

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 Servicing 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.

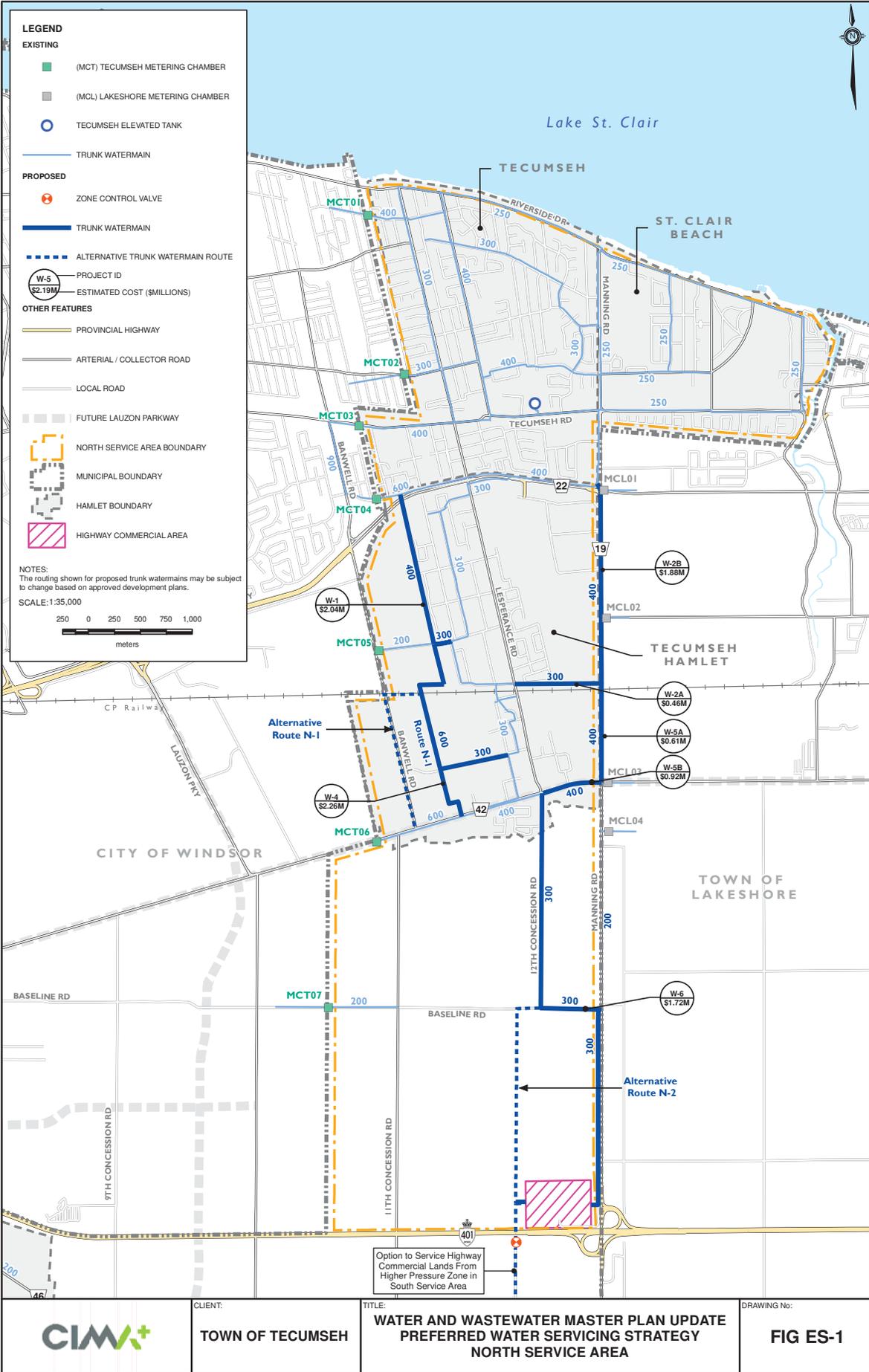
Table ES-2: Water Capital Program and EA Schedules

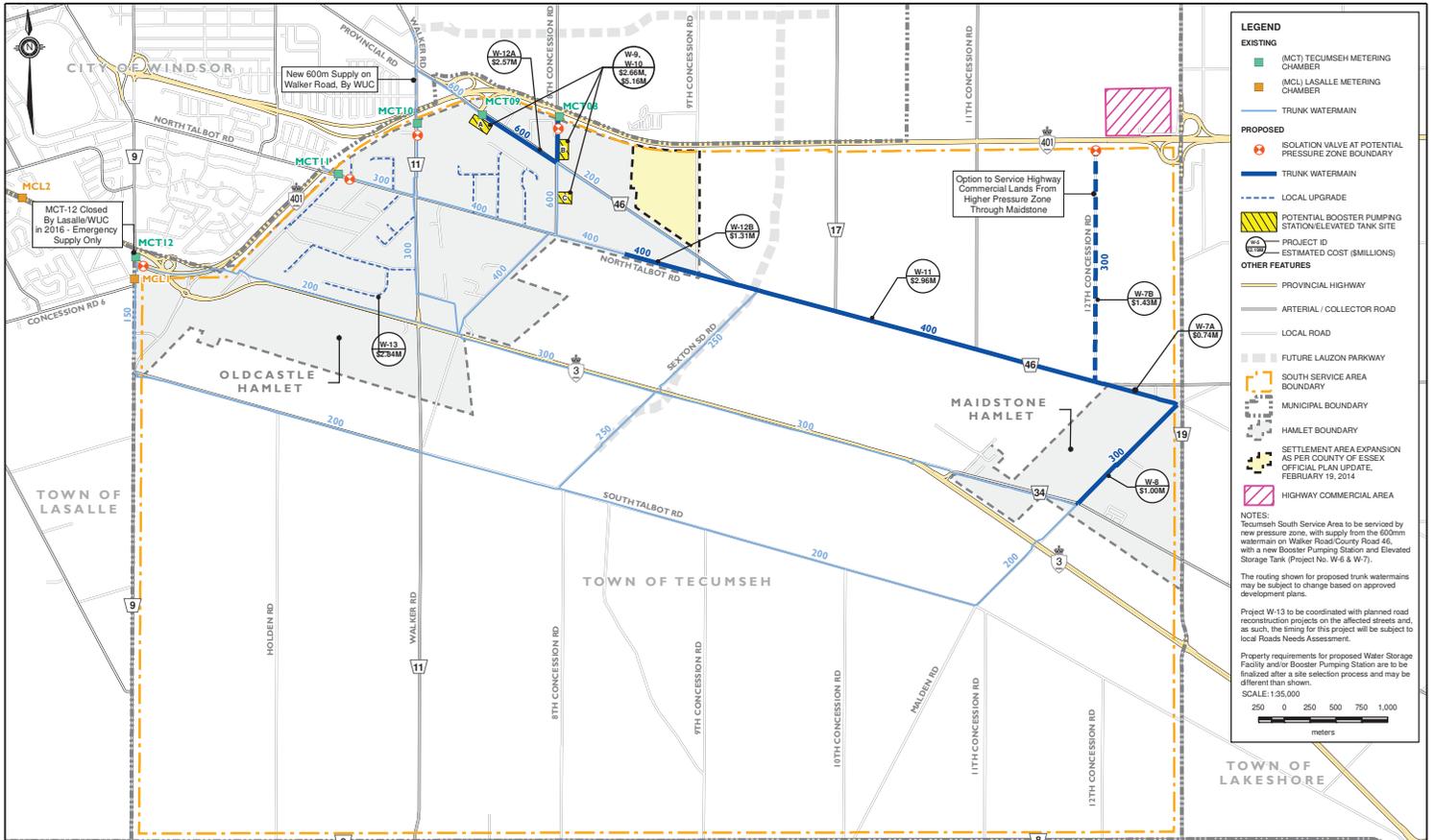
PROJECT NAME	PROJECT ID	LOCATION	CLASS EA SCHEDULE	COST (\$MILLION)
<u>NORTH SERVICE AREA</u>				
West Tecumseh Trunk Watermain CR 22 to CP Railway	W-1	Tecumseh Hamlet	B ¹	\$2.04
East Tecumseh Hamlet Watermain Connection	W-2A	Tecumseh Hamlet	B ¹	\$0.46
Trunk Watermain on Manning Road CR 22 to CP Railway	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, 11 th 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
<u>SOUTH SERVICE AREA</u>				
North Talbot Road Trunk Watermain Walker Road to 8 th Concession Road	W-3	Oldcastle Hamlet (Completed)		
South Tecumseh Trunk Watermain 12 th 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.





LEGEND

EXISTING

- (MCT) TECUMSEH METERING CHAMBER
- (MCL) LASALLE METERING CHAMBER
- TRUNK WATERMAIN

PROPOSED

- ISOLATION VALVE AT POTENTIAL PRESSURE ZONE BOUNDARY
- TRUNK WATERMAIN
- LOCAL UPGRADE
- POTENTIAL BOOSTER PUMPING STATION/ELEVATED TANK SITE
- PROJECT ID
- ESTIMATED COST (\$MILLIONS)

OTHER FEATURES

- PROVINCIAL HIGHWAY
- ARTERIAL / COLLECTOR ROAD
- LOCAL ROAD
- FUTURE LAUZON PARKWAY
- SOUTH SERVICE AREA BOUNDARY
- MUNICIPAL BOUNDARY
- HAMLET BOUNDARY
- SETTLEMENT AREA EXPANSION AS PER COUNTY OF ESSEX OFFICIAL PLAN UPDATE, FEBRUARY 19, 2014
- HIGHWAY COMMERCIAL AREA

NOTES:

Tecumseh South Service Area to be serviced by new pressure zone, with supply from the 600mm watermain on Walker Road/County Road 46, with a new Booster Pumping Station and Elevated Storage Tank (Project No. W-6 & W-7).

The routing shown for proposed trunk watermain may be subject to change based on approved development plans.

Project W-13 to be coordinated with planned road reconstruction projects on the affected streets and, as such, the timing for this project will be subject to local Roads Needs Assessment.

Property requirements for proposed Water Storage Facility and/or Booster Pumping Station are to be finalized after a site selection process and may be different than shown.

SCALE: 1:35,000

250 0 250 500 750 1,000 meters

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 11 th 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, 11 th 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.

LEGEND

EXISTING

- PUMPING STATION
- OUTLET LOCATION FOR DISCHARGE OF MONITORED FLOW
- FLOW CONTROL CHAMBER
- TRUNK SEWER
- TEMPORARY DIVERSION SEWER TO LRWP
- TRUNK SEWER TO LRWP
- NORTHEAST WINDSOR TRUNK SEWER

PROPOSED

- PUMPING STATION
- POTENTIAL SITES FOR MAIDSTONE PUMPING STATION
- WASTEWATER FORCEMAIN
- DIVERSION SEWER
- TRUNK SEWER
- 8TH CONCESSION ROAD SANITARY SEWER OUTLET SERVICE AREA
- NORTH TALBOT ROAD SANITARY SEWER OUTLET SERVICE AREA
- NOT INCLUDED IN SANITARY SEWER SERVICE AREA
- PROJECT ID
- ESTIMATED COST (\$MILLIONS)

OTHER FEATURES

- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- FUTURE LAUZON PARKWAY
- HIGHWAY COMMERCIAL AREA
- MUNICIPAL BOUNDARY
- HAMLET BOUNDARY
- SETTLEMENT AREA EXPANSION AS PER COUNTY OF ESSEX OFFICIAL PLAN UPDATE, FEBRUARY 19, 2014

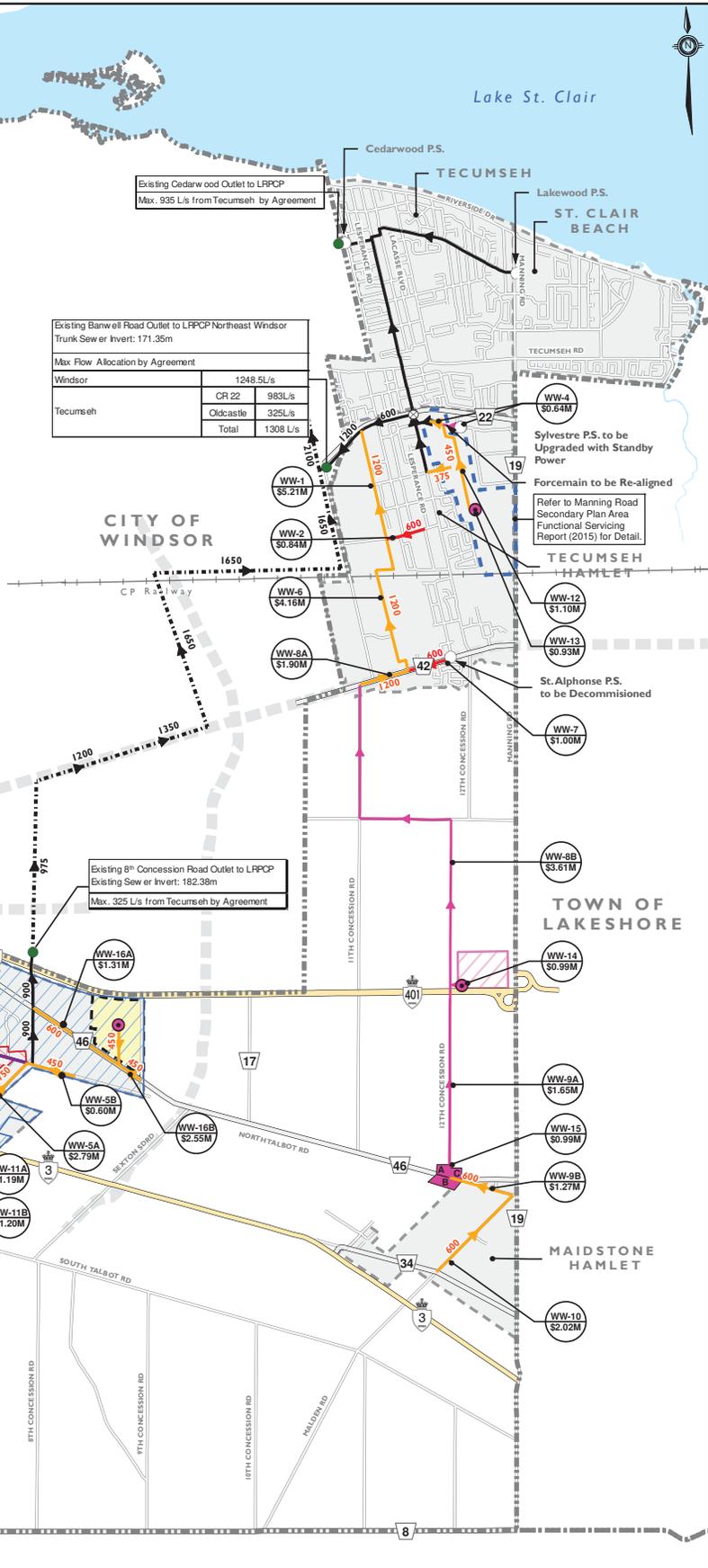
NOTES:

The routing shown for proposed trunk sewers may be subject to change based on approved development plans.

The exact location of the Sewage Pumping Stations to be determined through the detailed design process and/or through the Development Approvals process.

Oldcastle Pump Station No. 1 & 2 are identified in Oldcastle Hamlet Servicing - 8th Conc. Trunk Sanitary Sewer Outlet Preliminary Design Report (Dillon Consulting, May 2017)

SCALE: 1:55,000



Existing Cedarwood Outlet to LRPCP
Max. 935 L/s from Tecumseh by Agreement

Existing Banwell Road Outlet to LRPCP Northeast Windsor
Trunk Sewer Invert: 171.35m

Max Flow Allocation by Agreement

Windsor	1248.5L/s
CR 22	983L/s
Oldcastle	325L/s
Tecumseh	Total 1908 L/s

Existing 8th Concession Road Outlet to LRPCP
Existing Sewer Invert: 182.38m
Max. 325 L/s from Tecumseh by Agreement

Existing North Talbot Road Outlet to LRWP
Existing Sewer Invert: 182.80m
Max. 85 L/s from Tecumseh by Agreement

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:

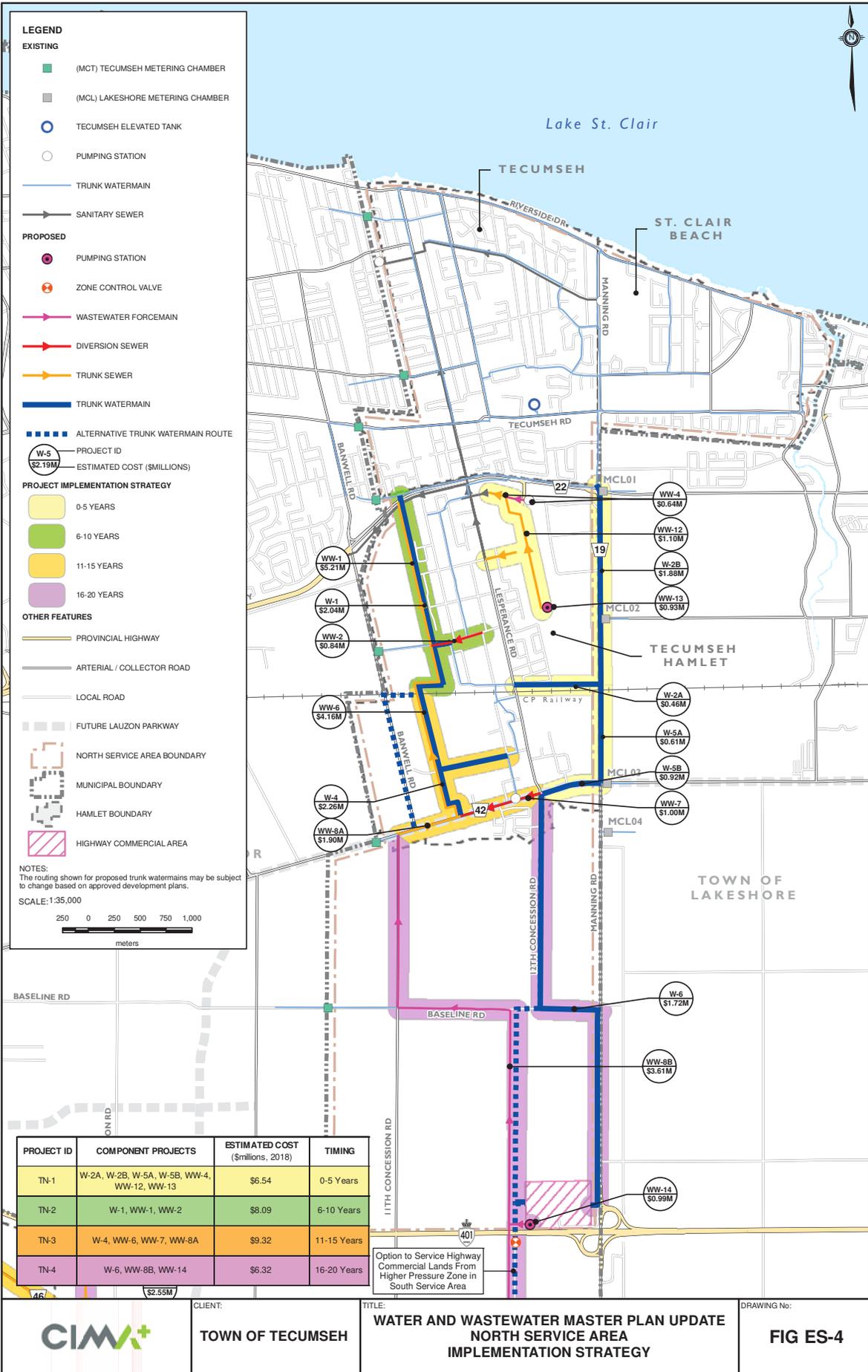
1. Portions of W-13 to be implemented with WW-17 and WW-18A
2. Implementation of the trunk watermain on 12th Concession Road and may be deferred

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 8 th 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.



LEGEND

EXISTING

- (MCT) TECUMSEH METERING CHAMBER
- (MCL) LAKESHORE METERING CHAMBER
- TECUMSEH ELEVATED TANK
- PUMPING STATION
- TRUNK WATERMAIN
- SANITARY SEWER

PROPOSED

- PUMPING STATION
- ZONE CONTROL VALVE
- WASTEWATER FORCEMAIN
- DIVERSION SEWER
- TRUNK SEWER
- TRUNK WATERMAIN
- ALTERNATIVE TRUNK WATERMAIN ROUTE

PROJECT ID

- PROJECT ID
- ESTIMATED COST (\$MILLIONS)

PROJECT IMPLEMENTATION STRATEGY

- 0-5 YEARS
- 6-10 YEARS
- 11-15 YEARS
- 16-20 YEARS

OTHER FEATURES

- PROVINCIAL HIGHWAY
- ARTERIAL / COLLECTOR ROAD
- LOCAL ROAD
- FUTURE LAUZON PARKWAY
- NORTH SERVICE AREA BOUNDARY
- MUNICIPAL BOUNDARY
- HAMLET BOUNDARY
- HIGHWAY COMMERCIAL AREA

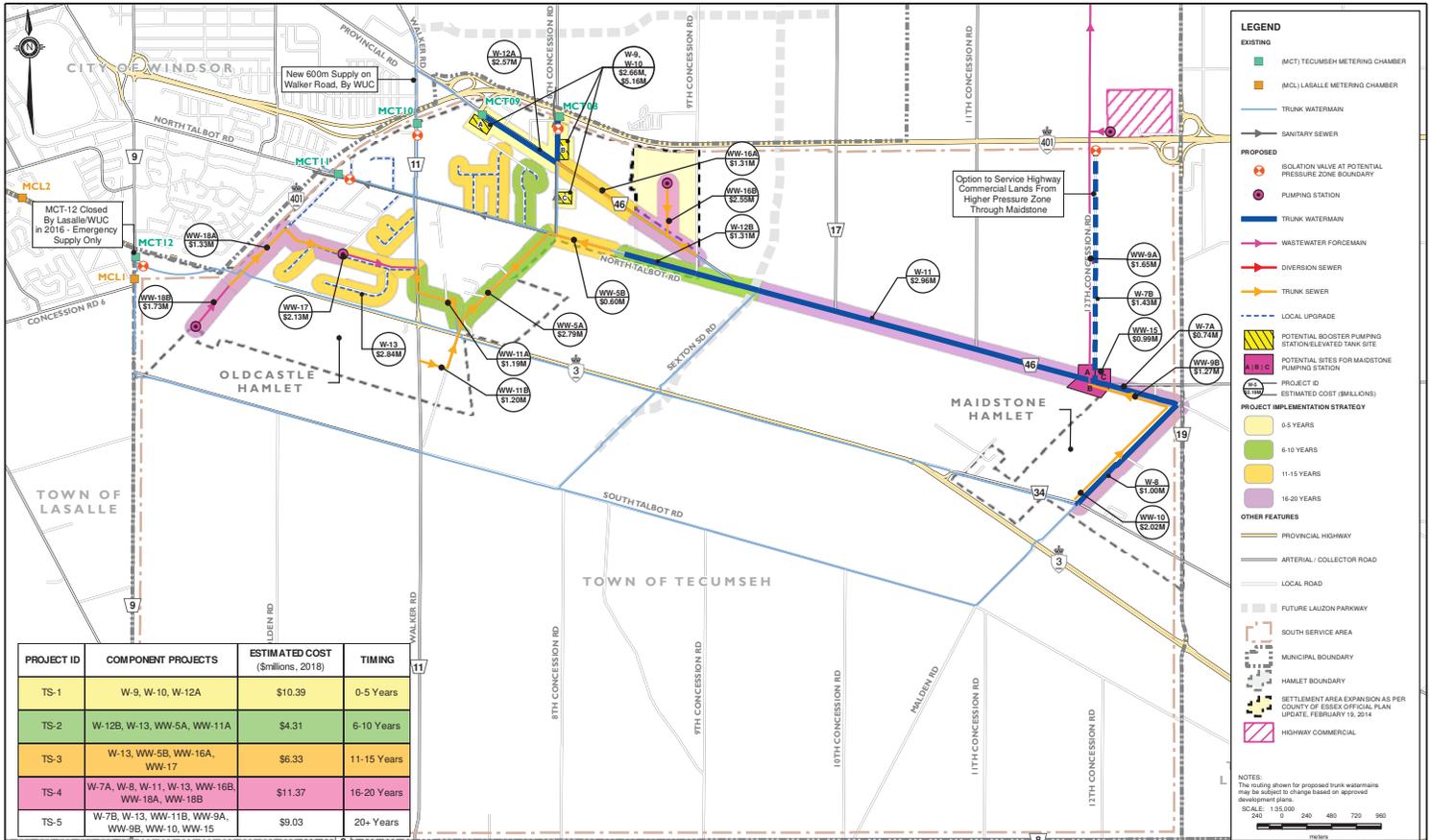
NOTES:
The routing shown for proposed trunk watermain may be subject to change based on approved development plans.

SCALE: 1:35,000

250 0 250 500 750 1,000
meters

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

Option to Service Highway Commercial Lands From Higher Pressure Zone in South Service Area



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

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 Facility	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.