The Corporation of the
Town of Tecumseh

Public Works & Environmental Services

To: Mayor and Members of Council

From: Phil Bartnik, Director Public Works & Environmental Services

Date to Council: December 10, 2019

Report Number: PWES-2019-54

Subject: 2018 Water and Wastewater Master Plan Update
Filing the Notice of Study Completion

Recommendations

It is recommended:

That the Public Works & Environmental Services Report PWES-2019-54 Water and Wastewater Master Plan Update, Filing the Notice of Study Completion **be received**;

And that the Notice of Study Completion **be advertised** in the local newspaper and the Town's website and social media accounts to initiate the mandatory 30-day public review period.

Background

At the December 8, 2015 Regular Council Meeting, Council approved the recommendations (Motion RCM-419/15) of PWES Report No. 63/15 titled "2016-2020 Public Works & Environmental Services Capital Works Plan" that authorized Administration to proceed with the Water and Wastewater Master Plan Update.

Comments

The 2018 Master Plan Update builds on the previous work undertaken as part of the 2002 Master Plan, the 2005 Master Plan Addendum, and the 2008 Master Plan Update. This update is being undertaken in accordance with the Municipal Engineers Association (MEA) Class Environmental Assessment (EA) process for Master Plans. The update is a critical component in the committed approach to providing sustainable services and will form the new framework and vision for the water and wastewater servicing needs for the Town to 2038 and beyond.

The key 2018 Master Plan Update objectives were defined as:

- Review planning forecasts to 2038 and determine the impact on servicing needs for the Town;
- Evaluate and incorporate proposed water and wastewater servicing needs to 2038;
- Confirm or refine water and wastewater policies to provide guidelines to the process and to develop/evaluate servicing strategies;
- Integrate previous and concurrent related studies since the previous 2008 Master Plan Update;
- Complete and document the Master Planning process in accordance with the Class Environmental Assessment process;
- Update the water and wastewater servicing strategies; and
- Establish a preferred long-term servicing strategy and implementation plan to meet the existing and future servicing needs of the Town.

Municipal Class Environmental Assessment

The *Ontario Environmental Assessment (EA) Act* recognized that certain municipal undertakings occur frequently, are small in scale, have a generally predictable range of effects or have a relatively minor environmental significance. To ensure that a degree of standardization in the planning process is followed throughout the Province, the EA Act contemplated the use of the Class Environmental Assessment (Class EA) procedure for projects which require approval under the Act but which are not considered to be major environmental works. The Municipal Engineers Association (MEA) document titled Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011 and 2015), describes the procedure for undertaking a Class EA for municipal projects.

Projects undertaken by municipalities vary in their environmental impact, and are classified within the Class EA document in terms of Schedules:

- **Schedule A** projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are preapproved and may proceed to implementation without following the full Class EA planning process. Schedule A projects generally include normal or emergency operational and maintenance activities.
- **Schedule A+** projects are similar to Schedule A projects in that they are considered pre-approved; however, the public is to be advised prior to project implementation.
- **Schedule B** projects have potential for some adverse environmental effects. The proponent is required to undertake a screening process, involving mandatory contact with directly affected public and relevant review agencies, to ensure that they are aware

of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. Schedule B projects generally include improvements and minor expansions to existing facilities.

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

The main elements of the Class EA planning process are incorporated in the following five phases, and further depicted on Attachment No.3:

Phase 1: Identify the problem or opportunity.

Phase 2: Identification and evaluation of alternative solutions to determine a preferred solution.

Phase 3: Examination of alternative methods of implementation of the preferred solution.

Phase 4: Documentation of the planning, design and consultation process.

Phase 5: Implementation and monitoring.

The Municipal Class EA process includes an appeal period of 30-days for the public to review the EA document once it has been completed. The proponent is encouraged to work in cooperation with any member of the public who may have a concern to determine the preferred means of addressing a problem. If the concerns of the project cannot be resolved through discussions with the proponent, the member of the public may request the Minister of the Environment to require the proponent to comply with Part II of the EA Act before proceeding with the proposed undertaking. If no request is received by the Minister or delegate, the proponent is free to proceed with the implementation and construction.

The Master Plan Process

Master Plans are long-range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. The plans examine an infrastructure system(s) or group of related projects to outline a framework for planning for subsequent projects and/or developments. At a minimum, Master Plans address Phase 1 (Identify Problem/Opportunity) and Phase 2 (Alternative Solutions) of the Municipal Class EA process. Master Plans typically outline a set of specific projects across a geographic area that will be implemented over a period of time.

There are four different Approaches to undertaking a Master Plan, which include:

- Approach No.1
    - Preparation of a Master Plan document at the conclusion of Phases 1 and 2 of the Municipal Class EA process.
    - Broad level of assessment thereby requiring more detailed investigations at the project-specific level in order to fulfil the Municipal Class EA documentation requirements for the specific Schedule B and C projects identified within the Master Plan.
    - Schedule B projects would require filing of the Project File for public review.
    - Schedule C projects would have to fulfil Phases 3 and 4 of the Municipal Class EA prior to filing an Environmental Study Report (ESR) for public review.

- Approach No.2
    - Preparation of a Master Plan document at the conclusion of Phases 1 and 2 of the Municipal Class EA process.
    - Level of investigation, consultation and documentation are sufficient to fulfil the requirements for Schedule B projects.
    - The public notice for the Master Plan becomes the Notice of Completion for the Schedule B projects within it.
    - Schedule C projects would have to fulfil Phases 3 and 4 of the Municipal Class EA prior to filing an ESR for public review.
    - The Master Plan would provide the basis for future investigations for specific Schedule C projects identified within it.

- Approach No.3
    - Preparation of a Master Plan document at the conclusion of Phase 4 of the Municipal Class EA process.
    - The Master Plan would document Phases 1 to 4 of the Class EA process for Schedule B and/or Schedule C projects.
    - The final notice for the Master Plan becomes the Notice of Completion for the Schedule B and C projects within it.

- Approach No.4
    - Possible integration with approvals under the *Planning Act* (i.e. Official Plans, Official Plan Amendments).
    - A master servicing plan prepared in this fashion establishes need and justification in a very broad context.
    - This approach would satisfy early phases of the Class EA including Phases 1 and 2 for Schedule B projects and may satisfy, in addition, Phases 3 and 4 for Schedule C projects.
    - This approach is best suited when planning for a significant geographical area in the long term.

The 2018 Water and Wastewater Master Plan Update was completed following Approach No.2 to ensure that the level of investigation, consultation and documentation were sufficient to fulfill the requirements for Schedule B projects.

Recommended Servicing Strategies

The general servicing concepts from the 2008 Master Plan have been revised to incorporate updated information on servicing requirements, capacity allocations, scheduling, alignments and costing. Wherever possible, the alignments of new trunk facilities have been planned based on the location of existing road allowances and/or servicing corridors in order to ensure that servicing can proceed without undue delays resulting from the need to acquire property.

Updated Water System Servicing Strategy

In 2005, the Town completed an Addendum to the 2002 Master Plan based on the terms and conditions of the 2004 Water Servicing Agreement with the Windsor Utilities Commission (WUC). The 2008 Master Plan Update further developed and refined the water servicing strategy based on the supply of potable water from WUC. Since the 2008 Master Plan Update, the Town has proceeded to implement various components of the planned system. The 2018 Master Plan Update refines the water servicing strategy but does not change its overall intent.

The water system servicing strategy updates include:

- Implementation of a new Pressure Zone 2 (for the South Service Area - south of Highway 401) to ensure that adequate system pressure is provided during all future demand scenarios;

- The preliminary locations of the Booster Pumping Station and Elevated Storage Tank in Pressure Zone 2 have been relocated to Oldcastle Hamlet;

- Proposed development with the Manning Road Secondary Plan Area has resulted in the need to advance the timing of water servicing projects within the area; and

- As a result of the relocation of the primary supply point for the South Service Area to Provincial Road, trunk watermains supplying water to the Maidstone Hamlet were revised.

Further information on the capital projects identified within the updated water system servicing strategy, including costs estimates, their associated Municipal Class EA Schedule and a map depicting their location are contained within Attachment No.2.

Updated Wastewater System Servicing Strategy

The 2008 Master Plan developed a wastewater servicing strategy based on the 2004 Wastewater Servicing Agreement with the City of Windsor. All wastewater from the Town is directed to the Windsor collection system for ultimate treatment and disposal at either the Little River Pollution Control Plant (PCP) or the Lou Romano Water Reclamation Plant (WRP).

Refinements to the strategy have been incorporated based on various studies that have been recently completed by the Town. Some of the recommendations flowing from these studies

have been implemented (as noted below). The wastewater system servicing strategy updates include:

- Sanitary Sewer Assessment Report, 2011 – recommended various measures to address reductions in extraneous flows in the sanitary collection system (implementation on-going);

- Sanitary Sewage Collection System Improvements Class EA, 2013 – recommended various improvements within the sanitary collection system including replacement of the Hayes Sanitary Pump Station (completed) and provision of on-line peak flow storage through the Lakewood Park Trunk Sewer (completed) and the Riverside Drive Trunk Sewer;

- Manning Road Secondary Plan Area, Functional Servicing Report, 2015 – identified the sanitary servicing scheme for this area;

- Oldcastle Hamlet Sanitary Servicing, 8th Concession Road Trunk Sanitary Sewer Outlet, Preliminary Design Report, 2018 – identified the sanitary servicing scheme for the Oldcastle Hamlet Area;

- The location of the Tecumseh Hamlet Diversion Sewer has been adjusted to Intersection Road, which will divert flows to the West Tecumseh Trunk Sanitary Sewer and reduce the risk of surcharging in the Lesperance Road Trunk Sanitary sewer during wet-weather events;

- The servicing strategy for the Highway Commercial Lands and Maidstone Hamlet have been revised to eliminate the need for a large trunk sewer and replaced with sanitary pumping stations and a discharge forcemain into the West Tecumseh Trunk Sanitary Sewer on County Road 42; and

- The Skyway Plaza WWTP in Oldcastle Hamlet has been decommissioned, and the flows diverted (temporarily) into the North Talbot Road trunk sewer.

Further information on the capital projects identified within the updated wastewater system servicing strategy, including costs estimates, their associated Municipal Class EA Schedule and a map depicting their location are contained within Attachment No.3.

Public Consultation

The public consultation throughout the study satisfied the requirements of the Municipal Class EA. These included:

1. Notice of Study Commencement

   The Notice of Study Commencement was mailed to the study contact list, which consists of interested property owners, stakeholders, indigenous communities, and regulatory agencies. It was also published in the April 8th and April 15th, 2016 editions of the Shoreline and placed on the Town's website.

2. Public Information Centre

   The Notice of the Public Information Centre (PIC) was mailed to the study contact list the week of June 4th, 2018. It was also published in the June 12th and June 13th, 2018 editions of the Windsor Star, and placed on the Town's website and social media accounts.

   The PIC was held on June 19, 2018 from 3:00 p.m. to 5:00 p.m. and 6:00 p.m. to 8:00 p.m. in the Council Chambers of Town Hall. A total of 2 people attended the PIC and no comments were received. The purpose of the PIC was to present:
   - Key objectives for the Master Plan Update;
   - Planning (population) projections;
   - Evolution of the water and wastewater servicing strategies;
   - The recommended servicing strategies and capital program; and
   - Information on the recommended Schedule B projects.

3. Indigenous Communities Consultation Engagement

   The Indigenous Communities identified as potentially interested in the study included Walpole Island, Caldwell, Aamjiwnaang, Chippewas of the Thames, Moravian of the Thames (Delaware Nation), Chippewas of Kettle & Stoney Point, and the Métis Nation of Ontario. All project Notices were sent to the Indigenous Communities along with cover letters. A PIC information package which included a copy of the display boards were also distributed to the Indigenous Communities.

Council Presentation

The Town's consultant, CIMA+ Canada Inc., will be in attendance at the 6:00 p.m. December 10, 2019 Special Meeting of Council to make a presentation that summarizes the Master Plan process, details the recommended water and wastewater servicing strategies, and provides information on the capital program and costs and the recommended Schedule B projects contained within the 2018 Water and Wastewater Master Plan Update.

Next Steps

The Notice of Study Completion will be published in the local newspaper and on the Town's website and social media accounts, and will also be mailed to landowners, stakeholders and regulatory authorities on the contact list for the Master Plan.

A copy of the Notice of Study Completion will also be included as a Communication Item at the regularly scheduled meeting of council immediately following the Notice's publication.

A hard copy of the 2018 Water and Wastewater Master Plan Update will be made available at Town Hall through the Clerk's Office during the 30-day review period, along with a digital copy being made available on the Town's website.

Following the 30-day review period, and considering that all of the comments received have been addressed and that no Part II Orders were submitted to the Minister of the Environment,

Conservation and Parks, Administration will bring forward a separate report to Council to have the 2018 Water and Wastewater Master Plan Update formally adopted.

Consultations

Financial Services
Planning & Building Services
CIMA+ Canada Inc.

Financial Implications

The 2018 Water and Wastewater Master Plan Update has identified **$30.56M** and **$57.64M** for the water and wastewater capital costs respectively. Funding for these projects would be by a combination of rates, development charges, landowner recoveries, long-term debt and reserve funds.

These revised projects and costs were incorporated into the recently adopted 2019 Development Charges Background Study and associated By-law. They will also be incorporated into the Town's Water & Wastewater Rates Study, which is scheduled to be updated in 2020.

As identified within the Town's 2018 Asset Management Plan (v 2.0), the recommended projects will be incorporated into the annual Public Works & Environmental Services Capital Works Plan moving forward. It is intended to consolidate various infrastructure improvements into a singular tender package for efficiencies and economies of scale benefits.

Administration will also continue to explore grant opportunities for funding of the water and wastewater infrastructure.

Link to Strategic Priorities

Applicable	2019-22 Strategic Priorities
☐	Make the Town of Tecumseh an even better place to live, work and invest through a shared vision for our residents and newcomers.
☒	Ensure that Tecumseh's current and future growth is built upon the principles of sustainability and strategic decision-making.
☐	Integrate the principles of health and wellness into all of Tecumseh's plans and priorities.
☒	Steward the Town's "continuous improvement" approach to municipal service delivery to residents and businesses.
☒	Demonstrate the Town's leadership role in the community by promoting good governance and community engagement, by bringing together organizations serving the Town and the region to pursue common goals.

Communications

Not applicable ☒

Website ☐ Social Media ☐ News Release ☐ Local Newspaper ☐

This report has been reviewed by Senior Administration as indicated below and recommended for submission by the Chief Administrative Officer.

Prepared by:

Phil Bartnik, P.Eng.
Director Public Works & Environmental Services

Reviewed by:

Tom Kitsos, CPA, CMA, BComm
Director Financial Services & Chief Financial Officer

Reviewed by:

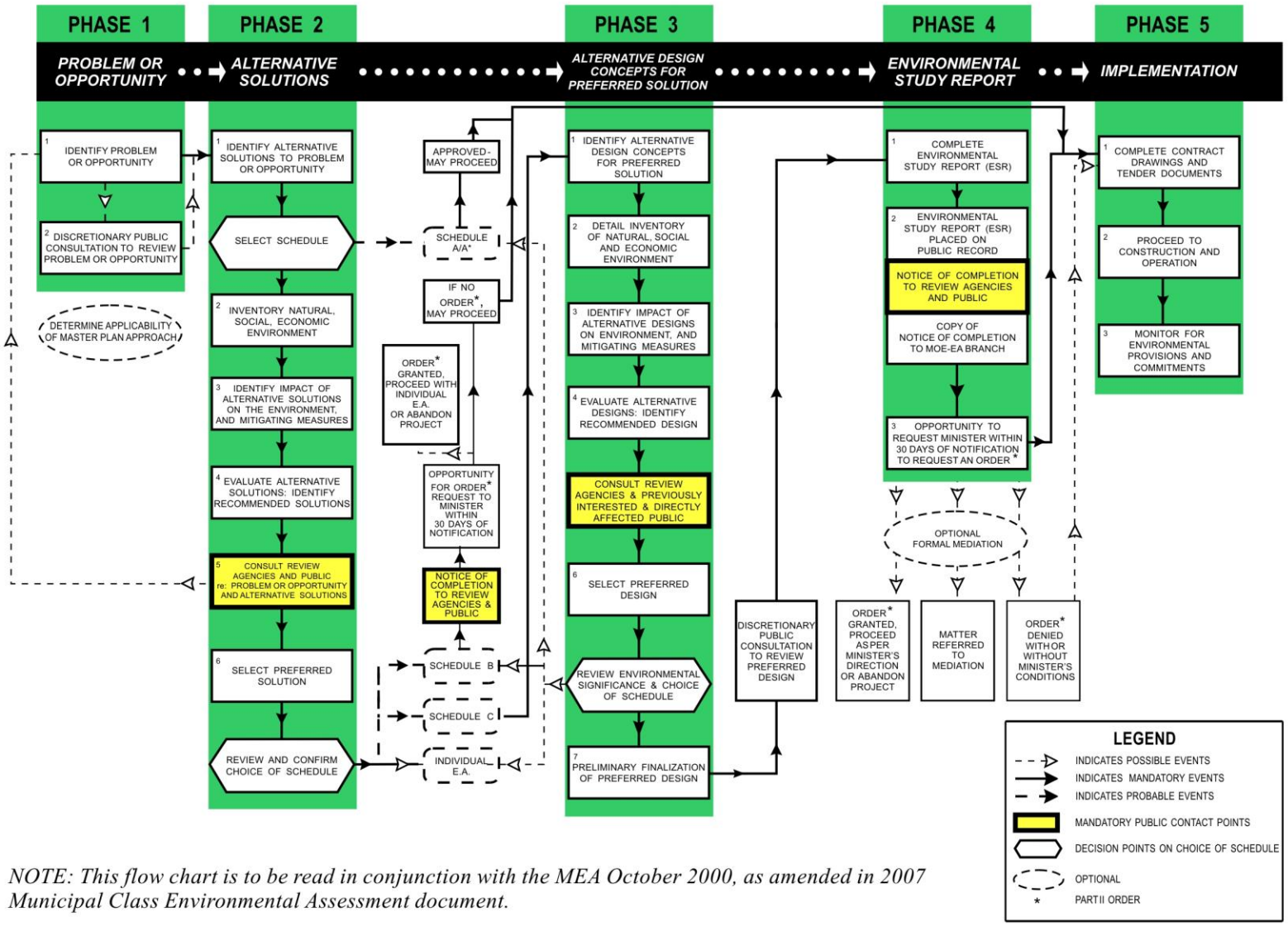
Brian Hillman, MA, MCIP, RPP
Director Planning & Building Services

Recommended by:

Margaret Misek-Evans, MCIP, RPP
Chief Administrative Officer

Attachment Number	**Attachment Name**
1	Municipal Class EA Planning and Design Process (Flow Chart)
2	Updated Water System Servicing Strategy
3	Updated Wastewater System Servicing Strategy
4	2018 Water and Wastewater Master Plan Update, Executive Summary
5	December 10, 2019 Special Council Meeting Presentation

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

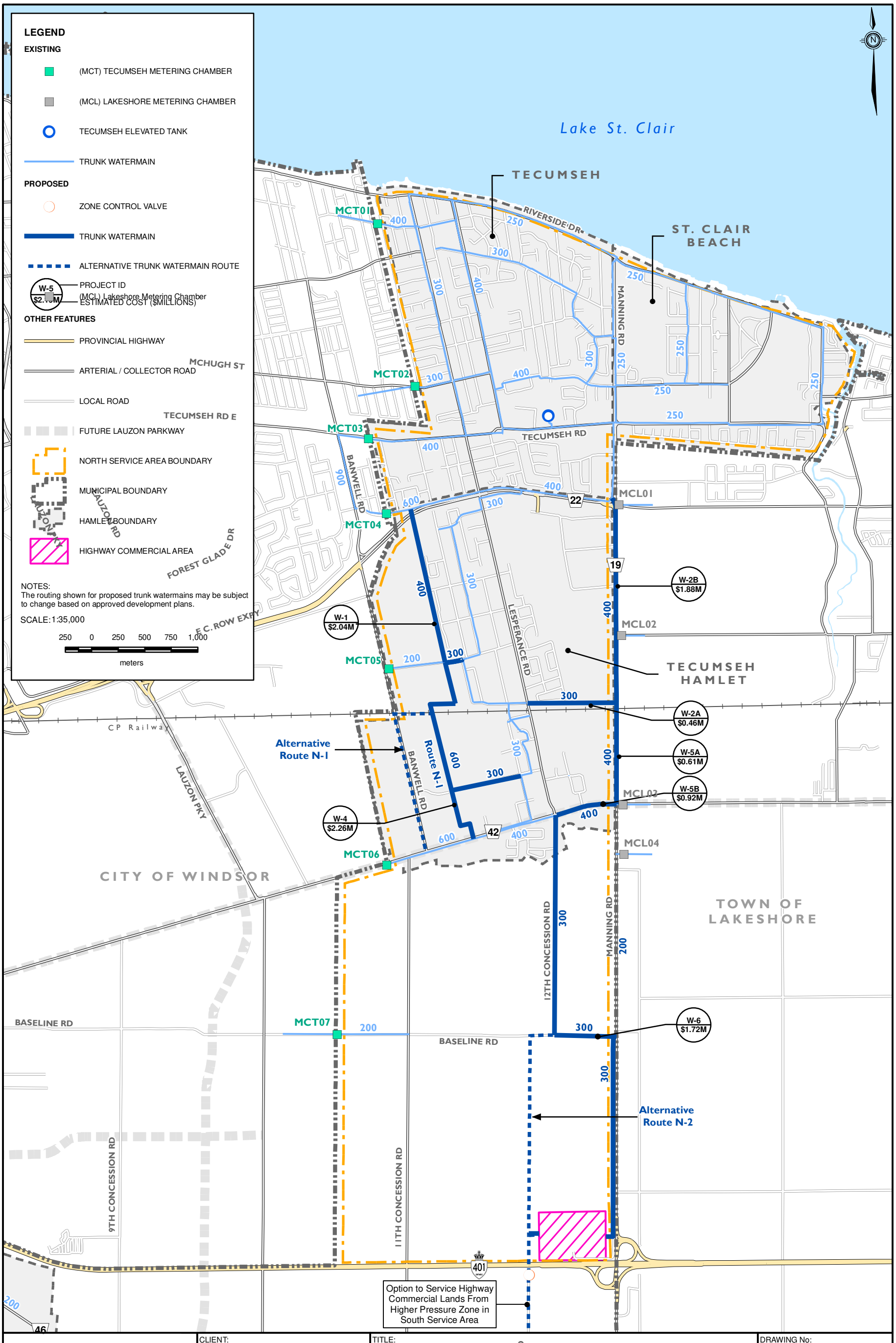


NOTE: This flow chart is to be read in conjunction with the MEA October 2000, as amended in 2007 Municipal Class Environmental Assessment document.

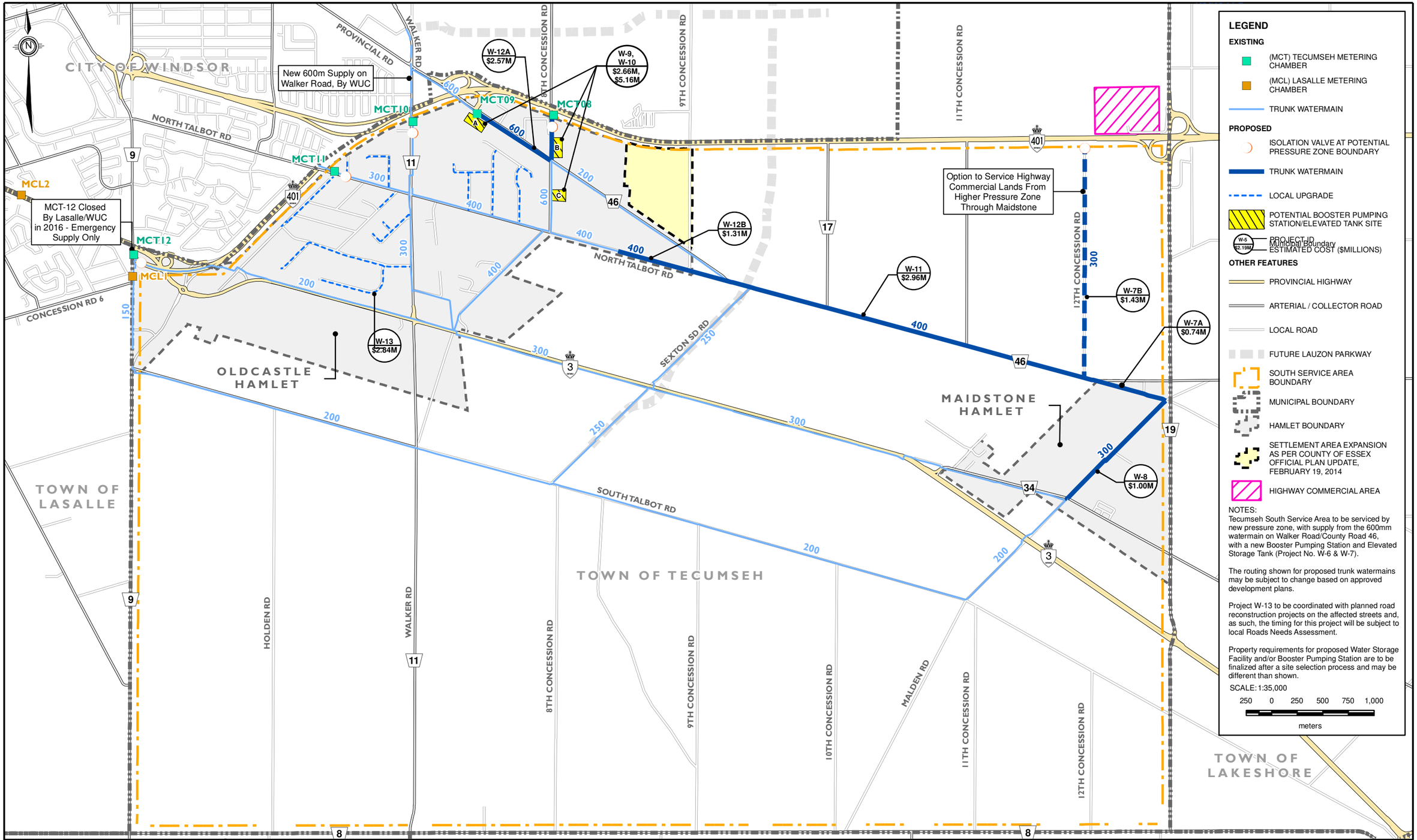
Updated Water System Servicing Strategy

Project Name	Project ID	Location	Class EA Schedule	Cost ($Million)
West Tecumseh Trunk Watermain CR 22 to CP Railway	W-1	Tecumseh Hamlet	B[1]	$2.04
East Tecumseh Hamlet Watermain Connection	W-2A	Tecumseh Hamlet	B[1]	$0.46
Trunk Watermain on Manning Road CR 22 to CP Railway	W-2B	Tecumseh Hamlet	A+	$1.88
West Tecumseh Trunk Watermain CP Railway to CR 42	W-4	Tecumseh Hamlet	B[1]	$2.26
Trunk Watermain on Manning Road CP Railway to CR 42	W-5A	Tecumseh Hamlet	A+	$0.61
Trunk Watermain on CR 42 11th Concession Road to Manning Road	W-5B	Tecumseh Hamlet	A+	$0.92
South Tecumseh Trunk Watermain CR 42 to Hwy 401	W-6	Tecumseh Hamlet	A+	$1.72
North Talbot Road Trunk Watermain Walker Road to 8th Concession Road	W-3	Oldcastle Hamlet (Completed)	-	$0
South Tecumseh Trunk Watermain 12th Concession Road to Malden Road	W-7A	Southeast Tecumseh	A+	$0.74
South Tecumseh Trunk Watermain CR 46 to Hwy 401	W-7B	Southeast Tecumseh	A+	$1.43
Maidstone Hamlet Trunk Watermain	W-8	Maidstone Hamlet	A+	$1.00
Zone 2 Booster Pumping Station	W-9	Oldcastle Hamlet	B	$2.66
Zone 2 Water Storage Facility	W-10	Oldcastle Hamlet	B	$5.16
County Road 46 Trunk Watermain Sexton Road to Maidstone Hamlet	W-11	Southeast Tecumseh	A+	$2.96
Southwest Tecumseh Trunk Watermain	W-12A	Oldcastle Hamlet	A+	$2.57
North Talbot Road Trunk Watermain	W-12B	Oldcastle Hamlet	A+	$1.31
Oldcastle Hamlet Watermain Upgrades	W-13	Oldcastle Hamlet	A+	$2.84
Total Estimated Capital Cost				**$20.67**

[1] Project may be approved Schedule A if implemented under a Planning Act Approval in accordance with Section A.2.9 of the Class EA Planning Process



CIMA+	CLIENT: 17 TOWN OF TECUMSEH	TITLE: WATER AND WASTEWATER MASTER PLAN UPDATE PREFERRED WATER SERVICING STRATEGY NORTH SERVICE AREA	DRAWING No: FIG 6.1



CIMA+	CLIENT **TOWN OF TECUMSEH**	PROJECT NAME: **WATER AND WASTEWATER MASTER PLAN UPDATE** **PREFERRED WATER SERVICE STRATEGY** **SOUTH SERVICE AREA**	DRAWING No: **FIG 6.2**

Updated Wastewater System Servicing Strategy

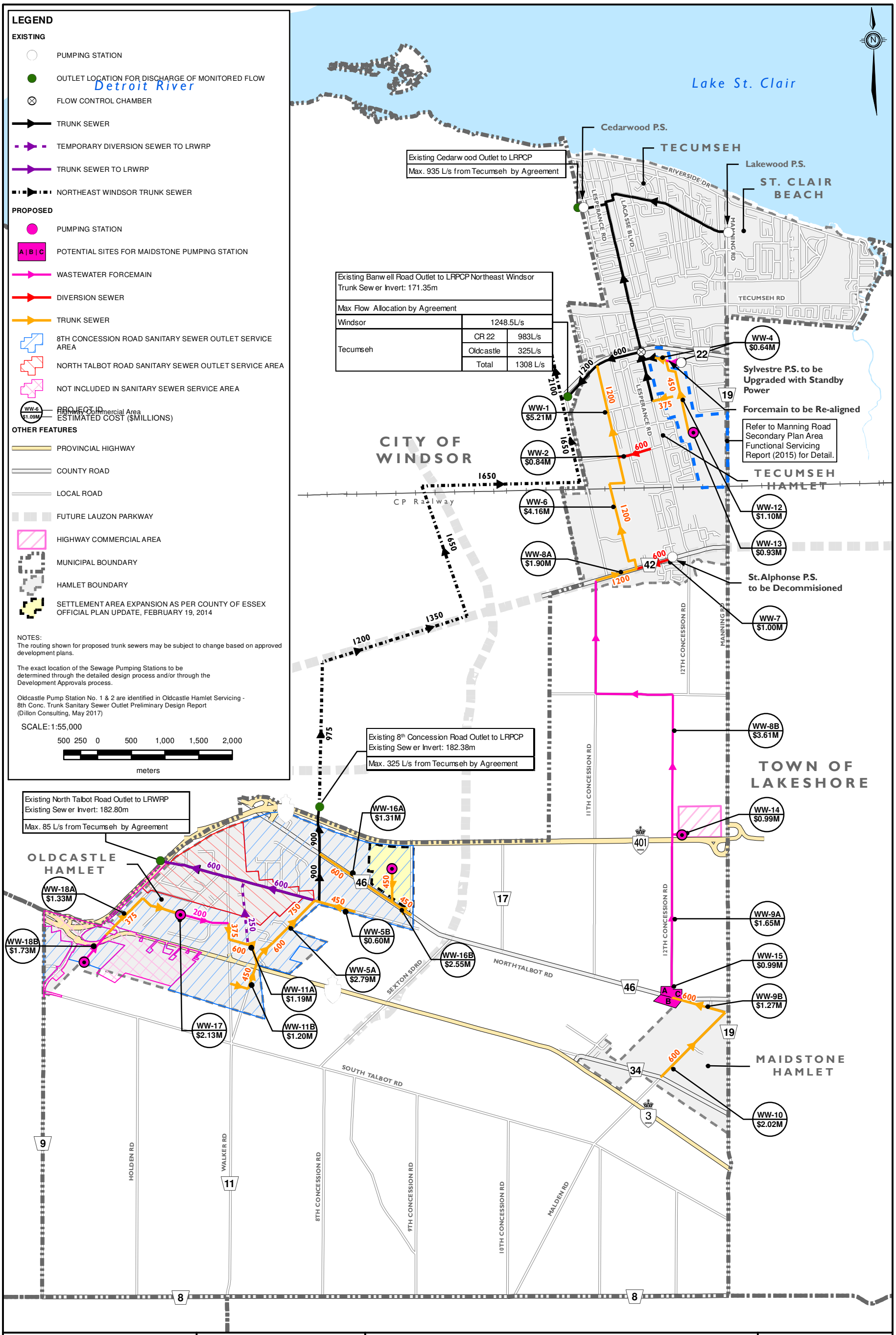
Project Name	Project ID	Location	Class EA Schedule	Cost ($Million)
West Tecumseh Trunk Watermain CR 22 to CP Railway	WW-1	Tecumseh Hamlet	B[1]	$5.21
Tecumseh Hamlet Diversion Sewer	WW-2	Tecumseh Hamlet	A+	$0.84
Sylvestre Pumping Station Upgrade	WW-4	Tecumseh Hamlet	A+	$0.64
North Talbot Road Trunk Sewer Oldcastle Road (North Talbot to Chrysler Greenway)	WW-5A	Oldcastle Hamlet	A+	$2.79
North Talbot Road Trunk Sewer, Oldcastle Road to 475m east of Oldcastle Road	WW-5B	Oldcastle Hamlet	A+	$0.60
West Tecumseh Trunk Sewer CP Railway to CR 42	WW-6	Tecumseh Hamlet	B[1]	$4.16
CR 42 Diversion Sewer	WW-7	Tecumseh Hamlet	A+	$1.00
South Tecumseh Trunk Sewer CR 42 Odessa Drive to 11th Concession Road	WW-8A	Tecumseh Hamlet	A+	$1.90
South Tecumseh Trunk Forcemain CR 42 to Hwy 401	WW-8B	Tecumseh Hamlet	A+	$3.61
South Tecumseh Trunk Forcemain Hwy 401 to North Talbot Road	WW-9A	Tecumseh Hamlet	A+	$1.65
South Tecumseh Trunk Sewer 11th Concession Road to Malden Road	WW-9B	Southeast Tecumseh	A+	$1.27
Maidstone Hamlet Trunk Sewer	WW-10	Maidstone Hamlet	A+	$2.02
Southwest Tecumseh Trunk Sewer Phase 1	WW-11A	Oldcastle Hamlet	A+	$1.19
Southwest Tecumseh Trunk Sewer Phase 2	WW-11B	Oldcastle Hamlet	A+	$1.20
Manning Road Secondary Plan Area Trunk Sewer	WW-12	Tecumseh Hamlet	A+	$1.10
Manning Road Secondary Plan Area Lift Station	WW-13	Tecumseh Hamlet	A+	$0.93
Highway Commercial Area Pumping Station	WW-14	Tecumseh Hamlet	B[1]	$0.99

[1] Project may be approved Schedule A if implemented under a Planning Act Approval in accordance with Section A.2.9 of the Class EA Planning Process.

Project Name	Project ID	Location	Class EA Schedule	Cost ($Million)
Maidstone Hamlet Sanitary Pumping Station	WW-15	Maidstone Hamlet	B	$0.99
CR 46 Trunk Sanitary Sewer Phase 1	WW-16A	Oldcastle Hamlet	A^+	$1.31
CR 46 Trunk Sanitary Sewer Phase 2	WW-16B	Oldcastle Hamlet	A^+	$2.55
Blackacre Drive Sanitary Servicing	WW-17	Oldcastle Hamlet	B	$2.13
Howard Avenue Servicing Blackacre Drive and Outer Drive to Hwy 3	WW-18A	Oldcastle Hamlet	B	$1.33
Howard Avenue Servicing Hwy 3 to MTO Carpool Lot	WW-18B	Oldcastle Hamlet	B	$1.73
Purchase additional treatment capacity at Little River Pollution Control Plant	Windsor-2[2,3]	Windsor	-	$10.22
Purchase additional treatment capacity at Little River Pollution Control Plant	Windsor-4[2,3]	Windsor	-	$6.27
Total Estimated Capital Cost				**$57.64**

[2] Projects may be implemented by the City of Windsor in accordance with the Wastewater Agreement, Nov. 2004. Costs taken from Article 9 of the Agreement, with costs escalated by 2% per year to reflect 2018 costs.

[3] The timing for the Capacity Expansion to be determined in accordance with Article 4 of the Wastewater Servicing Agreement.



TOWN OF AMHERSTBURG CIMA+	CLIENT: TOWN OF TECUMSEH	TITLE: TOWN OF LASALLE WATER AND WASTEWATER PLAN UPDATE PREFERRED WASTEWATER SERVICING STRATEGY	DRAWING No: FIG 8.1

Town of Tecumseh

2018 Water and Wastewater

Master Plan Update

12 November 2019

Project number T00572A

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Executive Summary

Background

Municipalities can recognize the benefit of comprehensive long-range planning exercises that examine problems and solutions for an overall system of municipal services. Master Plans are not intended to address specific local problems or to plan for projects on a project-by-project basis. The Class EA defines Master Plans as:

"Long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine an infrastructure system(s) or group of related projects in order to outline a framework for planning for subsequent projects and/or developments."

The Town of Tecumseh completed a Water and Wastewater Master Plan Update in 2008. It is recommended practice to review a Master Plan at least every five years to determine the need for a formal review and update to the Master Plan. Since the Master Plan Update was completed in 2008, several changes have occurred which have had significant impacts to the assumptions used in preparing the 2008 Plan and, as a result, it has been identified that the Plan needs to be updated. Significant issues impacting the Plan include:

- Projected growth rates within the Town of Tecumseh as identified in the 2008 Master Plan have not been realized. Updated Planning Projections identified in the County of Essex Official Plan project significantly lower growth rates for the Town. As a result, the timing for various Projects has been reviewed and revised, as appropriate.
- The Windsor Utilities Commission cancelled plans to construct the Banwell Reservoir and Booster Pumping Station at the Town of Tecumseh boundary. The additional storage and pumping capacity originally planned for the Banwell site have now been provided at the A.H. Weeks Water Treatment Plant in Windsor.
- The City of Windsor, in partnership with the Town of Tecumseh, advanced the timing of construction of the North-East Windsor Trunk Sanitary Sewer from Banwell Road/County Road 22 to 8th Concession Road in Oldcastle Hamlet. As a result, growth in Oldcastle Hamlet is expected to accelerate due to the availability of a sufficient outlet for wastewater.
- The Skyway Plaza WWTP has been decommissioned, and wastewater from the local service area has been temporarily directed to the North Talbot Road Trunk Sanitary Sewer for treatment and disposal at the Lou Romano WRP.
- Construction of the Herb Gray Parkway resulted in the relocation of the supply watermain to the Howard Avenue boundary connection and meter (MCT-12). As a result of re-routing this water supply main through the Town of LaSalle, this supply watermain has been closed and no longer provides supply capacity to the Town.
- The Town has completed a number of Studies which impact the servicing strategies identified in the 2008 Master Plan.

The purpose of Water and Wastewater Plan Update is to use updated planning projections for the Town of Tecumseh within the 2036 planning horizon, and to provide a technical review of the 2008 water and wastewater servicing strategies. The review recommends necessary strategy changes, updates to project phasing and updates to capital cost estimates which in turn will fed into the Development Charges process. This update is a critical component in the integrated planning process and is intended to consolidate and harmonize the Town's water and wastewater servicing strategies and capital program for the North and South Service Areas based on updated planning information, updated design criteria and updated project information.

Master Planning Process

The Municipal Class Environmental Assessment (EA) process clearly defines approaches for completion of Master Plans within the Class EA context. The Town of Tecumseh has prepared this Master Plan based generally on Approach 2, which involves preparing a Master Plan document at the conclusion of Phases 1 and 2 in order to fulfill the requirements for Schedule B projects. The Town of Tecumseh has identified select Schedule B projects that will follow on with separate studies in order to provide greater detail prior to finalizing property and/or easement requirements.

Planning Projections

Population projections for residential growth were prepared in consultation with the Town's Planning, Public Works and Environmental Services departments and include intensification of the urban settlement areas of Tecumseh, St. Clair Beach, Tecumseh Hamlet, Maidstone Hamlet and Oldcastle Hamlet. The population estimates are based on the available planning information including local growth analysis in the Town's Official Plans, planning documents and Secondary Plans for Tecumseh Hamlet, Maidstone Hamlet and the Manning Road Development Area. The distribution of population growth in the urban settlement areas is summarized in Table ES-1.

Table ES-1: Projected Population Statistics – 2016 through 2036+

SERVICE AREA		2016	2026	2036	URBAN BUILD OUT
North	Tecumseh	12,180	12,244	12,272	15,380
	St. Clair Beach	3,484	3,646	3,718	3,894
	Tecumseh Hamlet	5,264	8,486	9,633	13,683
Southeast	Maidstone Hamlet	335	335	1,011	2,259
	Rural	1,164	1,164	1,164	1,164
Southwest	Oldcastle Hamlet	350	1,174	1,818	10,947
	Rural	453	453	453	430
Total		**23,229**	**27,501**	**30,068**	**47,756**

Recommended Servicing Strategies

The general servicing concepts from the 2008 Master Plan have been revised to incorporate updated information on servicing requirements, capacity allocations, scheduling, alignments and costing. Wherever possible, the alignments of new trunk facilities have been planned based on the location of existing road allowances and/or servicing corridors in order to ensure that servicing can proceed without undue delays resulting from the need to acquire property. However, the Town has the option to construct trunk facilities through new development lands if it can be shown to be cost effective to do so. In this event, the alignment of the trunk facilities may be altered based on approved Secondary Plans and/or Approved Draft Plans of Subdivision. Should the trunk facilities be implemented through new development lands, additional notification to the Public would be provided through the Planning Act notifications.

The timing of the various projects has been established based on anticipated growth rates in Tecumseh and on a fiscally responsible capital works program. The Town will have the option to advance or defer specific projects depending upon the rate of growth experienced in Tecumseh, or upon the petition by a developer (or group of developers) provided that the financial impacts of advancing certain projects are reviewed and mitigated through collection of Development Charges or through Front-End Financing arrangements.

Updated Water Servicing Strategy

In 2004, the Town of Tecumseh entered into a Water Servicing Agreement with the Windsor Utilities Commission (WUC) to secure a long term and reliable drinking water supply. In 2005, the Town completed an Addendum to the 2002 Water Master Plan based on the terms and conditions of the 2004 Water Servicing Agreement. The 2008 Master Plan further developed and refined the water servicing strategy based on the supply of potable water from WUC. Since the 2008 Master Plan Update, the Town has proceeded to implement various components of the planned system. The 2018 Master Plan refines the Water Serivicng Strategy, but does not change the overall intent of the servicing strategy for the Town of Tecumseh.

Refinements to the water servicing strategy have been made due to recent changes by WUC, and due to accelerated growth in Oldcastle Hamlet. Significant water servicing strategy updates include:

- Due to ongoing concerns related to water system pressures in the south service area, implementation of the new Pressure Zone 2 has been advanced to ensure that adequate system pressure is provided during all future demand scenarios. In addition, the preliminary locations for the Booster Pumping Station and Elevated Storage Tank have been changed to Oldcastle Hamlet, with supply from the trunk watermain on Provincial Road. The entire service area south of Highway 401 will be included in the new Pressure Zone.

- Commencement of development within the Manning Road Area Secondary Plan has resulted in the need to advance the timing of water and wastewater servicing projects in the area. As a result, the timing for works planned to service growth in the West Tecumseh Hamlet area (WW-1 and W-4) may be deferred until further land use planning studies are completed.
- As a result of the relocation of the primary supply point for the South Service Area to Provincial Road, the need to supply the South Service Area via a large capacity trunk watermain from County Road 42 to Maidstone Hamlet along 12th Concession Road and 11th Concession Road was reviewed. The trunk watermain has been re-sized to provide supply capacity for the Highway Commercial Lands, with potential back-up supply from the new Pressure Zone 2 on 11th Concession Road.

The updated Water Capital Program, Class EA Schedules and Costs are detailed in Table ES-2. The 2018 preferred Water Servicing Strategy is depicted in Figure Nos. ES-1 and ES-2.

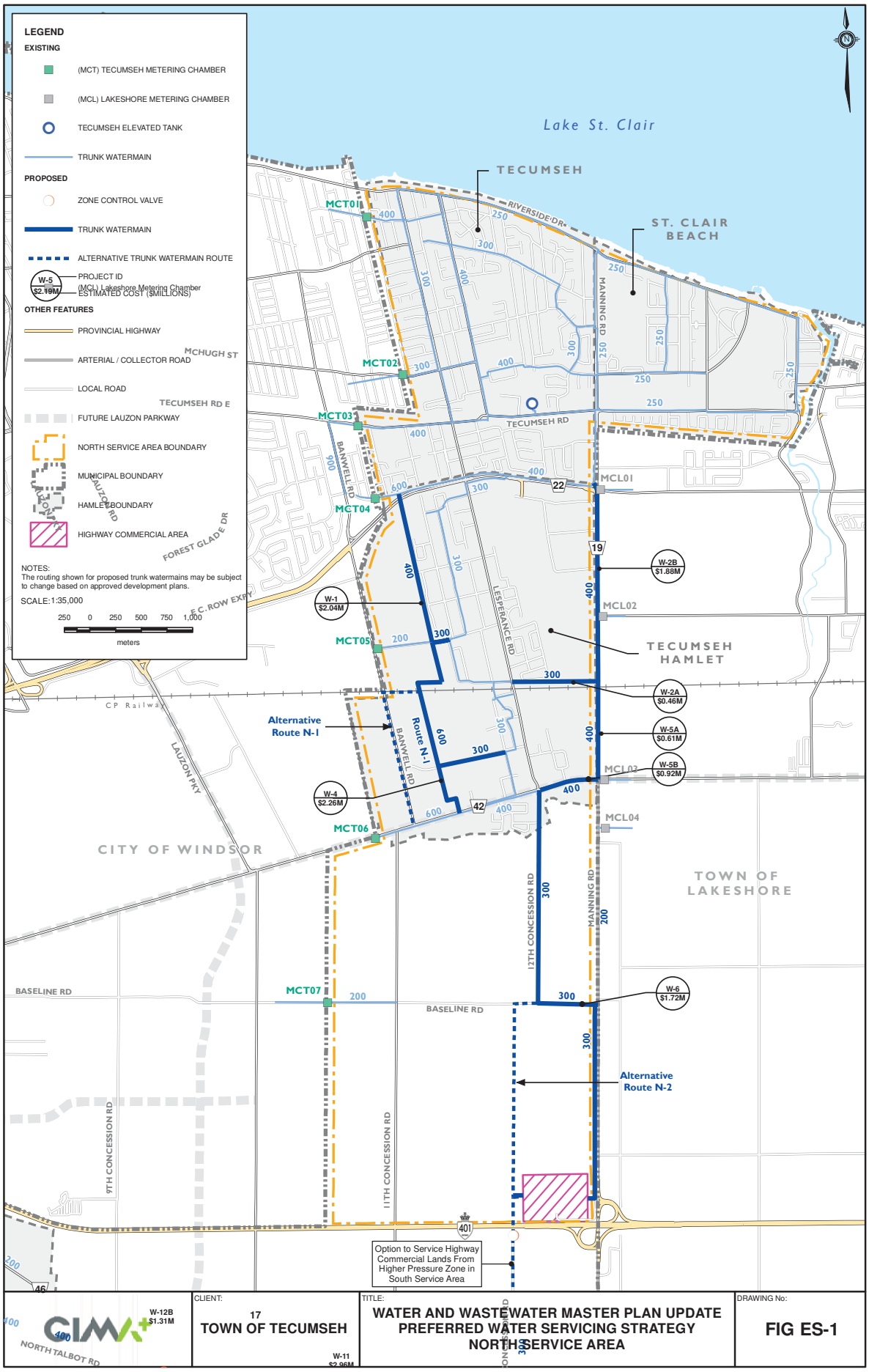
Table ES-2: Water Capital Program and EA Schedules

PROJECT NAME	PROJECT ID	LOCATION	CLASS EA SCHEDULE	COST ($MILLION)
NORTH SERVICE AREA				
West Tecumseh Trunk Watermain CR 22 to CP Railway	W-1	Tecumseh Hamlet	B[1]	$2.04
East Tecumseh Hamlet Watermain Connection	W-2A	Tecumseh Hamlet	B[1]	$0.46
Trunk Watermain on Manning Road CR 22 to CP Railway	W-2B	Tecumseh Hamlet	A+	$1.88
West Tecumseh Trunk Watermain CP Railway to CR 42	W-4	Tecumseh Hamlet	B[1]	$2.26
Trunk Watermain on Manning Road CP Railway to CR 42	W-5A	Tecumseh Hamlet	A+	$0.61
Trunk Watermain on CR 42, 11th Concession Road to Manning Road	W-5B	Tecumseh Hamlet	A+	$0.92
South Tecumseh Trunk Watermain CR 42 to Hwy 401	W-6	Tecumseh Hamlet	A+	$1.72
SOUTH SERVICE AREA				
North Talbot Road Trunk Watermain Walker Road to 8th Concession Road	W-3	Oldcastle Hamlet (Completed)		
South Tecumseh Trunk Watermain 12th Concession Road to Malden Road	W-7A	Southeast Tecumseh	A+	$0.74
South Tecumseh Trunk Watermain CR 46 to Hwy 401	W-7B	Southeast Tecumseh	A+	$1.43
Maidstone Hamlet Trunk Watermain	W-8	Maidstone Hamlet	A+	$1.00
Zone 2 Booster Pumping Station	W-9	Oldcastle Hamlet	B	$2.66
Zone 2 Water Storage Facility	W-10	Oldcastle Hamlet	B	$5.16
County Road 46 Trunk Watermain Sexton Road to Maidstone Hamlet	W-11	Southeast Tecumseh	A+	$2.96

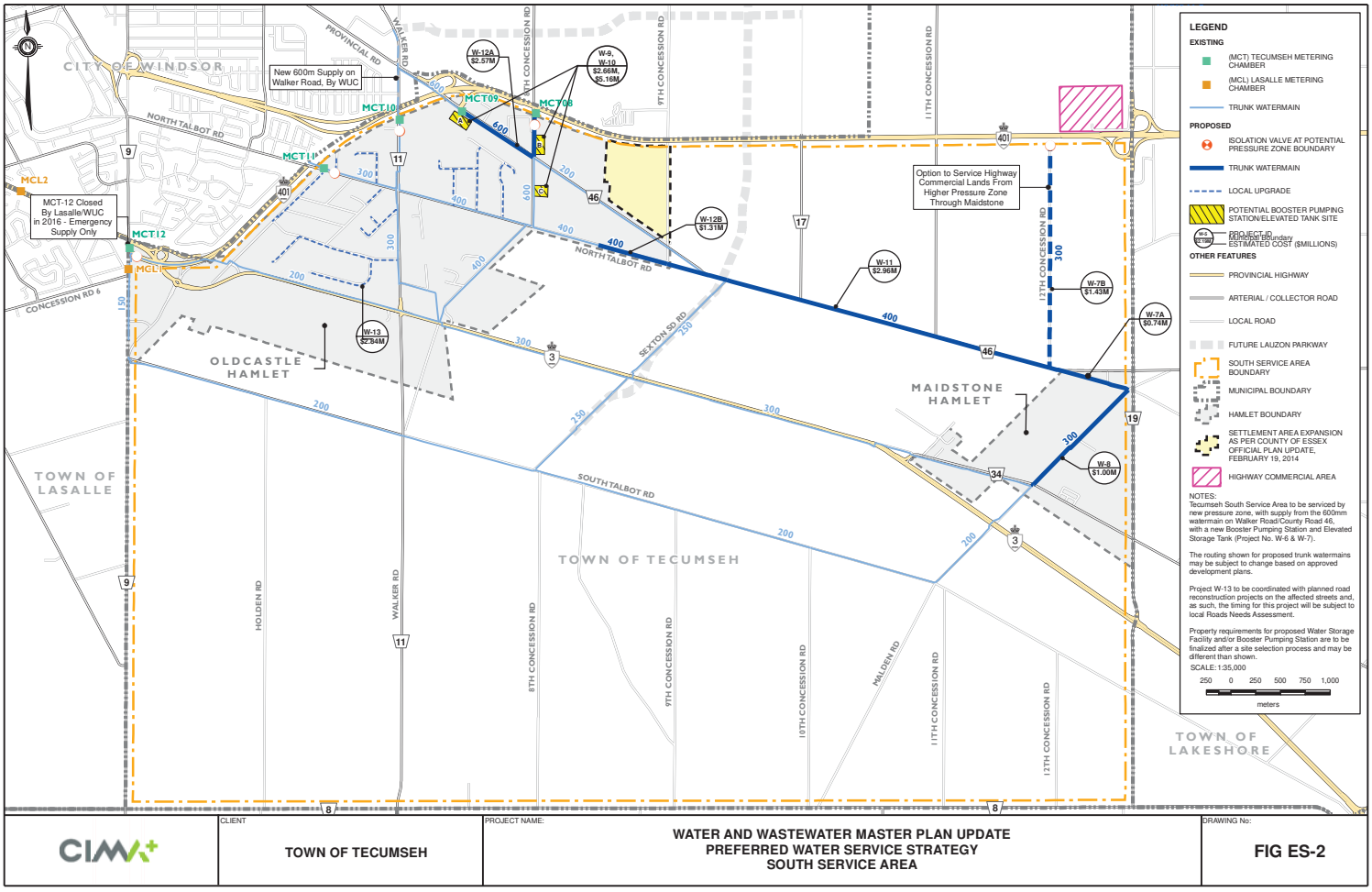
PROJECT NAME	PROJECT ID	LOCATION	CLASS EA SCHEDULE	COST ($MILLION)
Southwest Tecumseh Trunk Watermain	W-12A	Oldcastle Hamlet	A+	$2.57
North Talbot Road Trunk Watermain	W-12B	Oldcastle Hamlet	A+	$1.31
Oldcastle Hamlet Watermain Upgrades	W-13	Oldcastle Hamlet	A+	$2.84
Total Estimated Capital Cost				**$30.56**

Notes:

1. Project may be approved (Schedule A) if implemented under a Planning Act Approval in accordance with Section A.2.9 of the Class EA Planning Process.



	CLIENT:	TITLE:	DRAWING No:
CIMA+	17 TOWN OF TECUMSEH	WATER AND WASTEWATER MASTER PLAN UPDATE PREFERRED WATER SERVICING STRATEGY NORTH SERVICE AREA	FIG ES-1



CLIENT	PROJECT NAME:	DRAWING No:
TOWN OF TECUMSEH	WATER AND WASTEWATER MASTER PLAN UPDATE PREFERRED WATER SERVICE STRATEGY SOUTH SERVICE AREA	FIG ES-2

Wastewater

The 2008 Master Plan developed a wastewater servicing strategy based on the 2004 Wastewater Servicing Agreement with the City of Windsor. The 2008 Master Plan strategy fully utilized the available capacities in the Windsor system, and planned that all wastewater from the Town be directed to the Windsor collection system for ultimate treatment and disposal at either the Little River PCP or the Lou Romano WRP. The 2018 Master Plan does not change the overall philosophy of the 2008 Master Plan.

Refinements to the strategy have been incorporated in the 2018 Master Plan based on various studies recently completed by the Town of Tecumseh. Significant wastewater servicing strategy updates include:

- The Town of Tecumseh completed the Sanitary Sewer Assessment Report (Dillon 2011), which was commissioned by the Town in response to the widespread basement flooding event that occurred following the June 2010 rainfall event. This Study recommended various measures to address reductions in extraneous flows in the sanitary collection system, partnering with homeowners to manage the risk of basement flooding, further assessment and management of public infrastructure, and storm drainage improvements, primarily in areas north of County Road 22.
- The Town of Tecumseh completed the Sanitary Sewage Collection System Improvements Class Environmental Assessment (Dillon, April 2013). This Study recommended various improvements to the sanitary collection system including replacement of the Lakewood Pumping Station, and provision of on-line peak flow storage on the Lakewood Park Trunk Sewer, the Riverside Drive Trunk Sewer and the Dillon Drive Sanitary Sewer system.
- The servicing strategy for the Manning Road Secondary Plan area has been refined based on the Functional Servicing Report, Manning Road Secondary Plan Area (2015).
- The location of the Tecumseh Hamlet Diversion Sewer has been adjusted northward to Intersection Road to intercept more flow from the Lesperance Road Trunk Sanitary Sewer and divert the additional flow to the new West Tecumseh Trunk Sanitary sewer, thereby reducing the risk of sewer surcharging in the Lesperance Road Trunk Sanitary sewer during wet-weather events.
- The servicing strategy for the Highway Commercial lands and for Maidstone Hamlet have been revised to eliminate the need for a large capacity and deep trunk sanitary sewer. These areas will now be serviced using centralized sewage pumping stations with a common discharge forcemain with an outlet to the West Tecumseh Trunk Sanitary Sewer on County Road 42.
- Decommissioning of the Skyway Plaza WWTP in Oldcastle Hamlet and flow diversion from the Skyway Plaza WWTP to the North Talbot Road trunk sewer.

- Refined servicing strategy for the Oldcastle Hamlet area based on the Oldcastle Hamlet Sanitary Servicing – 8th Concession Road Trunk Sanitary Sewer Outlet, Preliminary Design Report (2018). The updated strategy fully utilizes the available capacity in the North East Windsor Trunk Sanitary Sewer outlet on 8th Concession Road at Highway 401 and accommodates growth in the expanded Oldcastle Hamlet area as identified in the County of Essex Official Plan.

The new servicing strategy incorporates flexibility for the Town to divert all or part of peak wet weather flows from existing trunk sewers south of County Road 22 to the new Northeast Windsor Trunk Sanitary Sewer, which outlets to the Little River PCP. This flexibility will permit Tecumseh to comply with its Wastewater Servicing Agreement with Windsor, and to limit peak flow discharge to the Cedarwood Outlet to the maximum approved rate, while maximizing the potential development areas to be serviced through the Banwell Road Outlet.

The updated Wastewater Capital Program, Class EA Schedules and Costs are detailed in Table ES-3. The 2018 preferred Wastewater Servicing Strategy is depicted in Figure ES-3.

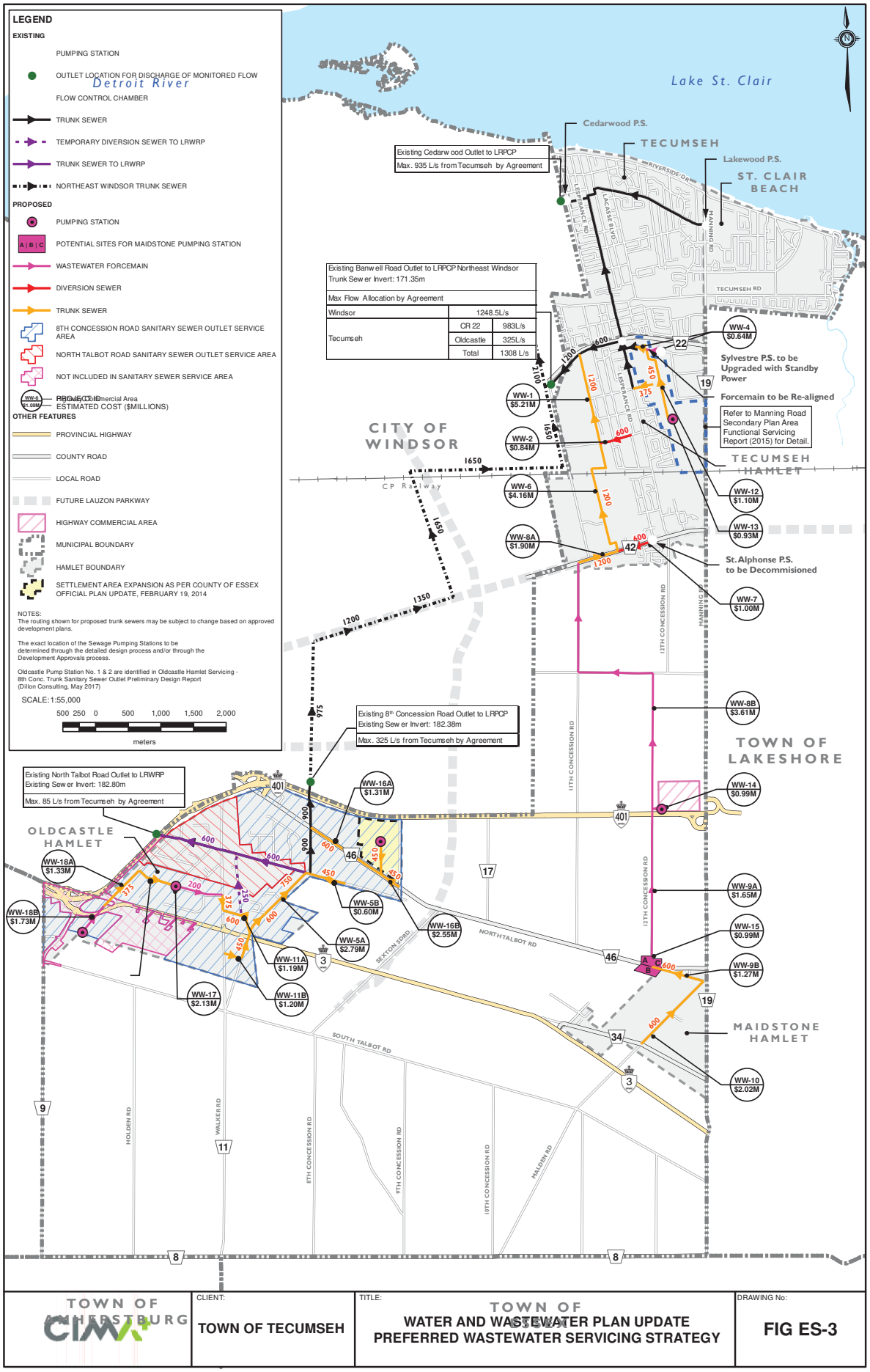
Table ES-3: Wastewater System Servicing Strategy

PROJECT NAME	PROJECT ID	LOCATION	CLASS EA SCHEDULE	COST ($MILLION)
West Tecumseh Trunk Sewer CR 22 to CP Railway	WW-1	Tecumseh Hamlet	B[1]	$5.21
Tecumseh Hamlet Diversion Sewer	WW-2	Tecumseh Hamlet	A+	$0.84
Sylvestre Pumping Station Upgrade	WW-4	Tecumseh Hamlet	B	$0.64
North Talbot Road Trunk Sewer, Oldcastle Road (North Talbot to Chrysler Greenway)	WW-5A	Oldcastle Hamlet	A+	$2.79
North Talbot Road Trunk Sewer, Oldcastle Road to 475 m east of Oldcastle Road	WW-5B	Oldcastle Hamlet	A+	$0.60
West Tecumseh Trunk Sewer CP Railway to CR 42	WW-6	Tecumseh Hamlet	B[1]	$4.16
CR 42 Diversion Sewer	WW-7	Tecumseh Hamlet	A+	$1.00
South Tecumseh Trunk Sewer CR 42, Odessa Drive to 11th Concession	WW-8A	Tecumseh Hamlet	A+	$1.90
South Tecumseh Trunk Forcemain, CR42 to Hwy 401	WW-8B	Tecumseh Hamlet	A+	$3.61
South Tecumseh Trunk Forcemain, Hwy 401 to North Talbot Road	WW-9A	Tecumseh Hamlet	A+	$1.65
South Tecumseh Trunk Sewer, 11th Concession Road to Malden Road	WW-9B	Southeast Tecumseh	A+	$1.27
Maidstone Hamlet Trunk Sewer	WW-10	Maidstone Hamlet	A+	$2.02

PROJECT NAME	PROJECT ID	LOCATION	CLASS EA SCHEDULE	COST ($MILLION)
Southwest Tecumseh Trunk Sewer, Phase 1	WW-11A	Oldcastle Hamlet	A+	$1.19
Southwest Tecumseh Trunk Sewer, Phase 2	WW-11B	Oldcastle Hamlet	A+	$1.20
Manning Road Secondary Plan Area Trunk Sewer	WW-12	Tecumseh Hamlet	A+	$1.10
Manning Road Secondary Plan Area Sanitary Lift Station	WW-13	Tecumseh Hamlet	A+	$0.93
Highway Commercial Area Pumping Station[4]	WW-14	Tecumseh Hamlet	B	$0.99
Maidstone Hamlet Sanitary Pumping Station	WW-15	Maidstone Hamlet	B	$0.99
County Road 46 Trunk Sanitary Sewer, Phase 1	WW-16A	Oldcaslte Hamlet	A+	$1.31
County Road 46 Trunk Sanitary Sewer, Phase 2	WW-16B	Oldcaslte Hamlet	A+	$2.55
Blackacre Drive Sanitary Servicing	WW-17	Oldcastle Hamlet	B	$2.13
Howard Avenue Servicing, Blackacre Drive and Outer Drive to Hwy 3	WW-18A	Oldcastle Hamlet	B	$1.33
Howard Avenue Servicing, Hwy 3 to MTO Carpool Lot	WW-18B	Oldcastle Hamlet	B	$1.73
Purchase additional treatment capacity at Little River PCP	Windsor-2[2,3]	Windsor	-	$10.22
Purchase additional treatment capacity at Little River PCP	Windsor-4[2,3]	Windsor	-	$6.27
Total Estimated Capital Cost				**$57.64**

Notes:

1. Project may be approved (Schedule A) if implemented under a Plan of Subdivision
2. Projects to be implemented by the City of Windsor in accordance with Wastewater Agreement, Nov. 2004. Costs taken from Article 9 of the Agreement, with costs escalated by 2% per year to reflect 2018 costs.
3. The timing for the Capacity Expansion to be determined in accordance with Article 4 of the Wastewater Servicing Agreement.
4. Project may be approved (Schedule A) if implemented under a Planning Act Approval in accordance with Section A.2.9 of the Class EA Planning Process.



TOWN OF AMHERSTBURG / CIMA+	CLIENT: TOWN OF TECUMSEH	TITLE: TOWN OF LASALLE WATER AND WASTEWATER PLAN UPDATE PREFERRED WASTEWATER SERVICING STRATEGY	DRAWING No: FIG ES-3

Implementation Plan

Based on the projections for water demand or wastewater flow requirements of the service areas developed from the 2018 Population Projections, the project timing requirements were determined. This process took into consideration a logical extension of growth from the existing development. The evaluation of timing also took into consideration the availability of and need to maximize the use of existing infrastructure (within both the Town of Tecumseh and City of Windsor) and best judgement on reasonable timing of subsequent expansions.

Project timing was also integrated with the results of recent studies, Class Environmental Assessments and reports, and where possible other road upgrade projects being planned by the County of Essex to ensure that underground infrastructure was not scheduled after completion of road improvements.

The updated Implementation Plans and Capital Costs for the North service area (TN) and South service area (TS) are summarized in Tables ES-4 and ES-5 respectively. Table ES-6 summarizes the anticipated timing and preliminary costs for purchasing additional wastewater conveyance and treatment capacity from the City of Windsor in accordance with the terms and conditions established in the Windsor –Tecumseh Wastewater Agreement.

Table ES-4: North Service Area Implementation Plan

TOWN REFERENCE ID	PROJECT IDs	DESCRIPTION	TIMING	COST ($MILLION)
TN-1	W-2A, W-2B, WW-4, WW-12, WW-13	Manning Road Secondary Plan Area Servicing	0-5 years	$5.01
TN-2	W-1, WW-1, WW-2	West Tecumseh Hamlet Servicing, Phase 1	6-10 years	$8.09
TN-3	W-4, W-5, WW-6, WW-7, WW-8	West Tecumseh Hamlet Servicing, Phase 2	11-15 years	$11.77
TN-4	W-6, WW-Bb, WW-14	South Tecumseh Hamlet Servicing	16-20 years	$7.03
Total Estimated Cost (2018$)				**$31.09**

Table ES-5: South Service Area Implementation Plan

TOWN REFERENCE ID	PROJECT ID'S	DESCRIPTION	TIMING	COST ($MILLION)
TS-1	W-9, W-10, W-12A	Implementation of Tecumseh Zone 2	0-5 years	$10.39
TS-2	W-12B, W-13[1], WW-5A, WW-11A	Oldcastle Servicing, Phase 1	6-10 years	$5.62
TS-3	W-13[1], WW-5B, WW-16A, WW-17,	Oldcastle Hamlet Servicing, Phase 2	11-15 years	$5.02
TS-4	W-7A, W-8, W-11, W-13[1], WW-16B, WW-18A, WW-18B	Oldcastle Hamlet Servicing, Phase 3	16-20 years	$11.37
TS-5	W-7B, W-131, WW-11B, WW-9A, WW-9B, WW-10, WW-15	Maidstone Hamlet Servicing	20+ years	$9.03
Total Estimated Capital Cost (2018$)				**$41.43**

Notes:

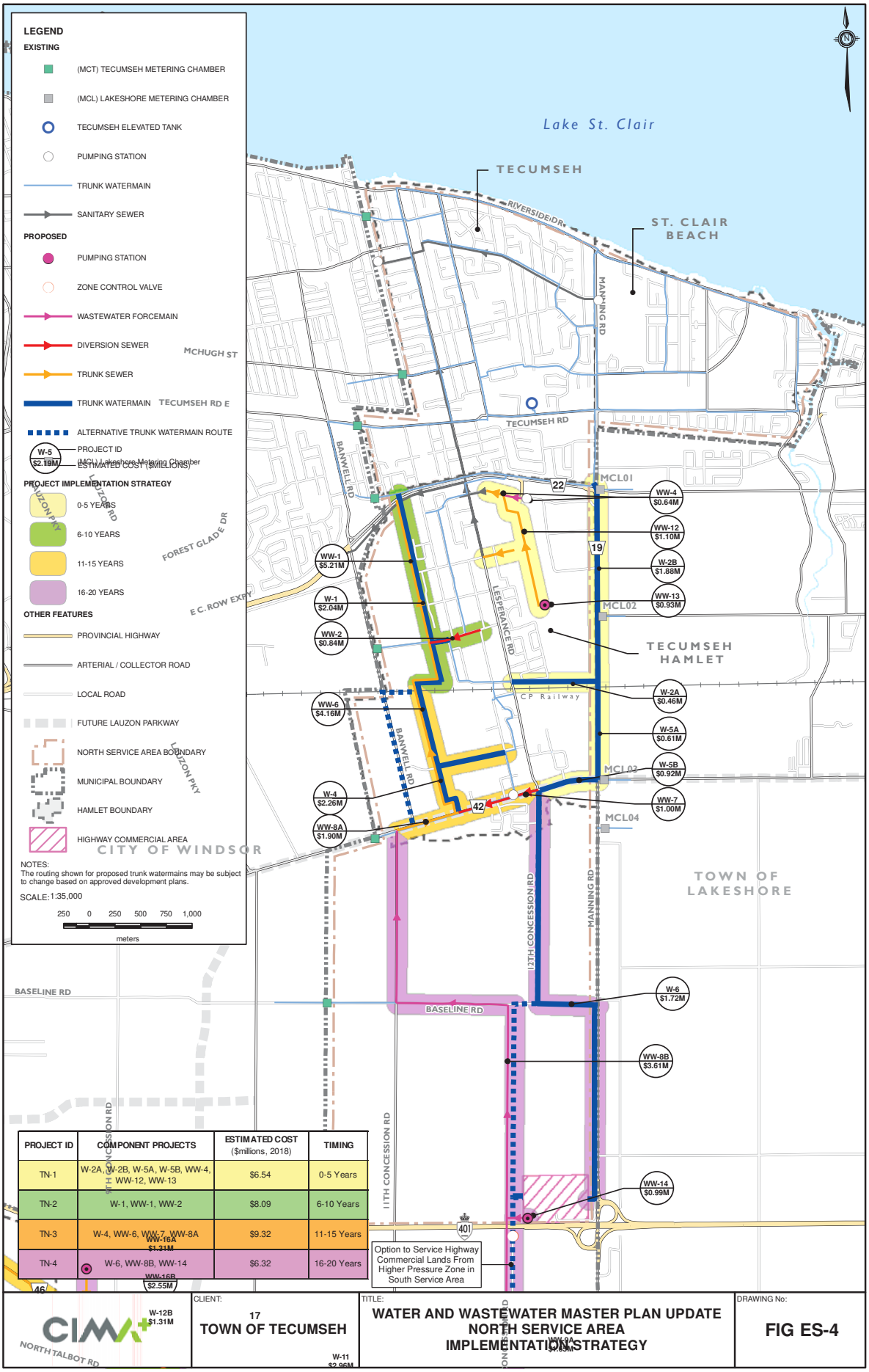
1. Portions of W-13 to be implemented with WW-17 and WW-18A
2. Implementation of the trunk watermain on 12th Concession Road and may be deferred

Table ES-6: Timing and Costs for Purchasing Additional Wastewater Capacity from Windsor

PROJECT ID	DESCRIPTION	ANTICIPATED TIMING	COST ($MILLION)
Windsor -1	Northeast Windsor Trunk Sanitary Sewer, Forest Glade to Little River PCP	Completed	
Windsor-2	Purchase additional treatment capacity at Little River PCP[1]	2031	$10.22
Windsor-3	Northeast Windsor Trunk Sanitary Sewer, Banwell Road to 8th Concession Road	Completed	
Windsor-4	Purchase additional treatment capacity at Little River PCP[1]	2037	$6.27
Total Estimated Cost for Purchasing Additional Capacity from Windsor			**$16.49**

Notes:

1. Projects to be implemented by the City of Windsor in accordance with Wastewater Agreement, Nov. 2004. Costs taken from Article 9 of the Agreement, with costs escalated by 2% per year to reflect 2018 costs. Actual timing of Works may be triggered by either the City of Windsor or the Town of Tecumseh in accordance with Article 4 of the Agreement, once the plant reaches 90% of it's rated capacity.

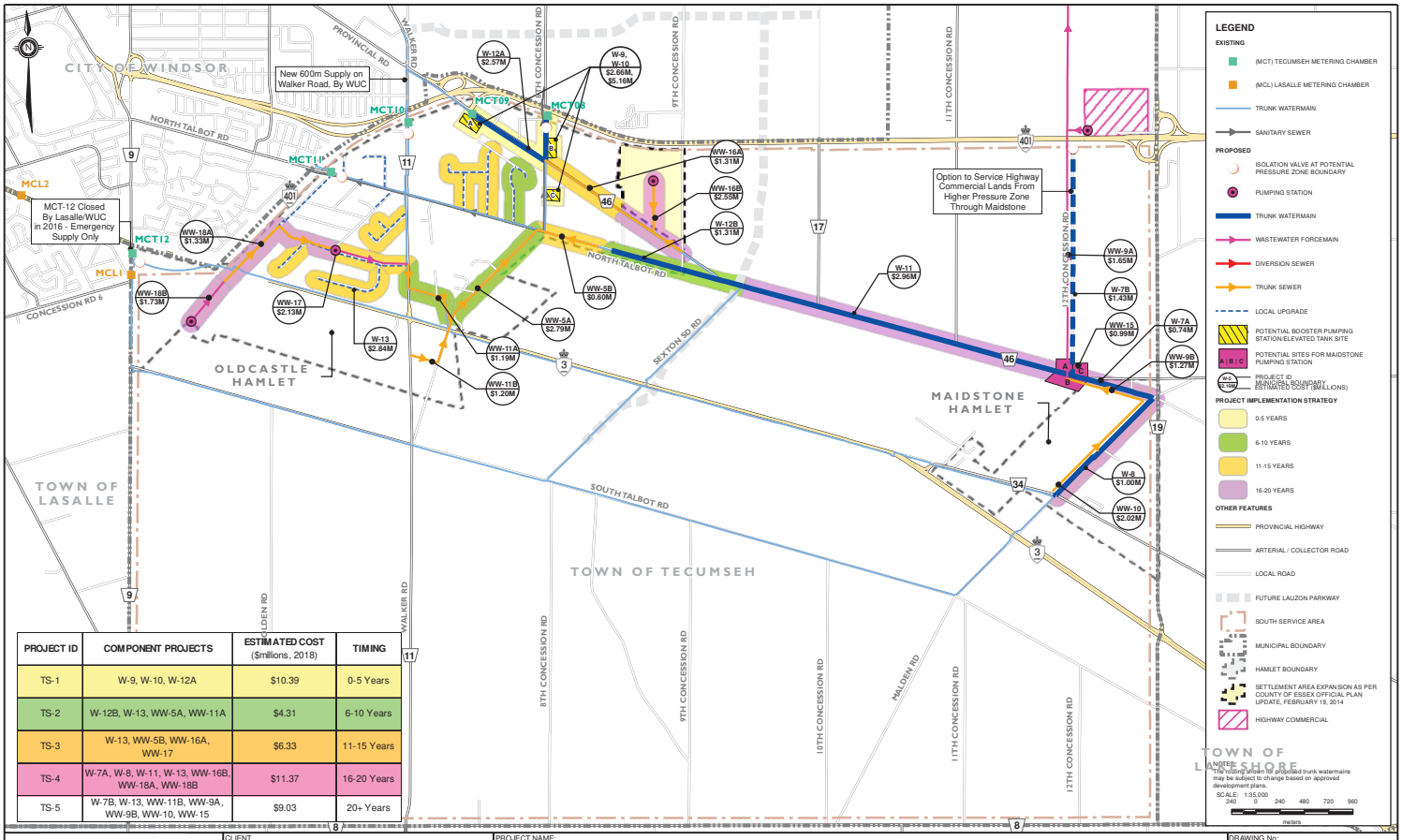


PROJECT ID	COMPONENT PROJECTS	ESTIMATED COST ($millions, 2018)	TIMING
TN-1	W-2A, W-2B, W-5A, W-5B, WW-4, WW-12, WW-13	$6.54	0-5 Years
TN-2	W-1, WW-1, WW-2	$8.09	6-10 Years
TN-3	W-4, WW-6, WW-7, WW-8A	$9.32	11-15 Years
TN-4	W-6, WW-8B, WW-14	$6.32	16-20 Years

CLIENT: 17 TOWN OF TECUMSEH

TITLE: WATER AND WASTEWATER MASTER PLAN UPDATE NORTH SERVICE AREA IMPLEMENTATION STRATEGY

DRAWING No: FIG ES-4



PROJECT ID	COMPONENT PROJECTS	ESTIMATED COST ($millions, 2018)	TIMING
TS-1	W-9, W-10, W-12A	$10.39	0-5 Years
TS-2	W-12B, W-13, WW-5A, WW-11A	$4.31	6-10 Years
TS-3	W-13, WW-5B, WW-16A, WW-17	$6.33	11-15 Years
TS-4	W-7A, W-8, W-11, W-13, WW-16B, WW-18A, WW-18B	$11.37	16-20 Years
TS-5	W-7B, W-13, WW-11B, WW-9A, WW-9B, WW-10, WW-15	$9.03	20+ Years

CLIENT: TOWN OF TECUMSEH

PROJECT NAME: WATER AND WASTEWATER MASTER PLAN UPDATE
SOUTH SERVICE AREA
IMPLEMENTATION STRATEGY

DRAWING No: FIG ES-5

Property Requirements

Schedule B Projects that will require property acquisition by the Town are summarized in Table ES-7.

Table ES-7: Property Requirements

PROJECT ID	PROJECT NAME	PROPERTY REQUIREMENTS	COMMENTS
W-1, WW-1, W-4 & WW-6	West Tecumseh Trunk Sewer and Watermain	Route N-1: min. 20.0 m wide easement between CR 22 and CR42 in Tecumseh Hamlet.	Alignment of trunk sewer and watermain along Route N-1 to be coordinated through Secondary Plan / Plan of Subdivision approvals. Town will secure/purchase permanent easement(s) prior to commencing detail design.
WW-4	Sylvestre Pumping Station Upgrade	A 3.0m wide permanent easement adjacent to Sylvestre Drive to house a stand-by generator in a sound attenuating enclosure.	Easement to be secured as a Condition of Site Plan Approval for adjacent development.
W-2A	East Tecumseh Watermain Connection	A minimum 5.0 m wide easement within or adjacent to the CP Rail corridor	Easement to be secured prior to construction
W-9, W-10	Zone 2 Booster Pumping Station and Elevated Storage Faility	A minimum 50m wide by 50 m deep (0.25 ha) parcel of land is required for the booster pumping station site. A 0.5 ha parcel of land is required for the elevated water storage facility site	Three alternative sites (A, B, and C) have been selected in Oldcastle Hamlet for the proposed booster pumping station and/or the elevated storage facility. A detailed evaluation of the alternative sites will be undertaken to identify the preferred site prior to commencing detail design. The Town will purchase any required property prior to construction.
WW-15	Maidstone Hamlet Pumping Station	A minimum 20m x 20m parcel of land is required for the construction of a wastewater pumping station to service Maidstone Hamlet	Three potential sites near the intersection of Concession Road 11 and North Talbot Road have been selected for the proposed pumping station. A detailed evaluation of the alternative sites will be undertaken to identify the preferred site prior to commencing detail design. The Town will purchase any required property prior to construction.
WW-16B	County Road 46 Trunk Sanitary Sewer, Phase 2	A minimum 20.0m wide corridor through new development land for the trunk sewer extension, and a minimum 20m x 20m parcel of land for a new lift station.	Lands to be dedicated to the Town of Tecumseh through registration of Plan(s) of Subdivision.
WW-17	Blackacre Drive Servicing	A minimum 15.0m x 15.0 m parcel of land for the new pumping station. A 6.0 m wide easement for the sanitary sewer extension from Oldcastle Road to McCord lane along or adjacent to the Chrysler Greenway.	A detailed evaluation of the potential alternative sites will be undertaken to identify the preferred site prior to commencing detail design. The Town will purchase any required property prior to construction.

PROJECT ID	PROJECT NAME	PROPERTY REQUIREMENTS	COMMENTS
WW-18	Howard Avenue Servicing	A minimum 15.0m x 15.0 m parcel of land for the new pumping station. A 6.0 m wide easement for the sanitary sewer extension from Outer Drive to Howard Avenue.	A detailed evaluation of the potential alternative sites will be undertaken to identify the preferred site prior to commencing detail design. The Town will purchase any required property prior to construction.

Summary

The preferred water and wastewater servicing strategies will support the short and long-term servicing needs of the approved growth areas and provide flexibility for servicing potential growth areas in the future. The strategies will also support meeting operational requirements, water quality and level of service objectives.

Upon completion of the Master Plan Update or Phase 2 of the EA process, Schedule A, A+ and B projects may proceed to Phase 5, Implementation, subject to finalization of the 30-day review period and assuming no Part II Orders are received. However, during implementation of some of these projects, additional study and analysis may be undertaken such as during the area servicing stages of development. While this work may address refinement to alignments, siting and minimizing environmental impacts, these projects will not require further planning under the Class EA process. The preferred water and wastewater strategies do not include any Schedule C projects requiring further planning under the Class EA process.

Next Steps

The following implementation requirements will be addressed during the subsequent steps (primarily during detailed design) of the projects:

- Finalization of property requirements;
- Final refinement of infrastructure alignment and facility siting to ensure infrastructure is located outside regulated areas except for instances when it is unavoidable (watercourse crossings);
- Final refinement of construction methodologies including determination of crossing approaches including open-cut, tunneling and structural supporting requirements;
- Completion of additional supporting investigations including but not limited to:
  - Geotechnical investigations to support determination of construction requirements for the infrastructure;
  - Hydrogeological investigations to evaluate potential impacts, to support mitigative requirements during construction and determine any dewatering requirements;
  - Updated Natural and Cultural Heritage Studies in support of the final Site Selection for planned water and wastewater facilities;
  - Archeological Assessments for potential sites for water and wastewater facilities.

- Mitigation of potential construction related impacts including but not limited to:
  - Traffic control;
  - Noise, vibration and dust;
  - Air pollution;
  - Service interruption;
  - Environmental and water disturbance or contamination;
  - Siltation and erosion control.
- Approval Requirements as required but not limited to:
  - Environmental Compliance Approval from Ministry of Environment, Conservation and Parks;
  - Encroachment Permit from the Ministry of Transportation;
  - Approvals from the County of Essex;
  - Permit approvals from the Essex Region Conservation Authority (ERCA);
  - Associated Planning Act Approvals;
  - Temporary Permit to Take Water for construction dewatering from the Ministry of the Environment, Conservation and Parks.

Town of Tecumseh
2018 Water and Wastewater Master Plan Update

Council Presentation

Presented by
Stuart Winchester,
December 10, 2019

Agenda

1. Introduction
2. Master Planning Process
3. Project Background – 2008 Water and Wastewater Master Plan Update
4. 2018 Updated Water and Wastewater Servicing Strategies
5. 2018 Implementation Plan
6. Summary and Next Steps
7. Questions

03 Municipal Engineers Association (MEA) Master Planning Process

Master Planning Process Context

- Master Plans and Master Plan Updates entail a high level review of long-term Town-wide servicing requirements, with a conceptual order of magnitude or opinion of probably cost.
- It is a recommended practice to periodically review and update Master Plans to validate original assumptions, recommendations and projects' implementation timelines.
- The Town's Master Plan Update has been prepared in accordance with Approach #2 under the Municipal Environmental Assessment Process for Master Plans:
  - Meets Phases 1 and 2 of the Class EA process
  - Fulfills planning requirements for Schedule A, A+ and B projects
  - Additional studies and analysis may need to be completed separately for selected Schedule B projects to provide greater detail prior to finalizing property and/or easement requirements.

04

Project Background

2008 Water and Wastewater Master Plan Update

Study Context

- 2002 – Town's original Water and Wastewater Master Plan was developed. The preferred Servicing Strategies for the Town to meet projected growth were identified.
- 2004 – The Town and the Windsor Utilities Commission (WUC) entered into a Water Servicing Agreement to secure a long-term and reliable drinking water supply. The Agreement provides the Town with a secure supply of drinking water for 50 years, up to a maximum demand of 87 MLD. This Agreement was subsequently amended in 2008.
- 2004 – The Town and the City of Windsor enter into a new Wastewater Servicing Agreement which replaced the Basic Agreement and various amendments.
- 2005 – Water Master Plan was updated to reflect the terms and conditions of the 2004 Water Servicing agreement.

Study Context (continued)

- 2008 – Water and Wastewater Master Plan Update was completed to refine water and wastewater servicing strategies based on 2004 Servicing Agreements.
- 2013 – Addendum to Wastewater Master Plan to modify servicing strategy in Oldcastle Hamlet to accommodate decommissioning of the Skyway WWTP.
- **2018 – Master Plan Update prepared to review and update the 2008 servicing strategies, implementation phases and costs, to reflect updated planning projections.**

Circumstances Necessitating Review of 2008 Master Plan

Circumstance	Associated Impact
• Updated planning projections for the Town were significantly lower than those used in 2008.	Revisions to originally proposed implementation timing for various projects.
• Plans to build additional storage and pumping infrastructure at the Town's boundary (Banwell Reservoir) were cancelled by WUC.	Need to modify trunk distribution system to reflect different supply sources Potential to relocate emergency storage facility
• Construction of the North-East Windsor Trunk Sanitary Sewer was advanced, providing a wastewater outlet for existing and new development in Oldcastle Hamlet.	Growth in Oldcastle Hamlet expected to accelerate. Additional servicing capacity in the area may be needed sooner.
• Construction of Herb Gray Parkway resulted in relocation and closure of a supply watermain.	Potential impacts to the distribution system due to the closed supply watermain.
• Additional servicing studies have been completed by the Town.	Potential impact to previously recommended servicing strategies.

Projected Population – 2016 Through 2036+

Service Area		2016	2026	2036	Urban Build-out
North	Tecumseh	12,180	12,244	12,272	15,380
	St. Clair Beach	3,484	3,646	3,718	3,894
	Tecumseh Hamlet	5,264	8,486	9,633	13,683
Southeast	Maidstone Hamlet	335	335	1,011	2,259
	Rural	1,164	1,164	1,164	1,164
Southwest	Oldcastle Hamlet	350	1,174	1,818	10,947
	Rural	453	453	453	430
Total		**23,229**	**27,501**	**30,068**	**47,756**

05

2018 Updated Servicing Strategies

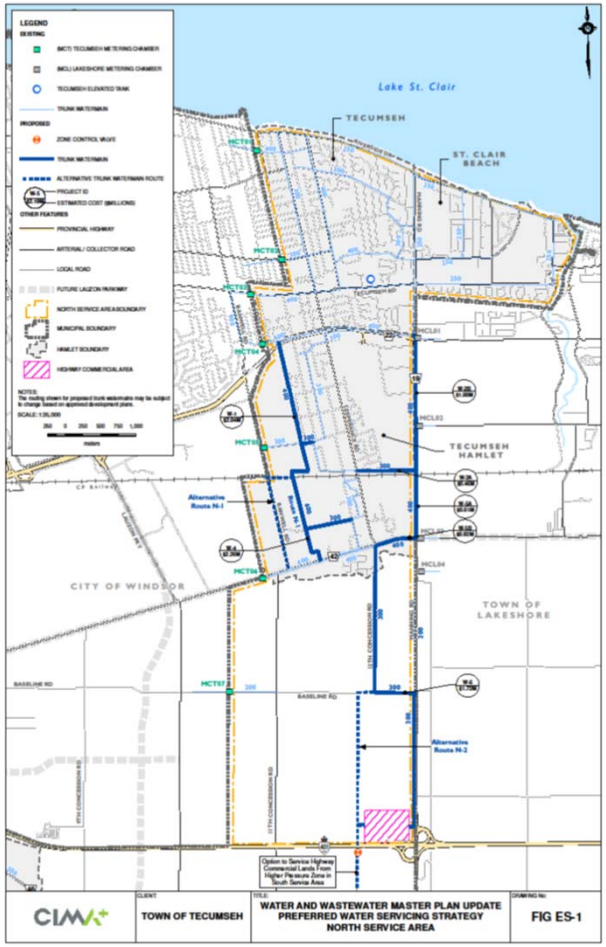
Water Servicing Strategy

Water Servicing – Overall Philosophy

- Based on the 2004 Windsor-Tecumseh Water Agreement and the 2006 Amending Agreement:
  - WUC is responsible for supplying water to the Town on a continuous basis up to a maximum daily flow of 87 MLD.
  - WUC is responsible for delivering peak hourly flow to the Town.
  - Storage for equalization and peak hour flow of water for the Town will be the responsibility of WUC.
  - WUC is responsible for the operation and maintenance of the distribution system within the boundaries of the City of Windsor
  - The Town is responsible for its own distribution system within its boundaries and any new storage works that may be required to supply fire flow of water.
  - The Water Agreement is in effect until 2055.
- Since the 2008 Master Plan Update, the Town has implemented various components of the planned system.

2018 Water Servicing Strategy – North Service Area

- Key refinements:
  - Cancellation of the Banwell Reservoir by WUC results in the elimination of the need for capacity to convey drinking water to the South Service Area through Tecumseh Hamlet

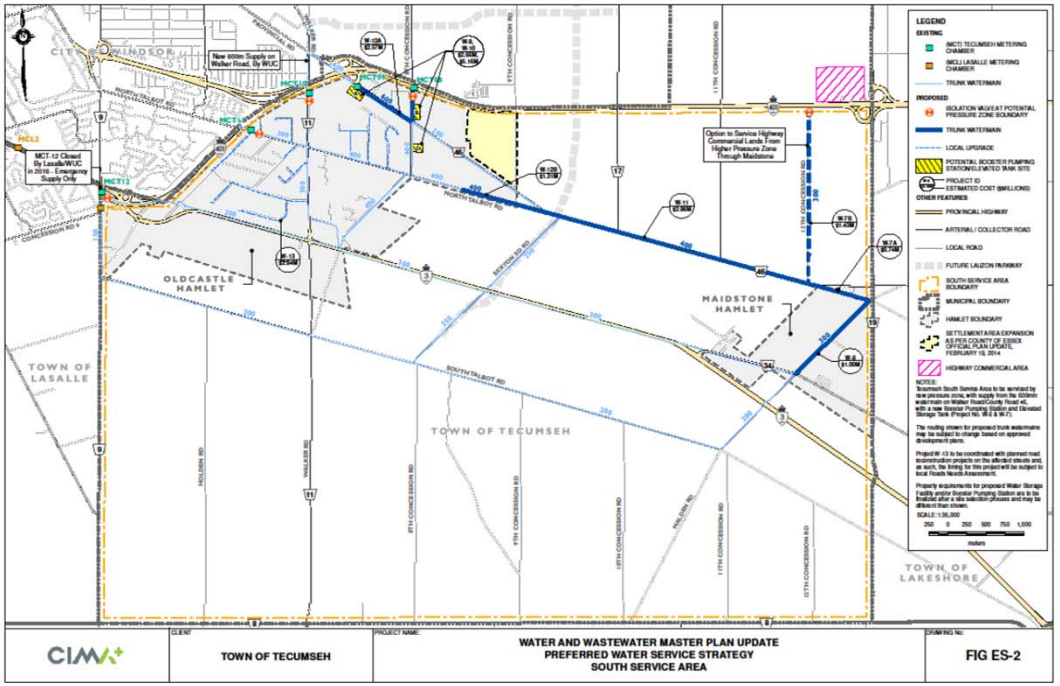


Updated Water Capital Program and EA Schedules

Project Name	Project ID	Location	EA Schedule	Cost ($MM)
North Service Area				
West Tecumseh Trunk Watermain CR 22 to CP Railway	W-1	Tecumseh Hamlet	B	$2.04
East Tecumseh Hamlet Watermain Connection	W-2A	Tecumseh Hamlet	B	$0.46
Trunk Watermain on Manning Road CR 22 to CP Railway	W-2B	Tecumseh Hamlet	A+	$1.88
West Tecumseh Trunk Watermain CP Railway to CR 42	W-4	Tecumseh Hamlet	B	$2.26
Trunk Watermain on Manning Road CP Railway to CR 42	W-5A	Tecumseh Hamlet	A+	$0.61
Trunk Watermain on CR 42, 11th Concession Road to Manning Road	W-5B	Tecumseh Hamlet	A+	$0.92
South Tecumseh Trunk Watermain, CR 42 to Highway 401	W-6	Tecumseh Hamlet	A+	$1.72
Sub-Total North Service Area				$9.89

2018 Water Servicing Strategy – South Service Area

- Key refinements:
  - Expansion of the planned new Pressure Zone 2 to address concerns related to water system pressures in the South Service Area. Expanded Pressure Zone 2 to include all areas south of Highway 401.
  - Location for the Booster Pumping Station and Elevated Storage Tank relocated to the Oldcastle Hamlet area with supply from trunk watermain on County Road 46 and on 8th Concession Road
  - Large capacity trunk watermain on 12th Concession Road downsized as potential back-up supply from new Pressure Zone 2 to the Highway Commercial lands.



Updated Water Capital Program and EA Schedules

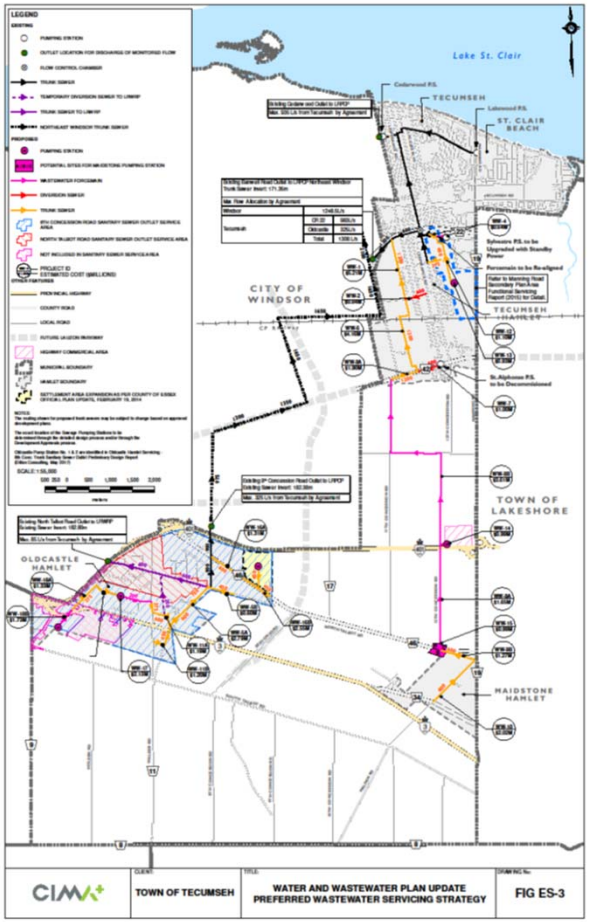
Project Name	Project ID	Location	EA Schedule	Cost ($MM)
South Service Area				
North Talbot Road Trunk Watermain Walker Road to 8th Concession Road	W-3	Oldcastle Hamlet (Completed)		
South Tecumseh Trunk Watermain 12th Concession Road to Malden Road	W-7A	Southeast Tecumseh	A+	$0.74
South Tecumseh Trunk Watermain CR 46 to Hwy 401	W-7B	Southeast Tecumseh	A+	$1.43
Maidstone Hamlet Trunk Watermain	W-8	Maidstone Hamlet	A+	$1.00
Zone 2 Booster Pumping Station	W-9	Oldcastle Hamlet	B	$2.66
Zone 2 Water Storage Facility	W-10	Oldcastle Hamlet	B	$5.16
County Road 46 Trunk Watermain Sexton Road to Maidstone Hamlet	W-11	Southeast Tecumseh	A+	$2.96
Southwest Tecumseh Trunk Watermain	W-12A	Oldcastle Hamlet	A+	$2.57
North Talbot Road Trunk Watermain	W-12B	Oldcastle Hamlet	A+	$1.31
Oldcastle Hamlet Watermain Upgrades	W-13	Oldcastle Hamlet	A+	$2.84
Sub-Total South Service Area				**$20.67**
Total Estimated Capital Cost - Water				**$30.56**

Wastewater Servicing – Overall Philosophy

- Servicing of the Town's urban areas to be provided from a combination of capacities at the Little River PCP and the Lou Romano WRP in Windsor. The Town has secured 17 MLD treatment capacity at the Little River PCP, and 2.7 MLD at the Lou Romano WRP.
- The Town can purchase additional capacity at the Little River PCP for future growth up to a maximum of 38.0 MLD.
- No additional capacity is available at the Lou Romano WRP until additional capacity is made available in the South Windsor Collection System.
- Maximum discharge rate limitations were established for the Town at each of the available outlets.
- The 2008 Master Plan strategy fully utilized available capacities in the Windsor system – all wastewater from the Town planned to be directed to the Windsor collection system for ultimate treatment and disposal at either the Little River PCP or the Lou Romano WRP.
- The 2018 Master Plan Update follows the same overall philosophy.

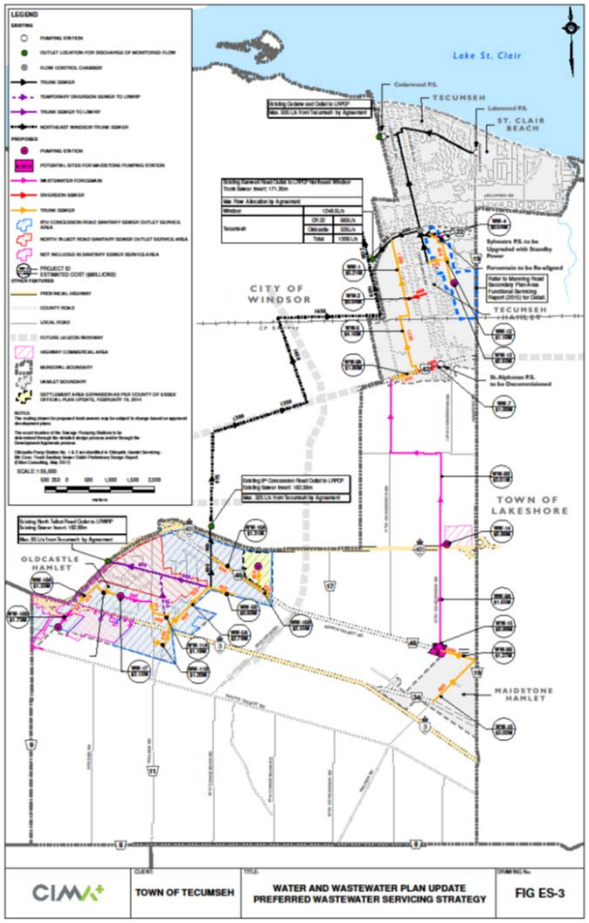
2018 Wastewater Servicing Strategy

- Key refinements:
  - Change in design philosophy at the Town to permit greater use of local pumping stations rather than constructing deep gravity sewers results in modifications to the overall strategy.
  - Adoption of the Manning Road Secondary Plan Area Functional Servicing Plan has established the overall servicing strategy for the area. The location of the planned Diversion Sewer at the CP Rail corridor relocated to Intersection Road to divert additional flows and reduce sewer surcharging risk in the Lesperance Road Trunk Sanitary Sewer during wet-weather events.



2018 Wastewater Servicing Strategy (Cont'd)

- Key refinements:
  - Completion of the Oldcastle Hamlet Sanitary Servicing – 8th Concession Road Trunk Sanitary Sewer Outlet Preliminary Design Report updated and refined the servicing strategy, costs and timing for the Oldcastle Hamlet area.
  - Servicing strategy for the Highway Commercial Lands and Maidstone Hamlet has been revised to centralized sewage pumping stations with a common discharge forcemain with an outlet to the West Tecumseh Trunk Sanitary Sewer on County Road 42.



Updated Wastewater Capital Program and EA Schedules

Project Name	Project ID	Location	EA Schedule	Cost ($MM)
West Tecumseh Trunk Sewer CR 22 to CP Railway	WW-1	Tecumseh Hamlet	B1	$5.21
Tecumseh Hamlet Diversion Sewer	WW-2	Tecumseh Hamlet	A+	$0.84
Sylvestre Pumping Station Upgrade	WW-4	Tecumseh Hamlet	B	$0.64
North Talbot Road Trunk Sewer, Oldcastle Road (North Talbot to Chrysler Greenway)	WW-5A	Oldcastle Hamlet	A+	$2.79
North Talbot Road Trunk Sewer, Oldcastle Road to 475 m east of Oldcastle Road	WW-5B	Oldcastle Hamlet	A+	$0.60
West Tecumseh Trunk Sewer CP Railway to CR 42	WW-6	Tecumseh Hamlet	B1	$4.16
CR 42 Diversion Sewer	WW-7	Tecumseh Hamlet	A+	$1.00
South Tecumseh Trunk Sewer CR 42, Odessa Drive to 11th Concession	WW-8A	Tecumseh Hamlet	A+	$1.90
South Tecumseh Trunk Forcemain, CR42 to Hwy 401	WW-8B	Tecumseh Hamlet	A+	$3.61
South Tecumseh Trunk Forcemain, Hwy 401 to North Talbot Road	WW-9A	Tecumseh Hamlet	A+	$1.65
South Tecumseh Trunk Sewer, 11th Concession Road to Malden Road	WW-9B	Southeast Tecumseh	A+	$1.27
Maidstone Hamlet Trunk Sewer	WW-10	Maidstone Hamlet	A+	$2.02

Updated Wastewater Capital Program and EA Schedules (cont'd)

Project Name	Project ID	Location	EA Schedule	Cost ($MM)
Southwest Tecumseh Trunk Sewer, Phase 1	WW-11A	Oldcastle Hamlet	A+	$1.19
Southwest Tecumseh Trunk Sewer, Phase 2	WW-11B	Oldcastle Hamlet	A+	$1.20
Manning Road Secondary Plan Area Trunk Sewer	WW-12	Tecumseh Hamlet	A+	$1.10
Manning Road Secondary Plan Area Sanitary Lift Station	WW-13	Tecumseh Hamlet	A+	$0.93
Highway Commercial Area Pumping Station4	WW-14	Tecumseh Hamlet	B	$0.99
Maidstone Hamlet Sanitary Pumping Station	WW-15	Maidstone Hamlet	B	$0.99
County Road 46 Trunk Sanitary Sewer, Phase 1	WW-16A	Oldcaslte Hamlet	A+	$1.31
County Road 46 Trunk Sanitary Sewer, Phase 2	WW-16B	Oldcaslte Hamlet	A+	$2.55
Blackacre Drive Sanitary Servicing	WW-17	Oldcastle Hamlet	B	$2.13
Howard Avenue Servicing, Blackacre Drive and Outer Drive to Hwy 3	WW-18A	Oldcastle Hamlet	B	$1.33
Howard Avenue Servicing, Hwy 3 to MTO Carpool Lot	WW-18B	Oldcastle Hamlet	B	$1.73
Purchase additional treatment capacity at Little River PCP	Windsor-2	Windsor	-	$10.22
Purchase additional treatment capacity at Little River PCP	Windsor-4	Windsor	-	$6.27
Total Estimated Capital Cost Wastewater				**$57.64**

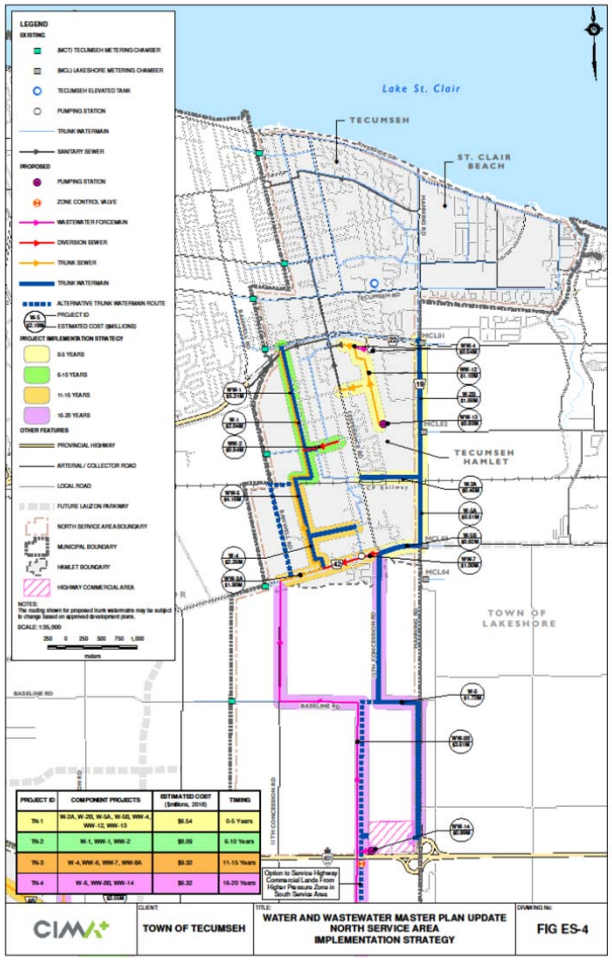
06

2018 Implementation Plan

North Service Area Implementation Plan

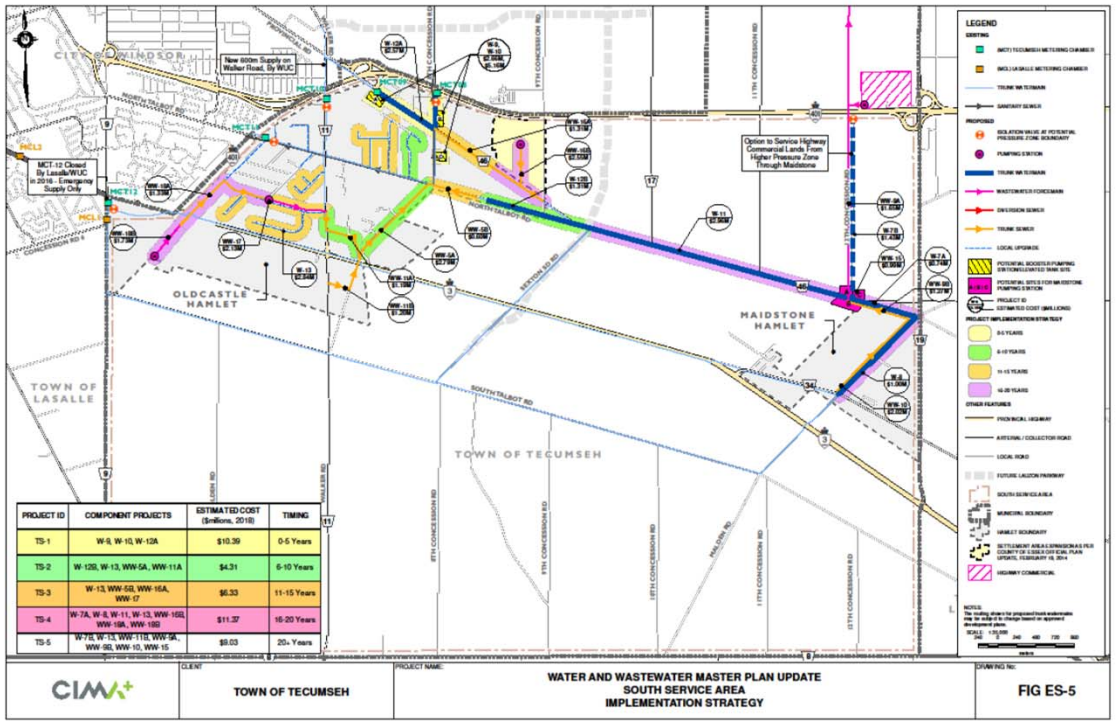
- Project timing was determined with consideration to recent studies, Class EAs, and other road upgrade projects planned by the County of Essex.

Town ID	Project ID	Description	Timing	Cost ($MM)
TN-1	W-2A, W-2B, WW-4, WW-12, WW-13	Manning Road Secondary Plan Area Servicing	0-5 years	$5.01
TN-2	W-1, WW-1, WW-2	West Tecumseh Hamlet Servicing, Phase 1	6-10 years	$8.09
TN-3	W-4, W-5, WW-6, WW-7, WW-8	West Tecumseh Hamlet Servicing, Phase 2	11-15 years	$11.77
TN-4	W-6, WW-Bb, WW-14	South Tecumseh Hamlet Servicing	16-20 years	$7.03
Total Estimated Cost (2018)				**$31.09**



South Service Area Implementation Plan

Town ID	Project ID	Description	Timing	Cost ($MM)
TS-1	W-9, W-10, W-12A	Implementation of Tecumseh Zone 2	0-5 years	$10.39
TS-2	W-12B, W-131, WW-5A, WW-11A	Oldcastle Servicing, Phase 1	6-10 years	$5.62
TS-3	W-131, WW-5B, WW-16A, WW-17,	Oldcastle Hamlet Servicing, Phase 2	11-15 years	$5.02
TS-4	W-7A, W-8, W-11, W-131, WW-16B, WW-18A, WW-18B	Oldcastle Hamlet Servicing, Phase 3	16-20 years	$11.37
TS-5	W-7B, W-131, WW-11B, WW-9A, WW-9B, WW-10, WW-15	Maidstone Hamlet Servicing	20+ years	$9.03
Total Estimated Cost (2018)				**$41.43**



Additional Wastewater Capacity from Windsor

- Timing and cost for purchasing additional wastewater conveyance and treatment capacity from Windsor as per existing Windsor – Tecumseh Wastewater Agreement.

Project ID	Description	Anticipated Timing	Cost ($MM)
Windsor-1	Northeast Windsor Trunk Sanitary Sewer, Forest Glade to Little River PCP	Completed	
Windsor-2	Purchase additional treatment capacity at Little River PCP[1]	2031	$10.22
Windsor-3	Northeast Windsor Trunk Sanitary Sewer, Banwell Road to 8th Concession Road	Completed	
Windsor-4	Purchase additional treatment capacity at Little River PCP[1]	2037	$6.27
Total Estimated Cost for Purchasing Additional Capacity (2018)			**$16.49**

07

Summary and Next Steps

2018 Master Plan Update Summary and Next Steps

- Revised water and wastewater servicing strategies support the short and long-term servicing needs of the Town and provide flexibility for servicing potential growth areas in the future.
- Revised servicing strategies support the Town's objectives for operational requirements, water quality and level of service.
- A Notice of Completion will be issued to advise the public and review agencies of project completion and provide an opportunity to review the 2018 Master Plan Update Report.
- Upon approval of the 2018 Master Plan Update, Schedule A, A+ and B projects identified in the Master Plan Update can proceed to implementation. Completion of additional studies and investigations may be required for some projects, to refine implementation requirements, such as:
  - Additional detailed investigations to support detailed design and construction
  - Additional detailed investigations to support site selection for Property acquisition
  - Infrastructure siting and alignment
  - Construction/installation methodology

08 Questions

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