



Town of Tecumseh 2018 Water and Wastewater Master Plan Update

Council Presentation

Presented by
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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

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**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 probable 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.

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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
<ul style="list-style-type: none">Updated planning projections for the Town were significantly lower than those used in 2008.	Revisions to originally proposed implementation timing for various projects.
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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.
<ul style="list-style-type: none">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.
<ul style="list-style-type: none">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

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2018 Updated Servicing Strategies

Water Servicing Strategy

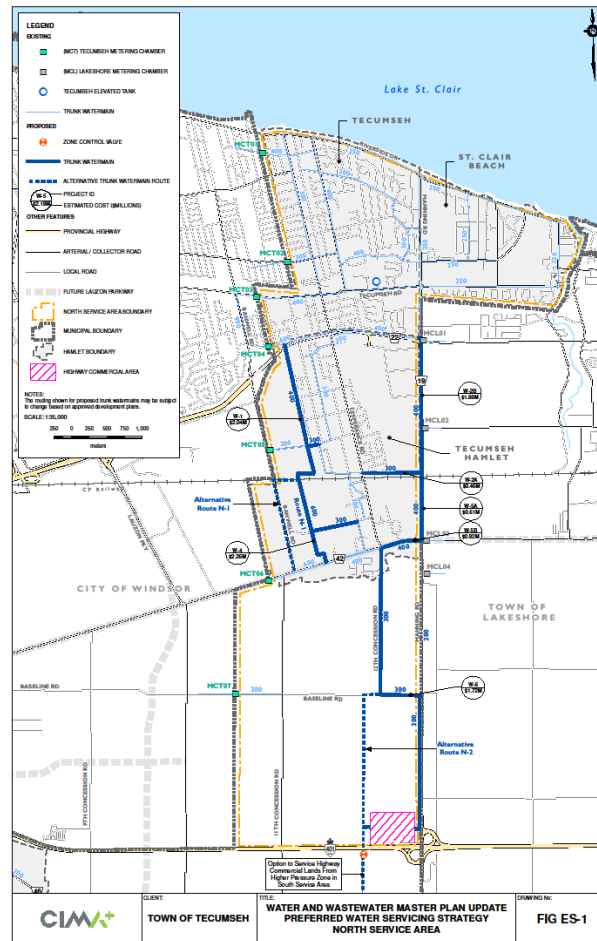
Water Servicing – Overall Philosophy

- 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



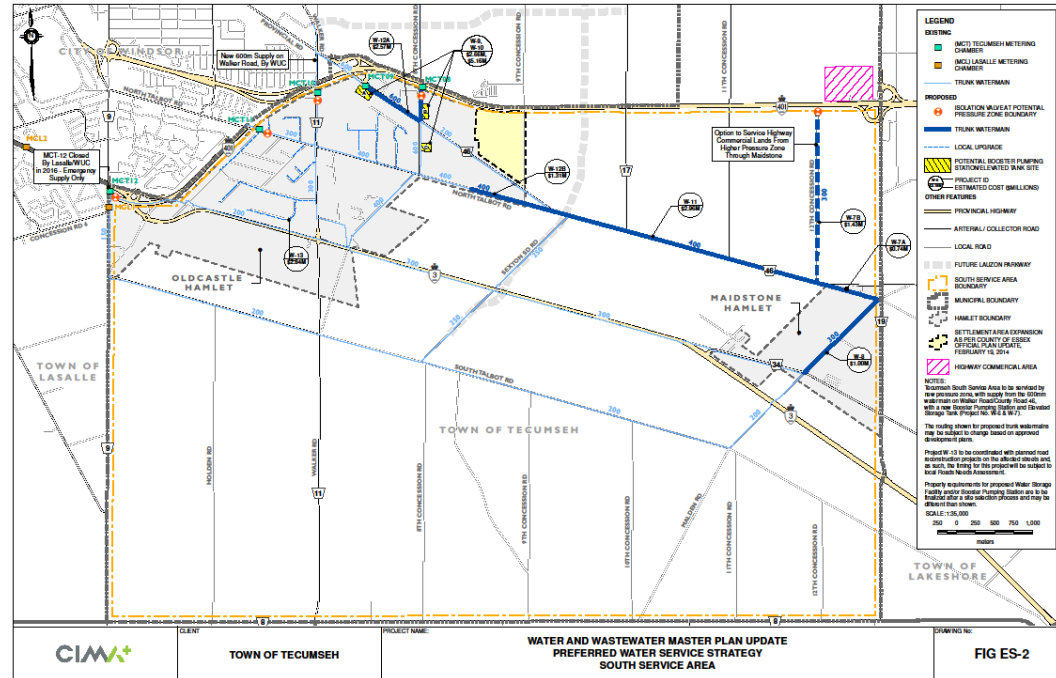
Updated Water Capital Program and EA Schedules

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.



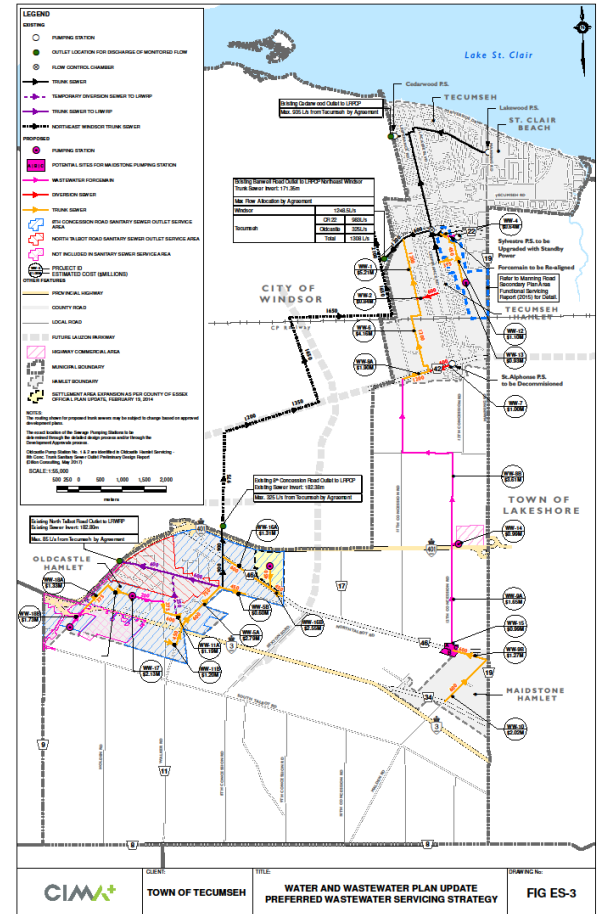
Updated Water Capital Program and EA Schedules

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.

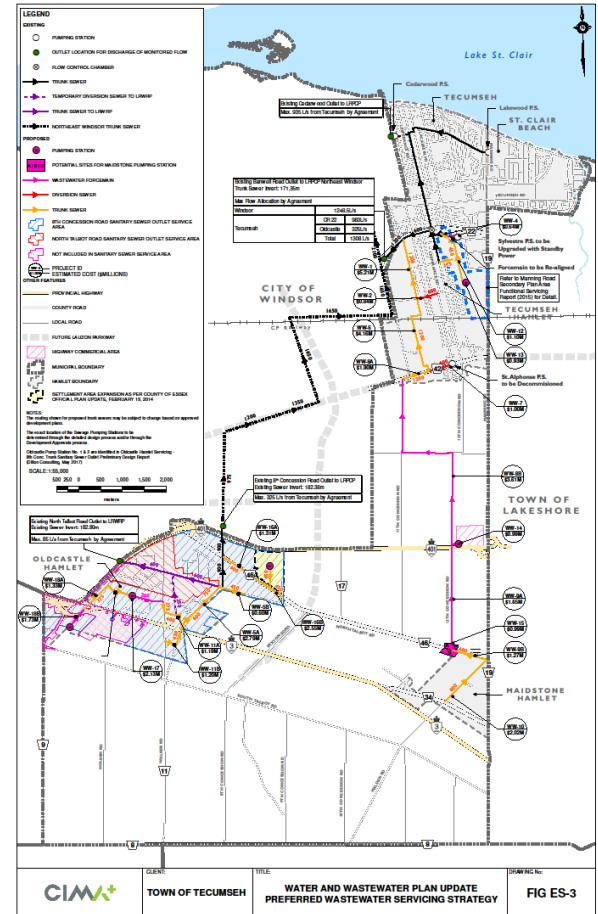
- Change in design philosophy at the Town to permit greater use of local pumping stations rather than constructing deep gravity sewers results in modifications to the overall strategy.
- Adoption of the Manning Road Secondary Plan Area Functional Servicing Plan has established the overall servicing strategy 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

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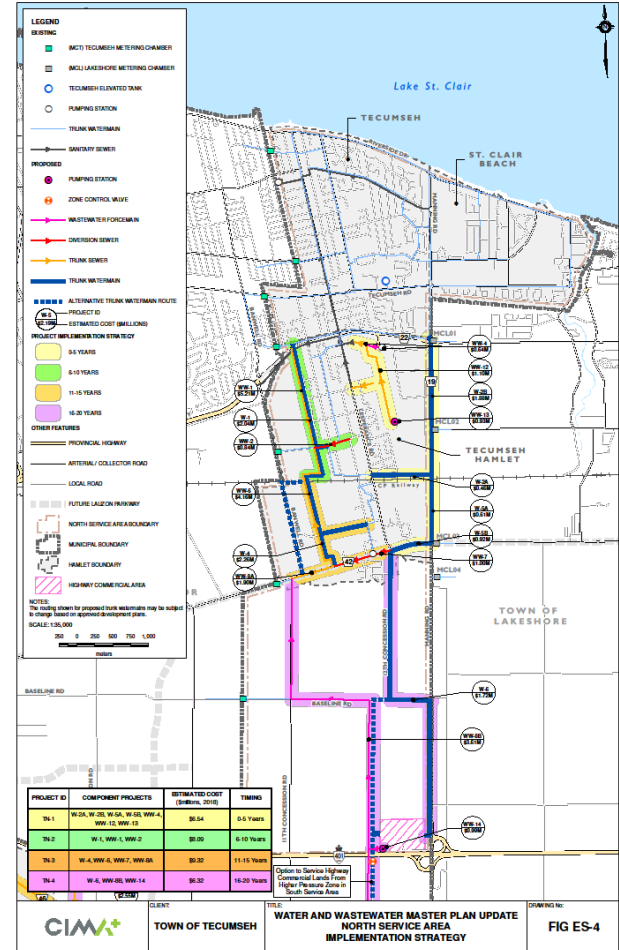
2018 Implementation Plan



North Service Area Implementation Plan

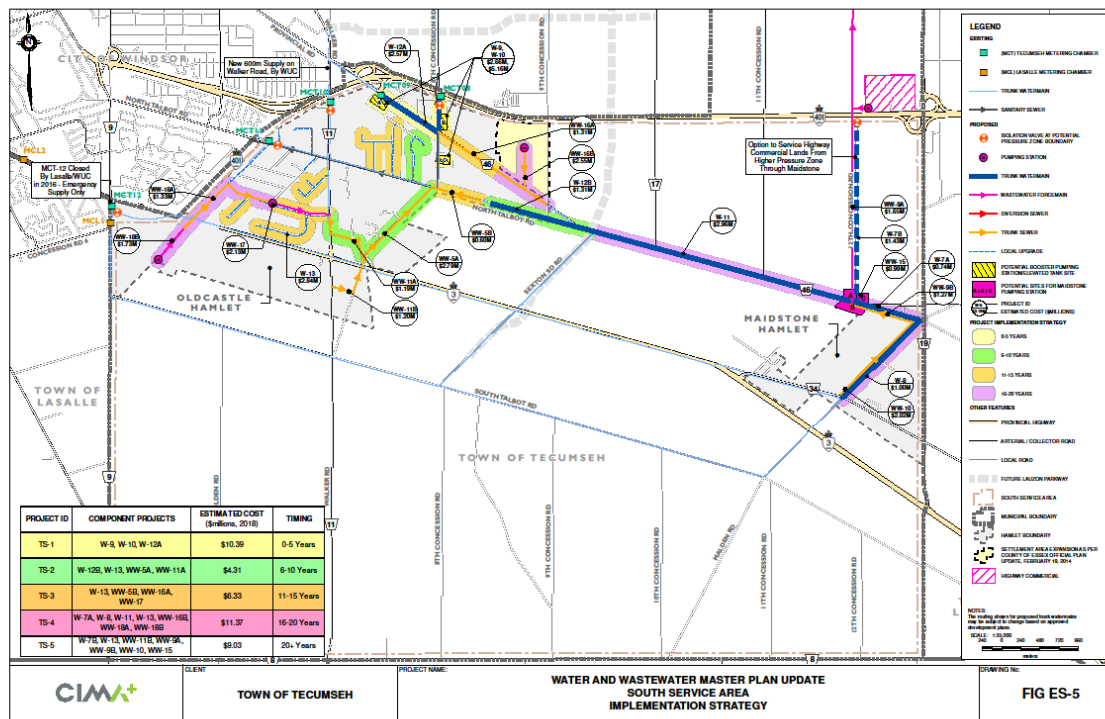
- Project timing was determined with consideration to recent studies, Class EAs, and other road upgrade projects planned by the County of Essex.

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 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 (2018)			\$16.49

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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

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Questions





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