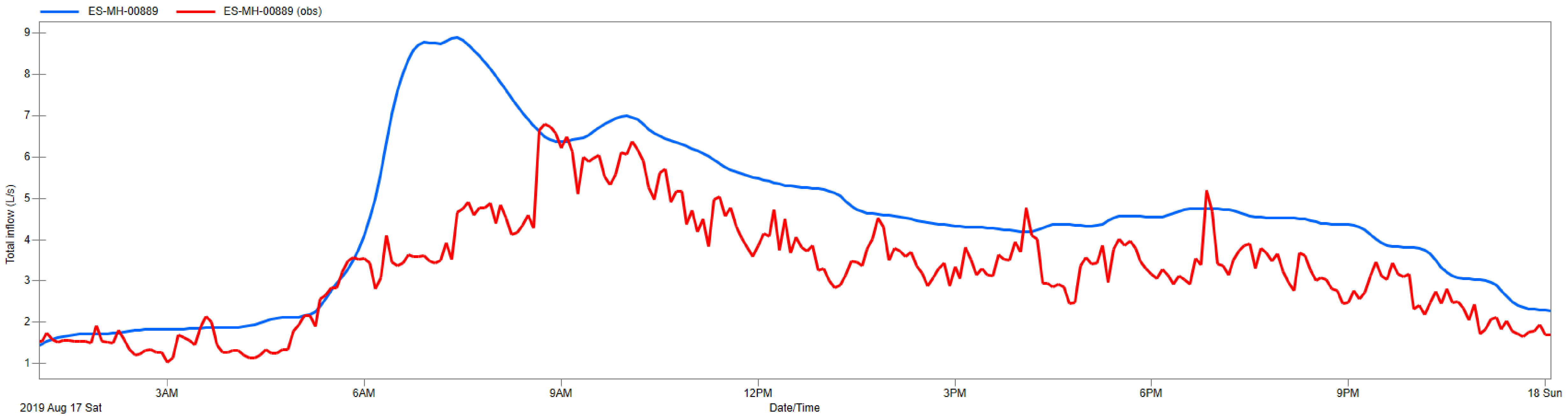

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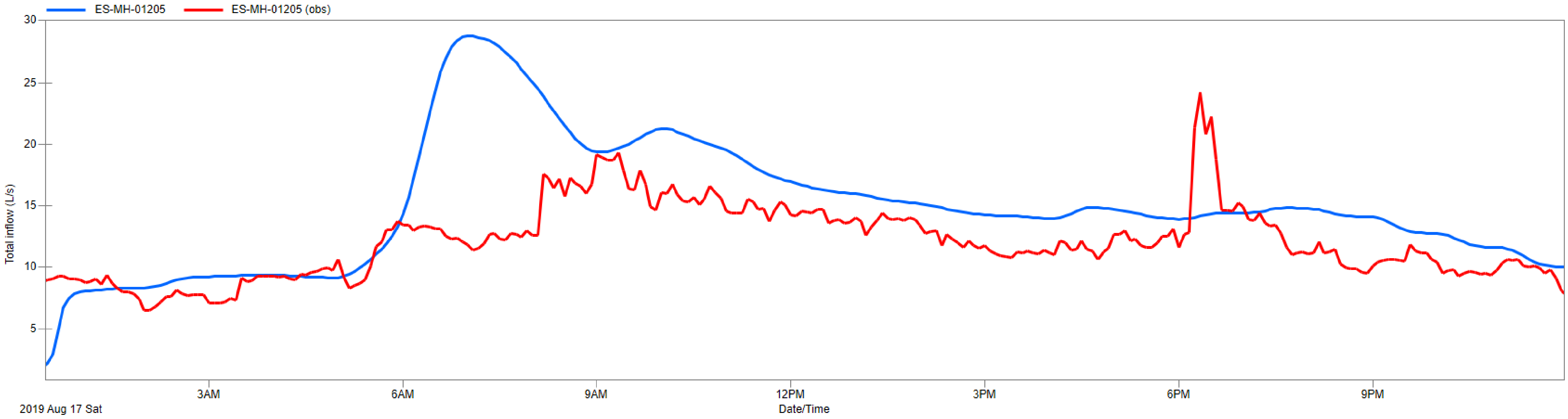

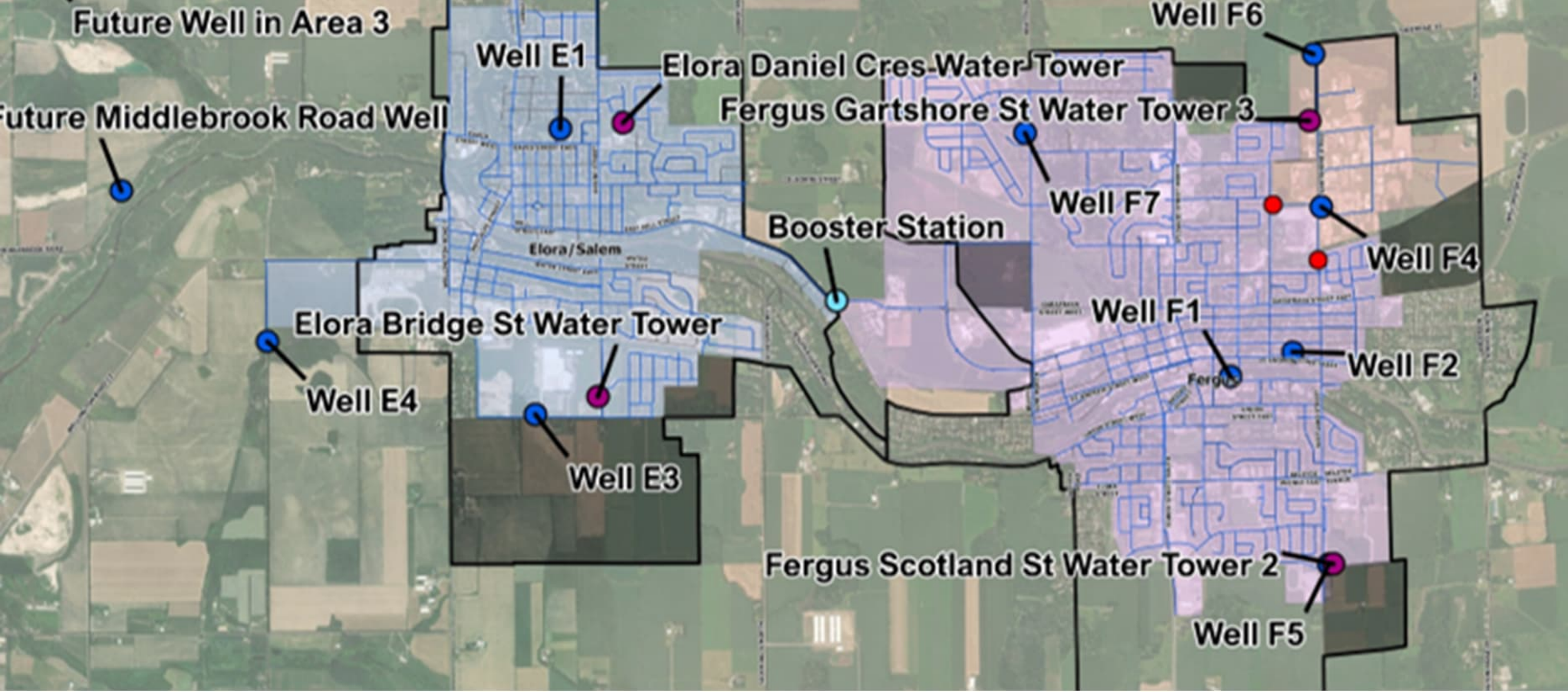

TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 4

Water Master Plan Technical Report

June 30, 2025

RVA

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WATER AND WASTEWATER SERVICING MASTER PLAN

WATER MASTER PLAN

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1.0 Introduction

1.1 Water and Wastewater Servicing Master Plan

The Township of Centre Wellington (Township) is undertaking a Water and Wastewater Servicing Master Plan (WWSMP) which R.V. Anderson Associates Limited (RVA) was retained by the Township to complete. The current WWSMP is being prepared in accordance with the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans. The 2025 WWSMP covers Phases 1 and 2 of the Class EA process. The WWSMP was undertaken based on Approach #1 as described in Section 4.4 of the MEA Class EA document.

To meet the future growth of the community up to 2051, this WWSMP will identify short-term and long-term strategies for expanding the water and wastewater servicing infrastructure. The water and wastewater servicing solutions should be technically feasible, as well as financially, socially, and environmentally sustainable. The WWSMP will identify capacity constraints of the water and wastewater systems for both linear and vertical assets. Preferred solution(s) will be prioritized and implemented in phases to address short-term and long-term needs, and shall:

- Comply with applicable regulations to provide adequate water and wastewater servicing;
- Consider rightsholder and stakeholder comments and concerns;
- Aim to build climate change resiliency;
- Reduce system complexity and improve ease of operations;
- Aim to improve existing levels of servicing; and
- Consider realistic design criteria
    - Be financially viable and reduce lifecycle cost,
    - Be socially and environmentally sustainable.

1.2 Current Municipal Drinking Water System (DWS)

1.2.1 Water Supply and Distribution

Centre Wellington's potable water system and distribution network consists of:

- 121 km of Watermain;
- 1,229 Water Valves;
- 742 Hydrants;
- 6 Air Release Valves;
- 2 Pressure Reducing Chambers;
- 9 Municipal Wells;
- 4 Water Towers; and
- 1 Booster Pumping Station (BPS).

Both Elora/Salem and Fergus's DWSs are connected via the BPS, allowing for water sharing between the two communities. The combined system is henceforth labelled as Centre Wellington DWS. Table 1.1 provides the rated capacity of the supply wells per associated Permit To Take Water (PTTW) licence # 1546-DG8JAY.

Table 1.1 Centre Wellington DWS - Supply Wells Rated Capacity

Infrastructure	Permitted Capacity (m^3/day)
Well E1	1,728
Well E3	1,338
Well E4	1,901
Well F1	1,685
Well F2 - R	1,642
Well F4	1,685
Well F5	1,728
Well F6	1,555
Well F7	1,642

1.2.2 Water Storage

Table 1.2 lists the water storage facilities and their capacities servicing the combined DWS.

Table 1.2 Centre Wellington Water Storage Facilities and Associated Capabilities

Facility	Storage Volume (m^3)
Gartshore Street Tower	3,410
Scotland Street Tower	3,410
Daniel Crescent Tower	2,725
Bridge Street Tower	2,275

1.2.3 Water Distribution

Figure 1-4 also illustrates the water distribution network for the Centre Wellington DWS. Elora has a singular Pressure Zone while Fergus is separated into a High-Pressure Zone located in the north-east area, and a Low-Pressure Zone across the remainder of the community. Two *Pressure Reducing Valves* (PRVs) allow for controlled water distribution between the two zones.

1.3 Drinking Water Level of Service

1.3.1 Guidelines and Water Use Sources

Typical DWSs comprise of the water supply, treatment, and the distribution systems. The supply system includes groundwater wells and/or surface water sources, and the distribution system includes booster pumping stations and storage facilities. The Township's DWS is supplied only by groundwater wells.

The criteria used to obtain and analyse the water treatment components has been compiled from the following standards and guidelines:

- Centre Wellington Development Manual (2024);
- Ontario Design Guidelines for Drinking Water Systems (MECP Guidelines) (2016); and

- Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (10 states) Recommended Standards for Water Works (2022).

The MECP Guidelines require that water demand be based on the data collected from the Township's historical recorded water use data and cover gaps using reasonable assumptions based on the factors and guidelines provided. Water demand is generally composed of the following:

- Water that is consumed for residential and non-residential use (metered);
- Bulk water that is dispensed to water tankers (metered);
- Water that is used in the water treatment and distribution process (metered);
- Water used for firefighting (typically not metered);
- Water used for flushing distribution system (typically not metered); and
- Water that lost in the distribution system through pipe or reservoir leakage.

Unaccounted for or non-metered water is checked to determine water loss in the system. The MECP Guidelines direct that where flow records for an existing distribution system show that unaccounted-for-water exceeds 15% of average daily demand, then an average value within the range of 270 to 450 L/(capita*day) should be considered for projecting future water use and the cause of the unaccounted-for-water determined and reduced or eliminated as much as is practical.

1.3.2 Drinking Water System Infrastructure Sizing

1.3.2.1 Water Supply

The MECP Guidelines require that capacity of water treatment supply to be greater than the highest demand (typically maximum day demand) since allowance is needed for water required for in-plant use and process losses. Additionally, water security is ensured by sizing the system such that it can meet the consumer water demand with the largest asset out of service. This is defined as the *Firm Capacity* of the system, and it should exceed the projected maximum day water demand of the DWS.

Table 2.1 summarizes definitions of the key water demand parameters that were used for this WWSMP and the sources from which they are obtained.

Table 1.3 DWS Design Parameters (MECP Guidelines)

Parameter	Definition	Source
Average Day Demand (ADD)	The ADD is defined as the average of all daily recorded water demand over a given year.	*Daily Flows* Excel files[1]
Maximum Day Demand (MDD)	Maximum volume of water required in any 24-hour period during the design period.	
Maximum Day Peaking Factor (MDPF)	$MDPF = \frac{MDD}{ADD}$	
Supply Firm Capacity	Capacity of the water supply wells able to supply the water treatment plant design capacity with the largest well out of service.	Permit to Take Water (PTTW)
Distribution Firm Capacity	Capacity of the system to supply pressure zones with the largest high lift pump out of service.	MECP Design GL

1: Provided by the Township.

1.3.2.2 Water Distribution

The MECP Guidelines recommends the following as design objectives for a reliable water distribution system that provides continuous supply of potable water at adequate pressure:

- Adequate water storage facilities that balance system pressure and cope with peak demands, fire protection, and other emergencies;
- Looped watermain with and minimal dead ends as possible to prevent stagnation and maintain adequate flow and turnover; and
- Maintains the following (as checked by Hydraulic Modelling):
    - A minimum pressure of 140 kPa (20 psi) at ground level under MDD plus fire flow,
    - Normal operating pressure should range from 350 kPa (50 psi) to 480 kPa (70 psi), and not less than 275 kPa (40 psi),
    - The maximum pressures should not exceed 700 kPa (100 psi) unless provided with pressure reducing devices.

1.3.2.3 Water Storage

The MECP Guidelines require that water storage facilities be designed to satisfy the greater of the following demands: MDD plus fire flow or peak hour demand (PHD). The required water storage is calculated using the following formula from the MECP guidelines:

Water Storage Requirement = A + B + C

Where A is the storage volume required to meet recommended fire flows based on serviced population and is provided by the MECP Guidelines, B is the equalization storage (25% of MDD), and C is the emergency storage (25% of the sum of A and B).

2.0 DETERMINATION OF WATER DEMAND

2.1 Historical Water Trends

Figure 2-1 shows the overall historical water consumption trend for the Elora/Salem-Fergus DWS. Outliers were checked for as follows, and were removed from the analysis and graph:

- Elora/Salem: October 24 and 29, and November 3, 2022, recorded 8, 0, and 10 m^3 of water consumption respectively;
- All MDD were checked for if they occurred due to adverse events such as fire and watermain leaks. Watermain flushing is not counted as adverse event because it is a required maintenance procedure.

Fergus makes up for 65% of the total water consumption. Water consumption trends show relatively constant water demand and MDD values since 2021. Using Table 2.1 provides the historical litres [of water used] per capita per day (lpcd).

Table 2.1 Metered Water Use per Capita

Parameter	2021	2022	2023	Average
Elora/Salem				
Serviced Population	5,580	6,200	6,820	
ADD (m^3/day)[1]	1,414	1,479	1,460	1,451
ADD lpcd	253	239	214	235
Fergus				
Serviced Population	16,774	16,974	17,174	
ADD (m^3/day)[1]	3,091	3,107	3,108	3,102
ADD lpcd	184	183	181	183

1: From *Water Revenue vs Consumption* excel file provided by Township

Assuming that metered water demand only comprises of residential water usage (with no unaccounted water), Elora/Salem's per capita metered water demand is 235 Lpcd and Fergus's is 183 lpcd. Per Statistic Canada's Potable Water Use by Sector and Average Daily Use, average daily residential use per capita in Ontario has declined from 173 lpcd in 2011 to 164 lpcd in 2021. Although historical water usage in both Elora/Salem and Fergus replicate this decreasing trend, their per capita water consumption is higher.

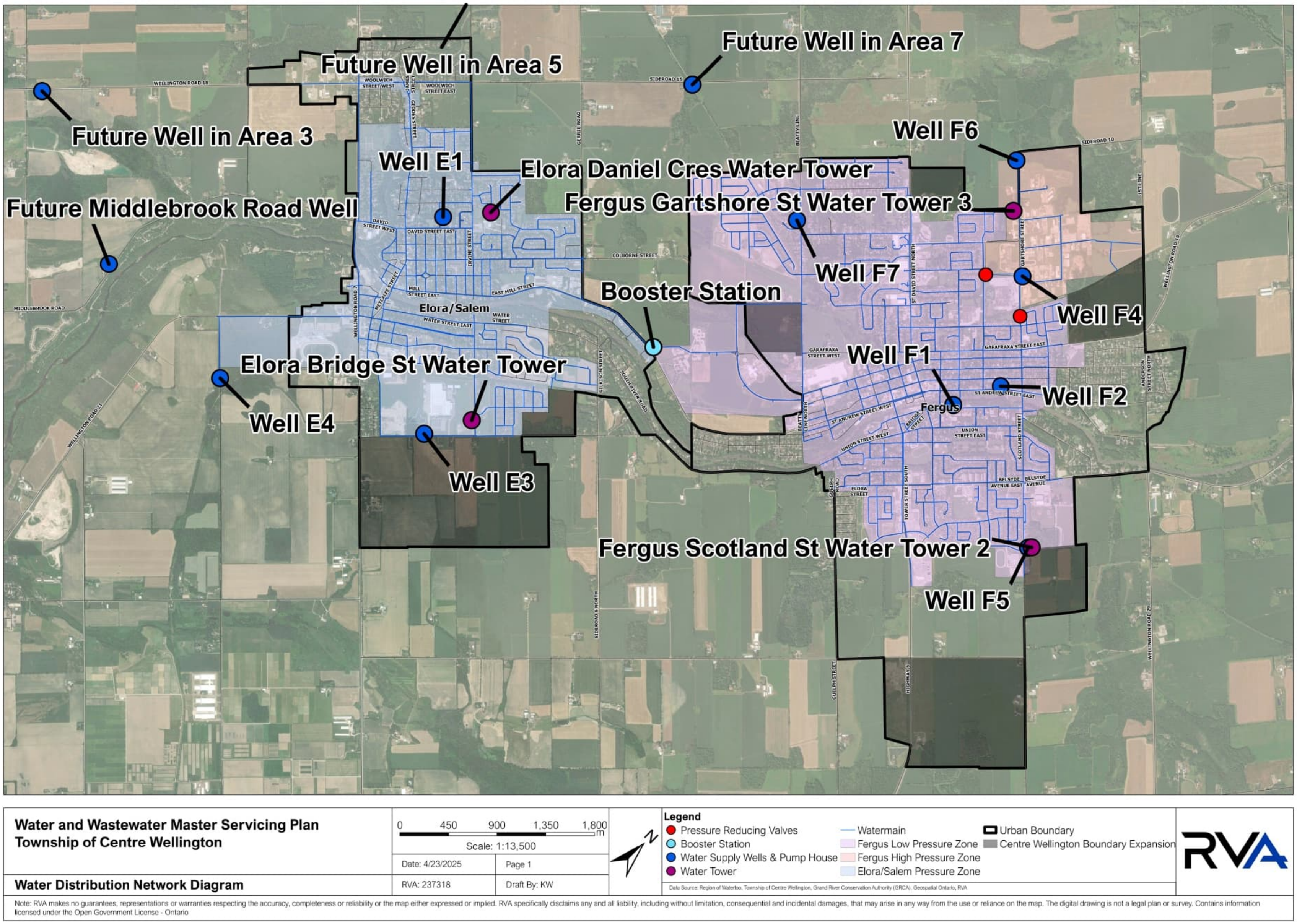


Figure 2-1 Current Water System

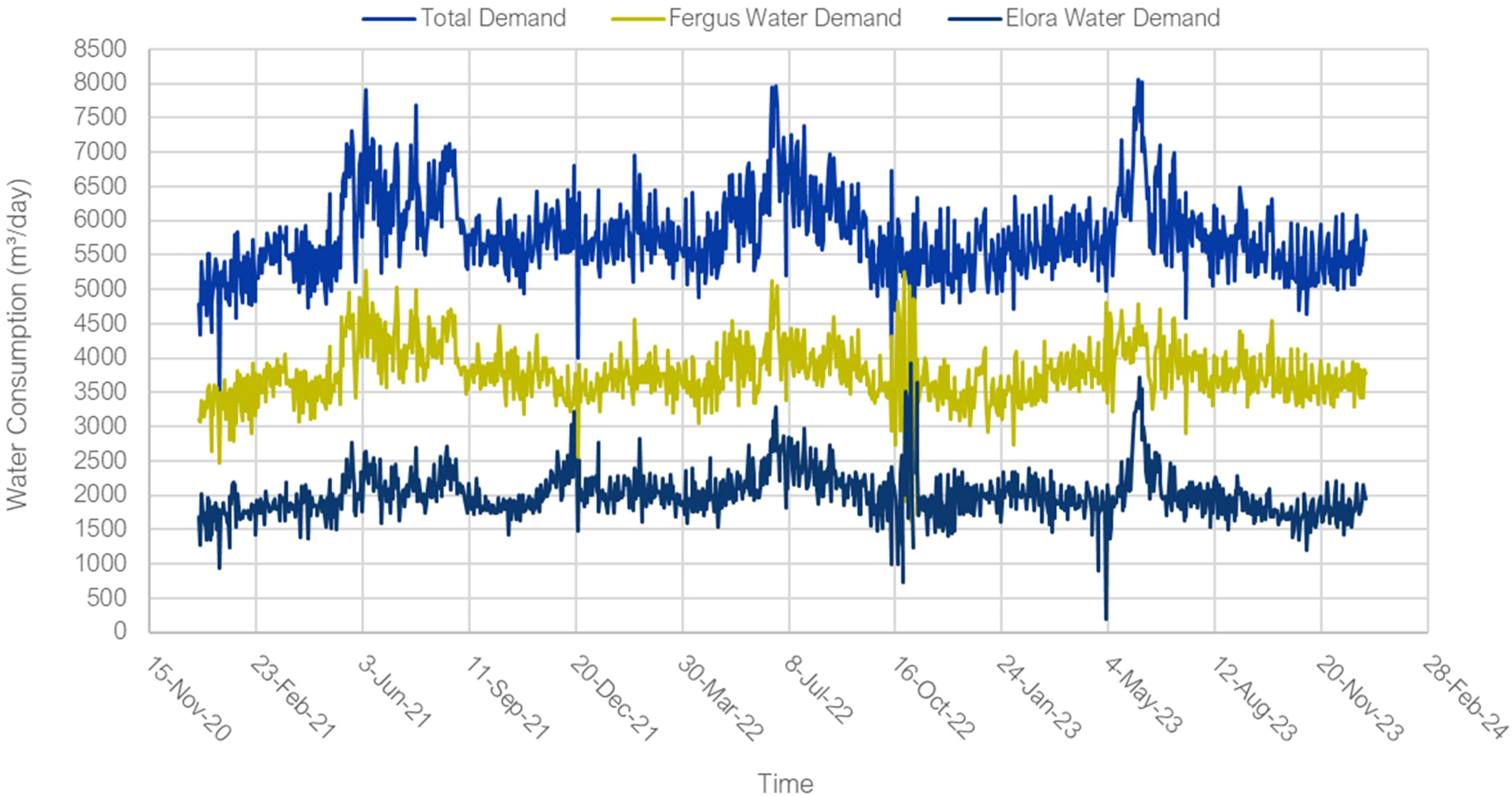


Figure 2-2 Elora/Salem-Fergus DWS Historical Water Demand Trend

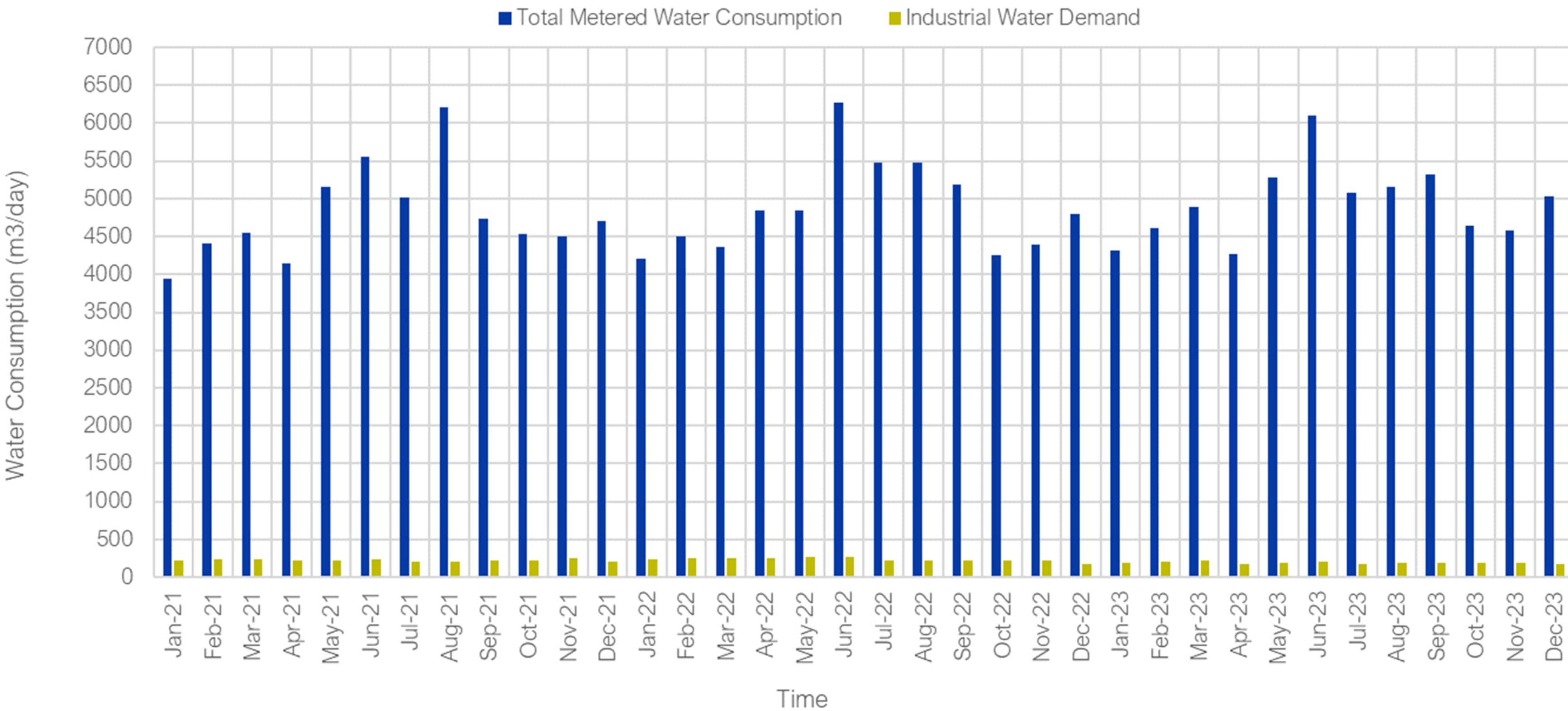


Figure 2-3 Elora/Salem-Fergus DWS Historical Total Water Consumption VS Industrial Water Demand

Per the same Statistic Canada's study, average daily total use per capita of population served (that is, total water consumption including metered and non-metered use), has declined from 332 lpcd in 2011 to 283 lpcd in 2021 in Ontario. The total water use per capita (metered + non-metered water use) for Elora/Salem and Fergus is provided in Table 2.2.

Table 2.2 Total Water Use (including non-metered) per Capita

Parameter	2021	2022	2023	Average
Elora/Salem				
Serviced Population	5,580	6,200	6,820	
ADD (m^3/day)[2]	1,971	2,084	1,955	2,003
ADD lpcd	353	336	287	325
Fergus				
Serviced Population	16,774	16,974	17,174	
ADD (m^3/day)[2]	3,807	3,766	3,776	3,783
ADD lpcd	227	222	220	223

Water consumption from ELE population (population that do not live within the urban boundaries of Fergus and Elora/Salem but work in both centres) contributes to approximately 4% of the total water consumption per the 2021-2023 metered water data. This is illustrated in Figure 202. Therefore, historical ELE water consumption is not considered separately when determining the per capita water consumption as it is negligibly smaller than the residential consumption (96%). Rather, the historical annual water consumption is considered entirely used by the residential population.

2.2 Water System Projection Parameters

For projecting water demand, the total use per capita is used (instead of metered per capita use), because it is assumed that the unaccounted (or non-metered) water will increase in proportion to the population growth.

2.2.1 Elora DWS

Table 2.3 provides the water demand parameters that will be used for projecting future flows. The MDPF for the population of Elora/Salem noted in the Water Guidelines is 2.00, however, the historical average obtained is 1.8. To maintain a conservative forecast, the 2023 MDPF of 1.9, which is closer to the typical value, will be used.

As of 2023:

- The maximum day water demand is at 75% of the total supply capacity of the three Elora/Salem wells;
- The firm capacity of the DWS is **exceeded** by 45%; and
- A surplus of 1,572 m^3 storage volume is available.

Table 2.3 Elora/Salem Historical Water Demand

Year	2021	2022	2023	Average
Supply and Treatment				
A = ADD (m^3/day)	*1,971*	*2,084*	*1,955*	*2,003*
ADD (lpcd)				*280*
B = MDD (m^3/day)	*3,211*	*3,934*	*3,723*	*3,623*
% of Firm Capacity				*145%*
% of Supply Capacity				*75%*
MDPF = B/A	*1.6*	*1.9*	*1.9*	*1.8*
Storage				
Fire Flow (m^3)			*1,811*	
Equalization Storage (m^3)			*931*	
Emergency Storage (m^3)			*686*	
Required Storage (m^3)			*3,428*	
Available Storage (m^3)			*5,000*	
Surplus / Deficit (m^3)			*1,572*	

Water loss data was taken from Water Revenue vs Consumption vs Population excel file provided by the Township. The historical water loss is calculated as the percentage of total supplied water that is unaccounted for. The results are provided in Table 2.4 and shows that average historical water loss is 22%, which exceeds the threshold percentage recommended in the Water Guidelines (15%).

Table 2.4 Elora/Salem DWS Historical Water Loss

Parameter	2021	2022	2023
Total Supplied Water (m^3)	*658,360*	699,796	637,503
Metered Consumption	*515,944*	539,985	532,859
Unaccounted Water Consumption	*133,138*	152,263	99,293

Parameter	2021	2022	2023
Water Loss (%)	*21%*	29%	15%

The Elora/Salem DWS is serviced by a single pressure zone as shown in Figure 2-4. The pressure zone is maintained by the Elevated Storage Tanks 1 and 2, which are located in North Elora and South-East Elora, respectively.

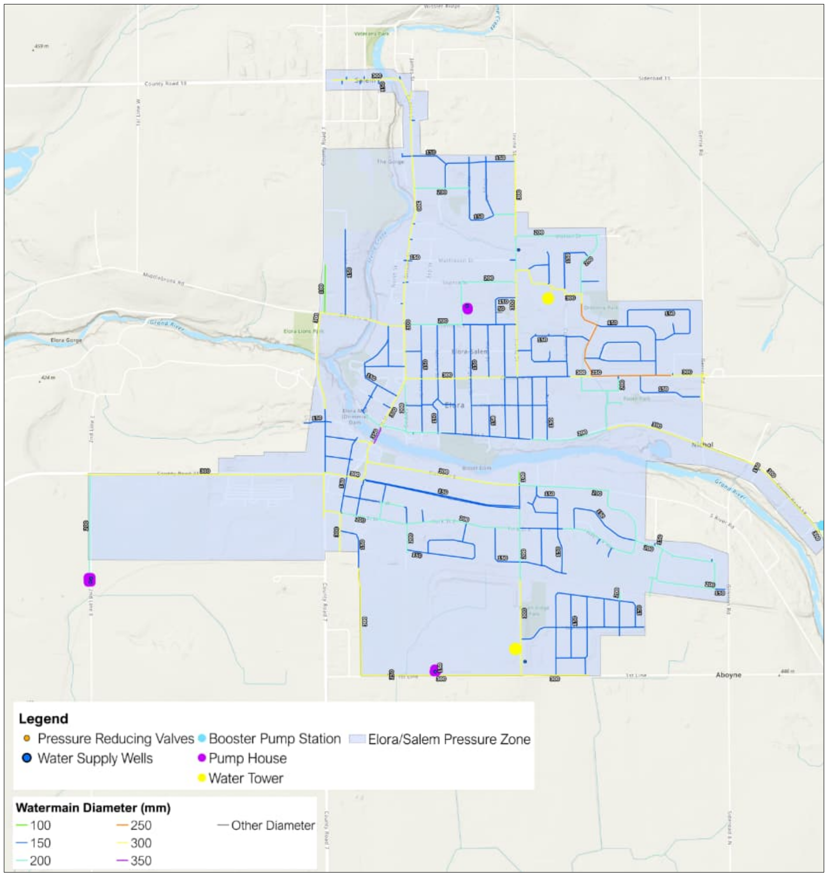


Figure 2-4 Singular Pressure Zone in Elora/Salem

2.2.2 Fergus Drinking Water System

Table 2.5 provides the water demand parameters for Fergus. Typical MDPF for the population of Fergus is 2.00 per the Water Guidelines, however, the historical average obtained is 1.4. To ensure a conservative analysis with the assumption that future water use will reflect typical conditions, Elora/Salem's MDPF of 1.9 will be used for Fergus's projection calculations in TM#3.

As of 2023:

- The maximum day water demand is at 48% of the total supply capacity; and
- A surplus of 941 m^3 storage volume is available.

Table 2.5 Fergus Historical Water Demand

Year	2021	2022	2023	Average
Supply and Treatment				
A = ADD (m^3/day)	*3,807*	*3,766*	*3,776*	*3,783*
ADD (lpcd)				*270*
B = MDD (m^3/day)	*5,273*	*5,255*	*4,799*	*5,109*
% of Firm Capacity				*59%*
% of Supply Capacity				*48%*
MDPF = B/A	*1.4*	*1.4*	*1.3*	*1.4*
Storage				
Fire Flow (m^3)			*3,504*	
Equalization Storage (m^3)			*1,200*	
Emergency Storage (m^3)			*1,176*	
Required Storage (m^3)			*5,879*	
Available Storage (m^3)			*6,820*	
Surplus / Deficit (m^3)			*941*	

Table 2.6 provides historical unaccounted water consumption data for Fergus and shows that water loss has consistently been close to 20% of the system, which exceeds the threshold percentage recommended in the Water Guidelines (15%), beyond which water conservation and distribution rehabilitation measures should be explored.

Table 2.6 Fergus DWS Historical Water Loss

Parameter	2021	2022	2023
Total Supplied Water (m^3)	*1,456,250*	1,435,851	1,461,245
Metered Consumption	*1,128,156*	1,133,892	1,134,238
Unaccounted Water Consumption	*295,225*	279,987	314,121
Water Loss (%)	*20%*	19%	21%

The Fergus DWS consists of a low-pressure zone and a high-pressure zone, as shown in Figure 2-5. The pressure zones are separated via two pressure reducing valves. The high-pressure zone, located in North Fergus, is maintained by Fergus Elevated Storage Tank #1 which is located on Gartshore Street in North Elora. The low-pressure zone is maintained by Fergus Elevated Storage Tank #2 which is located on the East side of Fergus on Scotland Street. Hydrant flow tests conducted in 2020, 2021, and 2023 all indicted water pressures were within the required range as per the design standard.

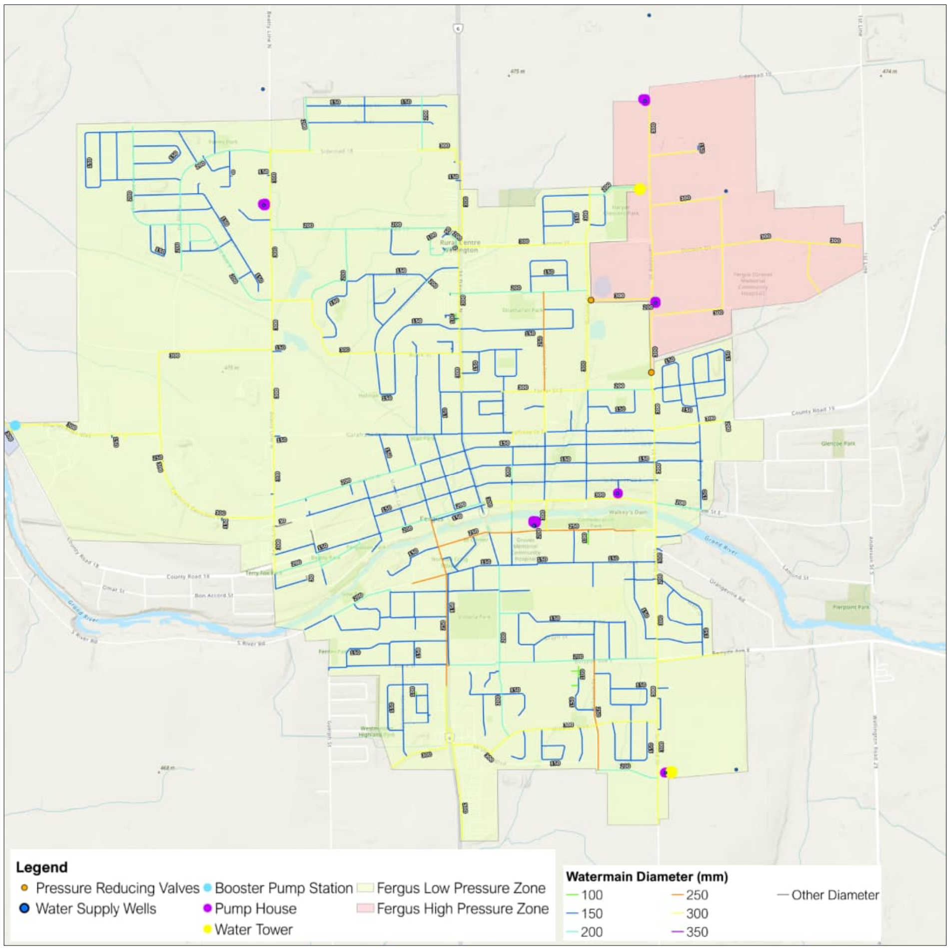


Figure 2-5 Pressure Zones in Fergus

2.3 Water Demand Projection

2.3.1 Forecasted Demand

The water distribution network in Elora/Salem and Fergus are connected by the Wellington Road booster pumping station (BPS). The BPS records the water volumes pumped between the two systems in 5-minute intervals via SCADA and was provided by the Township (as excel files). Water volumes pumped to the Fergus distribution system from the Elora/Salem distribution system (and, by extension, the Elora/Salem supply wells) and vice versa are summarized in Table 2.7 below. As seen, the total volume of water shared annually is negligibly low and does not impact the per capita water usage.

Table 2.7 Water Volumes Shared between Fergus and Elora/Salem per Wellington Road BPS SCADA

Month	2021		2022		2023	
	Elora to Fergus	Fergus to Elora	Elora to Fergus	Fergus to Elora	Elora to Fergus	Fergus to Elora
1	171	0.001	157	0.000	336	0.004
2	171	0.001	130	0.002	292	0.003
3	161	0.002	137	0.002	128	0.003
4	159	0.001	149	0.004	70	19
5	178	0.002	162	0.004	239	98
6	158	0.002	159	0.004	396	0.007
7	167	0.003	162	0.006	162	0.008
8	158	0.003	162	0.006	163	0.012
9	156	0.000	157	0.005	167	0.007
10	113	0.000	383	206	172	0.011
11	131	0.000	230	72	215	0.011
12	257	0.000	262	13	216	0.008
Total	5.42	0.000	6.16	0.80	7.00	0.32

Additionally, since both DWSs share a common municipal licence, the projected water demand will be determined both individually and as a singular system. This allows to for common project opportunities, such as expanding one supply or treatment system that can service both urban settlements, as opposed to two individual expansion projects. For the combined water system, Elora per capita demand (lpcd) is used for a conservative analysis.

2.3.2 Ongoing Water Supply Projects

The 2019 Water Supply Master Plan recommended the Township obtain an additional 7,023 m^3/d of groundwater supply to satisfy the forecasted 2041 water demand and recommended four new preferred well areas (Areas 3, 5, 7, and 8) for further investigation. In response, the Township undertook the New Well Exploration Program Feasibility Assessment (2024) which determined that each well will be able to produce up to 2,592 m^3/d (30 L/s). Per the Township's 10-year Capital forecast, wells in Areas 7, 3, and 5 will be installed in 2027, 2031, and 2034, respectively. As such, the additional capacity of the 3 wells is added to the overall system capacity in the year 2051 scenario in Table 2.8.

Table 2.8 DWS Projected Water and Storage Demand in year 2051

2051 Parameter	Units	Elora	Fergus	Total
Serviced Residential Population	-	11,880	17,174	45,854
Serviced Employment Population	-	985	985	1,970
Total Serviced Population	-	12,865	34,959	47,824
ADD	Lpcd	280	270	280
Historical MDPF	-	1.9		
Water Supply				
MDD	m^3/day	7,154	14,397	21,330
System Firm Capacity	m^3/day	2,573	8,133	13,066
% of Firm Capacity	%	145	177	-8,335
Future System Firm Capacity[1]	m^3/day	[redacted]		20,214
Future Surplus (+)/Deficit (-)	m^3/day			-1,187
Water Storage				
Fire Flow Storage Volume	m^3	2,285	6,415	8,165
Equalization Storage Volume	m^3	1,788	3,599	5,350
Emergency Storage Volume	m^3	1,018	2,504	3,379
Required Storage Capacity	m^3	5,092	12,518	16,894
Available Storage Capacity	m^3	5,000	6,820	11,820
Remaining Available Storage Capacity	m^3	-92	-5,698	-5,074

1: Includes Capacities of Future Wells in Areas 3, 5, and 7.

In April 2025, the Township executed an agreement to purchase the privately held water supply located at 7334 Middlebrook Road as a future water supply source. The timing of when this well will be brought into the Elora/Salem and Fergus Water Supply is not presently known. This Master Plan will only consider the requirement for a watermain connection from this source to the settlement area.

Figure 2-6 shows the projected required water storage capacity required to 2051. As noted, additional storage volume will be required by 2035.

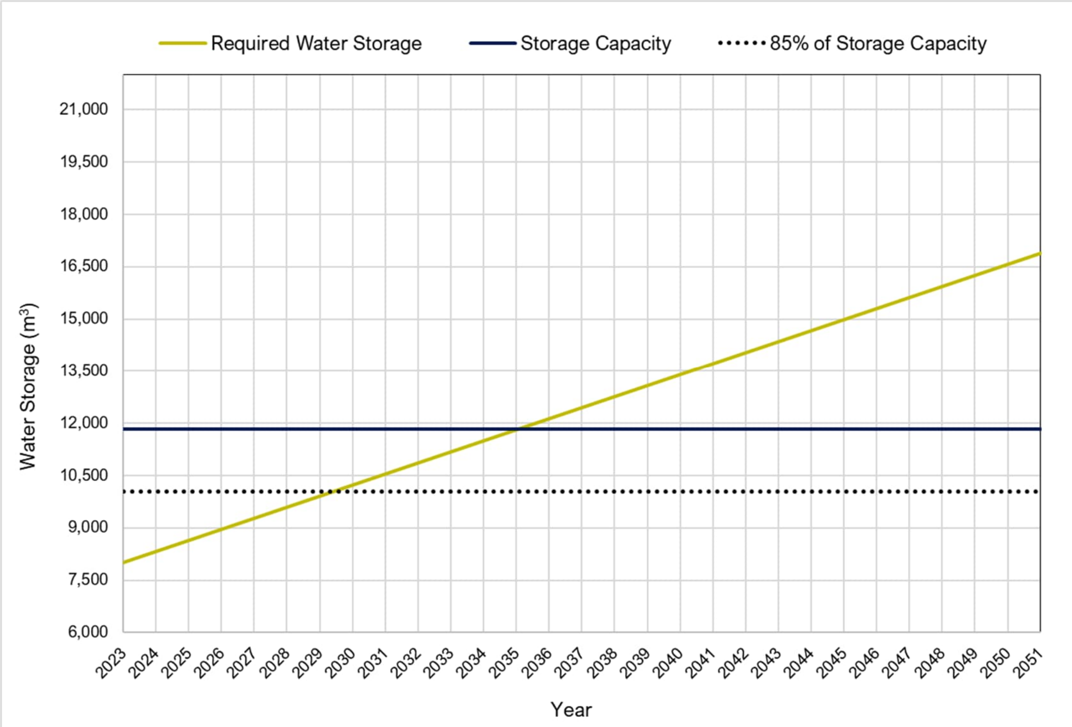


Figure 2-6 Centre Wellington DWS Water Storage Capacity Projections

2.3.3 Committed Capacity

The DWS's committed capacity is calculated per the MECP D-5-1 formula which accounts for current water demand and future forecasted demand from those development plans that are registered or received draft approval for building. For Fergus, population estimated to be allotted within the South Fergus MSP area is not considered as committed lots. Table 2.9 outlines the committed capacity for both urban settlements. The current water demand (MDD) is taken as the historical (2021-2023) MDD, to which the additional water demand from the future committed population is added to.

Table 2.9 DWS Combined Committed Capacity

Parameters	Units	Value
A = Current MDD[1]	m^3/day	8,732
B = Total Additional Committed Population[2]	-	9,240
C = Drinking Water System Supply Capacity[3]	m^3/day	15,030
D = Historical ADD per Capita	m^3/lpcd	0.280
E = MDPF	-	1.9
F = A + (B x D x E) Committed Capacity	m^3/day	13,647

Parameters	Units	Value
C – F = Uncommitted Capacity	m^3/day	1,382

2.3.4 Non-Metered Water Demand

Water loss data was taken from Water Revenue vs Consumption vs Population excel file provided by the Township. The historical water loss is calculated as the percentage of total supplied water that is unaccounted for. The results are provided in Table 2.10 shows that average historical water loss is 20.1 %, which exceeds the threshold percentage recommended in the MECP Guidelines (15%).

Table 2.10 Centre Wellington DWS Historical Water Loss

Parameter	2021	2022	2023
Total Supplied Water (m^3)	2,114,609	2,135,647	2,098,748
Total Non-Revenue Water (m^3)	470,510	461,770	431,651
Metered Consumption (m^3)	1,644,100	1,673,877	1,667,097
Accounted for Non-Revenue Water (m^3)	42,147	29,520	18,238
Unaccounted Water Consumption (m^3)	428,362	432,250	413,414
Water Loss (% of total supplied)	20.3%	20.2%	19.7%

3.0 WATER SERVICING SOLUTIONS

3.1 Approach for Establishing Servicing Strategy

3.1.1 General Servicing Solutions to Review

For municipal infrastructure, the following are the standard solutions recognized by the MCEA that are reviewed for capability to address operational or capacity obstacles to supporting growth:

- General Servicing Solution (GSS) 1 - Do Nothing: This alternative solution is a required baseline condition that considers the anticipated impacts if no remedial or mitigation measures are taken to address the identified issues. Under this scenario, no improvements or changes would be undertaken to address the current and future water supply and storage requirements. Therefore, identified obstacles that prevent growth and development would not be addressed which is contrary to Township's goals and the Official Plan's objectives. Therefore, "Do Nothing" alternative is not an acceptable solution and is not evaluated further.
- GSS 2 - Limit Growth: This alternative solution considers the anticipated impacts if community growth is limited to the existing municipal system capacities. Like the "Do Nothing" alternative, this alternative is contrary to the objectives of the Township and the Official Plan and is not evaluated further.
- GSS 3 – Reduce Consumption: The Township has a program for Water Conservation Education, a new toilet rebate program as well as Outdoor Water Use by-law (99-55) which is being updated in 2025. These programs are designed to reduce unnecessary water use. Infiltration/Inflow reduction into the sewage collection system is being addressed based on a 2019 Inflow & Infiltration Study which as recommended sewer lining projects (per the current 10-year capital budget) and ongoing flow monitoring. These programs should continue and be expanded.
- GSS 4 – Provide Services to Allow for Planned Growth: Based on the requirements, water services can include new water supply (separate initiative per the Township's 2019 Water Supply Master Plan (WSMP)), water storage, water pumping and distribution, etc. Wastewater services and new sanitary sewers, upgrades to existing or new sewage pumping, and wastewater treatment plant expansions.

The Master Plan will focus on providing servicing solutions that allow for planned growth per GSS 4, while continuing and enhancing the existing programs under GSS 3.

3.1.2 Alternative Strategies Development

Development of servicing strategies to meet future growth demands involved formulating alternative solutions that meet the municipal water and wastewater services levels established in Sections 5.1 and 5.2. The alternative solutions are developed based on the following:

- Committed or approved planning projections and associated developments;
- Infrastructure capacities to meet MECP requirements with adequate system security and redundancy; and
- Use of Hydraulic Modelling to assess existing conditions as well as impact of future growth demands on system infrastructure.

3.1.3 Evaluation Criteria Development

3.1.3.1 Longlisted Alternative Strategies

The evaluation process for the proposed alternatives followed a two-step approach. First, a list of alternatives was proposed and compared against the problem and opportunity statement based on criteria listed in Table 3.1. An alternative was not evaluated further if it would not comply with the problem and opportunity statement, had any major constraints, disadvantages, or overall unfeasibility (pre-screening). Following the pre-screening of each alternative, a shortlist of possible alternatives was made. The shortlisted alternatives were evaluated further using typical Class EA evaluation criteria as described in the following sections.

Table 3.1 Pre-Screening Criteria for Proposed Alternatives Evaluation

Alternatives	Pre-Screening Criteria Based on Master Plan Problem and Opportunity Statement			
	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)

3.1.3.2 Shortlisted Alternative Strategies

An evaluation criterion to evaluate the shortlisted alternative solutions was developed based on the MCEA requirements. It comprised of four categories with specific criteria that should be reviewed as listed in Table 3.2.

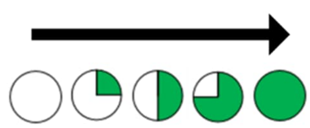
Table 3.2 MCEA Evaluation Criteria

Evaluation Criteria	Criteria Indicators
TECHNICAL	
Impact on Operations and Maintenance	• Maintains or improves current level of operations and maintenance required. • Minimizes complexity of the system. • Minimizes potential risk to operations and maintenance staff health and safety.
Meets Legislated Criteria and Regulations	• Meets all legislated criteria and regulations.
Constructability	• Minimizes logistical constraints such as site access. • Minimizes negative impacts on constructability related to site conditions (i.e., soil quality and topography).
Impact on Existing Infrastructure	• Optimizes use or integration of existing infrastructure. • Aligns with other planned infrastructure as outlined in existing Master Plans and the Capital Plan.
Aligns with Approval and Permitting Process	• Allows for approvals and permits to be obtained in a timely manner.
SOCIAL AND CULTURAL	
Impact on Cultural Heritage Resources	• Minimizes potential impacts to cultural heritage resources.
Impact on Existing Communities, Residential Areas, and Proposed Development	• Minimizes need to acquire land not owned by the Township. • Minimizes negative impacts that may result due to changes in a neighborhood's characteristics.
Minimizes Construction Impacts	• Minimizes impact to nearby neighbours during construction. • Minimizes noise, odour, road closures, and construction traffic during construction. • Minimizes impacts to businesses during construction.
ENVIRONMENTAL	
Impact on Environmental Features	• Protects sensitive natural areas features and GRCA regulated areas. • Minimizes impact to existing terrestrial and aquatic habitats and species.
Impact on Surface Drainage, Groundwater, and Surface Water	• Minimizes impacts within GRCA regulated areas.

Evaluation Criteria	Criteria Indicators
	• Protects groundwater and surface area and follows the Clean Water Act.
Climate Change Resiliency	• Provides resiliency to extreme weather events. • Able to adapt to climate change and the risk associated with a changing climate.
Greenhouse Gases Emissions	• Minimizes GHG emissions and impacts to the environment which may limit the ecosystem’s ability to remove GHGs from the atmosphere.
ECONOMIC	
Best Use of Existing Infrastructure	• Reuses existing infrastructure where possible to reduce energy and material demands.
Provides Low Capital Costs	• Minimizes capital costs.
Provides Low Life-Cycle Costs	• Minimizes operation and maintenance costs.

The evaluation criteria is applied to each alternative solution to rate their ability of meeting the Master Plan’s Problem and Opportunity Statement and narrow down to the preferred solution. Table 3.3 illustrates the rating scale used.

Table 3.3 Evaluation Criteria Measurement

Evaluation Rating Scale		
Highest Impact (Most Negative Solution)		Lowest Impact (Most Positive Solution)

3.1.4 Hydraulic Modeling in Support of Water Master Plan

Appendix 3 contains the Water and Wastewater Servicing Master Plan Hydraulic Model Report. InfoWater Pro hydraulic modeling platform was utilized to develop water distribution systems model for the Elora and Fergus systems. As a first step, a detailed background data was collected which included GIS datasets of the watermains, hydrants, storage facilities, and pumping stations located within the Elora and Fergus. A detailed review of the SCADA data related to the various storage facilities and pump stations was also conducted to develop a thorough understanding of the system operations as well as to use the provided data in the model calibration phase. An extensive field-testing program was also implemented, which involved ten (10) hydrant flow tests and five (5) C-factor tests to assist with the calibration of the hydraulic model.

The calibrated model was utilized to assess the hydraulic performance of the system under existing (2024), 2051, and ultimate build-out demand conditions. Additional scenarios were also simulated to determine the feasibility and assess the impacts of the capital works proposed by the Township, which involved the addition of new water sources (wells) and watermains within the Elora and Fergus water distribution systems. A separate scenario was also completed to determine the feasibility of adding one (1) new booster station between Elora and Fergus, with the intent to provide redundancy in the event the current booster station ever went out of service.

3.2 Water System Alternative Strategies and Recommended Solution

3.2.1 Water Storage

3.2.1.1 Long List Strategies

Table 3.5 evaluates the longlisted strategies for addressing the water storage requirements. General Servicing Solution (GSS)s 1 and 2 are described in Section 5.3 and were screened out. GSS 3 considers reducing future water demand through water conservation and efficient use and these measures will be incorporated into capital works and operations going forward.

Therefore, GSS 4, Provide Services to Allow for Planned Growth is to be implemented and there are two general options for this approach noted below.

Option 1 constitutes building a new storage facility to support the Township's growth. This alternative is shortlisted as a viable strategy, as it sufficiently meets the Master Plan's objectives.

Option 2 constitutes re-building the existing elevated tanks in either Fergus or Elora to expand its capacity. This strategy is screened out under the assumption that the existing storage structures were sized for the load of existing water volume. Any expansion at the existing site will involve complex technical requirements and has a low benefit-cost ratio, due to the following:

- Technical complexity in maintaining the pressure and storage requirements in the distribution network while existing facility is down for the entire duration of construction work;

- Complex constructability sequencing that is typical for projects involving demolition of existing infrastructure while maintaining continued services; and
- Does not allow for future expansion capability due to the limited space available within the existing sites.

Although some cost saving can be expected when building on existing Municipal site (as opposed to land acquisition), the savings are not anticipated to outweigh the costs.

Therefore, Option 2 is chosen to develop a solution to water storage.

Table 3.4 Longlisted Strategy Evaluation for Water Storage Requirements

Criteria / Alternatives:	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)
GSS 3: Reduce Demand via Conservation	✗	✓	✓	Combine with preferred
GSS 4 Option 1: Built New Storage Facility	✓	✓	✓	Yes
GSS 4 Option 2: Expand Existing Storage Facility	✓	✗	✓	No

3.2.1.2 Shortlisted Alternative Strategies

In collaboration with the Township's operating staff, it was determined that the preferred storage facility is a buried reservoir serviced by a BPS. A criteria to determine the preferred location for the new storage facility was established and is shown in Table 3.5.

Table 3.5 Shortlisted Strategy Evaluation for Water Storage Requirements

Criteria	Description
Location	• Since reservoir is to service the three pressure zones in the Township, preferred location will be on the border line between the two pressure zones to minimize the individual watermain extensions required to each zone.

Criteria	Description
	• Preferred location will either be on existing Township property or allow for cost-sharing via development charges; and • Preferred location will be in close proximity to existing large forcemains.
BPS	Due to the elevation differences across the Township including areas of planned growth, there may be a requirement for BPSs. The strategy that requires the least number of BPSs will score the highest.

Based on the above requirements, the following three alternative locations as shown in Figure 3-1 were proposed and reviewed in per the established evaluation criteria:

- Alternative 1 – New Reservoir Bordering on Northwest Fergus Settlement Boundary;
- Alternative 2 – New Reservoir on Township Property within North Fergus Settlement Area; and
- Alternative 3 – Build a New Reservoir Near the Existing Booster Pumping Station

3.2.1.3 Preferred Strategy

The evaluation in Table 3.6 shows that preferred strategy is Alternative 1 – New Reservoir Bordering on the Northwest Fergus Settlement Boundary. A reservoir in this location would require a BPS with two separate pumping systems dedicated to the high pressure and low-pressure zones. The reservoir could be fed by the low-pressure zone, as the two Wells F4 and F6 in the high-pressure zone are dedicated to the Gartshore Tower. The two individual discharge mains from the dedicated pump system are to be connected to the existing distribution network in the respective pressure zones (upstream and downstream of the pressure reducing valves).

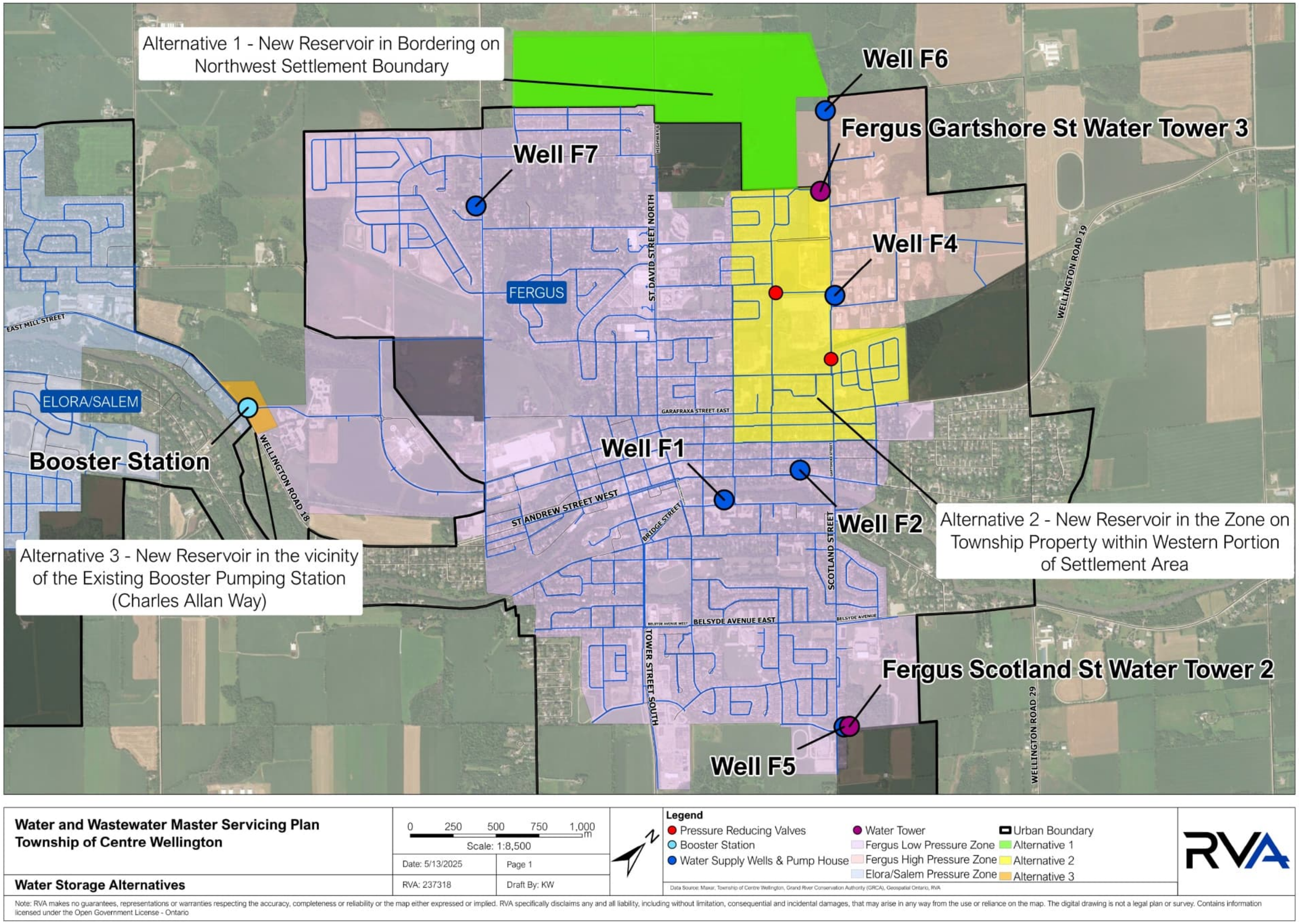
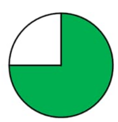
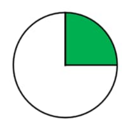
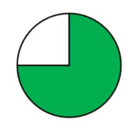
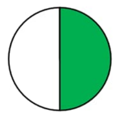
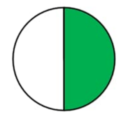
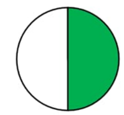
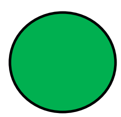
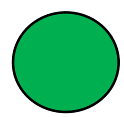
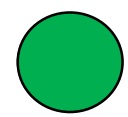
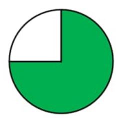
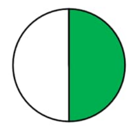
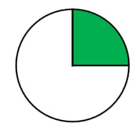
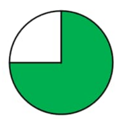
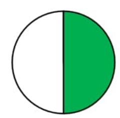
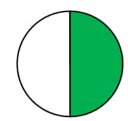


Figure 3-1 Water Storage Options

Table 3.6 Strategy Evaluation for Water Storage Requirements

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
TECHNICAL			
Impact on Operations and Maintenance	Provides redundant supply to high pressure zone	Provides redundant supply to high pressure zone at	Provides redundant connection between both communities
Meets Legislations/Regulations	No issues to meet Legislation and Regulations		
Constructability	No foreseeable constructability issues	Extensive construction sequencing required with new watermains or extensions under existing roads	No foreseeable constructability issues
Impact on Existing Infrastructure	No impact on existing infrastructure.	No impact on existing water infrastructure but existing urban area may be displaced.	No impact on existing infrastructure
Aligns with Approval and Permitting Process	If Township owns the property, works may be considered Exempt per current MCEA process.	Will be built on Township property; however, presence of residential neighbourhood requires a Schedule B Class EA per current MCEA process	Property acquisition requires a Schedule B Class EA per current MCEA process and possibly expropriation.
Score			
SOCIAL AND CULTURAL			
Impact on Cultural Heritage Resources	No anticipated impact on cultural heritage resources. Standard archeological and heritage investigations required.		
Impact on Existing Communities	Can be planned to be built as a future development and not impact existing social and cultural environment.	High potential to disrupt social environment due to placement in existing urban area.	If located on County property to south, it will change aesthetic of entrance to the County’s campus and require a landscape buffer

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
Minimum Construction Impacts	Will have to limit impact to residents if bordering on a property line.		Will have to limit impact to commuters on County Road 18 and those accessing the County's campus.
Score			
ENVIRONMENTAL			
Impact on Environmental Features	No anticipated impact on environmental features.		
Impact on Water Bodies	No anticipated impact on surface drainage, groundwater, and surface water.		
Climate Change Resiliency	Reservoir will be located outside of regulated area and not subject to impacts of flooding.		
Greenhouse Gases Emissions	No difference between GHG emissions between this and the other options.		
Score			
ECONOMIC			
Best Use of Existing Infrastructure	This option is proximate to an existing storage tower and to both Fergus's Pressure zones.	This option is proximate to both pressure zones but may require the relocation of an existing social environment.	This option is proximate to both communities but will require land acquisition

Evaluation Criteria	1-New Reservoir Bordering on the Northwest Settlement Boundary	2-New Reservoir on Township Property within the North Fergus Settlement Area	3-New Reservoir Near Existing Booster Pumping Station
Provides Low Capital Costs	This option is anticipated to have the lowest capital cost as it should not required land acquisition or the relocation of any park land.	This option is anticipated to have a higher capital cost as it may require the relocation of an existing social environment.	This option is anticipated to have a higher capital cost as it requires the coast of land acquisition and the possible loss of residual value from the abandonment of the existing BPS.
Provides Low Life-Cycle Costs	No difference between life cycle costs anticipated between this and the other options.		
Score			
Overall Score	Most Preferred Option 	2^{nd} Preferred Option 	Least Preferred Option 

3.2.2 Water Distribution

3.2.2.1 Review of the Water Distribution System Requirements

Regarding the water distribution system, there are two aspects to address for the planned growth to 2051. These are:

- What are the impacts to the existing distribution system based on the requirement to service population growth within the current boundaries of Elora-Salem and Fergus; and
- What are the new components of the distribution system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing distribution system. Based on our analysis, the existing distribution system can support the anticipated future growth to 2051.

3.2.2.2 Water Distribution System Solutions

There is a need to provide watermain connections from the planned new wells to the distribution system as well as to extend the distribution system to the new areas brought into the 2024 growth boundary, the following watermain projects have been identified. Standard practice is to run watermains along existing road rights of way or other municipality owned rights of way. Therefore, there are no options for watermain connection were considered in the Master Plan other than extending watermains across the existing rights of way. When servicing strategies are developed in detail for the various components of the new areas brought in

to the 2024 growth boundary, a more detailed analysis can be made to confirm if there are more than one option for routing the required watermains to service these new areas.

Table 3.7 summarizes the watermain projects that are required to support the planned growth to 2051. These projects are shown in Figure 3-2.

Table 3.7 Summary of Watermain Projects Identified in the Master Plan

Project Number	Community	Watermain Length (m)	Area Serviced	Description
W-S-L	Elora-Salem and Fergus	500	High Pressure Zone	Connection of New Reservoir to Low Pressure Zone in Fergus

Project Number	Community	Watermain Length (m)	Area Serviced	Description
W-S-H	Fergus	500	Fergus Low Pressure and Elora Zones	Connection of New Reservoir to High Pressure Zone in Fergus
W-E-1	Elora-Salem	200	ER1	New Watermain on First Line at Wellington Rd 7
W-E-2	Elora-Salem	930	ER1	New Watermain on Wellington Rd 7 from First Line to ER1
W-E-3	Elora-Salem	1,175	ER1	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W
W-E-4	Elora-Salem	360	ER1	New Watermain on East limits of existing Main on First Line
W-E-5	Elora-Salem	1,000	New Well Supply to Communities	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.
W-E-6	Elora-Salem	2,000	New Well Supply to Communities	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5
W-E-7	Elora-Salem	410	Growth within existing urban area	New Watermain on Irvine St from Bricker Ave to Woolwich St.
W-E-8	Elora-Salem	630	Growth within existing urban area	New Watermain on Woolwich St. E from Irvine St to James St.
W-E-9	Elora-Salem	3,050	New Well Supply to Communities	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3
W-E-10	Elora-Salem	2,050	New Well Supply to Communities	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd

Project Number	Community	Watermain Length (m)	Area Serviced	Description
W-E-11	Elora-Salem	1,000	New Well Supply to Communities	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location
W-F-1	Fergus	690	FE3	New Watermain on HWY 6 from FE3 to Second Line
W-F-2	Fergus	690	FE3	New Watermain on Jones Baseline from FE3 to Second Line
W-F-3	Fergus	1,050	FE3 and FE4	New Watermain on Second Line from Jones Baseline to HWY 6
W-F-4	Fergus	1,050	FE3	New Watermain on Second Line from HWY 6 to Guelph St.
W-F-5	Fergus	1,025	FE3	New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S
W-F-6	Fergus	670	FE3 and FE4	New Watermain on HWY 6 from Second Line to existing main
W-F-7	Fergus	750	FE3 and FE4	New Watermain on Scotland St from Second Line to existing main
W-F-8	Fergus	325	FE3	New Watermain connecting McQueen Blvd to Guelph St.
W-F-9	Fergus	830	FE3	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.
W-F-10	Fergus	180	Growth within existing urban area	New Watermain on St. George St. W from Maple St. to Beatty Line
W-F-11	Fergus	530	FE5	New Watermain on East limit of existing watermain on Garafraxa St. to FE5
W-F-12	Fergus	600	Growth within existing urban area	New Watermain on Sideroad 18 from Vincent St. to Steele St.

Project Number	Community	Watermain Length (m)	Area Serviced	Description
W-F-13	Fergus	1,080	New Well Supply to Communities	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15
W-F-14	Fergus	1,000	New Well Supply to Communities	New Watermain on Sideroad 15 from Beatty Line to New Well 7

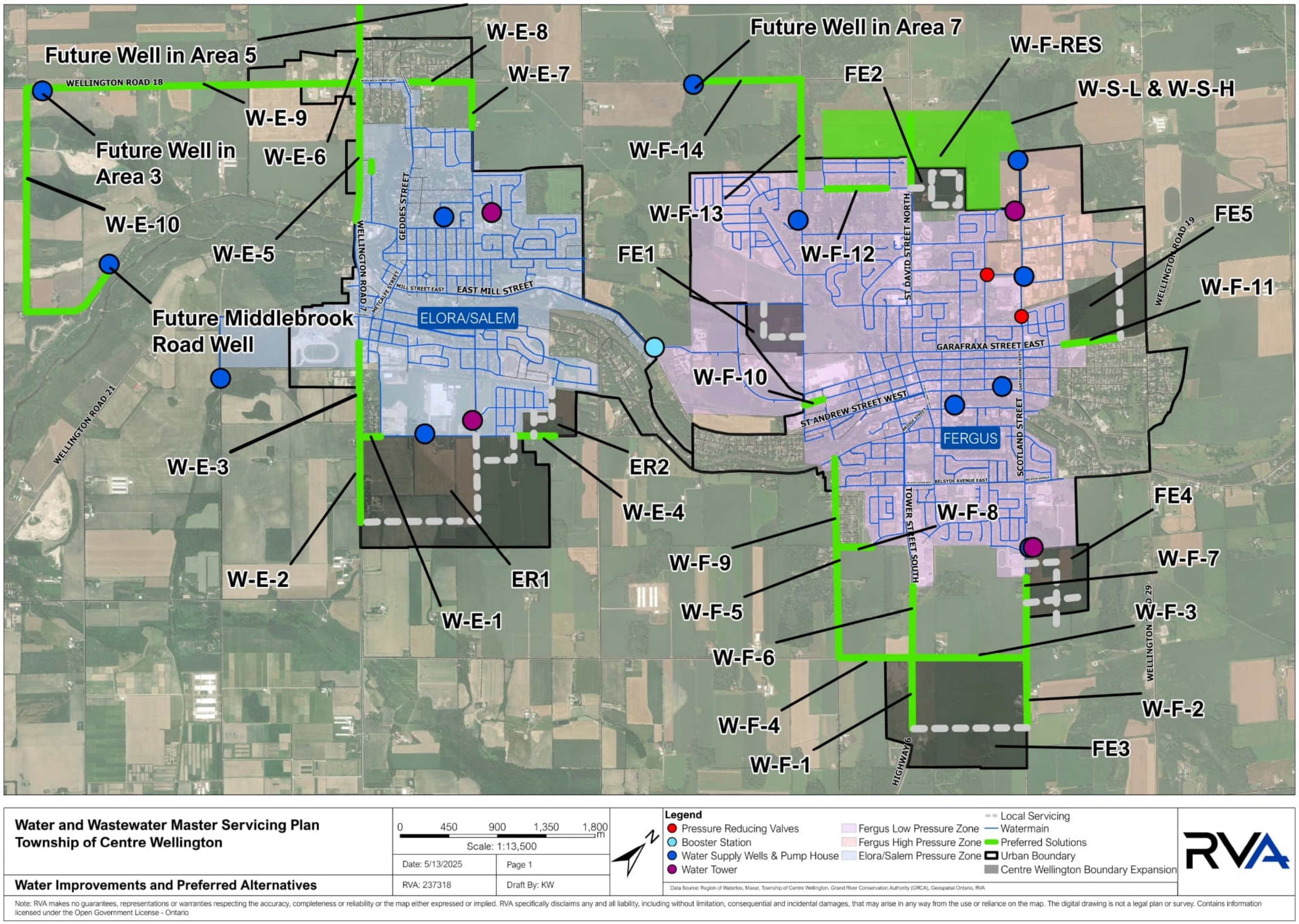


Figure 3-2 Proposed Watermains for Servicing to 2051

4.0 WATER RISK AND SYSTEM MANAGEMENT

4.1 Water Risk Review - Second Connection between Elora and Fergus

4.1.1 Requirement and Concept for Connection

The Township would like to consider a second connection between the Elora and Fergus distribution networks to provide additional security to the system as part of their risk management study. Risk management involves managing risk to reduce the severity and frequency of an event impacting the health, safety and financial security of the owner of infrastructure and its uses.

It would be anticipated that approximately 950 m of 300 mm watermain would be required for a redundant connection as this is the current size of the existing connection. This would run east from the 300 mm watermain stub in Elora at the intersection of Gerrie Road and Colborne Street to the 300 mm watermain stub in Fergus at the intersection of the entrance to the Storybrook Subdivision. To match the performance of the existing connection between the Elora and Fergus a booster station would be required on the new connection. Figure 4-1 shows the proposed connection location.

4.1.2 Frequency of a Potential Watermain Break

For this size and application, practice since the 1980's is to install watermains of PVC pressure pipe (per AWWA standard C900). Typically, PVC pressure pipe is corrosion resistant and is anticipated to have a service life in the order of 80 to 100 years. Failure of PVC pipe is typically related to installation practices such as poor pipe bedding construction, damage of the pipe during installation, or improper alignment of pipe joints (*USEPA Primer on Condition Curves for Water Mains, 2013*). Current Township and Ontario standards for watermain installation are designed to prevent this type of failure provided adequate inspection and quality testing is undertaken during construction.

The current 300 mm watermain on Wellington Road 18 from Gerrie Road (Elora) east to Charles Allan Way is 20 years old, and the current 300 mm watermain on Charles Allan Way/Fredrick Campbell Street from Wellington Road 18 from Charles Allan Way east to Beatty Line (Fergus) is 10 years old. These sections of watermain would be expected to have a remaining lifespan free of breakage of 80 to 90 years. Therefore, the frequency of a potential main break would be low.

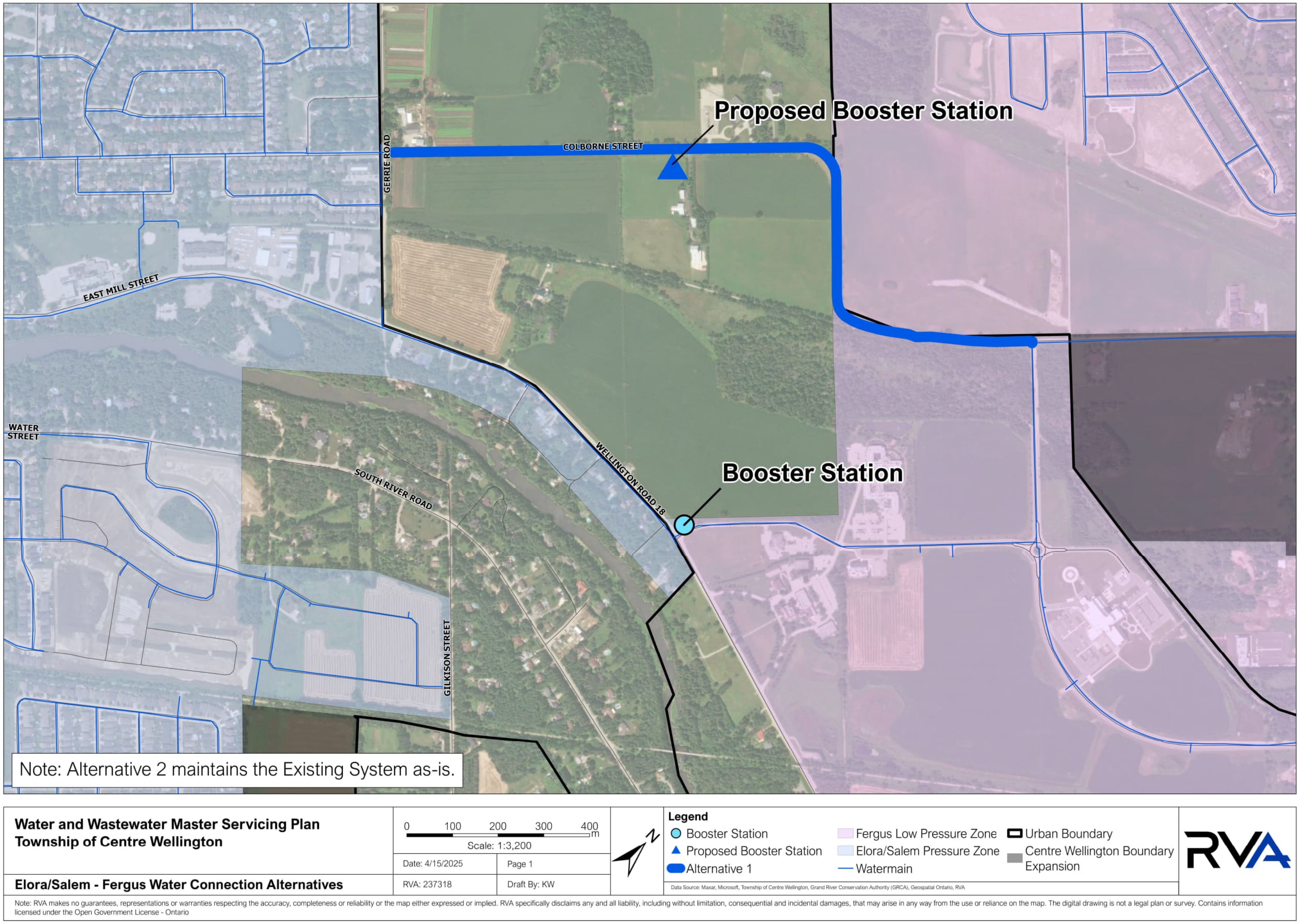


Figure 4-1 Proposed Location of Second Watermain Connection between Elora and Fergus

4.1.3 Severity of a Potential Watermain Break

Should a main break occur, it would be between Gerrie Road (Elora) and Beatty Line (Fergus), it would be anticipated that the break would be fixed within 24 hours as the 300 mm watermain size is a common size where pipe and fittings can be obtained from suppliers within the region within a short time.

The water distribution system and wells will be isolated on either side of the break and Table 4.1 summarizes the current capacities of each part of the system.

Table 4.1 Current Well Capacity for Elora and Fergus

Elora [a]		Fergus [b]	
Well	Capacity (m^3/d)	Well	Capacity (m^3/d)
E1	1,741	F1	1,833
E2	1,964	F2	409
E3	1,228	F4	1,964
Total	4,933	F5	1,963
Firm Capacity (E2 out of service)	3,705	F6	1,964
		F7	1,964
		Total	10,097
		Firm Capacity (F7 out of service)	8,133

a - Inputs from Future Area 3 and 5 wells are not included
b- Input from Future Area 7 well is not included

In the event of a watermain break the normal practice for a municipality is to put out an advisory to residents and employers to voluntarily reduce water use via social media, traditional media and on the Township website. From experience in Ontario, such calls are generally heeded and water demand can be reduced to below average day demand and in most cases the demand will approach minimum demand. Table 4.2 details the anticipated Minimum Day Demand (Min. DD) and the ADD for each system in 2023 and in 2051.

Table 4.2 Expected Range of Flow During Watermain Break (m^3/d)

Elora		Fergus	
2023 Min. DD [a]	1,406	2023 Min. DD	3,095
2023 ADD	1,955	2023 ADD	3,776
2051 Min. DD	2,449	2051 Min. DD	5,039
2051 ADD	3,405	2051 ADD	6,794

a- Minimum Daily Flow which is based on average of 10 lowest flows in 2023

4.1.4 Meeting Future Maximum Day and Fire Flows

The hydraulic modeling undertaken has indicated that water distribution pressures under the 2051 Peak Hour demand scenario can be met without a second connection. The hydraulic modeling undertaken has indicated that fire flows under the 2051 Maximum Day demand scenario are adequate without a second connection.

4.1.5 Future Connection Cost for a Second Connection

The estimated capital cost for the additional connection is shown in Table 4.3. The total cost is estimated to be $5.5 million.

Table 4.3 Capital Cost (2025 dollars not including HST)

Component	Unit	Unit Cost	Total
New watermain (installation, appurtenances, road rehabilitation)	1000	$1,750	$1,750,000
Township Portion for Oversized Watermain through development (installation, appurtenances, road rehabilitation)	750	$875	$656,250
Booster Pumping Station	L.S.	$2,000,000	$2,000,000
Land Acquisition for BPS (450 m2)	L.S.	$500,000	$500,000
Engineering	L.S.	$570,000	$570,000
		Total (-30%/ +50%)	$5,476,250

4.1.6 Conclusion

The risks from a watermain break on the existing connection line can be managed with the existing well supplies in Elora and Fergus until 2051. The second connection does not provide improvements to the required services pressures or fire flows under the 2051 demand scenarios. Therefore, the cost of implementing a second connection and a booster pumping station outweighs its usefulness for risk management or service improvement.

4.2 Water System Management

4.2.1 Water Distribution System Modeling

It would be recommended that the Township provide an allotment of $75,000 every five years over the Master Plan period to keep the current water hydraulic model up to date based on water taking data, meter data and changes to the distribution system.

4.2.2 District Metering

Due to the water loss rates noted as being greater than 15% of total water produced, it is recommended that the Township look at long term leakage monitoring. within the water distribution system. This requires the installation of flow meters at strategic points throughout the distribution system, each meter recording flows into an isolated area which has a defined and permanent boundary. Such an area is called a District Metered Area (DMA). District meters should be included in all new development areas and constructed in accordance with Township specifications. DMAs will be considered as a local service, with construction and commissioning costs paid for by developers.

5.0 WATER CAPITAL PROGRAM

Appendix 6 provides project cost sheets for each water and wastewater project that has been identified to better define the scope of work and cost that is anticipated for each project.

5.1 Costing Presented in the Master Plan

ASTM E 2516 (Standard Classification for Cost Estimate Classification System) provides a five-level classification system based on several characteristics, with the primary characteristic being the level of project definition (i.e., percentage of design completion). The ASTM standard, shown in Table 5.1 illustrates the typical accuracy ranges that may be associated with the general building industries.

Table 5.1 ASTM E2516 Accuracy Range of Cost Opinions for General Building Industries

Cost Estimate Class	Expressed as % of Design Completion	Anticipated Accuracy Range as % of Actual Cost
5	0-2	-30 to +50
4	1-15	-20 to +30
3	10-40	-15 to +20
2	30-70	-10 to +15
1	50-100	-5 to +10

The cost estimates developed in this report would be best described as a Class 5 Cost Estimate which is typically used for high level study project. Cost opinions are in 2025 dollars and reflect the reduced HST payable by the Township.

5.2 Overall Water Servicing Strategy Description

The preferred water servicing strategy identified in Section 6 is intended to meet the drinking water system requirements of Township of Centre Wellington to 2051. The recommended solutions were established in consultation with the Township on the basis of the Master Plan Goals that were established for this project.

The recommended strategy prioritized various implementation undertakings to provide for sufficient water supply (per the recommendations of the Township’s 2019 Water Supply Master Plan), storage and flow and pressure to the target year of 2051. As well, the preferred water servicing alternative solution also serves to address risk (i.e. redundancy, reliability, etc.) within the Township-wide municipal drinking water system. The preferred servicing strategies are implemented on a timeline established in accordance with each project’s MCEA schedule.

The anticipated timing of each project within the Preferred Strategy has been established based on the projected population and employment growth within the Township. The timelines are categorized as following:

- Short – term period from 2025 to 2023; and
- Long-term period from 2034-2051.

When community water demands approach 85% of the capacity limit for a given water system, undertakings should be considered to expand/increase the DWS capacity. This industry standard benchmark is intended to help operators maintain sufficient operating capacities of the DWS as a whole and individual water system components. Accordingly, the project schedule – which is subject to refinement – was developed such that new water system expansion project will begin operation when the driver established for its requirement has manifested.

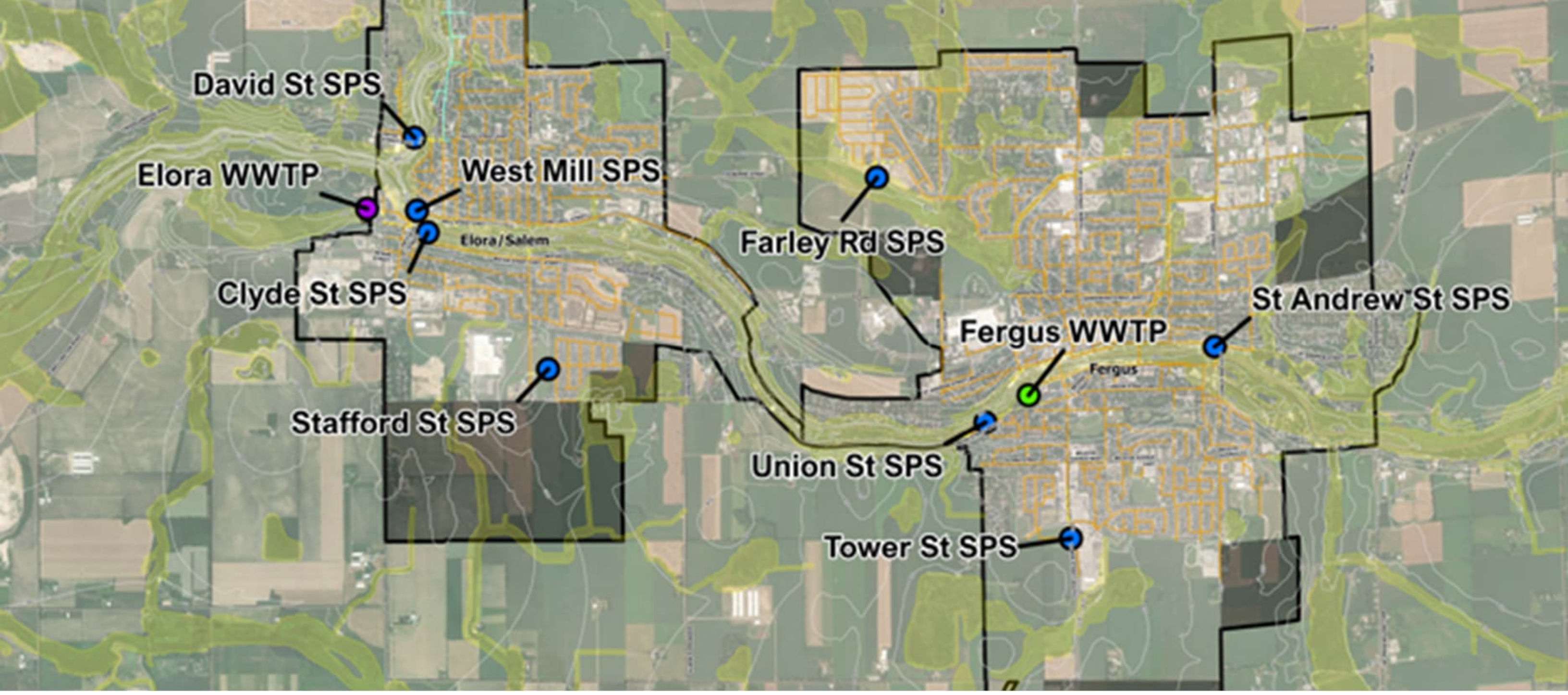
5.3 Recommended Water Projects

Table 5.2 summarizes the costs for the recommended water projects that have been identified in this Master Plan.

Table 5.2 Recommended Water Projects

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
W-F-RES	Fergus	W	Vertical	New Water Reservoir in Fergus	2030	2035	$14,560,000	$1,100,000	$15,660,000	Total Growth	Total Growth
W-S-L	Fergus	W	Linear	Connection of New Reservoir to Low Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-S-H	Fergus	W	Linear	Connection of New Reservoir to High Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-E-1	Elora-Salem	W	Linear	New Watermain on First Line at Wellington Rd 7	2035	2037	$570,000	$0	$570,000		ER1
W-E-2	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to ER1	2035	2037	$1,950,000	$0	$1,950,000		ER1
W-E-3	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W	2035	2037	$2,210,000	$0	$2,210,000		ER1
W-E-4	Elora-Salem	W	Linear	New Watermain on East limits of existing Main on First Line	2035	2037	$1,040,000	$0	$1,040,000		ER2
W-E-5	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.	2031	2033	$2,090,000	$0	$2,090,000	Total Growth	Total Growth
W-E-6	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5	2031	2033	$4,090,000	$0	$4,090,000	Total Growth	Total Growth
W-E-7	Elora-Salem	W	Linear	New Watermain on Irvine St from Bricker Ave to Woolwich St.	2034	2036	$910,000	$0	$910,000	Total Growth	Total Growth
W-E-8	Elora-Salem	W	Linear	New Watermain on Woolwich St. E from Irvine St to James St.	2034	2036	$1,620,000	$0	$1,620,000	Total Growth	Total Growth
W-E-9	Elora-Salem	W	Linear	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3	2031	2033	$6,510,000	$0	$6,510,000	Total Growth	Total Growth
W-E-10	Elora-Salem	W	Linear	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd	2031	2033	$4,510,000	$0	$4,510,000	Total Growth	Total Growth
W-E-11	Elora-Salem	W	Linear	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location	2031	2033	$2,400,000	$0	$2,400,000	Total Growth	Total Growth
W-F-1	Fergus	W	Linear	New Watermain on HWY 6 from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000		FE3
W-F-2	Fergus	W	Linear	New Watermain on Jones Baseline from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000		FE3
W-F-3	Fergus	W	Linear	New Watermain on Second Line from Jones Baseline to HWY 6	2034	2036	$2,190,000	$0	$2,190,000		FE3
W-F-4	Fergus	W	Linear	New Watermain on Second Line from HWY 6 to Guelph St.	2034	2036	$1,530,000	$0	$1,530,000		FE3
W-F-5	Fergus	W	Linear	New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S	2034	2036	$2,660,000	$0	$2,660,000		FE3
W-F-6	Fergus	W	Linear	New Watermain on HWY 6 from Second Line to existing main	2034	2036	$1,430,000	$0	$1,430,000		FE3
W-F-7	Fergus	W	Linear	New Watermain on Scotland St from Second Line to existing main	2031	2033	$1,590,000	$0	$1,590,000		FE4
W-F-8	Fergus	W	Linear	New Watermain connecting McQueen Blvd to Guelph St.	2034	2036	$880,000	$0	$880,000		FE3
W-F-9	Fergus	W	Linear	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.	2034	2036	$2,100,000	$0	$2,100,000	Total Growth	Total Growth

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
W-F-10	Fergus	W	Linear	New Watermain on St. George St. W from Maple St. to Beatty Line	2028	2030	$520,000	$0	$520,000	Total Growth	Total Growth
W-F-11	Fergus	W	Linear	New Watermain on East limit of existing watermain on Garafraxa St. to FE5	2034	2036	$1,430,000	$0	$1,430,000		FE5
W-F-12	Fergus	W	Linear	New Watermain on Sideroad 18 from Vincent St. to Steele St.	2033	2035	$1,540,000	$0	$1,540,000	Total Growth	FE2
W-F-13	Fergus	W	Linear	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15	2027	2029	$2,250,000	$0	$2,250,000	Total Growth	Total Growth
W-F-14	Fergus	W	Linear	New Watermain on Sideroad 15 from Beatty Line to New Well 7	2027	2029	$2,090,000	$0	$2,090,000	Total Growth	Total Growth
Total Identified Projects:							$68,850,000	$1,100,000	$69,950,000		



TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 5

Wastewater Master Plan Technical Report

June 30, 2025

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PROUDLY 100% CANADIAN

WATER AND WASTEWATER SERVICING MASTER PLAN

WASTEWATER MASTER PLAN

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1.0 Introduction

1.1 Water and Wastewater Servicing Master Plan

The Township of Centre Wellington (Township) is undertaking a Water and Wastewater Servicing Master Plan (WWSMP) which R.V. Anderson Associates Limited (RVA) was retained by Centre Wellington to complete. The current WWSMP is being prepared in accordance with the requirements of the Municipal Engineers Association (MEA) Municipal Class Environmental Assessment (Class EA) for Master Plans. The 2025 WWSMP will cover Phases 1 and 2 of the Class EA process. The WWSMP will be carried out under Approach #1 as described in Section 4.4 of the MEA Class EA document.

To meet the future growth of the community up to 2051, this WWSMP will identify short-term and long-term strategies for expanding the water and wastewater servicing infrastructure. The water and wastewater servicing solutions should be technically feasible, as well as financially, socially and environmentally sustainable. The WWSMP will identify capacity constraints of the water and wastewater systems for both linear and vertical assets. Preferred solution(s) will be prioritized and implemented in phases to address short-term and long-term needs, and shall:

- Comply with applicable regulations to provide adequate water and wastewater servicing;
- Consider rightsholder and stakeholder comments and concerns;
- Aim to build climate change resiliency;
- Reduce system complexity and improve ease of operations;
- Aim to improve existing levels of servicing; and
- Consider realistic design criteria
    - Be financially viable and reduce lifecycle cost,
    - Be socially and environmentally sustainable.

1.2 Current Municipal Wastewater Collection and Treatment System

1.2.1 Water Supply and Distribution

Centre Wellington's wastewater treatment and collection network consists of:

- 105 km of Gravity Mains;
- 2.4 km of Pressure Mains;
- 5.3 km of Low Pressure Main;
- 1570 Maintenance Holes;
- 6 Low Pressure System (LPS) Air Release Valves;
- 53 LPS Cleanout Valves;
- 223 LPS Shutoff Valves;
- 7 Pumping Stations;
- 2 Treatment Plants;
- 2 Sewer Bridge Crossings of River; and
- 2 Siphon Crossings of River.

1.2.2 Sewage Pumping Station

Table 1.1 lists the sewage pumping stations (SPS) and associated capacities servicing both Elora/Salem and Fergus.

Table 1.1 SPSs Servicing Communities of Elora/Salem and Fergus

SPS	Equipment	Firm Capacity (m^3/d)	Overflow Discharge
Elora / Salem			
West Mill	• 2 pumps (1 duty / 1 standby) • 1 wet well (70.8 m^3)	1,382	Grand River
Clyde Street	• 3 pumps (1 duty / 2 standby) • 2 wet wells (43.9m^3)	Duty: 5,184 Standby: 2 x 15,000	Grand River
Fergus			
St Andrew Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (97.3m^3)	3,020	Grand River

SPS	Equipment	Firm Capacity (m^3/d)	Overflow Discharge
Stafford Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (75.4 m^3)	1,860	Southridge Stormwater Pond 1A
Tower Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (75.4 m^3)	3,499	Swan Creek
David Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (13m^3)	1,296	Irvine Creek
Union Street	• 2 pumps (1 duty, 1 standby) • 1 wet well (14.6 m^3)	Not rated	Grand River

1.2.3 Elora Wastewater Treatment Plant

The Elora WWTP is a Class III facility that was built in 1963, followed by an expansion and re-rating in 1980 and new facility in 2014. The facility is an Extended Aeration treatment plant with a rated average day flow (ADF) capacity of 5,000 m^3/d and comprises of preliminary treatment provided by a screening and grit removal system, biological treatment by plug flow-type extended aeration tanks, solid-liquid separation by secondary clarifiers, tertiary filtration via sand beds, disinfection via UV system and sludge stabilization via Lystek.

1.2.4 Fergus Wastewater Treatment Plant

The Fergus WWTP is a Class IV facility and was built in 1961. The facility is a Conventional Activated Sludge (CAS) plant with a rated ADF capacity of 8,000 m^3/d, and comprises of a preliminary treatment system via a screening and grit removal system, followed by two treatment trains including:

- Primary treatment via clarifiers with raw sludge and scum removal;
- Biological treatment in aeration tanks and solid – liquid separation in secondary clarifiers;
- Tertiary filtration via sand filters and disinfection via UV system; and
- Sludge stabilization via digestors.

1.3 Wastewater Collection and Treatment Level of Service

1.3.1 Guidelines and Water Use Sources

WWTSs comprise of the collection system and the treatment plant. Collection systems include both gravity- and force- (pumped) sewer mains, and sewage pumping stations that are connected to sewer mains and pump the flows to the WWTPs. The criteria used to obtain and analyse the parameters for the WWTSs is compiled from the following standards and guidelines:

- Centre Wellington Development Standards;
- Ontario Design Guidelines for Sewage Works (MECP Guidelines) as amended in 1984 and 2008; and
- Wastewater Treatment Fundamentals published by Water Environment Federation (WEF Guidelines).

1.3.2 Wastewater Treatment System Infrastructure Sizing

Table 1.2 summarizes definitions of the key wastewater flow parameters that will be used for this Masterplan and the sources they are obtained from.

Table 1.2 WWTS Design Parameters (MECP Guidelines)

Parameter	Definition	Source
Rated Capacity	Rated capacity of sewage treatment plants is defined as the average daily flow which the sewage treatment works have been approved to handle.	WWTP ECA
Average Day Flow (ADF)	Cumulative total sewage flow to the sewage works during a calendar year, divided by the number of days during which sewage was flowing to the sewage treatment works that year.	Annual Performance Report
Maximum Day Flow (MDF)	Largest volume of flow received during a one-day period expressed as a volume per unit time.	
Dry Weather Flows (DWF)	The DWF is the lowest daily average flow in a year, thereby a day that has undergone the least infiltration.	Flow Monitoring Data and Effluent Flow Meter
Extraneous Flows	Flows contributed only from rain inflow and ground water infiltration (I&I), calculated as: MDF – DWF. Typically analyzed as the flow volume of	

Parameter	Definition	Source
	I&I contributed per hectare of serviced area (L/ha/s)	
Maximum Day Peaking Factor (MDPF)	$\text{MDPF} = \frac{\text{MDF}}{\text{ADF}}$	-
Peak Flows	Largest flow over a specific time interval (hourly or instantaneous) in a year.	Flow Monitoring Data and Effluent Flow Meter

A key direction for WWTSs is using real date of flow rates and sewage characteristics in both wet and dry conditions, if possible. Per the MECP guidelines,

- Collection systems are to be sized for ultimate sewage flows or peak flows that include extraneous or wet-weather flow events that comprise of Infiltration from rain and Inflow from groundwater (I&I); and

Wastewater treatment plants are rated for ADF, with individual unit-treatment processes to be sized for peak flows.

2.0 DETERMINATION OF WATER DEMAND

2.1 Elora/Salem Historical Wastewater Flows

Table 2.1 provides Elora's historical wastewater flow data from 2021 – 2023. Figure 2-1 is a graph providing flow data on a 5-minute interval basis as collected by the Parshall flume at the Elora WWTP. Three outliers are identified based on the flows on the preceding and succeeding days as follows:

- August 9, 2022, a flow of 499.6 L/s is recorded at 2:50 PM, however, 5 minutes before and after that time, flows of 13.9 L/s and 16.4 L/s is recorded respectively;
- August 9, 2023, a flow of 375.0 L/s is recorded, but flows 5 minutes before and after are 132 L/s and 0 L/s respectively; and
- August 18, 2023, a flow of 375.0 L/s is recorded but flows 10 minutes before and after are 23 L/s and 20L/s respectively.

Additionally, Elora WWTP receives flow from only two upstream sources – the Clyde SPS that has a maximum capacity of 173.6 L/s, and the Elora Gorge Conservation Area that discharges a much lower flowrate. As such, the values listed above can be taken as outliers since they exceed the capacity of the pumps. The outliers are marked in the graph. The historical peak instantaneous flow (PIF) is then taken as the second largest recorded flows from the 5-minute interval data and are listed in Table 2.2.

The Peak Hourly Flow (PHF) is generally assumed to occur during the PIF, however, it is not always the case. Upon comparing the 5-minute interval data to the Clyde SPS flow data records, it was found that the annual PHF occurred on the largest day flow (MDF) recorded by the Clyde SPS (SPS data sheets provided by the Township) but did not coincide with the hour when the PIFs occurred. This is seen in Table 2.1 below, which shows that while the PIF of 193 L/s occurred in August 26, the actual PHF in year 2023 actually occurred on April 1.

Table 2.1 Elora WWTS Peak Flow Data Analysis

Year	Month	Day	Time	Effluent Flow	Raw Water From GRCA Flow	EWWTP Influent Flow
2023 PIF occurred on August 26, 2023						
2023	8	26	5:15:00 AM	26.1	0	26.1
2023	8	26	5:20:00 AM	76.5	0	76.5
2023	8	26	5:25:00 AM	7.1	0	7.1

Year	Month	Day	Time	Effluent Flow	Raw Water From GRCA Flow	EWWTP Influent Flow
2023	8	26	5:30:00 AM	0.0	0	0.0
2023	8	26	5:35:00 AM	40.9	3	43.8
2023	8	26	5:40:00 AM	65.9	0	65.9
2023	8	26	5:45:00 AM	193.0	0	193.0
2023	8	26	5:50:00 AM	128.7	2	131.0
2023	8	26	5:55:00 AM	45.4	1	46.5
2023	8	26	6:00:00 AM	35.4	0	35.4
2023	8	26	6:05:00 AM	66.9	0	66.9
2023	8	26	6:10:00 AM	65.9	3	68.4
					Peak Hourly Flow (L/s)	63.4
2023 PHF occurred on April 1, 2023						
2023	4	1	4:00:00 AM	101.1	0	101.1
2023	4	1	4:05:00 AM	99.5	0	99.5
2023	4	1	4:10:00 AM	35.3	0	35.3
2023	4	1	4:15:00 AM	55.3	0	55.3
2023	4	1	4:20:00 AM	120.5	0	120.5
2023	4	1	4:25:00 AM	107.4	0	107.4
2023	4	1	4:30:00 AM	105.5	0	105.5
2023	4	1	4:35:00 AM	105.1	0	105.1
2023	4	1	4:40:00 AM	104.6	0	104.6
2023	4	1	4:45:00 AM	37.8	0	37.8
2023	4	1	4:50:00 AM	54.9	0	54.9
2023	4	1	4:55:00 AM	123.8	0	123.8
					Peak Hourly Flow (L/s)	87.8

As such, the historical annual PHF was determined by checking flows on the peak day (and not just during PIF) and is listed in Table 2.2.

The per capita wastewater discharge to the Elora WWTP was based on the data collected via the Parshall flume located downstream of the preliminary treatment system, which is also reported in the Annual [Wastewater] Performance Reports (APR).

The PDF and PIF peaking factors are compared to the typical factors provided in the WEF guidelines in the table and shows that Elora's PIF is much larger. This atypically higher wet collection system is attributed to large I&I exposure.

Table 2.2 Elora Historical Wastewater Flow Analysis

Parameter	Units	2021	2022	2023	Average
ADF	m^3/day	1,737	1,815	1,979	1,844
Peak Daily Flow	m^3/day	3,223	4,809	5,931	4,654
PDF Peaking Factor	-	1.9	2.6	3.0	2.5
WEF PDF Peaking Factor	-				2.5
Peak Hourly Flow	L/s	88.1	127.0	87.8	101.0
PHF Peaking Factor	-	4.4	6.0	3.8	4.8
Peak Instantaneous Flow	L/s	132.0	146.7	193.0	157.2
PIF Peaking Factor	-	6.6	7.0	8.4	7.3
WEF PIF Peaking Factor	-				4.4

2.2 Fergus Historical Wastewater Flows

Table 2.3 provides Fergus's historical wastewater flow data from 2021 – 2023. Figure 2-2 is a graph providing flow data on a 5-minute interval basis as collected at the Parshall flume at the Fergus WWTP.

Table 2.3 Fergus Historical Wastewater Flow Analysis

Parameter	Units	2021	2022	2023	Average
ADF	m^3/day	4,216	4,059	4,674	4,316
Peak Daily Flow	m^3/day	23,796	13,729	18,869	18,798
PDF Peaking Factor	-	5.6	3.4	4.0	4.3
WEF PDF	-				2.3
Peak Hourly Flow	L/s	350.0	239.3	350.0	307.1
PHF Peaking Factor	-	7.2	5.1	6.4	6.2
Peak Instantaneous Flow	L/s	350	294	350	331
PIF Peaking Factor	-	7.2	6.2	6.4	6.6
WEF PDF	-				3.8

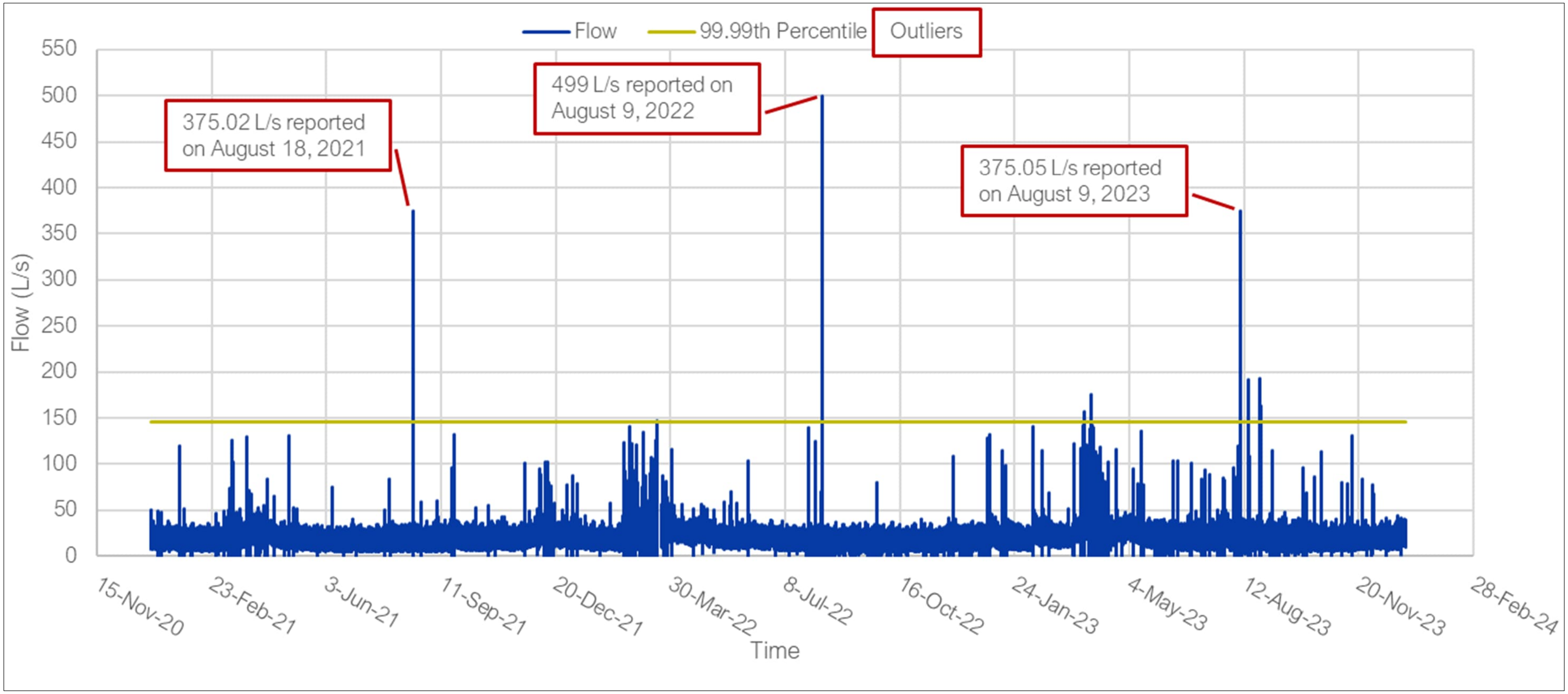


Figure 2-1 Elora WWTP Historical Flow Trend

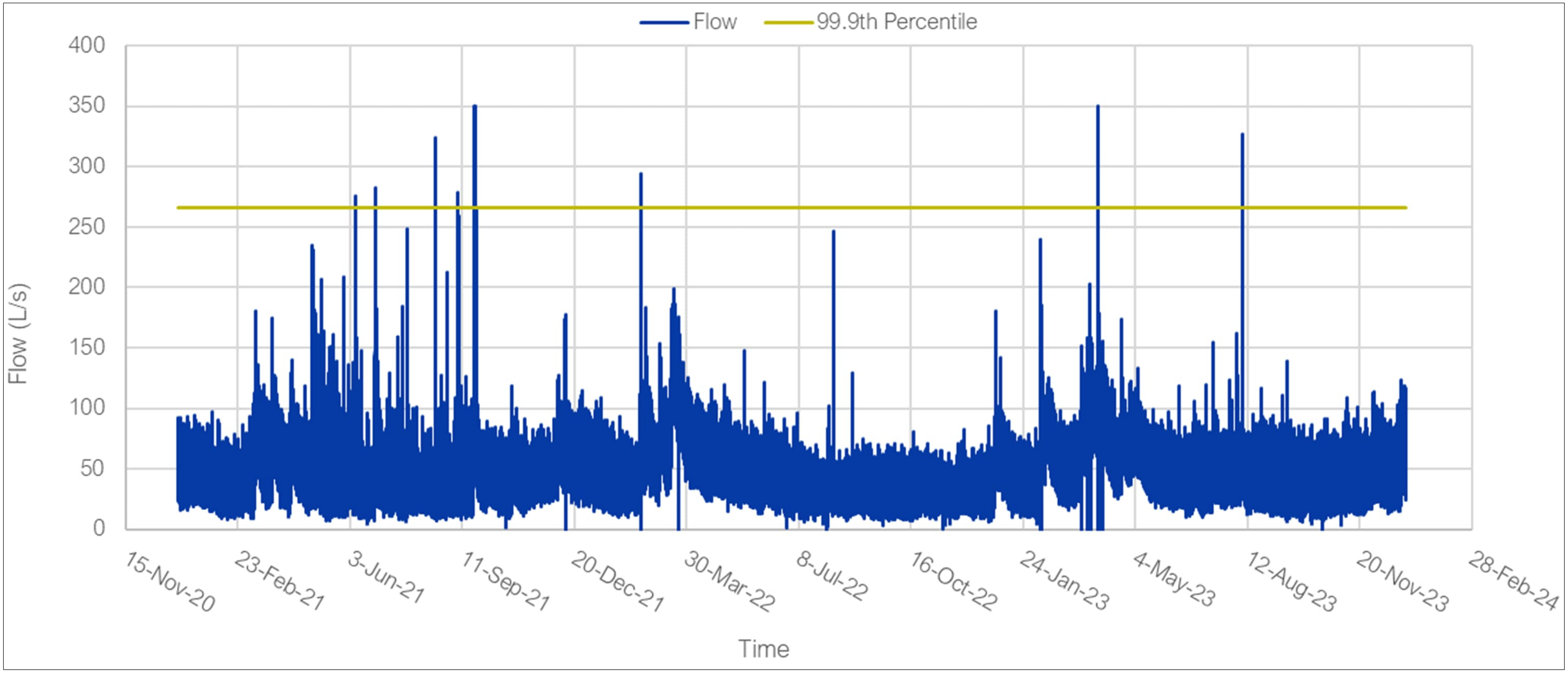


Figure 2-2 Fergus WWTP Historical Flow Trend

2.3 Wastewater System Projection Parameters

Table 2.4 provides the historical litres [of wastewater flow] per capita per day (lpcd) for both urban settlements. Elora's lpcd factor falls within the MECP recommended range (270 – 450 lpcd) and will be used for projecting future flows. However, Fergus's lpcd factor in 2021 and 2022 is much lower than typical recommended by MECP. Hence, it is slightly increased to 270 lpcd for a conservative analysis.

Table 2.4 Daily Wastewater Discharge per Capita

Parameter	2021	2022	2023	Average
Elora/Salem				
Serviced Population	5,580	6,200	6,820	
ADF (m^3/day)[1]	1,737	1,815	1,979	1,844
ADF (lpcd)	313	294	292	300
Fergus				
Serviced Population	16,493	16,693	16,893	
ADF (m^3/day)[1]	4,216	4,059	4,674	4,316
ADD (lpcd)	256	245	278	260

Projecting future flows with higher peaking factors may lead to overestimating which, in additional to the cost implications from larger infrastructure required, results to underutilization of the oversized plants. As such, peak flows from developments in greenfield (some DGAs) and boundary expansion areas are projected using WEF recommended factors. This assumes that new collection systems are not as vulnerable to I&I. However, developments in the vacant lots within the BUA and some areas of the DGA that have existing collection systems will be projected based on the historical peaking factors.

2.4 Wastewater Flow Projection

2.4.1 Flows to the Elora WWTP

Table 2.5 provides the projected wastewater flows to year 2051 as does Figure 2-3.

Table 2.5 Elora WWTPs Projected Wastewater Flows

Parameter	Units	Values
Additional Growth from 2023 - 2051		
Residential Serviced Population	-	5,060
ELE Serviced Population	-	547
Historical Per Capita ADF	lpcd	300
A = Additional ADF (2023 – 2051)	m^3/day	1,681
Additional Growth from 2023 - 2051		
B = 2023 ADF	m^3/day	1,979
C = A + B = Total ADF in 2051	m^3/day	3,660
Plant Rated Capacity	m^3/day	5,000
ADF % of Plant Rated Capacity	%	73%

Elora's 2051 forecasted ADF is approximately 73% of the WWTP's rated capacity of 5,000 m^3/day and, as such, the WWTP can support growth beyond year 2051.

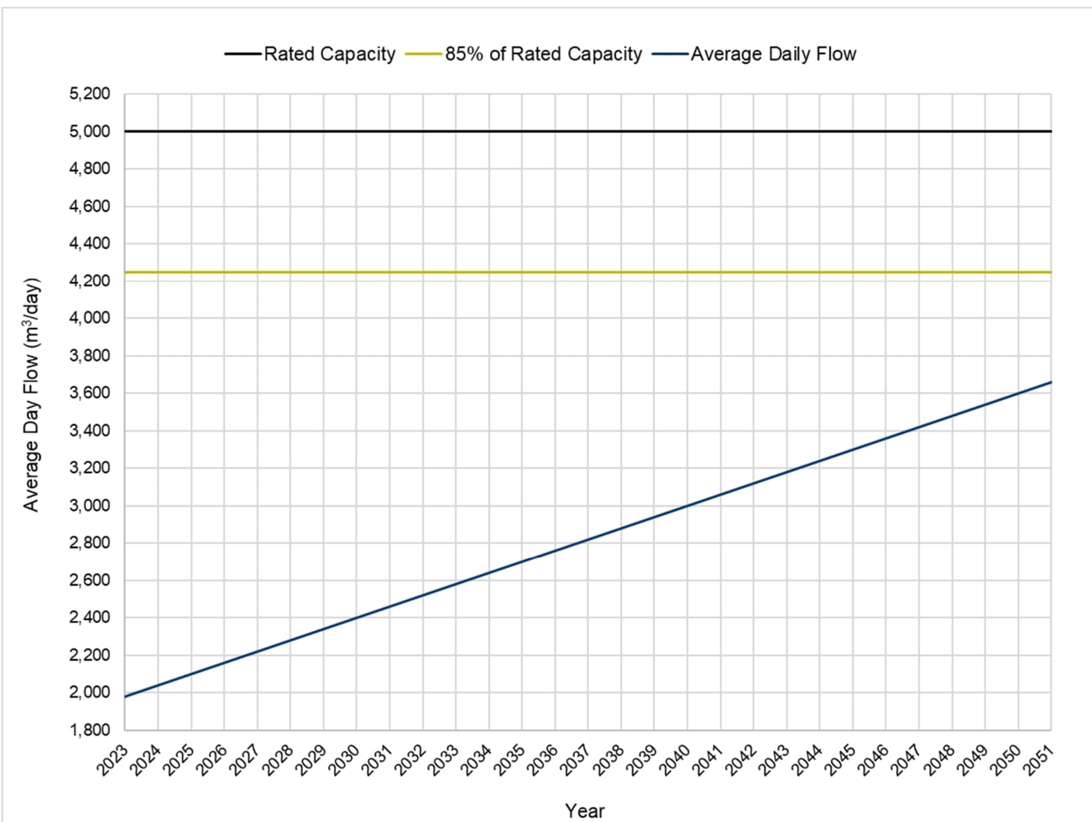


Figure 2-3 Elora WWTS Projected Wastewater Flows

2.4.2 Flows to the Fergus WWTP

The per capita wastewater discharge to the Fergus WWTP based on the data collected via the primary effluent Parshall flume and reported in the APR. Table 2.6 provides the projected wastewater flows to year 2051 as does Figure 2-4.

Table 2.6 Fergus WWTS Projected Wastewater Flows

Parameter	Units	2051
Additional Growth from 2023 - 2051		
Residential Serviced Population	-	16,800
ELE Serviced Population	-	547
Historical Per Capita ADF	lpcd	270
A = Additional ADF (2023 – 2051)	m^3/day	4,685
Additional Growth from 2023 - 2051		
B = 2023 ADF	m^3/day	4,699
C = A + B = Total ADF in 2051	m^3/day	9,202
Plant Rated Capacity	%	8,000
ADF % of Plant Rated Capacity	m^3/day	115%

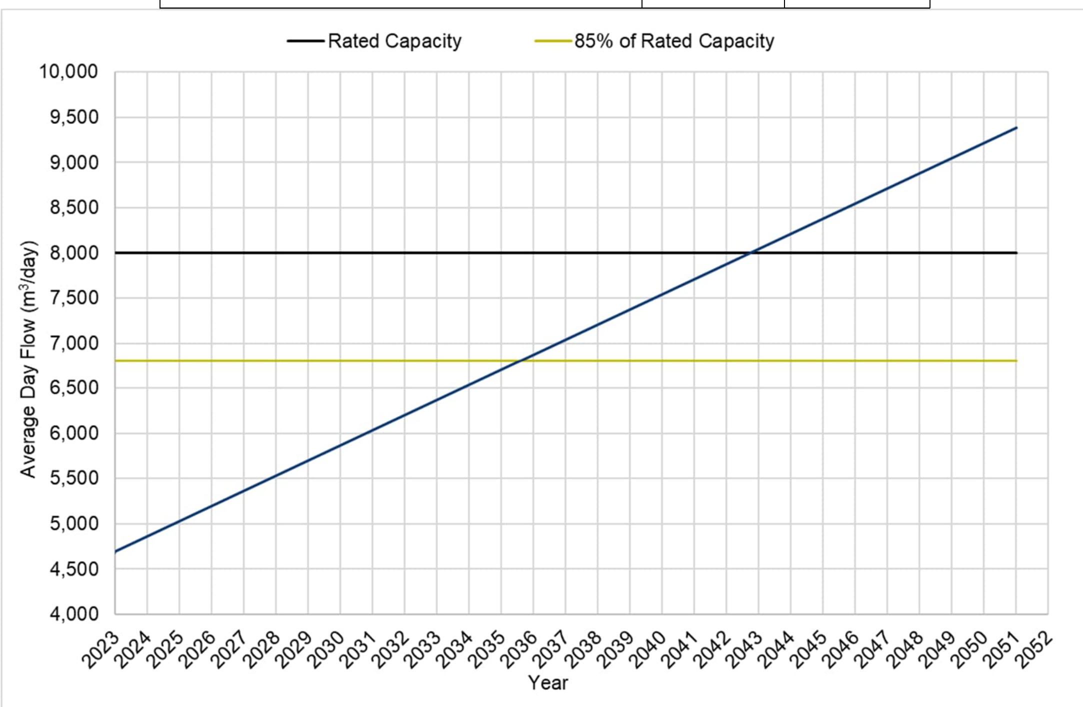


Figure 2-4 Fergus WWTS Projected Wastewater Flows

2.4.1 Historical Wet Weather Flows Analysis

In 2020, Cole Engineering completed an Inflow & Infiltration (I/I) studies for Fergus and Elora/Salem (Cole Engineering Group Ltd., 2020), with data collected from years 2018 to 2019.

For Fergus, the average wet weather volume entering the sewer system ranged from volumetric coefficients of 0.7% to 3.6%, with two isolated areas showing 10.7% and 1.9%. Four significant rainfall events were captured during the study period producing these averages, with the largest event being 45mm of rainfall in depth. Comparing to the typical volumetric coefficients of 1.0 – 2.0% shows that Fergus has a history of higher than average I&I exposure, which is continuing currently as indicated by the historical peak flow factors in **Error! Reference source not found.**. The Fergus WWTP uses a modified aeration tank and modified secondary clarifier for bypass retention for extraneous wet weather peak flows. For Elora/Salem, the average wet weather volume entering the system ranges from 1.3% to 5.5%, indicating significantly high I&I exposure. The largest rainfall event recorded during this study period was 49mm in depth.

The Township further undertook an *Assessment of Wet Weather Flows Compared to Dry Weather Flows* in 2023, which evaluated data from 2012 to 2021. The Figure 2-3 is data from a September 2021 bypass event in the Fergus WWTP and its description taken from the report.

Fergus Event 4					
Day	**Mean Temp (°C)**	**Total Rain (mm)**	**Total Snow (cm)**	**Total Flow (m^3)**	**Overflow or Bypass Flow (m^3)**
2021-09-21	16.8	**38.2**	0	3,322	
2021-09-22	13.5	**41.8**	0	14,471	**5,528**
2021-09-23	12.3	1.8	0	**24,042**	
2021-09-24	12.3	0.4	0	6,653	
2021-09-25	12	5.4	0	4,709	
2021-09-26	11.5	2	0	4,556	

Table 4: Fergus Event 4

Fergus Event 4 Summary: A two-day rain event occurred in September 2021, with volumes of rain similar to Event 3. On the second day, the flow spiked, which led to the plant bypassing. The flow continued to increase the next day, exceeding the peak daily flow, ultimately bringing the Fergus WWTP out of compliance.

Figure 2-5 Data from Fergus WWTP Bypass Event September 2021

Flow data from the Fergus WWTP in 5-minute increments was reviewed for the years 2021 to 2023. The data is listed in Table 2.7 shows the data that was collected during the

September 2021 bypass event. The effluent flow reading was consistently at or slightly below 350 L/s. This is likely due to the limit of the Parshall Flume at the Fergus WWTP being 350 L/s for flow readings.

Table 2.7 Fergus 5-Minute Interval Flow Data from WWTP Parshall Flume

Year	Month	Day	Time	Effluent Flow
September 22, 2021				
2021	9	22	7:25:00 AM	350.00
2021	9	22	7:30:00 AM	350.00
2021	9	22	7:35:00 AM	350.00
2021	9	22	7:40:00 AM	345.46
2021	9	22	7:45:00 AM	350.00
2021	9	22	7:50:00 AM	349.87
2021	9	22	7:55:00 AM	350.00
2021	9	22	8:00:00 AM	350.00
2021	9	22	8:05:00 AM	350.00
2021	9	22	8:10:00 AM	350.00
2021	9	22	8:15:00 AM	350.00
2021	9	22	8:20:00 AM	346.14
September 23, 2021				
2021	9	23	1:10:00 AM	350.00
2021	9	23	1:15:00 AM	350.00
2021	9	23	1:20:00 AM	350.00
2021	9	23	1:25:00 AM	350.00
2021	9	23	1:30:00 AM	350.00
2021	9	23	1:35:00 AM	350.00
2021	9	23	1:40:00 AM	350.00
2021	9	23	1:45:00 AM	350.00
2021	9	23	1:50:00 AM	350.00
2021	9	23	1:55:00 AM	350.00
2021	9	23	2:00:00 AM	350.00
2021	9	23	2:05:00 AM	350.00
2021	9	23	2:10:00 AM	350.00

Year	Month	Day	Time	Effluent Flow
2021	9	23	2:15:00 AM	350.00
2021	9	23	2:20:00 AM	350.00
2021	9	23	2:25:00 AM	348.29
2021	9	23	2:30:00 AM	343.78
2021	9	23	2:35:00 AM	350.00
2021	9	23	2:40:00 AM	350.00
2021	9	23	2:45:00 AM	350.00
2021	9	23	2:50:00 AM	350.00
2021	9	23	2:55:00 AM	350.00
2021	9	23	3:00:00 AM	350.00
2021	9	23	3:05:00 AM	350.00

2.4.2 Effluent Limit Issues

No notable exceedances were observed in Elora's WWTP annual reports. Fergus's historical annual wastewater reports recorded the following issues:

- 2019
  - February: TAN concentration 7.30 mg/L;
  - March: following exceedances were recorded due to operational difficulties:
    - TAN concentration recorded 13.22 mg/L;
    - Total Phosphorus (TP) concentration recorded 0.59 mg/L;
    - Total Suspended Solids (TSS) concentration recorded 34.4 mg/L;
- 2021: On December 12 & 13, 8,479 m^3 of partially treated sewage bypassed the sand filters to allow for replacement of failed equipment;
- 2022
  - On February 17, 2,503 m^3 of partially treated sewage was bypassed due to equipment failure;
  - On December 31, 1,654 m^3 bypassed the tertiary filters due to wet weather event causing high flows;
  - October: Total Phosphorous concentration 0.39 mg/L;

- November: TAN concentration 5.6 mg/L;
- July: E-coli concentration 549.2 /100 mL;

- 2023
    - On April 1, 9428 m^3 bypassed the tertiary filters due to a wet-weather event; and
    - Between December 20, 2023, to January 16, 2024, 765 m3 of secondary treatment effluent was bypassed around the sand filter. Filter was identified as being in poor operating condition and requiring emergency repairs. Bypass occurred due to hydraulic overloads from wet weather events and snow melts.

3.0 WASTEWATER SERVICING SOLUTIONS

3.1 Approach for Establishing Servicing Strategy

3.1.1 General Servicing Solutions to Review

For municipal infrastructure, the following are the standard solutions recognized by the MCEA that are reviewed for capability to address operational or capacity obstacles to supporting growth:

- General Servicing Solution (GSS) 1 - Do Nothing: This alternative solution is a required baseline condition that considers the anticipated impacts if no remedial or mitigation measures are taken to address the identified issues. Under this scenario, no improvements or changes would be undertaken to address the current and future water supply and storage requirements. Therefore, identified obstacles that prevent growth and development would not be addressed which is contrary to Township's goals and the Official Plan's objectives. Therefore, "Do Nothing" alternative is not an acceptable solution and is not evaluated further.
- GSS 2 - Limit Growth: This alternative solution considers the anticipated impacts if community growth is limited to the existing municipal system capacities. Like the "Do Nothing" alternative, this alternative is contrary to the objectives of the Township and the Official Plan and is not evaluated further.
- GSS 3 – Reduce Consumption: The Township's has a program for Water Conservation Education, a new toilet rebate program as well as Outdoor Water Use by-law (99-55) which is being updated in 2025. These programs are designed to reduce unnecessary water use. Infiltration/Inflow reduction into the sewage collection system is being addressed based on a 2019 Inflow & Infiltration Study which as recommended sewer lining projects (per the current 10-year capital budget) and ongoing flow monitoring. These programs should continue and be expanded.
- GSS 4 – Provide Services to Allow for Planned Growth: Based on the requirements, water services can include new water supply (separate initiative per the Township's 2019 Water Supply Master Plan (WSMP)), water storage, water pumping and distribution, etc. Wastewater services and new sanitary sewers, upgrades to existing or new sewage pumping, and wastewater treatment plant expansions.

The Master Plan will focus on providing servicing solutions that allow for planned growth per GSS 4, while continuing and enhancing the existing programs under GSS 3.

3.1.2 Alternative Strategies Development

Development of servicing strategies to meet future growth demands involved formulating alternative solutions that meet the municipal water and wastewater services levels established in Sections 5.1 and 5.2. The alternative solutions are developed based on the following:

- Committed or approved planning projections and associated developments;
- Infrastructure capacities to meet MECP requirements with adequate system security and redundancy; and
- Use of Hydraulic Modelling to assess existing conditions as well as impact of future growth demands on system infrastructure.

3.1.3 Evaluation Criteria Development

3.1.3.1 Longlisted Alternative Strategies

The evaluation process for the proposed alternatives followed a two-step approach. First, a list of alternatives was proposed and compared against the problem and opportunity statement based on criteria listed in Table 3.1. An alternative was not evaluated further if it would not comply with the problem and opportunity statement, had any major constraints, disadvantages, or overall unfeasibility (pre-screening). Following the pre-screening of each alternative, a shortlist of possible alternatives was made. The shortlisted alternatives were evaluated further using typical Class EA evaluation criteria as described in the following sections.

Table 3.1 Pre-Screening Criteria for Proposed Alternatives Evaluation

Alternatives	Pre-Screening Criteria Based on Master Plan Problem and Opportunity Statement			
	Does the alternative address the problem and opportunity statement?	Is the alternative technically and economically feasible?	Can the alternative be implemented without significant impacts?	Carry forward for detailed evaluation? (Yes/No)

3.1.3.2 Shortlisted Alternative Strategies

An evaluation criterion to evaluate the shortlisted alternative solutions was developed based on the MCEA requirements. It comprised of four categories with specific criteria that should be reviewed as listed in Table 3.2.

Table 3.2 MCEA Evaluation Criteria

Evaluation Criteria	Criteria Indicators
TECHNICAL	
Impact on Operations and Maintenance	• Maintains or improves current level of operations and maintenance required. • Minimizes complexity of the system. • Minimizes potential risk to operations and maintenance staff health and safety.
Meets Legislated Criteria and Regulations	• Meets all legislated criteria and regulations.
Constructability	• Minimizes logistical constraints such as site access. • Minimizes negative impacts on constructability related to site conditions (i.e., soil quality and topography).
Impact on Existing Infrastructure	• Optimizes use or integration of existing infrastructure. • Aligns with other planned infrastructure as outlined in existing Master Plans and the Capital Plan.
Aligns with Approval and Permitting Process	• Allows for approvals and permits to be obtained in a timely manner.
SOCIAL AND CULTURAL	
Impact on Cultural Heritage Resources	• Minimizes potential impacts to cultural heritage resources.
Impact on Existing Communities, Residential Areas, and Proposed Development	• Minimizes need to acquire land not owned by the Township. • Minimizes negative impacts that may result due to changes in a neighborhood's characteristics.
Minimizes Construction Impacts	• Minimizes impact to nearby neighbours during construction. • Minimizes noise, odour, road closures, and construction traffic during construction. • Minimizes impacts to businesses during construction.
ENVIRONMENTAL	
Impact on Environmental Features	• Protects sensitive natural areas features and GRCA regulated areas. • Minimizes impact to existing terrestrial and aquatic habitats and species.
Impact on Surface Drainage, Groundwater and Surface Water	• Minimizes impacts within GRCA regulated areas.

Evaluation Criteria	Criteria Indicators
	• Protects groundwater and surface area and follows the Clean Water Act.
Climate Change Resiliency	• Provides resiliency to extreme weather events. • Able to adapt to climate change and the risk associated with a changing climate.
Greenhouse Gases Emissions	• Minimizes GHG emissions and impacts to the environment which may limit the ecosystem's ability to remove GHGs from the atmosphere.
ECONOMIC	
Best Use of Existing Infrastructure	• Reuses existing infrastructure where possible to reduce energy and material demands.
Provides Low Capital Costs	• Minimizes capital costs.
Provides Low Life-Cycle Costs	• Minimizes operation and maintenance costs.

The evaluation criteria is applied to each alternative solution to rate their ability of meeting the Master Plan's Problem and Opportunity Statement and narrow down to the preferred solution. Table 3.3 illustrates the rating scale used.

Table 3.3 Evaluation Criteria Measurement

Evaluation Rating Scale		
Highest Impact (Most Negative Solution)		Lowest Impact (Most Positive Solution)

3.2 Hydraulic Modeling in Support of Wastewater Master Plan

Appendix 3 contains the Water and Wastewater Servicing Master Plan Hydraulic Model Report. PCSWMM hydraulic modeling platform was utilized to develop wastewater collection systems models for the Elora and Fergus systems. Similar to water modeling, as a first step, a detailed review of the Township's GIS datasets was conducted, which included a detailed review of the system infrastructure in Elora and Fergus, such as pipes, manholes, and pumping stations. This detailed review of the GIS datasets allowed RVA to identify locations with critical discrepancies, which were addressed by continuous discussion with the Township and review of additional GIS datasets provided by the Township. Also, a detailed review of the available flow and rainfall monitoring data from 2018 and 2019 was conducted to assist with the calibration of the model. The flow monitoring data was reviewed from ten (10) locations in Fergus and eight (8) locations in Elora for completeness, pattern repeatability, and sanitary sewer response under varying rainfall events. This allowed us to ensure that the collected data could be further utilized for dry and wet weather model calibration and validation.

The dry weather flow calibration was completed by simulating a typical dry weather pattern and comparing it against the observed flows recorded at each location. Similarly, a wet weather flow calibration was also completed by simulating the observed storm events and adjusting the various model parameters iteratively until the modeled values for the flows were well within the observed values. The calibrated model was utilized to assess the performance under existing (2023), 2051, and ultimate build-out demand conditions. Additional scenarios were also simulated to determine the feasibility and assess the impacts of the capital works proposed by the Township, which involved the upgrades to existing sewer mains, the addition of new sewer mains, and diverting sanitary flows from existing SPS locations to new SPS locations within the Elora and Fergus wastewater collection systems.

Model results show that existing conditions meet the requirements to convey flows under maximum day and wet weather conditions.

3.3 Wastewater System Under 2051 Flow Projections

3.3.1 Wastewater Treatment System

Table 3.4 summarizes the projected wastewater flows to year 2051 for both Elora/Salem and Fergus WWTSs. The Elora WWTP has ample capacity to support growth beyond 2051 while Fergus WWTP will exceed the rated capacity of the plant by 2042.

Table 3.4 Centre Wellington WWTPs Projected Wastewater Flows to 2051

2051 Parameter	Units	Elora/Salem	Fergus
ADF	m^3/day	3,660	9,383
Plant Rated Capacity	m^3/day	5,000	8,000
ADF % of Plant Rated Capacity	%	73%	115%

3.3.2 Wastewater Collection System

Regarding the wastewater collection system, there are two aspects to address for the planned growth to 2051. These are:

- What are the impacts to the existing collection system based on the requirement to service population growth within the current boundaries of Elora-Salem and Fergus; and
- What are the new components of the collection system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing distribution system. Figure 3-1 shows the growth impacts on the existing Elora-Salem collection system and Figure 3-2 growth impacts on the exiting Fergus collection system if growth areas are routed through the existing sewer network. Options to provide sewage collection were developed and are summarized in Section 4 which include routing through part or all of the existing sewer network or else to route partly or completely through a new collection system.

3.4 Wastewater System Alternative Strategies and Recommendations

3.4.1 Longlist Alternative Strategies – Wastewater Treatment System

3.4.1.1 Overview and Criteria

The following criteria was established for the development of longlisted alternative strategies for the Fergus WWTP's projected capacity deficit by 2041:

- Proposed upgrades are to align with the planned replacements or upgrades of major equipment to minimize capital costs;
- Proposed upgrades are designed for at least 20-year flows post upgrades year. That is, if upgrades are constructed in 2040, design is based on minimum 2060 flows;
- Proposed upgrades consider expansion capability beyond design year;
- Proposed upgrades maximize use of existing assets; and
- Proposed upgrades consider alternative technologies to assist with capacity expansion.

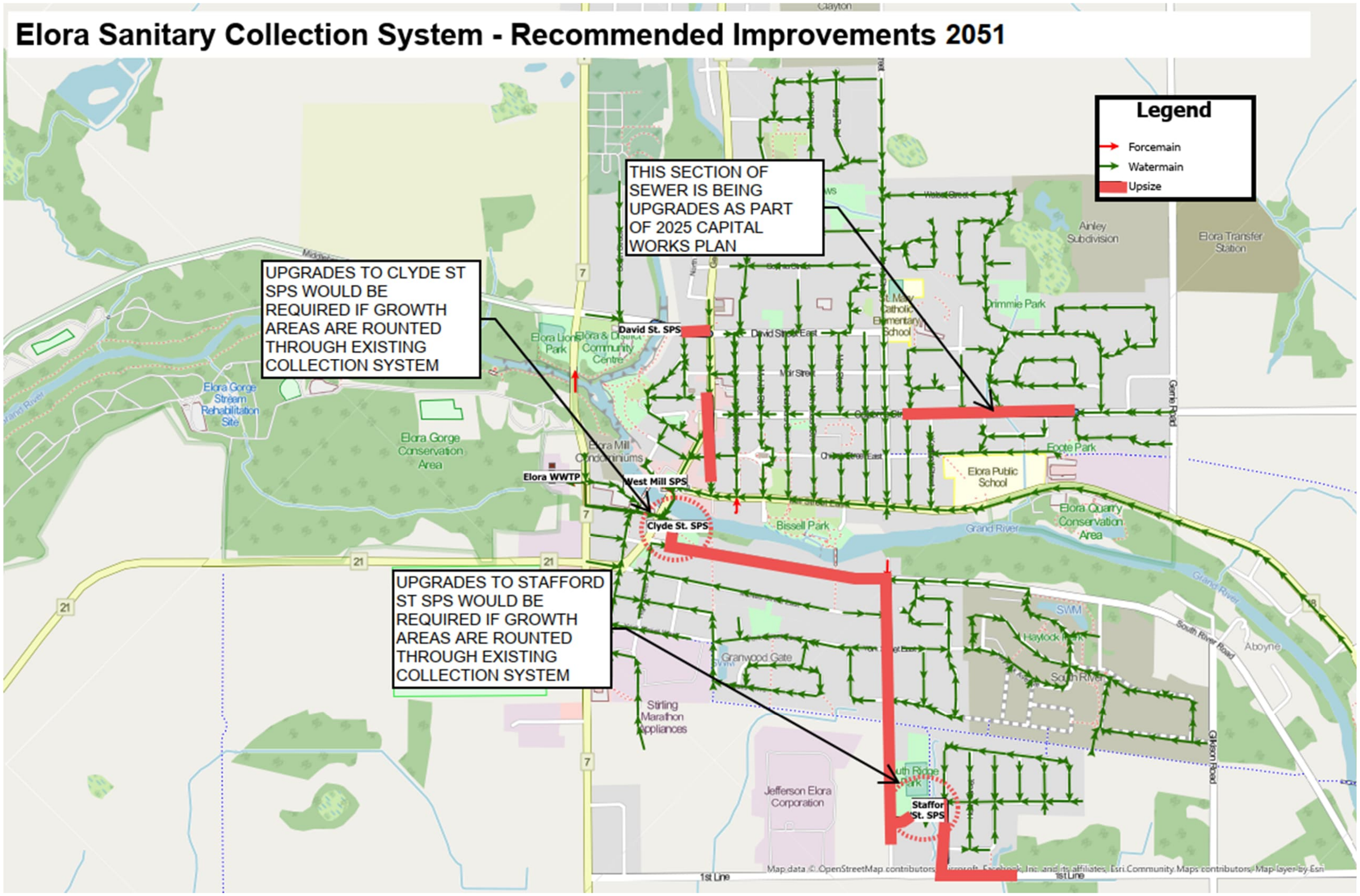


Figure 3-1 Growth Impact on Existing Elora-Salem Collection System

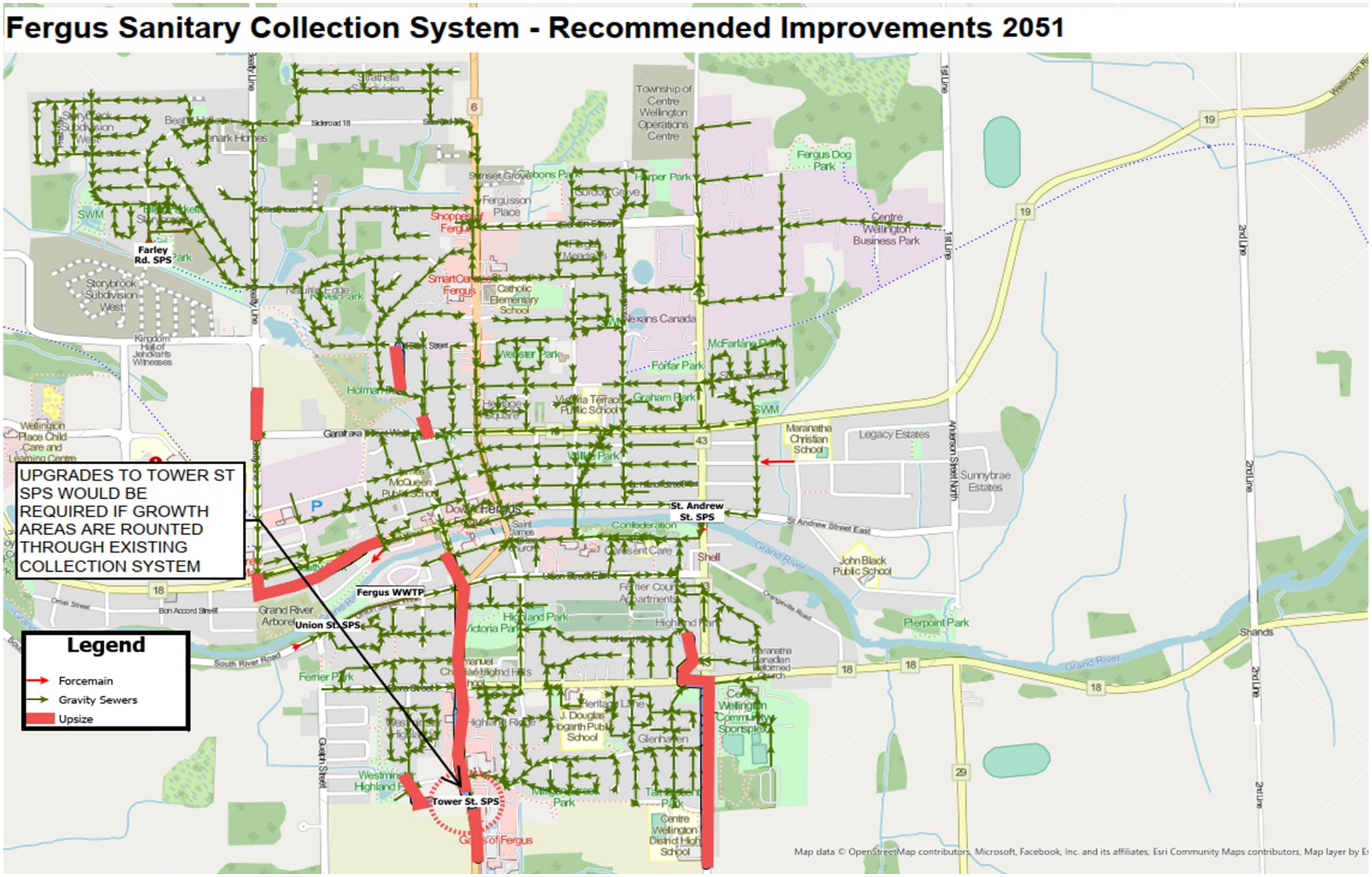


Figure 3-2 2051 Growth Impact on Existing Elora-Salem Collection System

3.4.1.2 Constraints

The following constraints were identified for the Fergus WWTP future servicing strategy:

1. Current unit processes at both WWTP are sized for ADF and PDF. However, current MECP practice is to size certain processes for Peak Hour and Peak Instantaneous Flows. As such, % of expansion to meet 2051 requirements varies for each unit process as shown in Figure 3-3;
2. Current site constraints at the Fergus WWTP are shown in Figure 3-4;
3. More stringent (lower) effluent limits in the new ECA for the expanded WWTP;
4. Maximizing Elora's capacity without requiring a new ECA application; and
5. Estimating the flow that can be pumped from Fergus to Elora and minimizing the detention time in the collection system (to prevent sewage septicity).

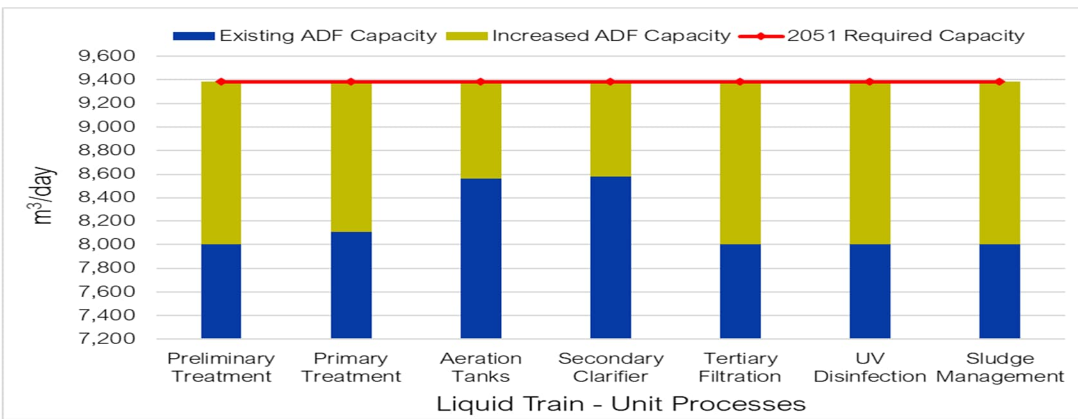


Figure 3-3 ADF Capacity of Liquid Train – Fergus WWTP Unit Processes

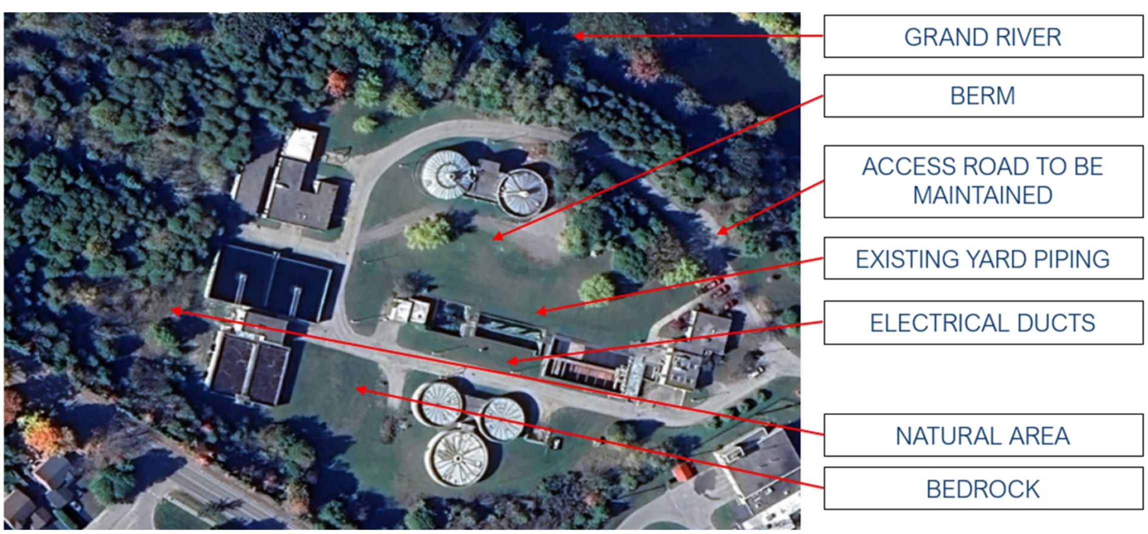


Figure 3-4 Current Constraints at the Fergus WWTP

3.4.1.3 Strategies and Evaluation

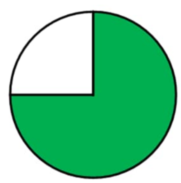
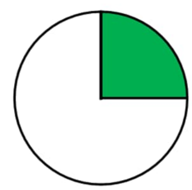
Based on the above, the following longlisted alternative strategies were produced:

- Alternative 1: Upgrade Fergus WWTP; and
- Alternative 2: Send Partial Flows to Elora WWTP up to Elora's Rated Capacity.

Table 3.5 provides the evaluation for the two long-listed alternatives, which shows that the preferred strategy is upgrading the Fergus WWTP such that growth to 2051 is supported and the proposed upgrades consider expansion capability beyond 2051.

Table 3.5 Longlisted Strategy Evaluation for Wastewater Systems

Category	1 - Upgrade Fergus WWTP	2- Send Partial Fergus WW Flows to Elora WWTP to Maximize Elora WWTP's Capacity
Technical	• This solution can be implemented to provide for 2051 and to layout the ultimate plant configuration for this WWTP • Will allow the Elora WWTP to accept post 2051 flows from its catchment area	• Will use up capacity in the WWTP and may require significant upgrades post 2051 or a new WWTP to service further expansion of the Elora servicing area • Will require a new or upgraded pumping station in area of the Farley SPS or a new SPS on the western side of Fergus to redirect flows
Social and Cultural	• Will not cause additional linear works than those required to provide flows to the Fergus WWTP • Standard temporary impacts during WWTP construction which will need to be mitigated • Expanded capacity may require additional standard odour control measures due to proximity of residential properties	• May require significant linear infrastructure work to redirect flows in Fergus and in Elora which will be disruptive to communities during construction and may require odour control • Standard temporary impacts during WWTP construction which will need to be mitigated • Expanded capacity may require additional standard odour control measures due to proximity of residential properties
Environmental	• Upgrades to WWTP will require review of impacts to environment through Schedule C Class EA and appropriate mitigation measures	• Upgrades to WWTP will require review of impacts to environment through Schedule C Class EA and appropriate mitigation measures • Additional sewer/forcemain to connect collection systems may require

Category	1 - Upgrade Fergus WWTP	2- Send Partial Fergus WW Flows to Elora WWTP to Maximize Elora WWTP's Capacity
		mitigation measures if these are not in municipal road allowances
Economic	• Costs will have to be reviewed based on component upgrades to Fergus WWTP	• May allow some deferment of upgrade costs for Fergus WWTP • Costs will have to be reviewed based on costs for new/upgrades of SPS in Fergus and upgrades to collection systems in Fergus and Elora • Costs will have to be reviewed based on component upgrades to Elora WWTP • Costs will have to be established for using up capacity of Elora WWTP
Overall		

Therefore, the long-listed option that is chosen is to upgrade the Fergus WWTP.

3.5 Wastewater Collection System Requirements

3.5.1 Introduction

There is a need to provide collection connection of sufficient capacity to meet the anticipated flows from the growth to 2051 as it is conveyed to either of the existing WWTPs. There are two aspects to address for planned growth to 2051. These are:

- What are the impacts to the existing collection system based on the requirement to service population growth within the current boundaries of Elora/Salem and Fergus; and
- What are the new components of the collection system that are required to provide for servicing of the new areas.

Hydraulic modeling was used to review and confirm impacts to the existing sanitary collection system of growth and to develop options to route additional sewage flows to the Elora and Fergus WWTPs. There were four growth areas with multiple options for servicing, these are:

- South Elora (Area ER1);
- West Fergus (Area FE1); and
- South Fergus (Areas FE3 and FE4).

Each of the servicing options also consider if new or upgraded SPS is required. Other required sanitary connections that were noted had no other options other than extending sewers or forcemains across the existing rights of way. When servicing strategies are developed in detail for the various components of the new areas brought into the 2024 growth boundary, a more detailed analysis can be made to confirm if there are more than one option for routing the required sanitary services to new areas.

3.5.2 South Elora (Area ER1)

Possible routing of the sanitary collection system is shown in Figure 3-5 from area ER1. On this basis there are two alternatives as detailed in Table 3.6. Based on reviewing the three possible options as shown in Table 3.7, the Township has decided to proceed with Alternative 1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP.

Table 3.6 South Elora Collection System Options

Option	Description	Details
1a	Gravity sewer on Wellington Road 7	• New 2,600 m of gravity sewer on Road 7 • 1.6 km of gravity sewer to Carlton Pl • Flows directed to Clyde St SPS • Upgrade of Clyde St. SPS • Allows for servicing of potential developments along Road 7 • An internal SPS will be required South-East of the expanded area to be serviced
1b	New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	• 1,000 m of forcemain to 1st Line • 1,600 m of gravity sewer to Carlton Pl • Flows to be directed to Elora WWTP • May require a low lift pumping station at Elora WWTP • Allows for servicing of potential developments along Road 7 • An internal SPS will be required South-East of the expanded area to be serviced
2	Upgrade Existing System	• Upgrade 2,200 m of gravity sewers on Bridge St and Water St • Upgrade Stafford St SPS • Upgrade Clyde St SPS • An internal SPS will be required South-East of the expanded area to be serviced

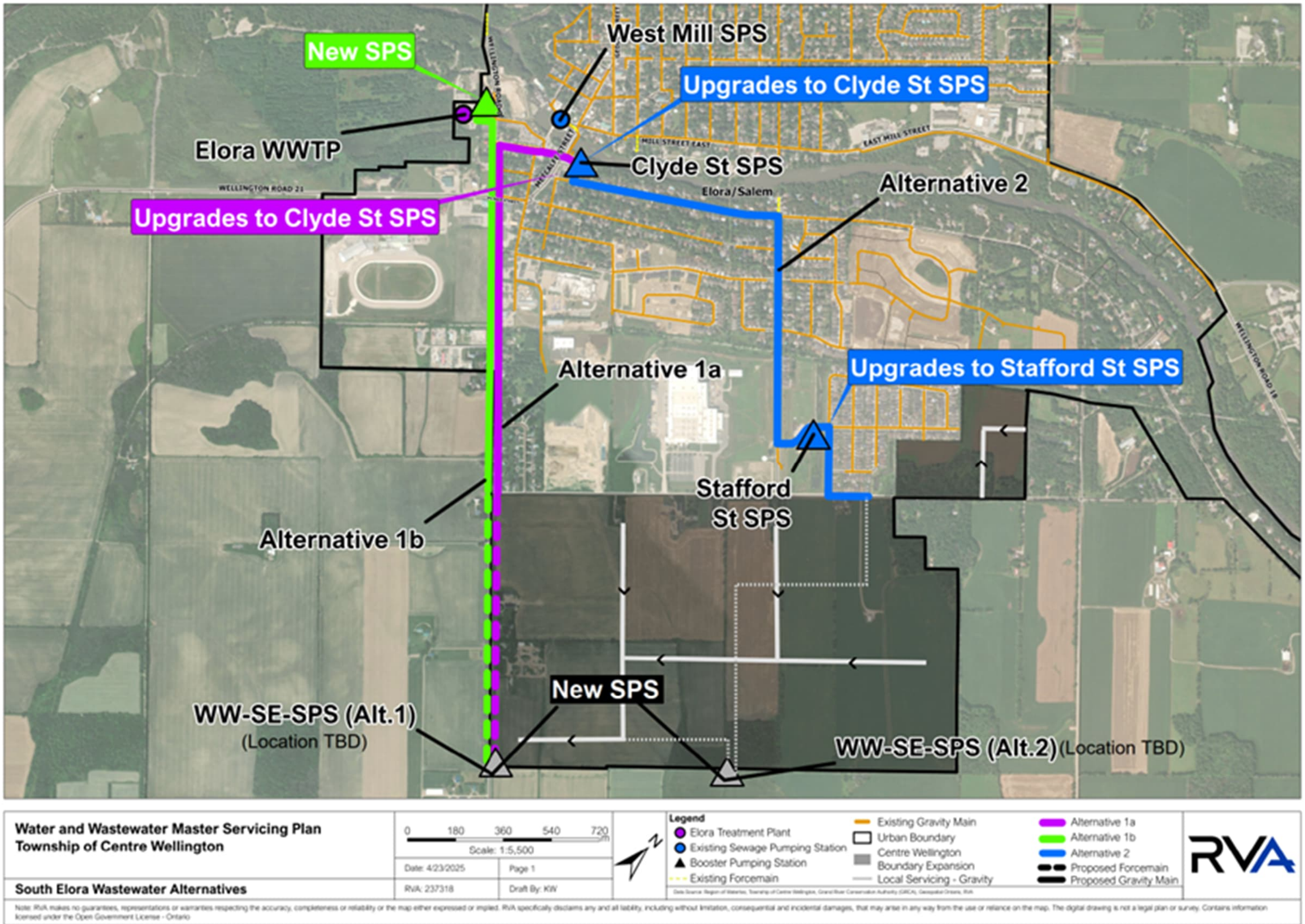
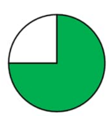
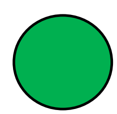
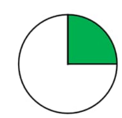


Figure 3-5 Proposed Watermains for Servicing to 2051

Table 3.7 Review of South Elora Collection System Options

Category	1a-New Forcemain/ Gravity Sewers on Wellington Road 7 to Clyde St SPS	1b –New Forcemain/ Gravity Sewers on Wellington Road 7 to Elora WWTP	2-Upgrade Existing System
Technical	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Upgrades To Clyde St SPS	• Allows for servicing to boundary expansion area in South Elora. Also allows for servicing to potential developments along Wellington Road 7. • Does not require Clyde SPS upgrades • Requires new SPS	• Allows for servicing to boundary expansion area in South Elora.
Social and Cultural	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts. Some construction on Carlton Pl	• Will have to limit impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts.	• Will have to limit impact to nearby residents and businesses.
Environmental	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions	• Any environmental impacts can be mitigated through standard construction and operational practices	• Any environmental impacts can be mitigated through standard construction and operational practices • Additional GHG emissions
Economic	• Capital cost estimated at $17.2 Million (including Clyde St SPS upgrade) • 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area + Clyde St SPS upgrade)	• Capital Cost estimated at $14.3 Million (including new Elora WWTP SPS) • No 40-year Operation Cost in Present Value estimated at $6.7 Million (from new SPS in ER1 area and by Elora WWTP)	• Capital estimated at $25 Million including Clyde St SPS and Stafford St SPS upgrade • 40-year Operation Cost in Present Value estimated at $10.0 Million (from new SPS in ER1 area + Clyde St SPS and Stafford SPS upgrades)
Overall			

3.5.3 Fergus (Beatty Line/Colquhoun St Upgrades for Area FE1)

Possible routing of the sanitary collection system is shown in Figure 3-6 from area FE1. On this basis there are two alternatives as detailed in Table 3.8. Based on reviewing the two possible options as shown in Table 3.9, the Township has decided to proceed with Alternative 1 Upgrading the Existing Collection System.

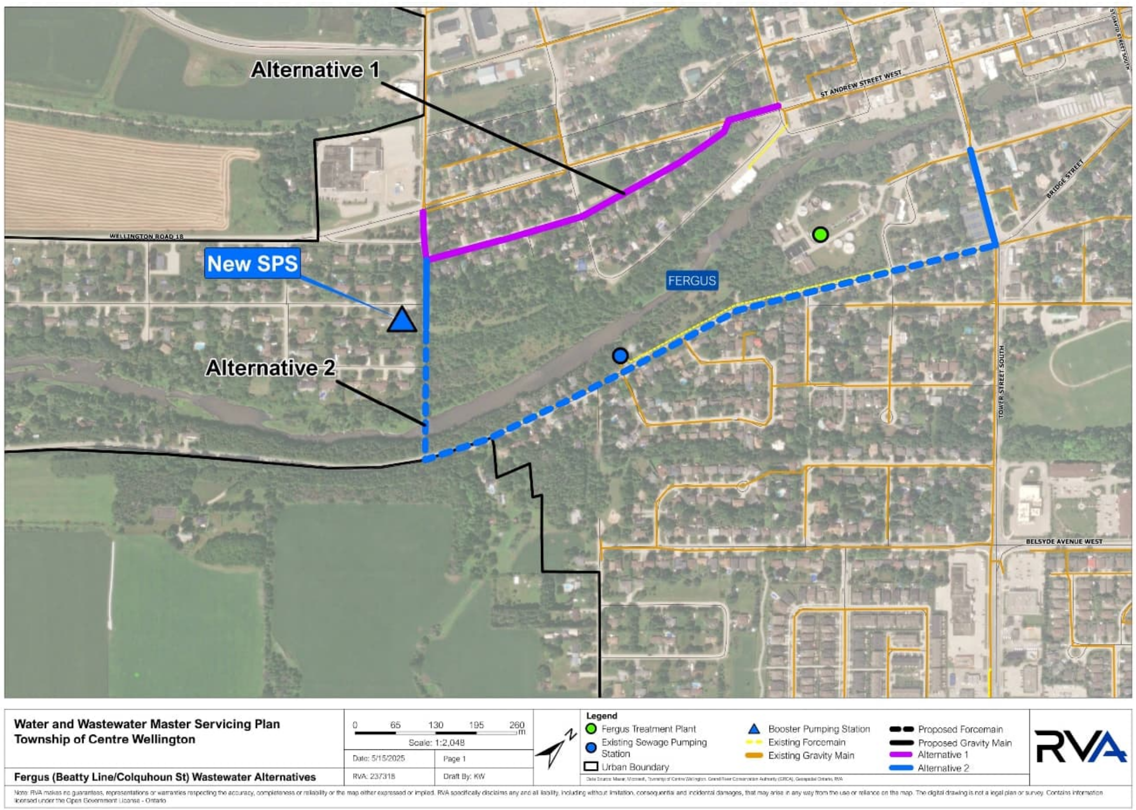
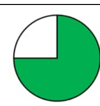
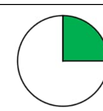


Figure 3-6 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Table 3.8 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Option	Description	Details
1	Upgrade Existing System	• Upgrade 650 m of gravity sewers on Colquhoun St
2	New SPS and Forcemain Crossing Grand River	• New SPS on Beatty Line (92 L/s capacity) • New 250 mm forcemain to cross the river to Fergus WWTP • The new forcemain extends to the Fergus WWTP. The existing Union St SPS connects to the new forcemain.

Table 3.9 Beatty Line/Colquhoun St Upgrades for Area FE1 Collection System Options

Category	1 – Upgrade Existing System	2 – New SPS and Forcemain Crossing Grand River
Technical	• Does not trigger upgrade to or construction of a new SPS.	• Does not trigger replacement of existing sewers but requires a new SPS, forcemain and a river crossing
Social and Cultural	• Will have some impact to nearby residents on Colquhoun St. on 700 m corridor (local road)	• Special attention to Grand river crossing. • Will have some impact to nearby residents on Union St. on 1100 m corridor
Environmental	• Does not promote the emission of greenhouse gas (GHG) emissions.	• Additional GHG emissions caused by the requirement to construct a new SPS.
Economic	• Capital Costs estimated at \$4.0 Million • No associated O&M costs	• Capital Costs estimated at \$13.0 Million including new SPS at Beatty Line • 40-year Operation Cost in Present Value estimated at \$3.8 Million (from new Beatty Line SPS)
Overall		

3.5.4 South Fergus (Area FE3)

Table 3.10 reviews the three serving options for the South Fergus area. These are shown in Figure 3-7. The Township has decided to proceed with Option 3 Gravity Sewer to New South Fergus SPS through the South Fergus Secondary Plan Area due as it has less impact on the social environment.

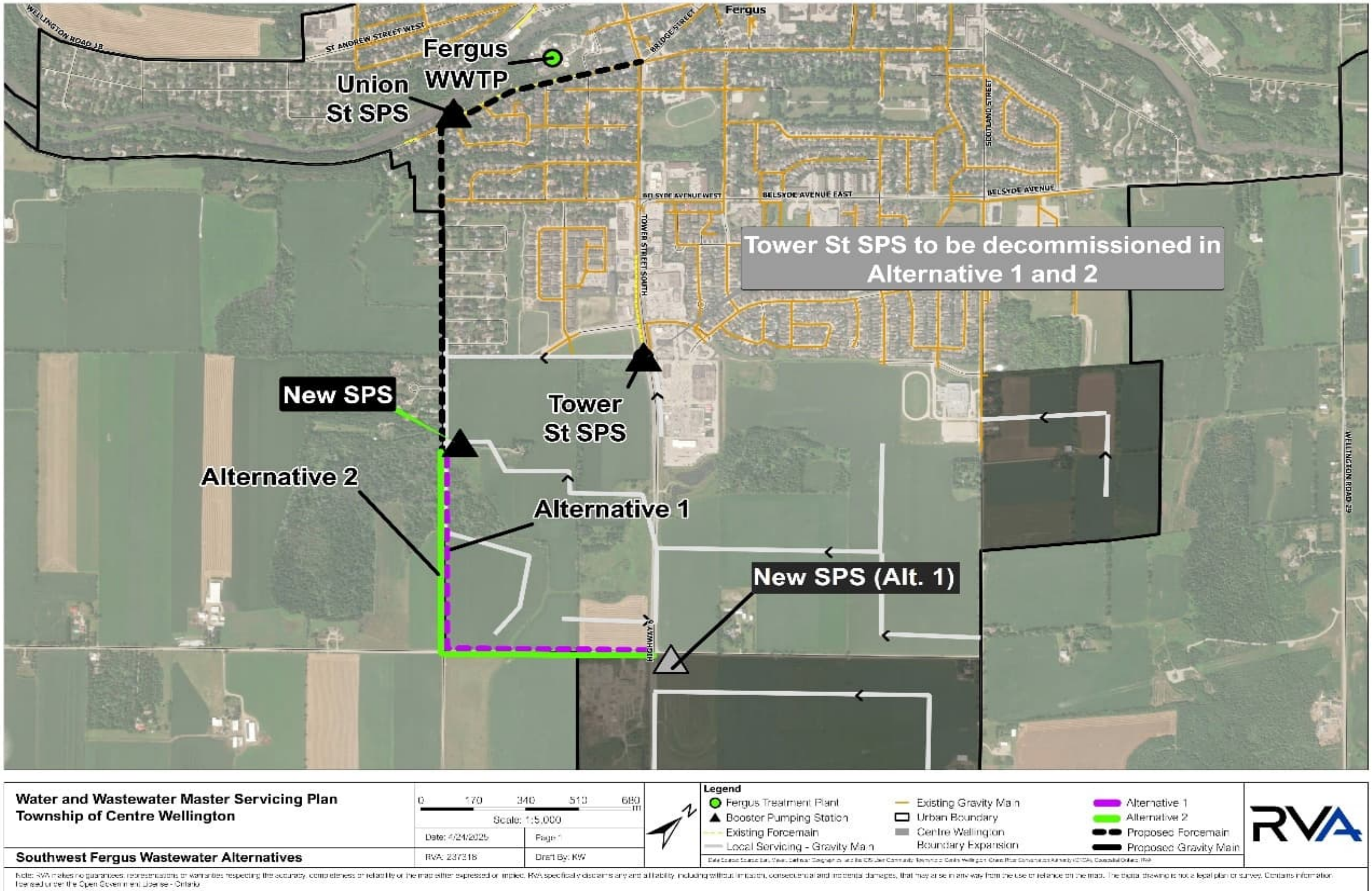
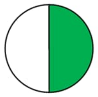
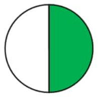
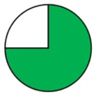


Figure 3-7 South Fergus Collection System Options

Table 3.10 Review of South Fergus Collection System Options

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
Description	• New South Fergus SPS • New SPS for southern expansion area (location to be determined) • New 3km of forcemains on 2nd Line, Guelph Road, Union • Decommission Tower St SPS	• New South Fergus SPS • New 1,300 m of gravity sewer to the South Fergus Proposed SPS • New 1,700 m of forcemain on Guelph Road, Union St • Decommission Tower St SPS	• New South Fergus SPS • New area FE3 SPS • 270m of forcemain within FE3 • 3,750m of new gravity main • Decommission Tower St. SPS • Sanitary connection to FE4
Technical	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • Allows for a shallower sewer but requires new SPS	• Allows for servicing of boundary expansion area in Southwest Fergus. Also allows for servicing to potential developments south of Guelph Rd. • A deeper sewer allows flow by gravity to the new SPS	• Allows for servicing of boundary expansion areas FE3 and FE4 • Eliminates the need to upgrade sewer along Scotland Street, Belsyde Ave and Elgin St. as a result and development of FE4 • Adds small SPS on southern portion of FE3
Social and Cultural	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have	• Will have limited impact to nearby residents. Majority of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have	• To South Fergus SPS have limited impact to nearby residents. Majority of construction will be done within the South Fergus Lands • From South Fergus SPS, most of construction will be done on a country road which limits potential impacts, except for construction on a segment of Union St, Tower St and Queen St W

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
	additional impacts to the community during construction	additional impacts to the community during construction	
Environmental	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct one new SPS. However, Tower St SPS can be decommissioned.	• Additional GHG emissions caused by the requirement to construct 2 new SPS. However, Tower St SPS can be decommissioned.
Economic	• Total Capital Cost estimated at \$27.5 million including New Fergus SPS and New SPS to service FE3 • Total Capital Cost estimated at \$3.3 million to separately service FE4 • Total Capital cost is \$30.8 million • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have “throw away” costs due to requirement to replace sections of sewer that are less than 30-years old • 40-year Operation Cost in Present Value estimated at \$9.5 Million (from new Fergus	• Total Capital Cost estimated at \$27.5 million including New Fergus SPS and New SPS to service FE3 • Total Capital Cost estimated at \$3.3 million to separately service FE4 • Servicing FE4 separately will require provision of 1200 m of new sewers along existing urban corridors of Scotland St., Belsyde Ave., and Elgin St. which will have “throw away” costs due to requirement to replace sections of sewer that are less than 30-years old • 40-year Operation Cost in Present Value estimated at \$7.8 Million (from new Fergus SPS)	• Total Capital Cost estimated at \$35.6 million including New Fergus SPS and New SPS to service FE3 and FE4) • 40-year Operation Cost in Present Value estimated at \$11.8 Million (from new Fergus SPS and New SPS to service FE3 and FE4)

Category	1- Forcemain to New South Fergus SPS	2 – Gravity Sewer to New South Fergus SPS on Public Roads	3 – Gravity Sewer to New South Fergus SPS through Secondary Plan Area
	SPS and New SPS to service FE3)		
Overall			

3.6 Summary of Sanitary Collection Projects

Table 3.11 summarizes the sanitary collection projects that are required to support the planned growth to 2051. These projects are shown in Figure 3-8.

Table 3.11 Summary of Sewer and Forcemain Projects Identified in the Master Plan

Project Number	Community	Sewer/Forcemain Length (m)	Area Serviced	Description
WW-E-1	Elora-Salem	1,000	ER1	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line
WW-E-2	Elora-Salem	1,500	ER1	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP
WW-E-3	Elora-Salem	290	Growth within existing urban area	Geddes St. Sanitary Sewer Replacement
WW-F-1	Fergus	705	FE3	New Gravity/Forcemain on Second Line from HWY 6 to Guelph St.
WW-F-2	Fergus	850	FE3	New Gravity/Forcemain on Guelph St from Second Line to New Fergus SPS
WW-F-3	Fergus	975	FE3	New Forcemain on Guelph St from New SPS to Union St.
WW-F-4	Fergus	1030	FE3	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP to service area FE3
WW-F-5	Fergus	880	FE4	Upgrading gravity main on Scotland St. from south limit to Belsyde Ave.
WW-F-6	Fergus	110	FE4	Upgrading gravity main on Belsyde Ave. from Scotland St. to Elgin St. Easement

Project Number	Community	Sewer/Forcemain Length (m)	Area Serviced	Description
WW-F-7	Fergus	240	FE4	Upgrading gravity main on Elgin St. from Belsyde Ave. to manhole ES-MH-01009
WW-F-8	Fergus	80	Growth within existing urban area	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St
WW-F-9	Fergus	630	Growth within existing urban area	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W
WW-F-10	Fergus	280	Growth within existing urban area	Upgrading gravity main on Holman Cres. And Perry St.

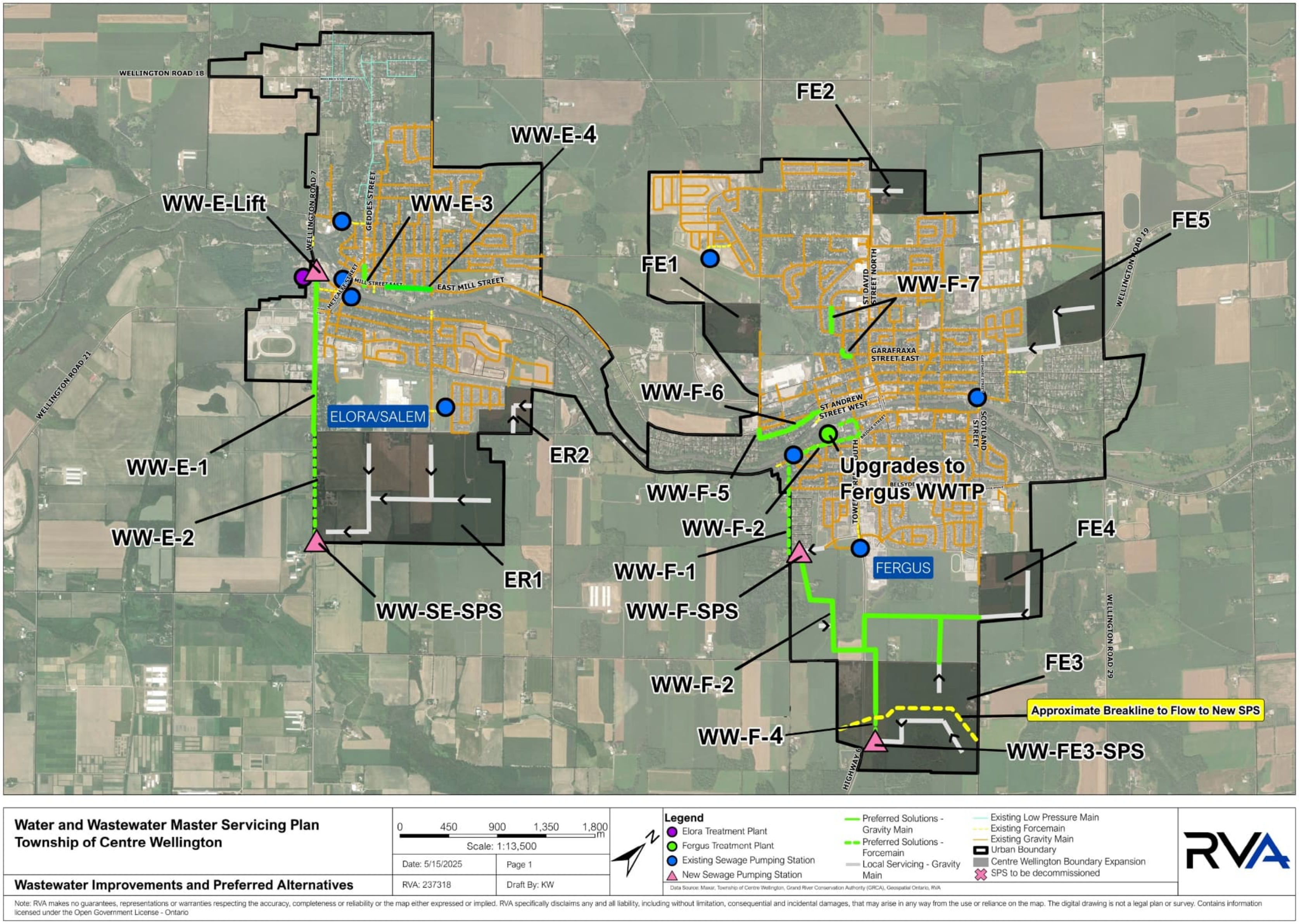


Figure 3-8 Proposed Sanitary Collection System Upgrades to 2051

4.0 FERGUS WWTP EXPANSION

4.1 Design Flows and Peaking Factors

Fergus WWTP's final design flows for 2051 are provided in Table 4.1. The peaking factors have been optimized to reflect reduced I&I flows from new collection system The corresponding WEF recommended factors are also provided for comparison purposes which will facilitate generating targets for reducing the peak flows by reducing I&I.

Table 4.1 Fergus WWTP 2051 Design Flows

Parameter	Units	Flow	Peaking Factor	WEF Recommended
2051 ADF	m^3/d (L/s)	9,383 (109)	-	-
2051 PDF	m^3/d (L/s)	29,962 (347)	3.2	2.1
2051 PHF	L/s	437	4.0	2.7
2051 PIF	L/s	536	4.9	3.4

4.2 WWTP Alternative Review

4.2.1 Evaluation Strategies

Figure 4-1 shows the criteria used for the approach to implementing the preferred strategy of Fergus WWTP capacity expansion.

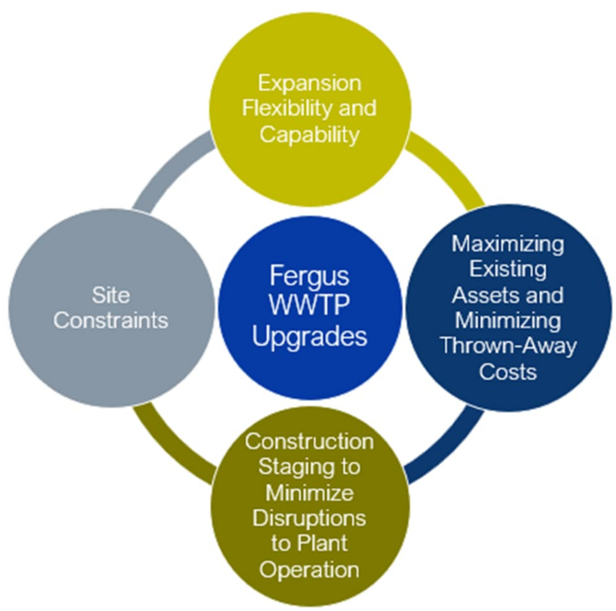


Figure 4-1 Fergus WWTP Capacity Expansion Strategy Implementation Criteria

Specifically:

- The expansion options are to consider capability of expanding the capacity with minimal additional upgrades or minimal throw-away costs, to continue supporting growth beyond 2051;
- The expansion options are to consider the limited footprint available in the existing site as illustrated in Figure 3-4;
- The expansion options are to account for the lifecycle replacements of the unit processes that will be undertaken within the next 5 to 10 years by incorporating the replaced units within the upgrades and minimizing throw-away costs. Figure 4-2 illustrates the identified lifecycle replacements in response to either aging equipment or equipment condition, as recorded in the 2024 Fergus WWTP condition assessment. All assets are in fair condition but will exceed capacity in 0 - 16 years; and
- The expansion options are to minimize complex constructability and account for fully operating plant for entire construction duration.

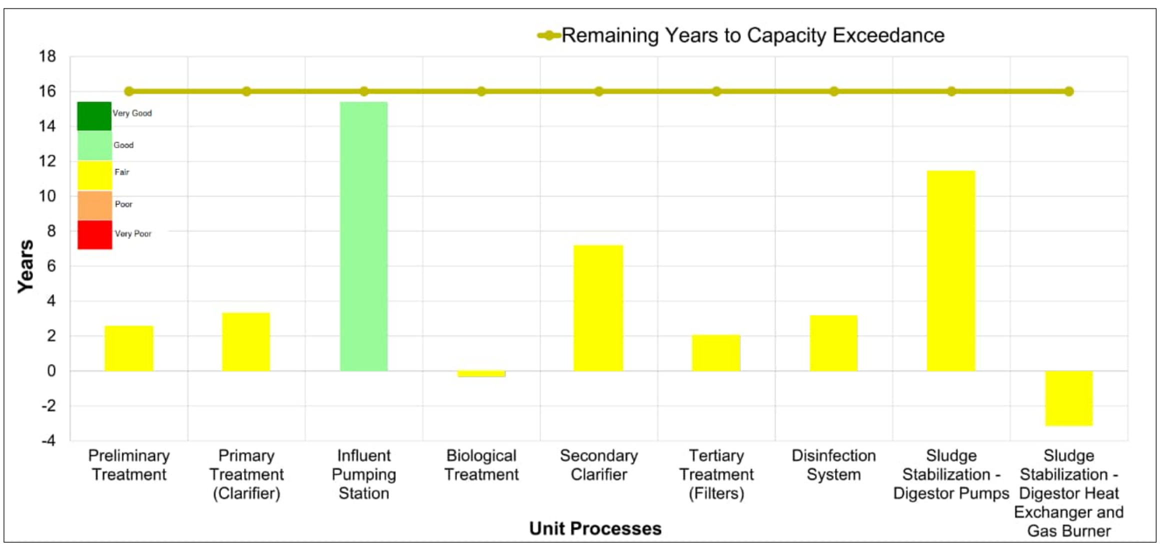


Figure 4-2 Unit Processes Years Remaining to Rated Capacity Exceedance

Based on the above approach, the following two options were determined as the shortlisted alternative strategies:

- Option 1: Retain Fergus WWTP as a Conventional Activated Sludge (CAS) facility and expand capacity via a new 3rd Liquid Train; or
- Option 2: Convert Fergus WWTP to a Membrane Bio-Reactor (MBR) facility.

Both options are for expanding the liquid train. Conceptual site plans for the two options are shown in Figures 4-3 and 4-4, respectively.

The timeline for the expansion of the WWTP using CAS technology is shown in Table 4.2.

Table 4.2 Timeline for CAS Expansion

Phase	Description	Implementation Period		
		2025-2030	2031-2036	2037-2042
Interim Upgrades	Study + Design	Filtration System Assessment Study	Detailed Design of Surface Media Filtration in new Tertiary Treatment Building	
	Construction	Replacement or Rehabilitation of Sand Filters (this is a lifecycle cost for existing process)	Construction of new Tertiary Filtration System + Building	
Expansion	Study + Design		Schedule C Class EA + Assimilative Capacity Study	Detailed Design
	Construction			New Third Liquid Train + Sludge Management

The timeline for the expansion of the WWTP using MBR technology is shown in Table 4.3.

Table 4.3 Timeline for CAS Expansion

Phase	Description	Implementation Period		
		2025-2030	2031-2036	2037-2042
Interim Upgrades	Study + Design		Lifecycle Replacement Cost Savings on • Secondary Clarification • Activated Sludge Pumping	
Expansion	Study + Design	Replacement or Rehabilitation of Sand Filters	Schedule C Class EA + Assimilative Capacity Study	Detailed Design of Fergus WWTP Upgrades
	Construction			New MBR Facility + Sludge Management

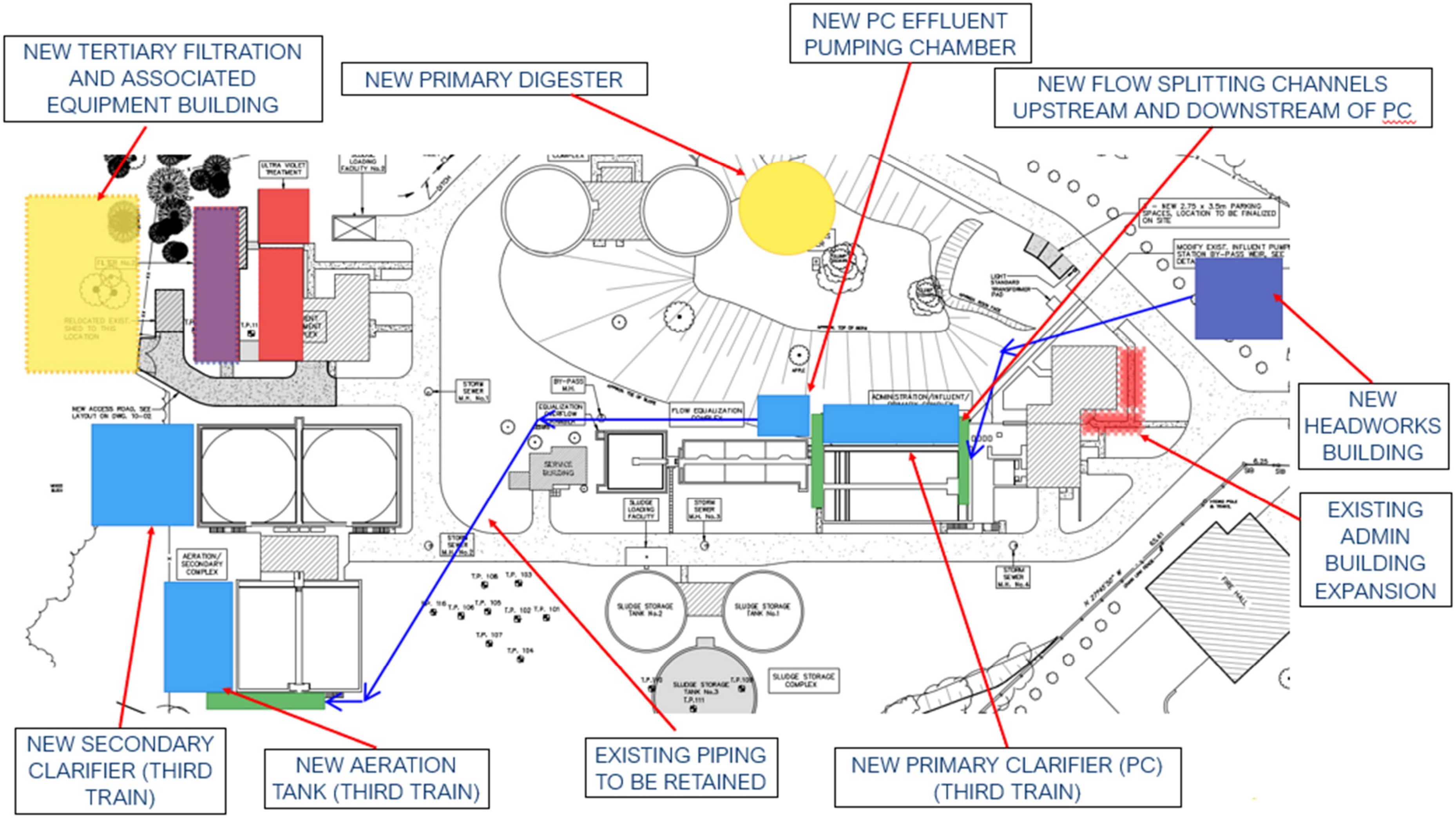


Figure 4-3 Conventional Activated Sludge (CAS) Facility Expansion Layout

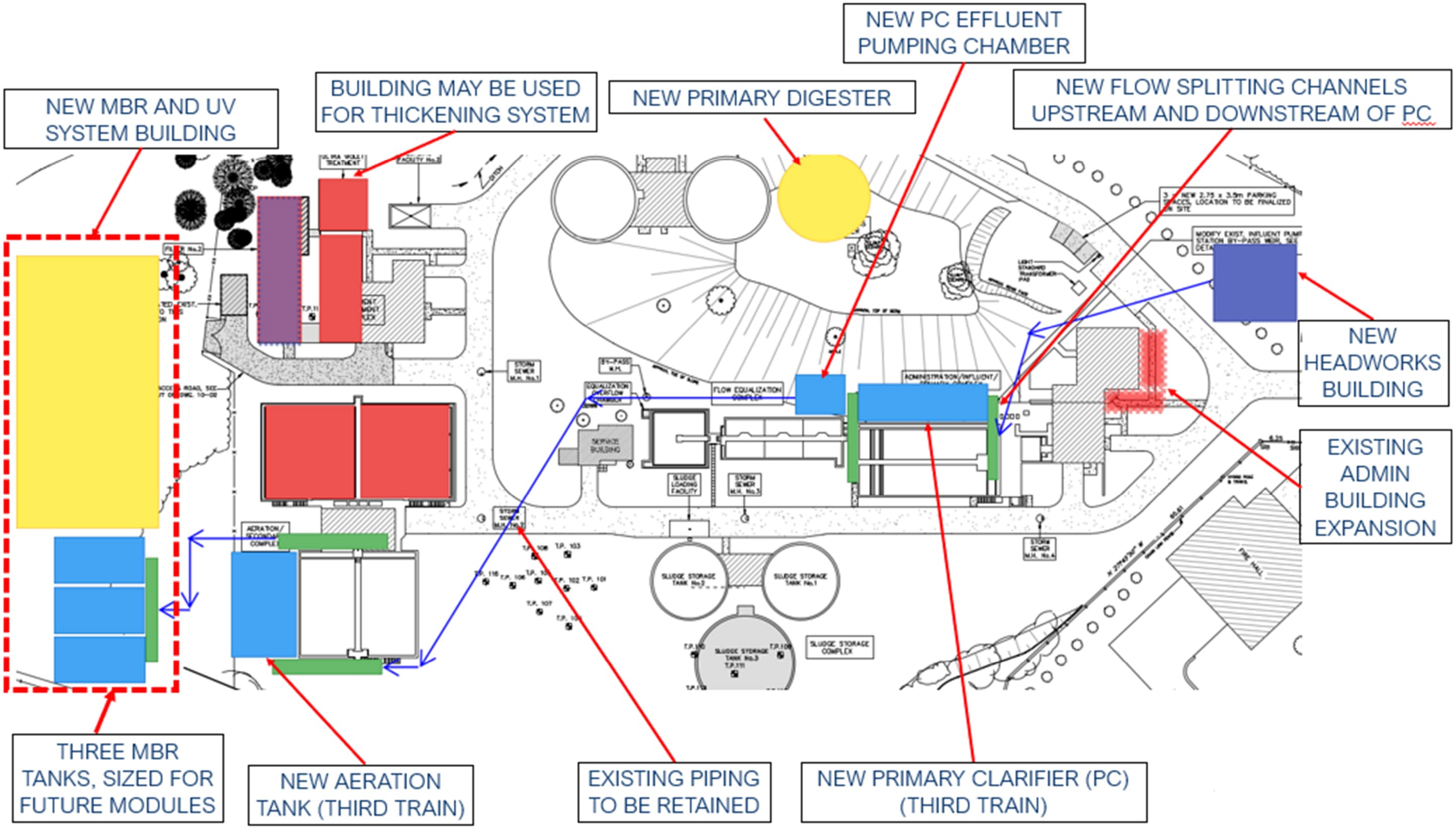


Figure 4-4 Membrane Bioreactor (MBR) Facility Expansion Layout

4.2.2 Evaluation

Table 4.4Table 4.5 provides the evaluation of the two options based on MCEA's technical and financial categories, (as other two categories will be same). The results show that preferred strategy to expand Fergus WWTP's capacity is a via CAS technology. Appendix 1 to this report provides the capital costing for the MBR and CAS Options based on the costing methodology detailed in Section 6.1.

4.1 Design Parameters for CAS Upgrade

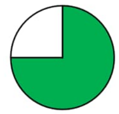
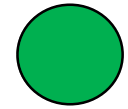
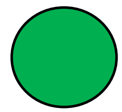
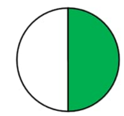
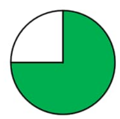
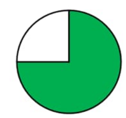
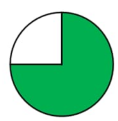
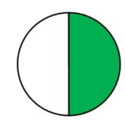
4.1.1 Summary of Capacity Requirements

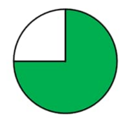
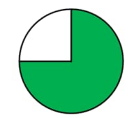
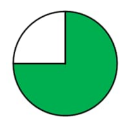
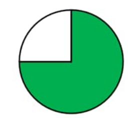
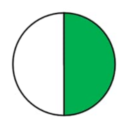
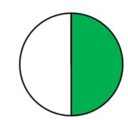
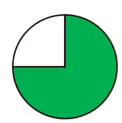
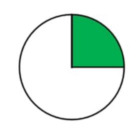
Table 4.5 provides a summary of the upsized flow capacity required at each unit process of the Fergus WWTP. For the tank-based unit processes, the corresponding upsized tankage needed to meet MECP approval is listed in Table 4.6. For the equipment-based unit processes, upsizing the capacity will require new equipment to be installed.

Table 4.4 Fergus WWTP – Liquid Train Required Capacity Increase

Unit Process	Existing Capacity m^3/day (L/s)	Design Parameter	Required Capacity m^3/day (L/s)
Preliminary Treatment (Screening + Grit Removal Equipment)	23,360 (270)	PIF	45,977 (536)
Primary Treatment (Primary Clarifier Tanks)	23,360 (270)	PDF	30,026 (347)
Secondary Treatment (Aeration Tanks)	8,560 (109)	ADF	9, 383 (109)
Secondary Treatment (Secondary Clarifier Tanks)	29,200 (402)	PHF	37,532 (437)
Tertiary Filtration (Filter Equipment)	29,200 (402)	PHF	37,532 (437)
UV Disinfection (UV Equipment)	23,360 (270)	PIF	45, 977(536)
Sludge Management	8,560 (109)	MMF	14,075(160)

Table 4.5 Evaluation of Fergus WWTP Expansion Strategies based on MCEA Technical Criteria

Category	1-Retain WWTP as a CAS Facility and Add a New Third Train		2 – Convert WWTP to an MBR Facility	
Meets Existing and Future Needs	• Maximizes use of existing tankage while accounting for lifecycle replacements / upgrades due within the next 5 years. • To meet capacity beyond 2051, additional tankage and upgrades required.		• Will facilitate operational and maintenance requirements, as two unit processes will be combined into one. • To meet capacity beyond 2051, will likely only require additional equipment that can be installed within existing tankage.	
Impact on Operations and Maintenance	• Improves operational redundancy by allowing for flow splitting between three trains, instead of only two. • Current operations staff are experienced with this facility and will require minimal training for the new train.		• All operations staff will require training on the new facility. • MBRs require much more maintenance activities than CAS plants. • However, staff only has to maintain one unit process as compared to two which saves on maintenance costs and requirements.	
Constructability	• Facilitates Construction Sequencing, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.		• Facilitates Construction Sequencing, as major proposed works do not interfere with existing infrastructure. Some temporary pumping maybe required during shutdown and bypasses. • No foreseeable constructability issues.	
Impact on Existing Infrastructure	No adverse impact on existing infrastructure. Project objective allows for lifecycle improvements and maximizes utilization of existing infrastructure (along with expansion of the plant).		Project will lead to decommissioning of at least two unit processes which are due for life-cycle replacement or improvements within next 5 years. As such, does not maximize use of existing infrastructure.	

Category	1-Retain WWTP as a CAS Facility and Add a New Third Train		2 – Convert WWTP to an MBR Facility	
Aligns with Approval and Permitting Process	• Dependent on the ACS study and ECA approval. • Technology comparisons for Tertiary Filters are provided to account for potentially more stringent effluent requirements.		• Dependent on the ACS study and ECA approval • MBR facilities are capable of meeting very stringent requirements without the use of tertiary filters.	
Expansion Capability	• Future expansion is limited to either introducing a fourth train or converting to an MBR facility. If the latter is selected, upgrades and new assets added will be decommissioned. • With the proposed design, Fergus WWTP capacity may be expanded to 11,500 m^3/d		• With the proposed design, Fergus WWTP capacity may be expanded to 11,500 m^3/d	
Capital Costs	$71.3 Million		$73.6 Million	
40 – Year Lifecycle Costs	• Asset Replacement Cost: $31.8 Million • 40- year Operational Cost: $13.9 Million		• Asset Replacement Cost: $39.8 Million • 40- year Operational Cost: $16.7 Million	

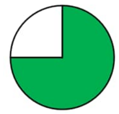
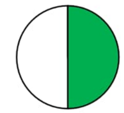
Category	1-Retain WWTP as a CAS Facility and Add a New Third Train	2 – Convert WWTP to an MBR Facility
Overall Score	Preferred Option 	

Table 4.6 Fergus WWTP – Liquid Train Tankage Required Capacity Increase

Unit Process	Tankage Existing Capacity	Tankage Required Capacity
Primary Clarifier Tanks	314 m^2	429 m^2
Aeration Tanks	2,140 m^3	4,761 m^3
Secondary Clarifier Tanks	635 m^2	751 m^2
Primary Digestor	1,470 m^3	*

*: The Primary Digestor expansion may possibly be minimized by thickening the sludge prior to discharging to the digestors. A recommended strategy is to undertake a technology assessment as part of the Sludge Storage Capacity Assessment scheduled for 2025, where the cost – benefit impact of implementing sludge thickening prior to digesters can be analysed. The assessment is to also provide an implementation strategy with consideration provided to current asset condition, the timelines currently established for replacing any assets, as well as consideration provided to the planned upgrades for 2041.

4.1.2 Unit Process Design Strategy

Table 4.7 summarises the unit upgrades to the Fergus WWTP based on CAS technology as detailed in the following sections.

4.1.2.1 Preliminary Treatment

The existing mechanical screening and aerated grit removal system is to be upsized and replaced for the future PIF of 532 L/s, with consideration given to:

- Maintaining a fully operating system during all stages of construction.
    - This will require a new headworks building, as the existing screening and grit removal system cannot be taken offline (cannot be demolished) until a new system is in place.
- The large variation in peak and minimum (dry weather) flows. Channel scouring measures maybe required to prevent solids deposition during low flow period, if the channel is sized for PIF
- Cost of the upgrades will be based on:
- New screening and grit removal system, and associated electrical, mechanical and controls system; and
- New Headworks Building to house the new system.

4.1.2.2 Primary Treatment and Pumping Station

A third primary clarifier is proposed to be constructed beside the north primary clarifier, which will require the following upgrades / modifications:

- New primary clarifier influent channel designed for equal flow conveyance to the three PCs (2 existing and 1 new);
- New tank to have equal dimensions of the existing PC to prevent flow-splitting complications and un-equal hydraulic retention times;
- Relocation of the existing primary effluent pumping station downstream of the primary effluent channel;
- Modifications of pumping station overflow to the existing equalization tanks; and
- Modifications (shortening) of pump discharge pipes to the aeration tanks.

4.1.2.3 Secondary Treatment: Aeration Tanks

A third tank with a volume equal to the volume provided by both current aeration tanks combined is needed to meet the minimum MECP required Sludge Retention Time (SRT) for nitrification. Equipment in existing aeration tanks can be replaced as needed for state of good repair (estimated end of lifespan is within next 3 years). New blower needed for new tank does not impact existing equipment lifespan.

4.1.2.4 Secondary Treatment: Secondary Clarifier and Activated Sludge Pumping Station

A third clarifier for the third treatment train will be required. The new clarifier is recommended to be sized equally to the existing clarifiers prevent flow-splitting complications. Equipment in existing secondary clarifiers can be replaced as needed for state of good repair (estimated year is by 2031). The activated sludge pumps (RAS and WAS) estimated replacement year is approximately 2027. A separate dedicated RAS / WAS system is proposed for the new third train. As such, replacement of the pumps in 2027 is not impacted by proposed upgrades.

4.1.2.5 Tertiary Treatment

The tertiary filters will have to be expanded for future PHF, addressing ongoing effluent TSS compliance issues (due to filter equipment failures) and possibly reduced compliance limits in the new ECA. Although the filters will reach the end of their lifespan by approx. 2032, it is likely that equipment failure will continue to occur, subsequently resulting in more effluent exceedances.

As such, the township is recommended to undertake a *Tertiary Filter Assessment and Technology Comparison* study to determine preferred strategy to address the above listed requirements. The study is recommended to include consultation with the MECP regarding the effluent compliance limits for 2051 flows. Typically, an Assimilative Capacity Study (ACS) is required to establish the effluent criteria, which is usually undertaken as part of the Class EA study. **As such, the Township is recommended to commence this investigation within the next 5 years** to allow optimizing the construction timeline and prevent future operational issues.

Following this, the upgrades are to be phased such that the filters are replaced by 2031 (just prior to the end of their lifespan) and are sized for the future flows up to 2051. Once new filters sized for future (2051) flows are installed in 2031, a lifespan of 20 years can be obtained out of them till they will have to be expanded again (2051). Hence, thrown-away costs are minimized (possibly eliminated).

4.1.2.6 Disinfection

UV system will have to be upsized for the future PIF. The UV banks are being replaced in 2025. With proposed expansions being recommended by year 2040, approximately 15 years can be obtained out of them. However, it is recommended that during the Class EA, the Township investigates options of retaining the existing UV channels and add a third channel to meet the design requirements. If it is determined that space restrictions do not allow a third channel, relocating the system to the new tertiary filter building may be required.

4.1.2.7 Sludge Management

The Township's operating staff have noted a requirement for a new primary digestor due to the ongoing issues with the existing tanks. As such, the Master Plan recommendations will include a new Primary Digestor. However, a sludge thickening system via centrifuges or co-thickening with Primary Sludge is recommended, which may possibly reduce the volume of capacity expansion required.

Table 4.7 Fergus WWTP Upgrades - Conceptual Upgrades

Parameter	Units	Average Day*	Maximum Day*	Peak Hour*	MECP Guidelines	Upgrades Required	
Primary Clarifier							
SOR	m^2		81		60 - 80 m^3/m^2-d at PDF	429	Minimum additional surface area required.
SOR	m^2	25			30 - 40 m^3/m^2-d at ADF	470	Recommended Size for New P. Clarifier
HRT	hrs	2.6			1.5 - 2.5 hrs at ADF	3 m	Minimum depth required
Aeration Tank							
SRT	d	10			> 10 days at 5°C	4,761	Minimum additional volume required if operating at 3.5 g/L MLSS
V	m^3	4,761			m^3	3,210	Minimum additional volume required if operating at 4.7 mg/L MLSS
MLSS	g/L	4.0			3.0 - 5.0 g/L		
Y		0.8					
Q	m^3/d	11,963	38,281	47,851			
BOD_5	g/L	0.199					Estimated future influent BOD
HRT	hrs	10			6 hrs		
F/M		0.13			0.05 - 0.25 d^{-1}		
Secondary Clarifier							
SLR	kg/m^2-d		211		<240 kg/m^2-d	751	Minimum additional surface area required.

Parameter	Units	Average Day*	Maximum Day*	Peak Hour*	MECP Guidelines	Upgrades Required	
Surface Area	m^2		953			953	Recommended size for New S. Clarifier
SOR	m^3/m^2-d			50	$<50\ m^3/m^2$-d		

*Calculations are based on Minimum Additional dimensions required to meet MECP Guidelines

Note – Calculations are for high-level preliminary sizing based on conceptual design flows and are not indicative of actual design requirements for Fergus WWTP Upgrades. The design flows are to be revised in the Schedule C / conceptual design / detailed design phases, and the above table revised accordingly to reflect actual project goals and requirements.

5.0 WASTEWATER RISK REVIEW AND SYSTEM MANAGEMENT

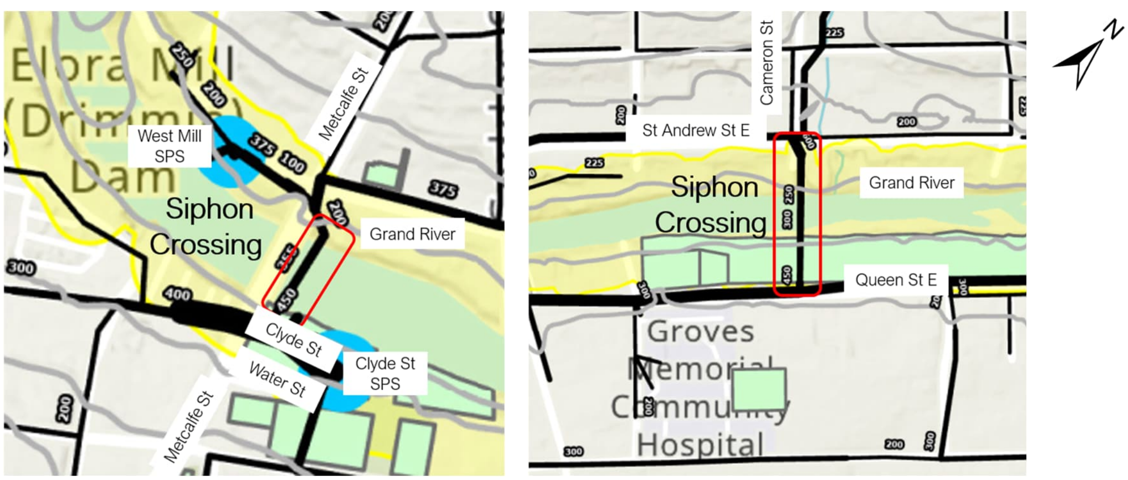
5.1 Sanitary Sewer Siphon Crossings in Elora and Fergus

5.1.1 Background

The Township would like to consider the risk associated with siphon crossings of the Grand River. There are two crossings:

- On the east side of the Metcalfe St bridge in Elora there is a double-barreled siphon (350 mm and 200 mm pipes) crossing from north to south; and
- South of the intersection of St Andrew St E and Cameron St in Fergus is a sewer siphon crossing with sewer sizes from 600 mm (incoming sewer on north side) to 250 mm (across river), and 300 mm (south side) which connects to the sewer on Queen St E.

These are shown in Figure 5-1.



Elora Siphon Crossing Fergus Siphon Crossing

Figure 5-1 Sanitary Siphon Crossings in Elora and Fergus

Based on available records, the Elora siphon was installed in 1980 using PVC pipe that was placed by open cut into the rive bed. The siphon was built with a minimum of 1.5 m cover which included a 1 m thick stone gabion basket interfacing with the rive bed surface. The Township's 2022 Asset Management Plan (AMP) indicated that these were considered to be in fair condition with a moderate probability of failure.

Based on available records, the Fergus siphon was installed in 1993 using PVC pipe for the 250 mm and 300 mm portions that area assumed to be the siphon components. The methodology of installation is not known but the 2022 AMP indicated that these were considered to be in good condition with a low probability of failure.

The wastewater collection system hydraulic model did note that there were no issues with conveying the expected 2051 flows through the siphons.

5.1.2 Frequency of a Potential Siphon Failure

Typically, HDPE and PVC sewer pipe is corrosion resistant and is anticipated to have a service life in the order of 80 to 100 years. Failure of HDPE and PVC pipes are typically related to installation practices such as poor pipe bedding construction, damage of the pipe during installation, or improper alignment of pipe joints *(USEPA Primer on Condition Curves for Water Mains, 2013*). Current Township and Ontario standards for sewer and forcemain installation are designed to prevent this type of failure provided adequate inspection and quality testing is undertaken during construction.

These siphons would be expected to have a remaining lifespan free of breakage of 50 years. Therefore, the frequency of a potential main break would be low.

5.1.3 Severity of a Siphon Failure

There would be two major impacts if there would be a siphon failure:

- A release of raw sewage into the environment either on land or within the river;
- Sewage back up into the system that can result in basement flooding

These are similar impacts to the Township that they presently must address within their sewer collection system and in the event of a wet weather bypass at the WWTPs. The major impacts would be:

- The costs to remediate environmental contamination;
- The cost to temporarily pump sewage either to trucks or to pump to another sewer outlet. pipe break or blockage; and
- The cost to expedite the repair or replacement of the siphon.

5.1.4 Conclusion

As the likelihood of unplanned failure of either siphon are low but the impact can be major but are typical for operation of a collection system, it is recommended that the Township undertake the following risk reduction measures:

- Undertake a camera inspection of the siphon crossings to confirm their condition and to plan for any preventative maintenance required;
- Undertake hydrogeomorphological surveys of the crossing sites to determine if there is active river erosion occurring that may expose the pipes and put their integrity at risk; and
- As the collection system grows to accommodate future lands outside of the current boundary, confirm if siphon capacity should be increased or if additional river crossings should be undertaken to mitigate the risks associated with river crossings.

5.2 Wastewater Collection System Management

To manage the wastewater collection system, it is recommended that the Township provide an allotment of $150,000 every five years over the Master Plan period to update the wastewater hydraulic and undertake flow monitoring of sewers to better define infiltration issues. It is also recommended that the Township undertake an investigation of the current siphons to assess their current condition.

6.0 WASTEWATER CAPITAL PROGRAM

Appendix 6 provides project cost sheets for each water and wastewater project that has been identified to better define the scope of work and cost that is anticipated for each project.

6.1 Costing Presented in the Master Plan

ASTM E 2516 (Standard Classification for Cost Estimate Classification System) provides a five-level classification system based on several characteristics, with the primary characteristic being the level of project definition (i.e., percentage of design completion). The ASTM standard, shown in Table 6.1 illustrates the typical accuracy ranges that may be associated with the general building industries.

Table 6.1 ASTM E2516 Accuracy Range of Cost Opinions for General Building Industries

Cost Estimate Class	Expressed as % of Design Completion	Anticipated Accuracy Range as % of Actual Cost
5	0-2	-30 to +50
4	1-15	-20 to +30
3	10-40	-15 to +20
2	30-70	-10 to +15
1	50-100	-5 to +10

The cost estimates developed in this report would be best described as a Class 5 Cost Estimate which is typically used for high level study project. Cost opinions are in 2025 dollars and reflect the reduced HST payable by the Township.

6.2 Overall Wastewater Servicing Strategy Description

The preferred wastewater servicing strategy identified in Sections, 4 and 5 is intended to meet the wastewater servicing requirements of Township of Centre Wellington to 2051. The recommended solutions were established in consultation with the Township on the basis of the Master Plan Goals that were established for this project.

The recommended strategy prioritized various implementation undertakings to provide for sufficient wastewater conveyance and treatment to the target year of 2051. As well, the preferred wastewater servicing alternative solution also serves to address risk (i.e. redundancy, reliability, etc.). The preferred servicing strategies are implemented on a timeline established in accordance with each project's MCEA schedule.

The anticipated timing of each project within the Preferred Strategy has been established based on the projected population and employment growth within the Township. The timelines are categorized as following:

- Short – term period from 2025 to 2023; and
- Long-term period from 2034-2051.

6.3 Recommended Wastewater Projects

Table 6.2 summarizes the costs for the recommended wastewater projects that have been identified in this Master Plan.

Table 6.2 Recommended Wastewater Projects

General					Timing		2025 Present Value Cost			Driver	
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
WWTP- F	Fergus	WW	Vertical	Fergus WWTP Upgrade	2035	2042	$71,280,000	$13,910,000	$85,190,000	Total Growth	Total Growth
WW-SE SPS	Elora-Salem	WW	Vertical	New South Elora SPS	2034	2036	$8,300,000	$4,300,000	$12,600,000		ER1
WW-E-LIFT	Elora-Salem	WW	Vertical	New lift station at the Elora WWTP	2034	2036	$6,430,000	$3,110,000	$9,540,000		ER1
WW-F-SPS	Fergus	WW	Vertical	New South Fergus SPS	2034	2036	$19,670,000	$6,800,000	$26,470,000		FE3
WW-FE 3 SPS	Fergus	WW	Vertical	New Area FE 3 SPS	2034	2036	$5,810,000	$1,660,000	$7,470,000		FE3
WW-E-1	Elora-Salem	WW	Linear	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line	2034	2036	$2,120,000	$0	$2,120,000		ER1
WW-E-2	Elora-Salem	WW	Linear	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP	2034	2036	$3,140,000	$0	$3,140,000		ER1
WW-E-3	Elora-Salem	WW	Linear	Geddes St. Sanitary Sewer Replacement	2034	2036	$800,000	$0	$800,000	Total Growth	Total Growth
WW-E-4	Elora-Salem	WW	Linear	East Mill Street (Melville to Irvine) Sanitary Sewer Replacement	2034	2036	$1,190,000	$0	$1,190,000	Total Growth	Total Growth
WW-F-1	Fergus	WW	Linear	New Forcemain on Guelph St from New SPS to Union St.	2034	2036	$2,460,000	$0	$2,460,000		FE3
WW-F-2	Fergus	WW	Linear	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP	2034	2036	$2,590,000	$0	$2,590,000		FE3
WW-F-3	Fergus	WW	Linear	New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands	2034	2036	$4,810,000	$0	$4,810,000		FE4
WW-F-4	Fergus	WW	Linear	Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS	2034	2036	$300,000	$0	$300,000		FE4
WW-F-5	Fergus	WW	Linear	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St	2034	2036	$280,000	$0	$280,000		FE1
WW-F-6	Fergus	WW	Linear	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W	2034	2036	$1,640,000	$0	$1,640,000		FE1
WW-F-7	Fergus	WW	Linear	Upgrading gravity main on Holman Cres. And Perry St.	2034	2036	$770,000	$0	$770,000	Total Growth	Total Growth
					Total Identified Projects		$131,59,000	$29,780,000	$161,370,000		

APPENDIX 1

CAPITAL COST OPINIONS FOR FERGUS WWTP EXPANSION ALTERNATIVES

Conventional Activated Sludge Expansion Option

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WWTP- F
Project Description: Fergus WWTP Upgrade

Date Prepared/Updated: 16-Apr-25
Prepared/Updated By: JWT/DS

Related Project IDs:

Scope of Work:

Upgrade Fergus WWTP from 8,000 m^3/day to 10,500 m^3/day which is its 20-year projection from 2042 commissioning date. Based on CAS upgrade as this is a lower cost alternative than MBR.

Project Justification/Triggers:

Development growth is anticipated to exceed Fergus WWTP current capacity in 2042.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

This is a WWTP expansion so it will require either a Schedule C Class EA and an ACS.

Project Timing:

In Service:	2042
Construction Start:	2040
Design:	2039
Study / Class EA:	2038
Scoping Exercise:	2037

Design Basis:

Model scenario used: MECP Guidelines

Design Condition: 20-year capacity from year upgraded

Results: An anticipated flow of 120.3 L/s was determined for the SPS

Redundancy Required: per MECP GL

Benefit to Existing and/or Oversizing Justification

No benefit to existing.

Property Requirements:

To be housed with Fergus WWTP

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require for construction
MECP Environmental Compliance Approval (ECA)	X		ECAs for sewage and air & noise

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Class Environmental Assessment	X		Schedule C
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4	X		Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	High	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		C
CONSTRUCTION ASSUMPTION:		Treatment

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Filter Upgrades (2030-35)							
Division 1 - General Requirements						$400,000	
Division 2 - Existing Condition (Site Work)						$870,000	
Division 3 - Concrete						$400,000	
Division 4 - Masonry						$20,000	
Division 5 - Metals						$20,000	
Division 6 - Woods, Plastics and Composites						$5,000	
Division 7 - Thermal & Moisture Protection						$150,000	
Division 8 - Openings						$35,000	
Division 9 - Finishes						$80,000	
Division 10 - Specialities						$10,000	
Division 11 - Equipment						$1,632,852	
Division 13 - Control & Instrumentation						$100,000	
Division 14 - Conveying Equipment						$0	
Division 15 - Mechanical						$250,000	
Division 16 - Electrical						$500,000	
CAS Upgrades							
Division 1 - General Requirements						$2,000,000	
Division 2 - Existing Condition (Site Work)						$9,200,000	
Division 3 - Concrete						$8,000,000	
Division 4 - Masonry						$500,000	
Division 5 - Metals						$700,000	
Division 6 - Woods, Plastics and Composites						$20,000	
Division 7 - Thermal & Moisture Protection						$800,000	
Division 8 - Openings						$200,000	
Division 9 - Finishes						$300,000	
Division 10 - Specialities						$40,000	
Division 11 - Equipment						$8,900,000	
Division 13 - Control & Instrumentation						$625,000	
Division 14 - Conveying Equipment						$0	
Division 15 - Mechanical						$3,875,000	
Division 16 - Electrical						$3,125,000	
Additional Construction Costs	TBD		ea.			$4,275,785	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$3,206,839	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$50,240,476**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$502,405	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						**$502,405**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$15,000**	
Sub-Total Base Costs						**$50,757,881**	
Consultant Engineering							
i. Scoping / Feasibility Study						$150,000	Lump sum study cost estimate
ii. Study (Schedule B Class EA)							If required assume to be $150,000
iii. Study (Schedule C Class EA)	Required					$350,000	If required assume to be $350,000
iv. Study (Other)	ACS					$100,000	
v. Design	TBD					$2,537,894	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$2,284,105	Assume 4.5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$5,271,999**	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	25%					$14,007,470	
Project Contingency Sub-total						**$14,007,470**	

Non Refundable HST				
Non Refundable HST	TBD		$1,232,657	1.76% of above total
Non Refundable HST Sub-total			$1,232,657	

Total (2025 Dollars)	$71,270,007	
Other Estimate		Source of Estimate
Chosen Estimate	$71,270,007	2025 Estimate

Membrane Bioreactor Expansion Option

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WWTP- F
Project Description: Fergus WWTP Upgrade

Date Prepared/Updated: 16-Apr-25
Prepared/Updated By: JWT/DS
Related Project IDs:

Scope of Work:

Upgrade Fergus WWTP from 8,000 m^3/day to 10,500 m^3/day which is its 20-year projection from 2042 commissioning date. Based on CAS upgrade as this is a lower cost alternative than MBR.

Project Justification/Triggers:

Development growth is anticipated to exceed Fergus WWTP current capacity in 2042.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

This is a WWTP expansion so it will require either a Schedule C Class EA and an ACS.

Project Timing:

In Service:	2042
Construction Start:	2040
Design:	2039
Study / Class EA:	2038
Scoping Exercise:	2037

Design Basis:

Model scenario used: MECP Guidelines

Design Condition: 20-year capacity from year upgraded

Results: An anticipated flow of 120.3 L/s was determined for the SPS

Redundancy Required: per MECP GL

Benefit to Existing and/or Oversizing Justification

No benefit to existing.

Property Requirements:

To be housed with Fergus WWTP

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require for construction
MECP Environmental Compliance Approval (ECA)	X		ECAs for sewage and air & noise

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Class Environmental Assessment	X		Schedule C
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4	X		Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	High	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

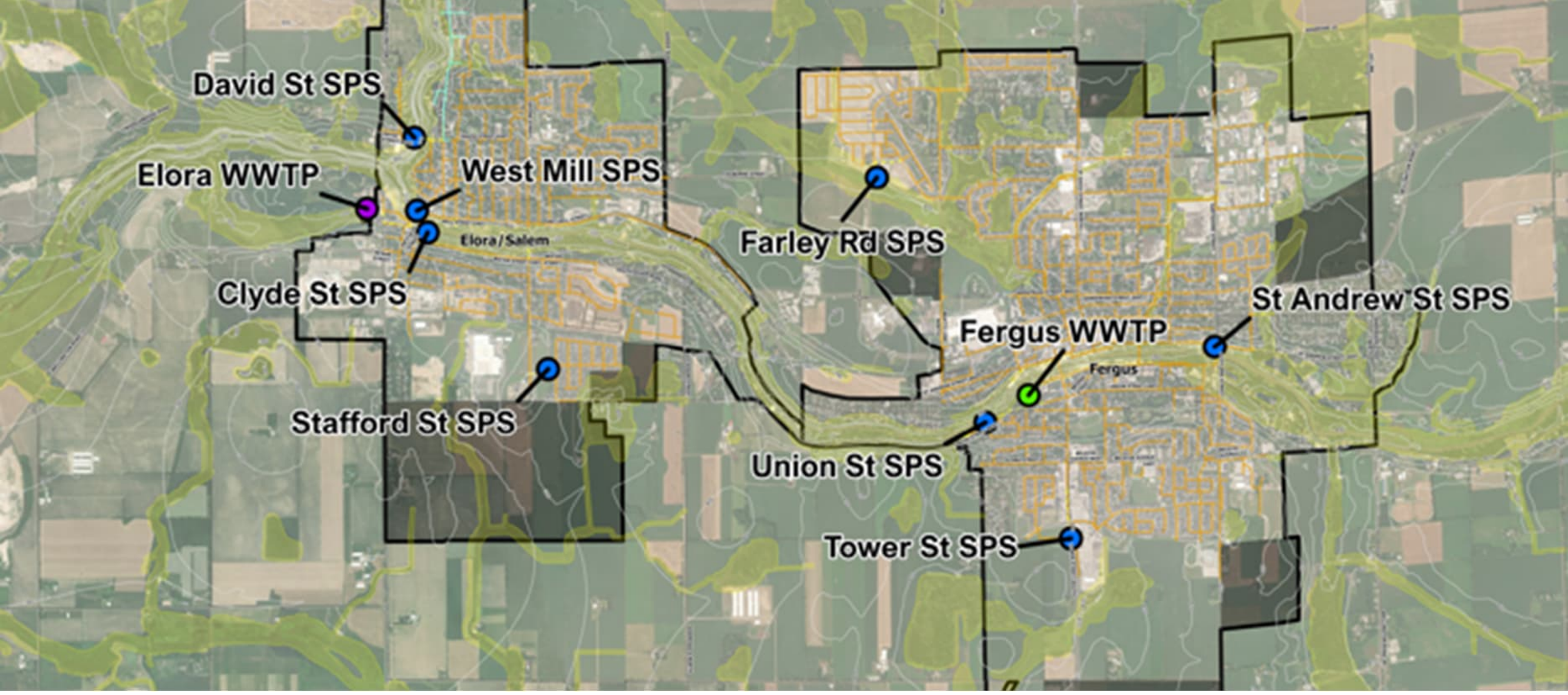
PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		C
CONSTRUCTION ASSUMPTION:		Treatment

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Based on Class D Estimate of MBR Plant						$59,075,000	
Additional Construction Costs	TBD		ea.			$5,907,500	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$4,430,625	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$69,413,125	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$694,131	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						$694,131	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$15,000	
Sub-Total Base Costs						$70,122,256	
Consultant Engineering							
i. Scoping / Feasibility Study						$50,000	Lump sum study cost estimate
ii. Study (Schedule B Class EA)							If required assume to be $150,000
iii. Study (Schedule C Class EA)	Required					$350,000	If required assume to be $350,000
iv. Study (Other)	ACS					$100,000	
v. Design	TBD					$3,506,113	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$3,155,502	Assume 4.5% of Construction Cost
Consultant Engineering Sub-total	TBD					$7,111,614	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$15,446,774	
Project Contingency Sub-total						$15,446,774	
Non Refundable HST							
Non Refundable HST	TBD					$1,631,179	1.76% of above total
Non Refundable HST Sub-total						$1,631,179	
Total (2025 Dollars)						$94,311,824	
Other Estimate							Source of Estimate
Chosen Estimate						$94,311,824	2025 Estimate



TOWNSHIP OF CENTRE WELLINGTON

Centre Wellington

Water and Wastewater Servicing Master Plan

Appendix 6

Master Plan Project Cost Sheets

June 30, 2025

RVA

2001 Sheppard Avenue E., Suite 300
Toronto ON M2J 4Z8
T 416 497 8600 **F** 855 833 4022
rvanderson.com

PROUDLY 100% CANADIAN

General					Timing		2025 Present Value Cost			Driver		
Project Number	Location (Elora-Salem/ Fergus)	Water or WW	Type (linear/ vertical)	Description	Start Year	In-Service Year	Capital Cost	40-year Operations Cost	Total Cost	Current Deficiency	Growth from Approved Development/ Intensification	Future Development within 2024 Growth Boundary
W-F-RES	Fergus	W	Vertical	New Water Reservoir in Fergus	2030	2035	$14,560,000	$1,100,000	$15,660,000		Total Growth	Total Growth
W-S-L	Fergus	W	Linear	Connection of New Reservoir to Low Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000		Total Growth	Total Growth
W-S-H	Fergus	W	Linear	Connection of New Reservoir to High Pressure Zone in Fergus	2033	2035	$1,620,000	$0	$1,620,000		Total Growth	Total Growth
W-E-1	Elora-Salem	W	Linear	New Watermain on First Line at Wellington Rd 7	2035	2037	$570,000	$0	$570,000			ER1
W-E-2	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to ER1	2035	2037	$1,950,000	$0	$1,950,000			ER1
W-E-3	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W	2035	2037	$2,210,000	$0	$2,210,000			ER1
W-E-4	Elora-Salem	W	Linear	New Watermain on East limits of existing Main on First Line	2035	2037	$1,040,000	$0	$1,040,000			ER2
W-E-5	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.	2031	2033	$2,090,000	$0	$2,090,000		Total Growth	Total Growth
W-E-6	Elora-Salem	W	Linear	New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5	2031	2033	$4,090,000	$0	$4,090,000		Total Growth	Total Growth
W-E-7	Elora-Salem	W	Linear	New Watermain on Irvine St from Bricker Ave to Woolwich St.	2034	2036	$910,000	$0	$910,000		Total Growth	Total Growth
W-E-8	Elora-Salem	W	Linear	New Watermain on Woolwich St. E from Irvine St to James St.	2034	2036	$1,620,000	$0	$1,620,000		Total Growth	Total Growth
W-E-9	Elora-Salem	W	Linear	New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3	2031	2033	$6,510,000	$0	$6,510,000		Total Growth	Total Growth
W-E-10	Elora-Salem	W	Linear	New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd	2031	2033	$4,510,000	$0	$4,510,000		Total Growth	Total Growth
W-E-11	Elora-Salem	W	Linear	New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location	2031	2033	$2,400,000	$0	$2,400,000		Total Growth	Total Growth
W-F-1	Fergus	W	Linear	New Watermain on HWY 6 from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000			FE3
W-F-2	Fergus	W	Linear	New Watermain on Jones Baseline from FE3 to Second Line	2034	2036	$1,470,000	$0	$1,470,000			FE3
W-F-3	Fergus	W	Linear	New Watermain on Second Line from Jones Baseline to HWY 6	2034	2036	$2,190,000	$0	$2,190,000			FE3
W-F-4	Fergus	W	Linear	New Watermain on Second Line from HWY 6 to Guelph St.	2034	2036	$1,530,000	$0	$1,530,000			FE3
W-F-5	Fergus	W	Linear	New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S	2034	2036	$2,660,000	$0	$2,660,000			FE3
W-F-6	Fergus	W	Linear	New Watermain on HWY 6 from Second Line to existing main	2034	2036	$1,430,000	$0	$1,430,000			FE3
W-F-7	Fergus	W	Linear	New Watermain on Scotland St from Second Line to existing main	2031	2033	$1,590,000	$0	$1,590,000			FE4
W-F-8	Fergus	W	Linear	New Watermain connecting McQueen Blvd to Guelph St.	2034	2036	$880,000	$0	$880,000			FE3
W-F-9	Fergus	W	Linear	New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.	2034	2036	$2,100,000	$0	$2,100,000			FE3
W-F-10	Fergus	W	Linear	New Watermain on St. George St. W from Maple St. to Beatty Line	2028	2030	$520,000	$0	$520,000		Total Growth	Total Growth
W-F-11	Fergus	W	Linear	New Watermain on East limit of existing watermain on Garafraxa St. to FE5	2034	2036	$1,430,000	$0	$1,430,000			FE5
W-F-12	Fergus	W	Linear	New Watermain on Sideroad 18 from Vincent St. to Steele St.	2033	2035	$1,540,000	$0	$1,540,000			FE2
W-F-13	Fergus	W	Linear	New Watermain on Beatty Line from Sideroad 18 to Sideroad 15	2027	2029	$2,250,000	$0	$2,250,000		Total Growth	Total Growth
W-F-14	Fergus	W	Linear	New Watermain on Sideroad 15 from Beatty Line to New Well 7	2027	2029	$2,090,000	$0	$2,090,000		Total Growth	Total Growth
WWTP- F	Fergus	WW	Vertical	Fergus WWTP Upgrade	2035	2042	$71,280,000	$13,910,000	$85,190,000		Total Growth	Total Growth
WW-SE SPS	Elora-Salem	WW	Vertical	New South Elora SPS	2034	2036	$8,300,000	$4,300,000	$12,600,000			ER1
WW-E-LIFT	Elora-Salem	WW	Vertical	New Lift Station at the Elora WWTP	2034	2036	$6,430,000	$3,110,000	$9,540,000			ER1
WW-F-SPS	Fergus	WW	Vertical	New South Fergus SPS	2034	2036	$19,670,000	$6,800,000	$26,470,000			FE3 and FE4
WW-FE 3 SPS	Fergus	WW	Vertical	New Area FE 3 SPS	2034	2036	$5,810,000	$1,660,000	$7,470,000			FE3
WW-E-1	Elora-Salem	WW	Linear	New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line	2034	2036	$2,120,000	$0	$2,120,000			ER1
WW-E-2	Elora-Salem	WW	Linear	New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP	2034	2036	$3,140,000	$0	$3,140,000			ER1
WW-E-3	Elora-Salem	WW	Linear	Geddes St. Sanitary Sewer Replacement	2034	2036	$800,000	$0	$800,000		Total Growth	Total Growth
WW-E-4	Elora-Salem	WW	Linear	East Mill Street (Melville to Irvine) Sanitary Sewer Replacement	2034	2036	$1,190,000	$0	$1,190,000		Total Growth	Total Growth
WW-F-1	Fergus	WW	Linear	New Forcemain on Guelph St from New SPS to Union St.	2034	2036	$2,460,000	$0	$2,460,000			FE3 and FE4
WW-F-2	Fergus	WW	Linear	New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP	2034	2036	$2,590,000	$0	$2,590,000			FE3 and FE4
WW-F-3	Fergus	WW	Linear	New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands	2034	2036	$4,810,000	$0	$4,810,000			FE3 and FE4
WW-F-4	Fergus	WW	Linear	Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS	2034	2036	$300,000	$0	$300,000			FE3
WW-F-5	Fergus	WW	Linear	Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St	2034	2036	$280,000	$0	$280,000			FE1
WW-F-6	Fergus	WW	Linear	Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W	2034	2036	$1,640,000	$0	$1,640,000			FE1
WW-F-7	Fergus	WW	Linear	Upgrading gravity main on Holman Cres. And Perry St.	2034	2036	$770,000	$0	$770,000		Total Growth	Total Growth
						Total Identified Projects:	$200,440,000	$30,880,000	$231,320,000			

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: New Water Reservoir
Project Description: Additional Storage to Provide Required 2051 Storage Capacity

Date Prepared/Updated: 10-Apr-25
Prepared/Updated By: JWT

Related Project IDs: W-S-L; W-S-H

Scope of Work:

In-ground reservoir with a total volume to be 5,720 m^3 in two cells (2,860 m^3 each)
Inlet from Low Pressure Zone
Pumping to distribution system (Low and High Pressure Zone)
Backup Power
New watermain to connect to existing Fergus Low- and High-pressure zones.
Property costs for new site of not on Township property

Project Justification/Triggers:

Elora-Salem and Fergus will have a water storage deficit per MECP requirements over the Master Plan Horizon to 2051.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Reference the actual clause used in the MEA document/ justification; state here if the EA has been satisfied; and if any commitments were made for more consultation.

Project Timing:

In Service:	2035
Construction Start:	2033
Design:	2032
Study / Class EA:	2031
Scoping Exercise:	2030

Design Basis:

Model scenario used: MECP Design GL for Drinking-Water Systems

Design Condition 1: Chapter 8: Treated Water Storage

Results: Treated Water Storage Requirement = A + B + C Where: A = Fire Storage; B = Equalization Storage (25% of maximum day demand); and C = Emergency Storage (25% of A + B)

Redundancy Required:

Design Condition 2:

Results:

Additional Comments:

Benefit to Existing and/or Oversizing Justification

No benefit to existing trigger point is growth

Property Requirements:

It is assumed that a facility site of 4,000 m^2 to allow for future expansion.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: New Water Reservoir
Project Description: Additional Storage to Provide Required 2051 Storage Capacity

Permits and Approvals Required:

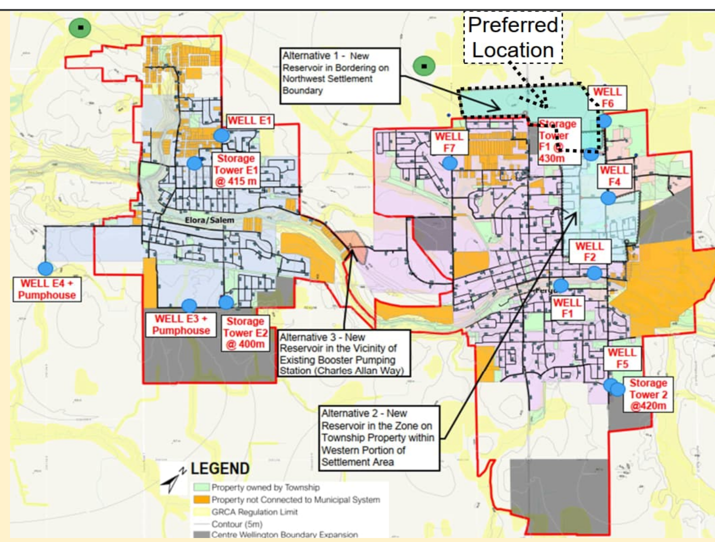
	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP DWWP Update	X		
MECP Permit to Take Water	X		
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment	X		
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Preferred location is on outside of the current 2024 settlement boundary north of Fergus



Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: New Water Reservoir
Project Description: Additional Storage to Provide Required 2051 Storage Capacity

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy	= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy	= Field must be manually populated
Accuracy Range:			= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift	

PROPOSED CAPACITY:		CLASS EA REQUIREMENTS:		B
		CONSTRUCTION ASSUMPTION:		Other

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Structural			LS	1	$6,746,300	$6,746,300	
Piping			LS	1	$200,000	$200,000	
Pumps			LS	1	$1,780,000	$1,780,000	
Site and Yard Piping			LS	1	$300,000	$300,000	
Backup Generation			LS	1	$300,000	$300,000	
Additional Construction Costs	TBD		ea.			$932,630	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$699,473	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$10,958,403	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$109,584	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						$109,584	
Property Requirements							
i. Property and Easements	TBD					$250,000	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$250,000	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$15,000	
Sub-Total Base Costs						$11,332,987	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$1,500,000	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$793,309	Assume 7% of Construction Cost
vi. Contract Admin/Inspection	TBD					$679,979	Assume 6% of Construction Cost
Consultant Engineering Sub-total	TBD					$2,973,288	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$0	
Project Contingency Sub-total						$0	
Non Refundable HST							
Non Refundable HST	TBD					$251,790	1.76% of above total
Non Refundable HST Sub-total						$251,790	
Total (2025 Dollars)						$14,558,065	
Other Estimate							Source of Estimate
Chosen Estimate						$14,558,065	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-S-L
Project Description: New Watermain Connection to Fergus Low-Pressure Zone from New Reservoir

Date Prepared/Updated: 10-Apr-25
Prepared/Updated By: JWT

Related Project IDs: W-S-H; New W Res

Scope of Work:
Watermain connection from New Water Reservoir North of Fergus to Low-Pressure Zone in Fergus WDS

Project Justification/Triggers:
Address water storage deficiency due to growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	2035
Construction Start:	2034
Design:	2033
Study / Class EA:	n/a
Scoping Exercise:	n/a

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: Yes - tie into both pressure zones

Benefit to Existing and/or Oversizing Justification
If there is benefit to existing or oversizing, include how was the benefit/oversizing calculated

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	250 mm	
TOTAL LENGTH:	2600 m	
Tunnelled	0 m	0%
Open Cut	2600 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	500 m	$1,000	$500,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	25	$1,500	$37,500	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	25	$1,500	$37,500	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	200 m	$1,950	$390,000	
Additional Construction Costs	TBD		ea.			$96,500	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$79,613	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,141,113	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,201,113	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$60,056	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$60,056	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$120,111	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$264,245	
Project Contingency Sub-total						$264,245	
Non Refundable HST							
Non Refundable HST	TBD					$27,904	1.76% of above total
Non Refundable HST Sub-total						$27,904	
Total (2025 Dollars)						$1,613,373	
Other Estimate							Source of Estimate
Chosen Estimate						$1,613,373	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-S-H
Project Description: New Watermain Connection to Fergus Low-Pressure Zone from New Reservoir

Date Prepared/Updated: 10-Apr-25
Prepared/Updated By: JWT

Related Project IDs: W-S-L; New W Res

Scope of Work:
Watermain connection from New Water Reservoir North of Fergus to Low-Pressure Zone in Fergus WDS

Project Justification/Triggers:
Address water storage deficiency due to growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	2035
Construction Start:	2034
Design:	2033
Study / Class EA:	n/a
Scoping Exercise:	n/a

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: Yes - tie into both pressure zones

Benefit to Existing and/or Oversizing Justification
If there is benefit to existing or oversizing, include how was the benefit/oversizing calculated

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification	X		
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:	250 mm	
TOTAL LENGTH:	2600 m	
Tunnelled	0 m	0%
Open Cut	2600 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	500 m	$1,000	$500,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	25	$1,500	$37,500	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	25	$1,500	$37,500	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	200 m	$1,950	$390,000	
Additional Construction Costs	TBD		ea.			$96,500	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$79,613	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,141,113	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						$1,201,113	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$60,056	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$60,056	Assume 5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$120,111**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$264,245	
Project Contingency Sub-total						**$264,245**	
Non Refundable HST							
Non Refundable HST	TBD					$27,904	1.76% of above total
Non Refundable HST Sub-total						**$27,904**	
Total (2025 Dollars)						$1,613,373	
Other Estimate							Source of Estimate
Chosen Estimate						$1,613,373	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-1
Project Description: New Watermain on 1st Line West to Wellington Rd 7

Date Prepared/Updated: 10-Apr-25
Prepared/Updated By: WAA

Related Project IDs: W-E-2, W-E-3

Scope of Work:
New Watermain for new South Elora development area connection from existing WM on 1st Line west to Wellington Rd 7.
200 m length - 300mm diameter
Watermain required to service area ER1

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:
Construction Start:
Design:
Study / Class EA:
Scoping Exercise:

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-1
Project Description: New Watermain on 1st Line West to Wellington Rd 7

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Provide updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-1
Project Description: New Watermain on 1st Line West to Wellington Rd 7

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	200 m	
Tunnelled	0 m	0%
Open Cut	200 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	200 m	$1,530	$306,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$30,600	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$25,245	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$361,845	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$421,845	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$21,092	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$21,092	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$42,185	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$92,806	
Project Contingency Sub-total						$92,806	
Non Refundable HST							
Non Refundable HST	TBD					$9,800	1.76% of above total
Non Refundable HST Sub-total						$9,800	
Total (2025 Dollars)						$566,636	
Other Estimate							Source of Estimate
Chosen Estimate						$566,636	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-2
Project Description: New Watermain on Wellington Rd 7 from First Line to ER1

Date Prepared/Updated: 01-May
Prepared/Updated By: WAA

Related Project IDs: W-E-1, W-E-3

Scope of Work:
New Watermain on Wellington Rd 7 from First Line to ER1
Total length 930 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-2
Project Description: New Watermain on Wellington Rd 7 from First Line to ER1

Permits and Approvals Required:

		Yes	No	If yes, describe type:
MECP Record of Watermains Authorized as a Future Alteration				
Form 1 Future Watermain				
Form 2 Existing Watermain Modification				
MECP Permit to Take Water				
MECP Environmental Compliance Approval (ECA)				
Class Environmental Assessment				
Ministry of Natural Resources				
Department of Fisheries Approval				
Transport Canada/Navigable Waters				
Archaeological Stage 1,2,3,4				
Marine Archaeological				
Site Plan				
Building Permit				
Conservation Permit				
Ministry of Transport - Encroachment Order				
Rail Crossing				
Gas Pipeline Crossing				
Other				
Other				
Other				
Other				
Other				

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Provide updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-2
Project Description: New Watermain on Wellington Rd 7 from First Line to ER1

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm		CLASS EA REQUIREMENTS:		Exempt
TOTAL LENGTH:	930 m		CONSTRUCTION ASSUMPTION:		Watermain
Tunnelled	0 m	0%			
Open Cut	930 m	100%			

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	930 m	$1,260	$1,171,800	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$117,180	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$96,674	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$1,385,654**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						**$1,445,654**	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$72,283	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$72,283	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					**$144,565**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					**$0**	
Project Contingency							
Project Contingency	20%					$318,044	
Project Contingency Sub-total						**$318,044**	
Non Refundable HST							
Non Refundable HST	TBD					$33,585	1.76% of above total
Non Refundable HST Sub-total						**$33,585**	
Total (2025 Dollars)						**$1,941,848**	
Other Estimate							Source of Estimate
Chosen Estimate						**$1,941,848**	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-3
Project Description: New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W

Date Prepared/Updated: 01-May
Prepared/Updated By: WAA

Related Project IDs: W-E-1, W-E-2

Scope of Work:
New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W
Total length 875 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-3
Project Description: New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Provide updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-3
Project Description: New Watermain on Wellington Rd 7 from First Line to Existing Main 40m south of York St. W

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	875 m	
Tunnelled	0 m	0%
Open Cut	875 m	100%

CLASS EA REQUIREMENTS:	Exempt
CONSTRUCTION ASSUMPTION:	Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	875 m	$1,530	$1,338,750	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$133,875	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$110,447	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,583,072	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,643,072	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$82,154	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$82,154	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$164,307	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$361,476	
Project Contingency Sub-total						$361,476	
Non Refundable HST							
Non Refundable HST	TBD					$38,172	1.76% of above total
Non Refundable HST Sub-total						$38,172	
Total (2025 Dollars)						$2,207,027	
Other Estimate							Source of Estimate
Chosen Estimate						$2,207,027	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-4
Project Description: New Watermain on East Limit of Existing Main on 1st Line

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: WAA

Related Project IDs: -

Scope of Work:
New Watermain for new South Elora development area connection from existing distribution from east, to service area ER2
Total length 360m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: Assessed based on future need

Design Condition:

Results:

Redundancy Required: No

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-4
Project Description: New Watermain on East Limit of Existing Main on 1st Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Provide updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-4
Project Description: New Watermain on East Limit of Existing Main on 1st Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		360 m	
	Tunnelled	0 m	0%
	Open Cut	360 m	100%

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	360 m	$1,530	$550,800	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	25	$2,000	$50,000	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$60,080	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$49,566	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$710,446	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$770,446	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$38,522	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$38,522	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$77,045	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$169,498	
Project Contingency Sub-total						$169,498	
Non Refundable HST							
Non Refundable HST	TBD					$17,899	1.76% of above total
Non Refundable HST Sub-total						$17,899	
Total (2025 Dollars)						$1,034,888	
Other Estimate							Source of Estimate
Chosen Estimate						$1,034,888	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-5 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-6

Scope of Work:

New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.
Total length 1000 m
Diameter 300 mm

Project Justification/Triggers:

As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

Additional Water supply source to existing developments

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-5 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-5 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from existing main 260m north of David St. W to Wellington Rd 18, including connection to South St dead end.

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	1000 m	
Tunnelled	0 m	0%
Open Cut	1000 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1000 m	$1,260	$1,260,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$126,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$103,950	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,489,950	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						$1,549,950	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$77,498	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$77,498	Assume 5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$154,995**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$340,989	
Project Contingency Sub-total						**$340,989**	
Non Refundable HST							
Non Refundable HST	TBD					$36,008	1.76% of above total
Non Refundable HST Sub-total						**$36,008**	
Total (2025 Dollars)						$2,081,942	
Other Estimate							Source of Estimate
Chosen Estimate						$2,081,942	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-6 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-5, W-E-9

Scope of Work:
New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5
Total length 2000 m
Diameter 300 mm

Project Justification/Triggers:
As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification
Additional Water supply source to existing developments

Property Requirements:
Exempt as work within current road ROW.

Project ID: W-E-6 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-6 (Capital Work) - *2022-041*
Project Description: New Watermain on Wellington Rd 7 from Wellington Rd 18 to New Well 5

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	2000 m	
Tunnelled	0 m	0%
Open Cut	2000 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	2000 m	$1,260	$2,520,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$252,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$207,900	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$2,979,900	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$3,039,900	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$151,995	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$151,995	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$303,990	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$668,778	
Project Contingency Sub-total						$668,778	
Non Refundable HST							
Non Refundable HST	TBD					$70,623	1.76% of above total
Non Refundable HST Sub-total						$70,623	
Total (2025 Dollars)						$4,083,291	
Other Estimate							Source of Estimate
Chosen Estimate						$4,083,291	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-7 (Capital Work) - 2022-036
Project Description: Watermain extension on Irvine St from Woolwich St E to Bricker Ave

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-8

Scope of Work:

Watermain extension on Irvine St from Woolwich St E south from James St east to Bricker Ave as identified in 10-year Capital Works Plan. Watermain will connect with future watermain on Woolwich St. (W-E-8) and form a loop with existing system at Woolwich/James and Irvine/Bricker
Total length 410 m

Project Justification/Triggers:

To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification

Provides water distribution redundancy to existing developments

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-7 (Capital Work) - 2022-036
Project Description: Watermain extension on Irvine St from Woolwich St E to Bricker Ave

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-7 (Capital Work) - 2022-036
Project Description: Watermain extension on Irvine St from Woolwich St E to Bricker Ave

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	410 m	
Tunnelled	0 m	0%
Open Cut	410 m	100%

CLASS EA REQUIREMENTS:	Exempt
CONSTRUCTION ASSUMPTION:	Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	410 m	$1,260	$516,600	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$51,660	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$42,620	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$610,880	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$670,880	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$33,544	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$33,544	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$67,088	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$147,593	
Project Contingency Sub-total						$147,593	
Non Refundable HST							
Non Refundable HST	TBD					$15,586	1.76% of above total
Non Refundable HST Sub-total						$15,586	
Total (2025 Dollars)						$901,147	
Other Estimate							Source of Estimate
Chosen Estimate						$901,147	2025 Estimate

Project ID: W-E-8 (Capital Work) - *2022-040*
Project Description: New Watermain on Woolwich St. E from Irvine St to James St.

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-7

Scope of Work:
300 mm watermain extension on Woolwich St E from James St east to Irvine St as identified in 10-year Capital Works Plan. Watermain will connect with future watermain on Irvine St (W-E-7) and form a loop with existing system at Woolwich/James and Irvine/Bricker
Total length 630 m

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-8 (Capital Work) - *2022-040*
Project Description: New Watermain on Woolwich St. E from Irvine St to James St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Provide Updated Map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-8 (Capital Work) - *2022-040*
Project Description: New Watermain on Woolwich St. E from Irvine St to James St.

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy	
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy	
Accuracy Range:			
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift	

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		630 m	
	Tunnelled	0 m	0%
	Open Cut	630 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	630 m	$1,530	$963,900	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m		$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$96,390	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$79,522	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,139,812	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,199,812	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$59,991	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$59,991	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$119,981	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$263,959	
Project Contingency Sub-total						$263,959	
Non Refundable HST							
Non Refundable HST	TBD					$27,874	1.76% of above total
Non Refundable HST Sub-total						$27,874	
Total (2025 Dollars)						$1,611,626	
Other Estimate							Source of Estimate
Chosen Estimate						$1,611,626	2025 Estimate

Project ID: W-E-9
Project Description: New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-5, Well 3

Scope of Work:

New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3
Total length 3050 m
Diameter 300 mm

Project Justification/Triggers:

As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

Additional Water supply source to existing developments

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-9
Project Description: New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-9
Project Description: New Watermain on Wellington Rd. 18 from Wellington Rd 7 to New Well 3

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	3050 m	
Tunnelled	0 m	0%
Open Cut	3050 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	3050 m	$1,260	$3,843,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	100	$2,000	$200,000	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$404,300	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$333,548	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$4,780,848**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						**$4,840,848**	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$242,042	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$242,042	Assume 5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$484,085**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$1,064,986	
Project Contingency Sub-total						**$1,064,986**	
Non Refundable HST							
Non Refundable HST	TBD					$112,463	1.76% of above total
Non Refundable HST Sub-total						**$112,463**	
Total (2025 Dollars)						**$6,502,381**	
Other Estimate							Source of Estimate
Chosen Estimate						**$6,502,381**	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-9, W-E-11

Scope of Work:

New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd, required to supply from future Middlebrook Road well
Total length 2050 m
Diameter 300 mm

Project Justification/Triggers:

As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

Additional Water supply source to existing developments

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Third Ln W from Wellington Rd 18 to Middlebrook Rd

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	3050 m	
Tunnelled	0 m	0%
Open Cut	3050 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	2050 m	$1,260	$2,583,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	100	$2,000	$200,000	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$278,300	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$229,598	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$3,290,898	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$3,350,898	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$167,545	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$167,545	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$335,090	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$737,197	
Project Contingency Sub-total						$737,197	
Non Refundable HST							
Non Refundable HST	TBD					$77,848	1.76% of above total
Non Refundable HST Sub-total						$77,848	
Total (2025 Dollars)						$4,501,033	
Other Estimate							Source of Estimate
Chosen Estimate						$4,501,033	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-E-9, W-E-11

Scope of Work:
New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location
Total length 1000 m
Diameter 300 mm

Project Justification/Triggers:
As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification
Additional Water supply source to existing developments

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-E-10
Project Description: New Watermain on Middlebrook Rd from Third Ln W to Middlebrook Rd Well Location

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	3050 m	
Tunnelled	0 m	0%
Open Cut	3050 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1000 m	$1,260	$1,260,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	100	$2,000	$200,000	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$146,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$120,450	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,726,450	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,786,450	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$89,323	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$89,323	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$178,645	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$393,019	
Project Contingency Sub-total						$393,019	
Non Refundable HST							
Non Refundable HST	TBD					$41,503	1.76% of above total
Non Refundable HST Sub-total						$41,503	
Total (2025 Dollars)						$2,399,617	
Other Estimate							Source of Estimate
Chosen Estimate						$2,399,617	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-1
Project Description: New Watermain on HWY 6 from FE3 to Second Line

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-3, W-F-4, W-F-6

Scope of Work:
New Watermain on HWY 6 from FE3 to Second Line. Watermain will service FE3 future area
Total length 690 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:
Construction Start:
Design:
Study / Class EA:
Scoping Exercise:

Design Basis:

Model scenario used: 2051

Design Condition: 2051

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-1
Project Description: New Watermain on HWY 6 from FE3 to Second Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification	X		
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-1
Project Description: New Watermain on HWY 6 from FE3 to Second Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm		
TOTAL LENGTH:	560 m		
Tunnelled	0 m	0%	
Open Cut	560 m	100%	

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	690 m	$1,260	$869,400	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$86,940	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$71,726	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,028,066	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,088,066	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$54,403	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$54,403	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$108,807	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$239,374	
Project Contingency Sub-total						$239,374	
Non Refundable HST							
Non Refundable HST	TBD					$25,278	1.76% of above total
Non Refundable HST Sub-total						$25,278	
Total (2025 Dollars)						$1,461,524	
Other Estimate							Source of Estimate
Chosen Estimate						$1,461,524	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-2
Project Description: New Watermain on Jones Baseline from FE3 to Second Line

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-3, W-F-7

Scope of Work:
New Watermain on Jones Baseline from FE3 to Second Line to service FE3 area
Total length 690 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-2
Project Description: New Watermain on Jones Baseline from FE3 to Second Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification	X		
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Add updated map

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-2
Project Description: New Watermain on Jones Baseline from FE3 to Second Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	690 m	
Tunnelled	0 m	0%
Open Cut	690 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	690 m	$1,260	$869,400	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$86,940	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$71,726	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,028,066	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,088,066	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$54,403	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$54,403	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$108,807	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$239,374	
Project Contingency Sub-total						$239,374	
Non Refundable HST							
Non Refundable HST	TBD					$25,278	1.76% of above total
Non Refundable HST Sub-total						$25,278	
Total (2025 Dollars)						$1,461,524	
Other Estimate							Source of Estimate
Chosen Estimate						$1,461,524	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-3
Project Description: New Watermain on Second Line from Jones Baseline to HWY 6

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-1, W-F2, W-F-4, W-F-6

Scope of Work:
New Watermain on Second Line from Jones Baseline to HWY 6 to service future area FE3
Total length 1050 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-3
Project Description: New Watermain on Second Line from Jones Baseline to HWY 6

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-3
Project Description: New Watermain on Second Line from Jones Baseline to HWY 6

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	1050 m	
Tunnelled	0 m	0%
Open Cut	1050 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1050 m	$1,260	$1,323,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$132,300	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$109,148	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,564,448	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,624,448	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$81,222	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$81,222	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$162,445	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$357,378	
Project Contingency Sub-total						$357,378	
Non Refundable HST							
Non Refundable HST	TBD					$37,739	1.76% of above total
Non Refundable HST Sub-total						$37,739	
Total (2025 Dollars)						$2,182,010	
Other Estimate							Source of Estimate
Chosen Estimate						$2,182,010	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-4
Project Description: New Watermain on Second Line from HWY 6 to Guelph St.

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-1, W-F3, W-F-5

Scope of Work:
New Watermain on Second Line from HWY 6 to Guelph St. to service future area FE3
Total length 680 m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-4
Project Description: New Watermain on Second Line from HWY 6 to Guelph St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-4
Project Description: New Watermain on Second Line from HWY 6 to Guelph St.

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	680 m	
Tunnelled	0 m	0%
Open Cut	680 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	680 m	$1,260	$856,800	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	25	$2,000	$50,000	
Major Creek Crossings (HDD)			m		$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$90,680	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$74,811	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,072,291	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,132,291	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$56,615	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$56,615	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$113,229	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$249,104	
Project Contingency Sub-total						$249,104	
Non Refundable HST							
Non Refundable HST	TBD					$26,305	1.76% of above total
Non Refundable HST Sub-total						$26,305	
Total (2025 Dollars)						$1,520,930	
Other Estimate							Source of Estimate
Chosen Estimate						$1,520,930	2025 Estimate

Project ID: W-F-5
Project Description: New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-9, W-F-8

Scope of Work:
New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S, required to service future area FE3
Total length1025m
Diameter 300 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-5
Project Description: New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-5
Project Description: New Watermain on Guelph St. from Second Line to 60m south of Cummings Cres. S

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	1025 m	
Tunnelled	0 m	0%
Open Cut	1025 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1025 m	$1,530	$1,568,250	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	25	$2,000	$50,000	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$161,825	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$133,506	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,913,581	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,973,581	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$98,679	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$98,679	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$197,358	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$434,188	
Project Contingency Sub-total						$434,188	
Non Refundable HST							
Non Refundable HST	TBD					$45,850	1.76% of above total
Non Refundable HST Sub-total						$45,850	
Total (2025 Dollars)						$2,650,977	
Other Estimate							Source of Estimate
Chosen Estimate						$2,650,977	2025 Estimate

Project ID: W-F-6
Project Description: New Watermain on Tower Street from existing main south to Second Line

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-1, W-F-3, W-F-5

Scope of Work:
300 mm watermain extension on Tower Steet to Second Line to service FE3
Total length 670m

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-6
Project Description: New Watermain on Tower Street from existing main south to Second Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-6
Project Description: New Watermain on Tower Street from existing main south to Second Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	670 m	
Tunnelled	0 m	0%
Open Cut	670 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	670 m	$1,260	$844,200	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$84,420	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$69,647	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$998,267	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,058,267	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$52,913	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$52,913	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$105,827	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$232,819	
Project Contingency Sub-total						$232,819	
Non Refundable HST							
Non Refundable HST	TBD					$24,586	1.76% of above total
Non Refundable HST Sub-total						$24,586	
Total (2025 Dollars)						$1,421,497	
Other Estimate							Source of Estimate
Chosen Estimate						$1,421,497	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-7
Project Description: New Watermain on Scotland Street from existing watermain to Second Line

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-2, W-F-3

Scope of Work:
300 mm watermain extension on Scotland Street from current limit south to Second Line to service area FE3 and FE4

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
No benefit to existing development

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-7
Project Description: New Watermain on Scotland Street from existing watermain to Second Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-7
Project Description: New Watermain on Scotland Street from existing watermain to Second Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy	= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy	= Field must be manually populated
Accuracy Range:			= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift	

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	750 m	
Tunnelled	0 m	0%
Open Cut	750 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	750 m	$1,260	$945,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$94,500	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$77,963	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,117,463	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,177,463	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$58,873	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$58,873	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$117,746	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$259,042	
Project Contingency Sub-total						$259,042	
Non Refundable HST							
Non Refundable HST	TBD					$27,355	1.76% of above total
Non Refundable HST Sub-total						$27,355	
Total (2025 Dollars)						$1,581,605	
Other Estimate							Source of Estimate
Chosen Estimate						$1,581,605	2025 Estimate

Project ID: W-F-8
Project Description: New Watermain connecting McQueen Blvd to Guelph St.

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-9, W-F-5

Scope of Work:
New Watermain connecting McQueen Blvd to Guelph St., to provide additional redundancy with existing system and service FE3
Total length 325m
Diameter 150 mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-8
Project Description: New Watermain connecting McQueen Blvd to Guelph St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-8
Project Description: New Watermain connecting McQueen Blvd to Guelph St.

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	150 mm	
TOTAL LENGTH:	325 m	
Tunnelled	0 m	0%
Open Cut	325 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	325 m	$1,530	$497,250	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$49,725	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$41,023	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$587,998	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$647,998	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$32,400	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$32,400	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$64,800	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$142,560	
Project Contingency Sub-total						$142,560	
Non Refundable HST							
Non Refundable HST	TBD					$15,054	1.76% of above total
Non Refundable HST Sub-total						$15,054	
Total (2025 Dollars)						$870,412	
Other Estimate							Source of Estimate
Chosen Estimate						$870,412	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-9
Project Description: New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: W-F-5, W-F-8

Scope of Work:

New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St., required to service FE3 area and provide additional redundancy to the system
Total length 830m
Diameter 300 mm

Project Justification/Triggers:

To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification

Provides water distribution redundancy to existing developments

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-9
Project Description: New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-9
Project Description: New Watermain on Guelph St. from 60m south of Cummings Cres. S to Union St.

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	830 m	
Tunnelled	0 m	0%
Open Cut	830 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	830 m	$1,530	$1,269,900	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$126,990	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$104,767	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,501,657	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,561,657	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$78,083	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$78,083	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$156,166	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$343,564	
Project Contingency Sub-total						$343,564	
Non Refundable HST							
Non Refundable HST	TBD					$36,280	1.76% of above total
Non Refundable HST Sub-total						$36,280	
Total (2025 Dollars)						$2,097,667	
Other Estimate							Source of Estimate
Chosen Estimate						$2,097,667	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-10
Project Description: New Watermain on St George St W from Maple St to Beatty Line

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: -

Scope of Work:
150 mm watermain on St George St W from Maple St to Beatty Line
180m length

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2033
Construction Start:	2032
Design:	2031
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Additional Redundancy

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-10
Project Description: New Watermain on St George St W from Maple St to Beatty Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-10
Project Description: New Watermain on St George St W from Maple St to Beatty Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	150 mm	
TOTAL LENGTH:	180 m	
Tunnelled	0 m	0%
Open Cut	180 m	100%

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	180 m	$1,530	$275,400	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$27,540	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$22,721	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$325,661	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						$385,661	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$19,283	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$19,283	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					**$38,566**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					**$0**	
Project Contingency							
Project Contingency	20%					$84,845	
Project Contingency Sub-total						**$84,845**	
Non Refundable HST							
Non Refundable HST	TBD					$8,960	1.76% of above total
Non Refundable HST Sub-total						**$8,960**	
Total (2025 Dollars)						$518,032	
Other Estimate							Source of Estimate
Chosen Estimate						$518,032	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-11
Project Description: New Watermain on East Limit of Existing Watermain on Garafraxa St

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: -

Scope of Work:
New Watermain for new development areas south of South Fergus Secondary Plan Area to connect from existing watermain on Garafraxa St. Watermain will service future FE5 area
Total length 530m
Diameter 300mm

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Provides water distribution redundancy to existing developments

Property Requirements:
Work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-11
Project Description: New Watermain on East Limit of Existing Watermain on Garafraxa St

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification	X		
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-11
Project Description: New Watermain on East Limit of Existing Watermain on Garafraxa St

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	530 m	
Tunnelled	0 m	0%
Open Cut	530 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	530 m	$1,530	$810,900	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$81,090	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$66,899	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$958,889	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,018,889	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$50,944	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$50,944	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$101,889	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$280,195	
Project Contingency Sub-total						$280,195	
Non Refundable HST							
Non Refundable HST	TBD					$24,657	1.76% of above total
Non Refundable HST Sub-total						$24,657	
Total (2025 Dollars)						$1,425,630	
Other Estimate							Source of Estimate
Chosen Estimate						$1,425,630	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-12 (Capital Work)- 2013-016
Project Description: New Watermain Sideroad 18 Vincent Street to Steele Street

Date Prepared/Updated: 01-May-25
Prepared/Updated By: WAA

Related Project IDs: -

Scope of Work:
New 300 mm watermain on Sideroad 18 from Vincent St to Steele St to allow for growth, total length 600 m

Project Justification/Triggers:
To address future growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt as work within current road ROW.

Project Timing:

In Service:	2032
Construction Start:	2031
Design:	2030
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: Hydraulic Model

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
To be determined at DC study stage

Property Requirements:
Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-12 (Capital Work)- 2013-016
Project Description: New Watermain Sideroad 18 Vincent Street to Steele Street

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-12 (Capital Work)- 2013-016
Project Description: New Watermain Sideroad 18 Vincent Street to Steele Street

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	600 m	
Tunnelled	0 m	0%
Open Cut	600 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	600 m	$1,530	$918,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$91,800	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$75,735	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,085,535	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,145,535	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$57,277	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$57,277	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$114,554	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$252,018	
Project Contingency Sub-total						$252,018	
Non Refundable HST							
Non Refundable HST	TBD					$26,613	1.76% of above total
Non Refundable HST Sub-total						$26,613	
Total (2025 Dollars)						$1,538,719	
Other Estimate							Source of Estimate
Chosen Estimate						$1,538,719	2025 Estimate

Project ID: W-F-13
Project Description: New Watermain on Beatty Line from Sideroad 18 to Sideroad 15

Date Prepared/Updated:	15-Apr-25	Related Project IDs:	W-F14, Well 7
Prepared/Updated By:	WAA		

Scope of Work:

New Watermain on Beatty Line from Sideroad 18 to Sideroad 15 connecting to existing water distribution system. Watermain required to supply system from future Well 7
Total length 1080m
Diameter 300mm

Project Justification/Triggers:

As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2027
Construction Start:	2026
Design:	2025
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used:	2051
Design Condition:	MDD+FF and PHD
Results:	Watermain required to service growth
Redundancy Required:	

Benefit to Existing and/or Oversizing Justification

Additional source of supply

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-13
Project Description: New Watermain on Beatty Line from Sideroad 18 to Sideroad 15

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-13
Project Description: New Watermain on Beatty Line from Sideroad 18 to Sideroad 15

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:		300 mm		
TOTAL LENGTH:		1080 m		
	Tunnelled	0 m	0%	
	Open Cut	1080 m	100%	

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1080 m	$1,260	$1,360,800	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$136,080	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$112,266	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,609,146	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,669,146	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$83,457	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$83,457	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$166,915	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$367,212	
Project Contingency Sub-total						$367,212	
Non Refundable HST							
Non Refundable HST	TBD					$38,778	1.76% of above total
Non Refundable HST Sub-total						$38,778	
Total (2025 Dollars)						$2,242,050	
Other Estimate							Source of Estimate
Chosen Estimate						$2,242,050	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-14
Project Description: New Watermain on Sideroad 15 from Beatty Line to New Well 7

Date Prepared/Updated: 15-Apr-25
Prepared/Updated By: WAA

Related Project IDs: W-F-13, Well 7

Scope of Work:

New Watermain New Watermain on Sideroad 15 from Beatty Line to New Well 7. Watermain required to supply system from future Well 7
Total length 1080m
Diameter 300mm

Project Justification/Triggers:

As required in Township's Water Supply Master Plan to address growth.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt as work within current road ROW.

Project Timing:

In Service:	2027
Construction Start:	2026
Design:	2025
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: MDD+FF and PHD

Results: Watermain required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

Additional source of supply

Property Requirements:

Exempt as work within current road ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-14
Project Description: New Watermain on Sideroad 15 from Beatty Line to New Well 7

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain	X		
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: W-F-14
Project Description: New Watermain on Sideroad 15 from Beatty Line to New Well 7

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	1000 m	
Tunnelled	0 m	0%
Open Cut	1000 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Watermain

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1000 m	$1,260	$1,260,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$126,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$103,950	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$1,489,950**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						**$1,549,950**	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$77,498	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$77,498	Assume 5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$154,995**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$340,989	
Project Contingency Sub-total						**$340,989**	
Non Refundable HST							
Non Refundable HST	TBD					$36,008	1.76% of above total
Non Refundable HST Sub-total						**$36,008**	
Total (2025 Dollars)						**$2,081,942**	
Other Estimate							Source of Estimate
Chosen Estimate						**$2,081,942**	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WWTP- F
Project Description: Fergus WWTP Upgrade

Date Prepared/Updated: 16-Apr-25
Prepared/Updated By: JWT/DS

Related Project IDs:

Scope of Work:
Upgrade Fergus WWTP from 8,000 m^3/day to 10,500 m^3/day which is its 20-year projection from 2042 commissioning date. Based on CAS upgrade as this is a lower cost alternative than MBR.

Project Justification/Triggers:
Development growth is anticipated to exceed Fergus WWTP current capacity in 2042.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
This is a WWTP expansion so it will require either a Schedule C Class EA and an ACS.

Project Timing:

In Service:	2042
Construction Start:	2040
Design:	2039
Study / Class EA:	2038
Scoping Exercise:	2037

Design Basis:

Model scenario used: MECP Guidelines

Design Condition: 20-year capacity from year upgraded

Results: An anticipated flow of 120.3 L/s was determined for the SPS

Redundancy Required: per MECP GL

Benefit to Existing and/or Oversizing Justification
No benefit to existing.

Property Requirements:
To be housed with Fergus WWTP

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update			
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require for construction
MECP Environmental Compliance Approval (ECA)	X		ECAs for sewage and air & noise

Township of Centre Wellington
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Project Tracking and Costing Sheet

Class Environmental Assessment		X		Schedule C
Ministry of Natural Resources				
Department of Fisheries Approval				
Transport Canada/Navigable Waters				
Archaeological Stage 1,2,3,4		X		Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological				
Site Plan		X		
Building Permit		X		
Conservation Permit				
Ministry of Transport - Encroachment Order				
Rail Crossing				
Gas Pipeline Crossing				
Other				
Other				
Other				
Other				
Other				

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	High	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		C
CONSTRUCTION ASSUMPTION:		Treatment

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Filter Upgrades (2030-35)							
Division 1 - General Requirements						$400,000	
Division 2 - Existing Condition (Site Work)						$870,000	
Division 3 - Concrete						$400,000	
Division 4 - Masonry						$20,000	
Division 5 - Metals						$20,000	
Division 6 - Woods, Plastics and Composites						$5,000	
Division 7 - Thermal & Moisture Protection						$150,000	
Division 8 - Openings						$35,000	
Division 9 - Finishes						$80,000	
Division 10 - Specialities						$10,000	
Division 11 - Equipment						$1,632,852	
Division 13 - Control & Instrumentation						$100,000	
Division 14 - Conveying Equipment						$0	
Division 15 - Mechanical						$250,000	
Division 16 - Electrical						$500,000	
CAS Upgrades							
Division 1 - General Requirements						$2,000,000	
Division 2 - Existing Condition (Site Work)						$9,200,000	
Division 3 - Concrete						$8,000,000	
Division 4 - Masonry						$500,000	
Division 5 - Metals						$700,000	
Division 6 - Woods, Plastics and Composites						$20,000	
Division 7 - Thermal & Moisture Protection						$800,000	
Division 8 - Openings						$200,000	
Division 9 - Finishes						$300,000	
Division 10 - Specialities						$40,000	
Division 11 - Equipment						$8,900,000	
Division 13 - Control & Instrumentation						$625,000	
Division 14 - Conveying Equipment						$0	
Division 15 - Mechanical						$3,875,000	
Division 16 - Electrical						$3,125,000	
Additional Construction Costs	TBD		ea.			$4,275,785	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$3,206,839	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$50,240,476**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$502,405	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						**$502,405**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$15,000**	
Sub-Total Base Costs						**$50,757,881**	
Consultant Engineering							
i. Scoping / Feasibility Study						$150,000	Lump sum study cost estimate
ii. Study (Schedule B Class EA)							If required assume to be $150,000
iii. Study (Schedule C Class EA)	Required					$350,000	If required assume to be $350,000
iv. Study (Other)	ACS					$100,000	
v. Design	TBD					$2,537,894	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$2,284,105	Assume 4.5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$5,271,999**	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	25%					$14,007,470	
Project Contingency Sub-total						**$14,007,470**	

Non Refundable HST				
Non Refundable HST	TBD		$1,232,657	1.76% of above total
Non Refundable HST Sub-total			$1,232,657	

Total (2025 Dollars)	$71,270,007	
Other Estimate		Source of Estimate
Chosen Estimate	$71,270,007	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-SPS
Project Description: New South Elora SPS

Date Prepared/Updated: 15-Apr-25
Prepared/Updated By: JWT

Related Project IDs: WW-E-4

Scope of Work:
SPS to service new 2024 boundary area in South Elora with design capacity of 120.3 L/s

Project Justification/Triggers:

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
This is a new SPS, so it will require either a Schedule B Class EA or to be planned as part of a Secondary Plan under the Planning Act.

Project Timing:

In Service:	2038
Construction Start:	2036
Design:	2035
Study / Class EA:	2034
Scoping Exercise:	2033

Design Basis:

Model scenario used: Sewer design sheet

Design Condition 1: Build out of service area

Results: An anticipated flow of 120.3 L/s was determined for the SPS

Redundancy Required:

Design Condition 2:

Results:

Additional Comments:

Benefit to Existing and/or Oversizing Justification
No benefit to existing.

Property Requirements:
To be housed on site within new development area.

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Project Tracking and Costing Sheet

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		Assume SPS is part of Linear CLI
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require.
MECP Environmental Compliance Approval (ECA)	X		May require for air and noise
Class Environmental Assessment	X		
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4		X	Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Other

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Based on Historical Construction SPS Costing			L/S	120.3		$4,416,906	
Additional Construction Costs	TBD		ea.			$441,691	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$331,268	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$5,189,865	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$51,899	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						$51,899	
Property Requirements							
i. Property and Easements	TBD					$625,000	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$625,000	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$15,000	
Sub-Total Base Costs						$5,881,763	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$150,000	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$411,723	Assume 7% of Construction Cost
vi. Contract Admin/Inspection	TBD					$352,906	Assume 6% of Construction Cost
Consultant Engineering Sub-total	TBD					$914,629	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$1,359,279	
Project Contingency Sub-total						$1,359,279	
Non Refundable HST							
Non Refundable HST	TBD					$143,540	1.76% of above total
Non Refundable HST Sub-total						$143,540	
Total (2025 Dollars)						$8,299,211	
Other Estimate							Source of Estimate
Chosen Estimate						$8,299,211	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-SPS
Project Description: New Low Lift Sewage PS at Elora WWTP if required to

Date Prepared/Updated: 15-Apr-25
Prepared/Updated By: JWT

Related Project IDs: WW-SE-SPS. WW-E-1. WW-E-2

Scope of Work:
Low-lift SPS if required to lift flows from area ER 1 if required into Elora WWTP. Assume design capacity of 120.3 L/s

Project Justification/Triggers:

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
This is a new SPS, so it will require either a Schedule B Class EA or to be planned as part of a Secondary Plan under the Planning Act.

Project Timing:

In Service:	2038
Construction Start:	2036
Design:	2035
Study / Class EA:	2034
Scoping Exercise:	2033

Design Basis:

Model scenario used: Sewer design sheet

Design Condition 1: Build out of service area

Results: An anticipated flow of 120.3 L/s was determined for the SPS

Redundancy Required:

Design Condition 2:

Results:

Additional Comments:

Benefit to Existing and/or Oversizing Justification
No benefit to existing.

Property Requirements:
To be housed on site within new development area.

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Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Permits and Approvals Required:

Permit / Approval		Yes	No	If yes, describe type:
MECP Linear CLI Update		X		Assume SPS is part of Linear CLI
MECP Record of Watermains Authorized as a Future Alteration				
Form 1 Future Watermain				
Form 2 Existing Watermain Modification				
MECP DWWP Update				
MECP Permit to Take Water		X		May require.
MECP Environmental Compliance Approval (ECA)		X		May require for air and noise
Class Environmental Assessment		X		
Ministry of Natural Resources				
Department of Fisheries Approval				
Transport Canada/Navigable Waters				
Archaeological Stage 1,2,3,4			X	Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological				
Site Plan		X		
Building Permit		X		
Conservation Permit				
Ministry of Transport - Encroachment Order				
Rail Crossing				
Gas Pipeline Crossing				
Other				
Other				
Other				
Other				
Other				

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Other

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Based on Historical Construction SPS Costing			L/S	75		$3,275,138	Assume 1/2 cost of 150 L/s stand alone SPS
Additional Construction Costs	TBD		ea.			$327,514	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$245,635	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						**$3,848,287**	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$38,483	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						**$38,483**	
Property Requirements							
i. Property and Easements	TBD					$625,000	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$625,000**	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$15,000**	
Sub-Total Base Costs						**$4,526,769**	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$150,000	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$316,874	Assume 7% of Construction Cost
vi. Contract Admin/Inspection	TBD					$271,606	Assume 6% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$738,480**	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$1,053,050	
Project Contingency Sub-total						**$1,053,050**	
Non Refundable HST							
Non Refundable HST	TBD					$111,202	1.76% of above total
Non Refundable HST Sub-total						**$111,202**	
Total (2025 Dollars)						**$6,429,501**	
Other Estimate							Source of Estimate
Chosen Estimate						**$6,429,501**	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-SPS
Project Description: New SPS to service South Fergus including new 2024 boundary area

Date Prepared/Updated: 14-May-25
Prepared/Updated By: JWT

Related Project IDs: WW-F-1, WW-F-2, WW-F-3, WW-F-4

Scope of Work:

Provide sanitary servicing to new 2024 boundary area south of South Fergus Secondary Plan area (FE 3) and new development area to east (FE4) through planned SPS in South Fergus Secondary Plan.

Project Justification/Triggers:

South Fergus Secondary Plan area assumed to require SPS with capacity of 118.5 l/s. When new areas to south and east are developed, SPS will have to expand to capacity of 245 l/s.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

The current planned SPS was planned via the South Fergus Secondary Plan, so for capacity upgrade, it will require either a Schedule B Class EA or to be planned as part of a Secondary Plan under the Planning Act for the 2024 new boundary area.

Project Timing:

In Service:	2038
Construction Start:	2036
Design:	2035
Study / Class EA:	2034
Scoping Exercise:	2033

Design Basis:

Model scenario used: Sewer design sheet

Design Condition: Build out of service area

Results: An anticipated flow of 245 L/s was determined for the SPS

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

No benefit to existing.

Property Requirements:

To be housed on site within new development area.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-SPS
Project Description: New SPS to service South Fergus including new 2024 boundary area

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		Assume SPS is part of Linear CLI
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require.
MECP Environmental Compliance Approval (ECA)	X		May require for air and noise
Class Environmental Assessment	X		
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4		X	Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-SPS
Project Description: New SPS to service South Fergus including new 2024 boundary area

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Other

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Based on Historical Construction SPS Costing			L/S	245		$11,354,966	
Additional Construction Costs	TBD		ea.			$1,135,497	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$851,622	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$13,342,084	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$133,421	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total						$133,421	
Property Requirements							
i. Property and Easements	TBD					$625,000	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$625,000	
Permit/Approvals Requirements							
i. Permit / Approvals						$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$15,000	
Sub-Total Base Costs						$14,115,505	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$150,000	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$988,085	Assume 7% of Construction Cost
vi. Contract Admin/Inspection	TBD					$846,930	Assume 6% of Construction Cost
Consultant Engineering Sub-total	TBD					$1,985,016	
In-house Fees							
i. Design Fees	TBD					$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD					$0	Assume $0 unless client directs differently
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$3,220,104	
Project Contingency Sub-total						$3,220,104	
Non Refundable HST							
Non Refundable HST	TBD					$340,043	1.76% of above total
Non Refundable HST Sub-total						$340,043	
Total (2025 Dollars)						$19,660,668	
Other Estimate							Source of Estimate
Chosen Estimate						$19,660,668	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: FE 3 SPS
Project Description: New SPS to service south portion of FE 3 that does not drain by gravity to north

Date Prepared/Updated: 15-Apr-25
Prepared/Updated By: JWT

Related Project IDs: WW-F-3, WW-F-4

Scope of Work:
Provide sanitary servicing to new service south portion of FE 3 that does not drain by gravity to north.

Project Justification/Triggers:
When this area to south is developed, SPS will have to expand to capacity of 40 l/s.

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
A Schedule B Class EA or to be planned as part of a Secondary Plan under the Planning Act for the 2024 new boundary area.

Project Timing:

In Service:	2038
Construction Start:	2036
Design:	2035
Study / Class EA:	2034
Scoping Exercise:	2033

Design Basis:

Model scenario used: Sewer design sheet

Design Condition: Build out of service area

Results: An anticipated flow of 40 L/s was determined for the SPS

Redundancy Required:

Benefit to Existing and/or Oversizing Justification
No benefit to existing.

Property Requirements:
To be housed on site within new development area.

Township of Centre Wellington
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Project Tracking and Costing Sheet

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		Assume SPS is part of Linear CLI
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP DWWP Update			
MECP Permit to Take Water	X		May require.
MECP Environmental Compliance Approval (ECA)	X		May require for air and noise
Class Environmental Assessment	X		
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4		X	Assumed to be done as part of South Fergus Sec. Plan.
Marine Archaeological			
Site Plan	X		
Building Permit	X		
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Rural	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED CAPACITY:	

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Other

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Based on Historical Construction SPS Costing			L/S	40		$2,896,112	
Additional Construction Costs	TBD		ea.			$289,611	Includes Mod/Demob, connections, inspection, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$217,208	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$3,402,932	

Geotechnical Requirements				
i. Geo-tech/Hydrogeo/Materials	TBD		$34,029	Assume 1% of Construction Costs or Minimum $60,000
Geotechnical Sub-Total			$34,029	
Property Requirements				
i. Property and Easements	TBD		$625,000	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total			$625,000	
Permit/Approvals Requirements				
i. Permit / Approvals			$15,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total			$15,000	
Sub-Total Base Costs			$4,076,961	
Consultant Engineering				
i. Scoping / Feasibility Study				Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD		$150,000	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD		$0	If required assume to be $350,000
iv. Study (Other)	TBD		$0	
v. Design	TBD		$285,387	Assume 7% of Construction Cost
vi. Contract Admin/Inspection	TBD		$244,618	Assume 6% of Construction Cost
Consultant Engineering Sub-total	TBD		$680,005	
In-house Fees				
i. Design Fees	TBD		$0	Assume $0 unless client directs differently
ii. Construction Fees	TBD		$0	Assume $0 unless client directs differently
In-house Fees Sub-total	TBD		$0	
Project Contingency				
Project Contingency	20%		$951,393	
Project Contingency Sub-total			$951,393	
Non Refundable HST				
Non Refundable HST	TBD		$100,467	1.76% of above total
Non Refundable HST Sub-total			$100,467	
Total (2025 Dollars)			$5,808,826	
Other Estimate				Source of Estimate
Chosen Estimate			$5,808,826	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-2
Project Description: New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: JWT

Related Project IDs: WW-E-2, WW-E-SPS,

Scope of Work:

New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line required to service future area ER1
Total length 1000m
Diameter 250 mm

Project Justification/Triggers:

Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051 conditions

Design Condition: Peak WWF (25-year design storm)

Results: Based on build out capacity of new South Elora Area

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification

No benefit to existing.

Property Requirements:

On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-2
Project Description: New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-2
Project Description: New Forcemain on Wellington Rd. 7 from WW-SE-SPS to First Line

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:		250 mm		CLASS EA REQUIREMENTS:	Exempt
TOTAL LENGTH:		2500 m		CONSTRUCTION ASSUMPTION:	Sewer 5m
	Tunnelled	0 m	0%		
	Open Cut	2500 m	100%		

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1000 m	$1,280	$1,280,000	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$1,000	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$128,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$105,600	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,513,600	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,573,600	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v .Design	TBD					$78,680	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$78,680	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$157,360	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$346,192	
Project Contingency Sub-total						$346,192	
Non Refundable HST							
Non Refundable HST	TBD					$36,558	1.76% of above total
Non Refundable HST Sub-total						$36,558	
Total (2025 Dollars)						$2,113,710	
Other Estimate							Source of Estimate
Chosen Estimate						$2,113,710	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-1
Project Description: New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: JWT

Related Project IDs: WW-E-1, WW-E-SPS

Scope of Work:
New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP required to service future area ER1
Total length 1500m
Diameter 300 mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:
Construction Start:
Design:
Study / Class EA:
Scoping Exercise:

Design Basis:

Model scenario used: 2051 conditions

Design Condition: Peak WWF (25-year design storm)

Results: Based on build out capacity of new South Elora Area

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Can provide servicing to existing developments on Wellington Road

Property Requirements:
On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-1
Project Description: New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			
Gas Pipeline Crossing			
Other			
Other			
Other			
Other			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-1
Project Description: New Gravity Main on Wellington Rd. 7 from First Line to Elora WWTP

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Suburban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	1500 m	
Tunnelled	0 m	0%
Open Cut	1500 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m		$1,280	$0	Existing road ROW
Sewer Construction - Open Cut			m	1500 m	$1,280	$1,920,000	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$192,000	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$158,400	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$2,270,400	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$2,330,400	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v. Design	TBD					$116,520	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$116,520	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$233,040	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$512,688	
Project Contingency Sub-total						$512,688	
Non Refundable HST							
Non Refundable HST	TBD					$54,140	1.76% of above total
Non Refundable HST Sub-total						$54,140	
Total (2025 Dollars)						$3,130,268	
Other Estimate							Source of Estimate
Chosen Estimate						$3,130,268	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-3
Project Description: Geddes Street Sanitary Sewer Replacement

Date Prepared/Updated: April 16,2025
Prepared/Updated By: JWT

Related Project IDs: -

Scope of Work:
Upsize 280 m of gravity sewer on Geddes St to address growth NW of Salem
Proposed Diameter: 300 mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051 conditions

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required:

Benefit to Existing and/or Oversizing Justification
Benefit to Existing and Future growth in pre-2024 boundary

Property Requirements:
On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-3
Project Description: Geddes Street Sanitary Sewer Replacement

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-E-3
Project Description: Geddes Street Sanitary Sewer Replacement

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy		= Field has drop down
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy		= Field must be manually populated
Accuracy Range:				= Field auto-filled based on project details
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift		

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	290 m	
Tunnelled	0 m	0%
Open Cut	290 m	100%

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	0 m	$775	$0	Existing road ROW
Sewer Construction - Open Cut			m	290 m	$1,550	$449,500	Existing road ROW
Pipe Construction - Tunneling			m	0 m		$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$44,950	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$37,084	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$531,534	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						$591,534	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$29,577	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$29,577	Assume 5% of Construction Cost
Consultant Engineering Sub-total	**TBD**					**$59,153**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	**TBD**					**$0**	
Project Contingency							
Project Contingency	20%					$130,137	
Project Contingency Sub-total						**$130,137**	
Non Refundable HST							
Non Refundable HST	TBD					$13,743	1.76% of above total
Non Refundable HST Sub-total						**$13,743**	
Total (2025 Dollars)						$794,567	
Other Estimate							Source of Estimate
Chosen Estimate						$794,567	2025 Estimate

Project ID: WW-E-4
Project Description: East Mill Street Sanitary Sewer Replacement

Date Prepared/Updated:	April 16,2025
Prepared/Updated By:	JWT

Related Project IDs: -

Scope of Work:

Upsize 450 m of gravity sewer on East Mill Street from Melville to Irvine to address growth
Proposed Diameter: 450 mm

Project Justification/Triggers:

Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt

Project Timing:

In Service:	2036
Construction Start:	2035
Design:	2034
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used:	2051 conditions
Design Condition:	Peak WWF (25-year design storm)
Results:	Upsized sanitary sewer required to service growth
Redundancy Required:	

Benefit to Existing and/or Oversizing Justification

Benefit to Existing and Future growth in pre-2024 boundary

Property Requirements:

On municipal ROW.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		290 m	
	Tunnelled	0 m	0%
	Open Cut	290 m	100%

CLASS EA REQUIREMENTS:		Eligible for Screening to Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	0 m	$775	$0	Existing road ROW
Sewer Construction - Open Cut			m	450 m	$1,550	$697,500	Existing road ROW
Pipe Construction - Tunneling			m	0 m		$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$69,750	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$57,544	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$824,794	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$884,794	
Consultant Engineering							
i. Scoping / Feasibility Study							Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$44,240	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$44,240	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$88,479	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$194,655	
Project Contingency Sub-total						$194,655	
Non Refundable HST							
Non Refundable HST	TBD					$20,556	1.76% of above total
Non Refundable HST Sub-total						$20,556	
Total (2025 Dollars)						$1,188,483	
Other Estimate							Source of Estimate
Chosen Estimate						$1,188,483	2025 Estimate

Project ID: WW-F-1
Project Description: New Forcemain on Guelph St from New SPS to Union St.

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: WAA

Related Project IDs: WW-F2, WW-F-SPS

Scope of Work:

New Forcemain on Guelph St from New SPS to Union St. to service areas FE 3 and FE 4
Length 975 m
Diameter 300 mm

Project Justification/Triggers:

Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt

Project Timing:

In Service:	2036
Construction Start:	2035
Design:	2034
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification

Benefit to Future growth in pre-2024 boundary

Property Requirements:

On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-1
Project Description: New Forcemain on Guelph St from New SPS to Union St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	975 m	
Tunnelled	0 m	0%
Open Cut	975 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-1
Project Description: New Forcemain on Guelph St from New SPS to Union St.

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	975 m	$1,530	$1,491,750	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$0	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$149,175	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$123,069	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,763,994	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,823,994	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$91,200	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$91,200	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$182,399	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$401,279	
Project Contingency Sub-total						$401,279	
Non Refundable HST							
Non Refundable HST	TBD					$42,375	1.76% of above total
Non Refundable HST Sub-total						$42,375	
Total (2025 Dollars)						$2,450,048	
Other Estimate							Source of Estimate
Chosen Estimate						$2,450,048	2025 Estimate

Non Refundable HST							
Non Refundable HST	TBD					$0	1.76% of above total
Non Refundable HST Sub-total						$0	
Total (2025 Dollars)						$2,450,048	
Other Estimate							Source of Estimate
Chosen Estimate						$2,450,048	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-2
Project Description: New Forcemain on Union St. from Guelph Rd. to Athol St.

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: WAA

Related Project IDs: WW-F2, WW-F-SPS

Scope of Work:
New Forcemain on Union St. from Guelph Rd. to Athol St. to Tower Street to Queen St W to Fergus WWTP to service area FE3
Length 1030 m
Diameter 300 mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	2036
Construction Start:	2035
Design:	2034
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Benefit to Future growth in pre-2024 boundary

Property Requirements:
On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-2
Project Description: New Forcemain on Union St. from Guelph Rd. to Athol St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

	= Field has drop down
	= Field must be manually populated
	= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		1030 m	
	Tunnelled	0 m	0%
	Open Cut	975 m	100%
		LENGTH ERROR	

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-2
Project Description: New Forcemain on Union St. from Guelph Rd. to Athol St.

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	1030 m	$1,530	$1,575,900	Existing road ROW
Sewer Construction - Open Cut			m	0 m	$0	$0	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$157,590	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$130,012	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,863,502	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,923,502	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$96,175	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$96,175	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$192,350	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$423,170	
Project Contingency Sub-total						$423,170	
Non Refundable HST							
Non Refundable HST	TBD					$44,687	1.76% of above total
Non Refundable HST Sub-total						$44,687	
Total (2025 Dollars)						$2,583,709	
Other Estimate							Source of Estimate
Chosen Estimate						$2,583,709	2025 Estimate

Non Refundable HST			
Non Refundable HST	TBD	$0	1.76% of above total
Non Refundable HST Sub-total		$0	
Total (2025 Dollars)		$2,583,709	
Other Estimate			Source of Estimate
Chosen Estimate		$2,583,709	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-3
Project Description: New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands

Date Prepared/Updated: 2025-05-14
Prepared/Updated By: JT

Related Project IDs: WW-F4, WW-F-SPS, WW-FE 3-SPS

Scope of Work:
New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands
Length 3650 m
Diameter 300 mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	2038
Construction Start:	2037
Design:	2036
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Benefit to Future growth in Areas FE 3 and FE 4

Property Requirements:
On future municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-3
Project Description: New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		3650 m	
	Tunnelled	0 m	0%
	Open Cut	3650 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-3
Project Description: New gravity main to connect areas FE 3 and FE 4 through South Fergus Secondary Plan Lands

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m			$0	
Sewer Construction - Open Cut			m	3650 m	$815	$2,974,750	Newly developed lands
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$297,475	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$245,417	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$3,517,642	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$3,577,642	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$178,882	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$178,882	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$357,764	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$787,081	
Project Contingency Sub-total						$787,081	
Non Refundable HST							
Non Refundable HST	TBD					$83,116	1.76% of above total
Non Refundable HST Sub-total						$83,116	
Total (2025 Dollars)						$4,805,603	
Other Estimate							Source of Estimate
Chosen Estimate						$4,805,603	2025 Estimate

Non Refundable HST				
Non Refundable HST	TBD		$0	1.76% of above total
Non Refundable HST Sub-total			$0	
Total (2025 Dollars)			$4,805,603	
Other Estimate				Source of Estimate
Chosen Estimate			$4,805,603	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-4
Project Description: Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS

Date Prepared/Updated: 2025-05-01
Prepared/Updated By: WAA

Related Project IDs: WW-FE 3-SPS, WW-F3, WW-F-SPS

Scope of Work:

Upgrading gravity main on Belsyde Ave. from Scotland St. to Elgin St. Easement to service area FE4
Length 270 m
Diameter 150 mm

Project Justification/Triggers:

Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: WW-FE 3-SPS Capacity

Results: Forcemain connection

Redundancy Required:

Benefit to Existing and/or Oversizing Justification

Benefit to Future growth in FE 3 Area

Property Requirements:

On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-4
Project Description: Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		110 m	
	Tunnelled	0 m	0%
	Open Cut	110 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-4
Project Description: Forcemain from WW-FE 3-SPS to gravity sewer connecting to WW-F-SPS

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	270 m	$500	$135,000	Newly developed lands
Sewer Construction - Open Cut			m	0 m	$0	$0	
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$13,500	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$11,138	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$159,638	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						**$50,000**	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						**$0**	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						**$10,000**	
Sub-Total Base Costs						$219,638	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$10,982	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$10,982	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					**$21,964**	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					**$0**	
Project Contingency							
Project Contingency	20%					$48,320	
Project Contingency Sub-total						**$48,320**	
Non Refundable HST							
Non Refundable HST	TBD					$5,103	1.76% of above total
Non Refundable HST Sub-total						**$5,103**	
Total (2025 Dollars)						$295,024	
Other Estimate							Source of Estimate
Chosen Estimate						$295,024	2025 Estimate

Non Refundable HST				
Non Refundable HST	TBD		$0	1.76% of above total
Non Refundable HST Sub-total			**$0**	
Total (2025 Dollars)			$295,024	
Other Estimate				Source of Estimate
Chosen Estimate			$295,024	2025 Estimate

Project ID: WW-F-5
Project Description: Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St

Date Prepared/Updated: April 16,2025
Prepared/Updated By: JWT

Related Project IDs: WW-F-6

Scope of Work:
Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St to service growth from area FE1
Total length 80 m
Diameter 300mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	-1
Design:	-2
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051 conditions

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Benefit to Future growth in pre-2024 boundary

Property Requirements:
On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-5
Project Description: Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:	300 mm	
TOTAL LENGTH:	80 m	
Tunnelled	0 m	0%
Open Cut	80 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-5
Project Description: Upgrading gravity main on Beatty Ln. from St. Andrew St. W to Colquhoun St

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	0 m	$775	$0	Existing road ROW
Sewer Construction - Open Cut			m	80 m	$1,550	$124,000	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$12,400	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$10,230	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$146,630	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$206,630	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$10,332	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$10,332	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$20,663	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$45,459	
Project Contingency Sub-total						$45,459	
Non Refundable HST							
Non Refundable HST	TBD					$4,800	1.76% of above total
Non Refundable HST Sub-total						$4,800	
Total (2025 Dollars)						$277,552	
Other Estimate							Source of Estimate
Chosen Estimate						$277,552	2025 Estimate

Non Refundable HST				
Non Refundable HST	TBD		$0	1.76% of above total
Non Refundable HST Sub-total			$0	
Total (2025 Dollars)			$277,552	
Other Estimate				Source of Estimate
Chosen Estimate			$277,552	2025 Estimate

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-6
Project Description: Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W

Date Prepared/Updated: April 16,2025
Prepared/Updated By: JWT

Related Project IDs: WW-F-5

Scope of Work:

Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W to service growth from area FE1
Total length 630 m
Diameter 300mm

Project Justification/Triggers:

Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):

Exempt

Project Timing:

In Service:	2036
Construction Start:	2035
Design:	2034
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051 conditions

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification

Benefit to Future growth in pre-2024 boundary

Property Requirements:

On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-6
Project Description: Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

= Field has drop down
= Field must be manually populated
= Field auto-filled based on project details

PROPOSED DIAMETER:		300 mm	
TOTAL LENGTH:		630 m	
	Tunnelled	0 m	0%
	Open Cut	630 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-6
Project Description: Upgrading gravity main on Colquhoun St. from Beatty Ln to St. Andrew St. W

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	0 m	$775	$0	Existing road ROW
Sewer Construction - Open Cut			m	630 m	$1,550	$976,500	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$97,650	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$80,561	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$1,154,711	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$1,214,711	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$60,736	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$60,736	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$121,471	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$267,236	
Project Contingency Sub-total						$267,236	
Non Refundable HST							
Non Refundable HST	TBD					$28,220	1.76% of above total
Non Refundable HST Sub-total						$28,220	
Total (2025 Dollars)						$1,631,639	
Other Estimate							Source of Estimate
Chosen Estimate						$1,631,639	2025 Estimate

Non Refundable HST				
Non Refundable HST	TBD		$0	1.76% of above total
Non Refundable HST Sub-total			$0	
Total (2025 Dollars)			$1,631,639	
Other Estimate				Source of Estimate
Chosen Estimate			$1,631,639	2025 Estimate

Project ID: WW-F-7
Project Description: Upgrading gravity main on Holman Cres. and Perry St.

Date Prepared/Updated: April 16,2025
Prepared/Updated By: JWT

Related Project IDs: -

Scope of Work:
Upsize 280 m of gravity sewer on Holman Crescent and Perry Street Sewer to service future growth. Proposed diameter 250mm

Project Justification/Triggers:
Triggered by growth

Class EA Requirements (Exempt Project, Eligible for Screening to Exempt, Schedule B or C, and Justification):
Exempt

Project Timing:

In Service:	
Construction Start:	
Design:	
Study / Class EA:	
Scoping Exercise:	

Design Basis:

Model scenario used: 2051

Design Condition: Peak WWF (25-year design storm)

Results: Upsized sanitary sewer required to service growth

Redundancy Required: Provided

Benefit to Existing and/or Oversizing Justification
Benefit to Future growth in pre-2024 boundary

Property Requirements:
On municipal ROW.

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-7
Project Description: Upgrading gravity main on Holman Cres. and Perry St.

Permits and Approvals Required:

	Yes	No	If yes, describe type:
MECP Linear CLI Update	X		
MECP Record of Watermains Authorized as a Future Alteration			
Form 1 Future Watermain			
Form 2 Existing Watermain Modification			
MECP Permit to Take Water			
MECP Environmental Compliance Approval (ECA)			
Class Environmental Assessment			
Ministry of Natural Resources			
Department of Fisheries Approval			
Transport Canada/Navigable Waters			
Archaeological Stage 1,2,3,4			
Marine Archaeological			
Site Plan			
Building Permit			
Conservation Permit			
Ministry of Transport - Encroachment Order			
Rail Crossing			
Gas Pipeline Crossing			
Other			

Attachments

		Comment
i.	Plan & Profiles	
ii.	Sketch Of Facility	
iii.	Cost Estimates	
iv.	Calcs/Spreadsheet	
v.	Other	

Additional Comments

Cost Estimation

Class Estimate Type:	Class 4	Class adjusts Construction Contingency and expected accuracy
Project Complexity	Low	Complexity adjusts Additional Construction Costs, Geotech, Property and expected accuracy
Accuracy Range:		
Area Condition:	Urban	Area Condition adjusts Pipe Construction Uplift

(grey)	= Field has drop down
(yellow)	= Field must be manually populated
(green)	= Field auto-filled based on project details

PROPOSED DIAMETER:		250 mm	
TOTAL LENGTH:		280 m	
	Tunnelled	0 m	0%
	Open Cut	280 m	100%

CLASS EA REQUIREMENTS:		Exempt
CONSTRUCTION ASSUMPTION:		Sewer 5m

Township of Centre Wellington
Water and Wastewater Servicing Master Plan
Project Tracking and Costing Sheet

Project ID: WW-F-7
Project Description: Upgrading gravity main on Holman Cres. and Perry St.

COST ESTIMATION SPREADSHEET

COMPONENT	RATE (%)	RATE ($)	UNIT	ESTIMATED QUANTITY	COST PER UNIT	SUB-TOTAL	COMMENTS
Construction Cost							
Watermain/Forcemain Construction - Open Cut			m	0 m	$775	$0	Existing road ROW
Sewer Construction - Open Cut			m	280 m	$1,550	$434,000	Existing road ROW
Pipe Construction - Tunneling			m			$0	
Pipe Construction Uplift (Based on Area Conditions)	TBD					$0	
Minor Creek Crossings (HDD)			m	0	$2,000	$0	
Major Creek Crossings (HDD)			m	0	$3,000	$0	
Road Crossings			m	0	$1,500	$0	
Major Road Crossings (Highway)			m	0	$3,000	$0	
Utility Crossings			m	0	$1,500	$0	
Rural Road ROW Reconstruction			m	0 m	$950	$0	
Urban Road ROW Reconstruction			m	0 m	$1,950	$0	
Additional Construction Costs	TBD		ea.			$43,400	Includes Mod/Demob, connections, inspection, hydrants, signage, traffic management, bonding, insurance (assume 10% of above construction costs)
Provisional & Allowance	TBD		ea.			$35,805	Provisional Labour and Materials in addition to base construction cost (assume 7.5% of above construction costs)
Total Construction Costs						$513,205	
Geotechnical Requirements							
i. Geo-tech/Hydrogeo/Materials	TBD					$50,000	Assume minimum cost of $50,000 or 1% of Construction Costs
Geotechnical Sub-Total						$50,000	
Property Requirements							
i. Property and Easements	TBD					$0	$625,000 per Ha (10,000m^2)
Property Requirements Sub-total						$0	
Permit/Approvals Requirements							
i. Permit / Approvals						$10,000	Lump sum permit/approval cost estimate
Permit/Approvals Requirements Sub-total						$10,000	
Sub-Total Base Costs						$573,205	
Consultant Engineering							
i. Scoping / Feasibility Study						$0	Lump sum study cost estimate
ii. Study (Schedule B Class EA)	TBD					$0	If required assume to be $150,000
iii. Study (Schedule C Class EA)	TBD					$0	If required assume to be $350,000
iv. Study (Other)	TBD					$0	
v Design	TBD					$28,660	Assume 5% of Construction Cost
vi. Contract Admin/Inspection	TBD					$28,660	Assume 5% of Construction Cost
Consultant Engineering Sub-total	TBD					$57,321	
In-house Fees							
i. Design Fees	TBD					$0	
ii. Construction Fees	TBD					$0	
In-house Fees Sub-total	TBD					$0	
Project Contingency							
Project Contingency	20%					$126,105	
Project Contingency Sub-total						$126,105	
Non Refundable HST							
Non Refundable HST	TBD					$13,317	1.76% of above total
Non Refundable HST Sub-total						$13,317	
Total (2025 Dollars)						$769,947	
Other Estimate							Source of Estimate
Chosen Estimate						$769,947	2025 Estimate

Non Refundable HST				
Non Refundable HST	TBD		$0	1.76% of above total
Non Refundable HST Sub-total			$0	
Total (2025 Dollars)			$769,947	
Other Estimate				Source of Estimate
Chosen Estimate			$769,947	2025 Estimate