



**The Corporation of the  
Town of Tecumseh**

Public Works & Environmental Services

**To:** Mayor and Members of Council

**From:** John Henderson, Manager Engineering Services

**Date to Council:** December 11, 2018

**Report Number:** PWES-2018-08

**Subject:** 2019-2023 Public Works & Environmental Services Five Year Capital Works Plan

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**Recommendations**

It is recommended:

**THAT** the following following Public Works and Environmental Services Projects for the 2019 year, and the Capital Project List 2019-2023, **be approved:**

	Previously Approved	Requested for 2019	Future Costs	Total Costs
<b>Sidewalk Projects</b>				
1. Sidewalk Repair Program - Various Locations	\$ -	\$ 69,000	\$ -	\$ 69,000
Sub-Total:	\$ -	\$ 69,000	\$ -	\$ 69,000
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Sidewalk Lifecycle Reserve:</b>	<b>\$ -</b>	<b>\$ 69,000</b>	<b>\$ -</b>	<b>\$ 69,000</b>
<b>New Infrastructure</b>				
1. Riverside Drive Trail	\$ 850,000	\$ -	\$ -	\$ 850,000
2. CR11: Hwy401 to NTR (CWATS Multi-Use Trail)	\$ 141,650	\$ 292,950	\$ -	\$ 434,600
Sub-Total:	\$ 991,650	\$ 292,950	\$ -	\$ 1,284,600
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ 174,000	\$ -	\$ 174,000
<b>Infrastructure Lifecycle Reserve:</b>	<b>\$ 991,650</b>	<b>\$ 118,950</b>	<b>\$ -</b>	<b>\$ 1,110,600</b>

	Previously Approved	Requested for 2019	Future Costs	Total Costs
<b>Road Projects</b>				
1. Road Paving - Tar & Chip	\$ -	\$ 100,000	\$ -	\$ 100,000
2. Road Paving - Asphaltting	\$ -	\$ 1,100,000	\$ -	\$ 1,100,000
3. Road Paving - Crack Sealing	\$ -	\$ 100,000	\$ -	\$ 100,000
4. Lesperance Road Bike Lane Pavement Markings	\$ 110,000	\$ -	\$ -	\$ 110,000
5. Tecumseh Rd/Lacasse Blvd Intersection Improvements	\$ 40,000	\$ -	\$ 439,000	\$ 479,000
6. Tecumseh Road CIP - Streetscape Plan & Final Design	\$ 1,422,640	\$ -	\$ 27,908,927	\$ 29,331,567
7. South Talbot Road Reconstruction	\$ 90,000	\$ 2,240,500	\$ -	\$ 2,330,500
8. Sylvestre Drive Sanitary Sewer Extension	\$ 74,000	\$ 20,000	\$ 1,026,300	\$ 1,120,300
9. Scully & St. Mark's Storm PS/Riverside Drive	\$ -	\$ 43,600	\$ 720,400	\$ 764,000
10. Cty Rd 46/Webster/Laval Sanitary Sewer Extension	\$ -	\$ 120,750	\$ 944,750	\$ 1,065,500
11. Delduca Drive Sanitary Sewer	\$ -	\$ 92,450	\$ 1,142,450	\$ 1,234,900
12. Road Needs Study	\$ -	\$ 63,000	\$ -	\$ 63,000
13. Traffic Signal Controller Update	\$ -	\$ 150,000	\$ -	\$ 150,000
14. Brighton Road Traffic Study	\$ -	\$ 32,000	\$ -	\$ 32,000
15. Road Line Painter	\$ -	\$ 30,000	\$ -	\$ 30,000
16. Expansion/Improvements PW Yard (North)	\$ -	\$ 30,000	\$ -	\$ 30,000
17. Traffic Calming Guideline Study	\$ -	\$ 20,000	\$ -	\$ 20,000
Sub-Total:	\$ 1,736,640	\$ 4,142,300	\$ 32,181,827	\$ 38,060,767
Grants *:	\$ 99,000	\$ -	\$ -	\$ 99,000
Recoveries:	\$ -	\$ -	\$ 885,000	\$ 885,000
<b>Road Lifecycle Reserve:</b>	\$ 1,637,640	\$ 4,142,300	\$ 31,296,827	\$ 37,076,767
* Grant available if works completed by end of 2019				
<b>Bridge Projects</b>				
1. Culvert #46 (STR Reconstruction)	\$ 40,000	\$ 370,500	\$ -	\$ 410,500
2. Culvert #47 (STR Reconstruction)	\$ 20,000	\$ 175,500	\$ -	\$ 195,500
3. Bridge #1004 - Sullivan Creek at 12th Concession	\$ 43,000	\$ 207,300	\$ -	\$ 250,300
4. Bridge #1013 - Merrick Creek at 8th Concession	\$ 43,000	\$ 207,300	\$ -	\$ 250,300
5. Bridge #1014 - Townline Road Drain at 6th Concession	\$ 43,000	\$ 207,300	\$ -	\$ 250,300
Sub-Total:	\$ 189,000	\$ 1,167,900	\$ -	\$ 1,356,900
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Bridges Lifecycle Reserve:</b>	\$ 189,000	\$ 1,167,900	\$ -	\$ 1,356,900
<b>Water Projects</b>				
1. Water & Wastewater Master Plan Update	\$ 50,000	\$ 7,500	\$ -	\$ 57,500
2. Tecumseh Road CIP - Streetscape Plan & Final Design	\$ 50,250	\$ -	\$ 1,292,686	\$ 1,342,936
3. Hwy#3/County Road 11 Watermain Replacement	\$ 134,600	\$ -	\$ 1,933,400	\$ 2,068,000
4. Water Audit and Water Balance	\$ -	\$ 15,000	\$ -	\$ 15,000
5. Cty Rd 46/Webster Laval Sanitary Sewer Exten.	\$ -	\$ 80,400	\$ 1,130,400	\$ 1,210,800
6. Delduca Drive Sanitary Sewer	\$ -	\$ 5,550	\$ 68,550	\$ 74,100
7. CR42 & CR43 Advanced Engineering	\$ -	\$ 25,000	\$ -	\$ 25,000
Sub-Total:	\$ 234,850	\$ 133,450	\$ 4,425,036	\$ 4,793,336
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Watermain Reserve Fund:</b>	\$ 234,850	\$ 133,450	\$ 4,425,036	\$ 4,793,336

	Previously Approved	Requested for 2019	Future Costs	Total Costs
<b>Water Facility Projects</b>				
1. Water Tower Internal Lining Replacement	\$ -	\$ 470,000	\$ -	\$ 470,000
Sub-Total:	\$ -	\$ 470,000	\$ -	\$ 470,000
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Water Facilities Reserve Fund:</b>	<b>\$ -</b>	<b>\$ 470,000</b>	<b>\$ -</b>	<b>\$ 470,000</b>
<b>Wastewater Projects</b>				
1. Water & Wastewater Master Plan Update	\$ 50,000	\$ 7,500	\$ -	\$ 57,500
2. Tecumseh Road CIP - Streetscape Plan & Final Design	\$ 63,500	\$ -	\$ 1,246,436	\$ 1,309,936
3. Sanitary Sewer Rehab. (I&I Removal) - Phase 3	\$ -	\$ 3,000,000	\$ -	\$ 3,000,000
4. CR11 (North) Sanitary Sewer Extension	\$ 200,000	\$ 952,000	\$ -	\$ 1,152,000
5. Sylvestre Drive Sanitary Sewer Extension	\$ 109,200	\$ 77,600	\$ 575,200	\$ 762,000
6. Manhole Restoration Program	\$ -	\$ 50,000	\$ -	\$ 50,000
7. Cty Rd 46/Webster/Laval Sanitary Sewer Exten.	\$ -	\$ 166,700	\$ 838,200	\$ 1,004,900
8. Scully & St. Mark's Storm PS/Riverside Drive	\$ -	\$ 20,550	\$ 339,550	\$ 360,100
9. Delduca Drive Sanitary Sewer	\$ -	\$ 148,500	\$ 833,300	\$ 981,800
10. CR42 & CR43 Advanced Engineering	\$ -	\$ 16,000	\$ -	\$ 16,000
11. Sanitary Sewer Model Update & Flow Monitoring	\$ -	\$ 250,000	\$ -	\$ 250,000
Sub-Total:	\$ 422,700	\$ 4,688,850	\$ 3,832,686	\$ 8,944,236
Grants *:		\$ 1,500,000	\$ -	\$ 1,500,000
Recoveries:	\$ -	\$ 1,133,000	\$ 3,579,000	\$ 4,712,000
<b>Wastewater Sewers Reserve Fund:</b>	<b>\$ 422,700</b>	<b>\$ 2,055,850</b>	<b>\$ 253,686</b>	<b>\$ 2,732,236</b>
* Grant is subject to NDMP funding approval				
<b>Wastewater Facility Projects</b>				
1. Sanitary Pump and Meter Station Improvements	\$ -	\$ 32,500	\$ 30,000	\$ 62,500
Sub-Total:	\$ -	\$ 32,500	\$ 30,000	\$ 62,500
Grants:	\$ -	\$ -	\$ -	\$ -
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Wastewater Facilities Reserve Fund:</b>	<b>\$ -</b>	<b>\$ 32,500</b>	<b>\$ 30,000</b>	<b>\$ 62,500</b>
<b>Stormwater Projects</b>				
1. Tecumseh Road CIP - Streetscape Plan & Final Design	\$ 68,310	\$ -	\$ 701,690	\$ 770,000
2. Storm Drainage Master Plan	\$ 600,000	\$ -	\$ -	\$ 600,000
3. Oldcastle Storm Drainage Master Plan	\$ 120,000	\$ 330,000	\$ -	\$ 450,000
4. Storm Pump Stations - 2019 Repairs	\$ 100,000	\$ 268,000	\$ -	\$ 368,000
5. Manhole Restoration Program	\$ -	\$ 50,000	\$ -	\$ 50,000
6. Cty Rd 46/Webster/Laval Sanitary Sewer Exten.	\$ -	\$ 2,400	\$ 33,900	\$ 36,300
7. Scully & St. Marks Storm PS/Riverside Drive	\$ -	\$ 733,100	\$ 12,113,700	\$ 12,846,800
8. Delduca Drive Sanitary Sewer	\$ -	\$ 50,850	\$ 628,350	\$ 679,200
9. CR42 & CR43 Advanced Engineering	\$ -	\$ 9,000	\$ -	\$ 9,000
Sub-Total:	\$ 888,310	\$ 1,443,350	\$ 13,477,640	\$ 15,809,300
Grants:	\$ 175,000	\$ -	\$ -	\$ 175,000
Recoveries:	\$ -	\$ -	\$ -	\$ -
<b>Storm Sewer Lifecycle Reserve:</b>	<b>\$ 713,310</b>	<b>\$ 1,443,350</b>	<b>\$ 13,477,640</b>	<b>\$ 15,634,300</b>

## Background

The above noted projects are intended to upgrade existing infrastructure while also providing for future development. The objective of the 2019 - 2023 Public Works & Environmental Services (PWES) Capital Works Plan is to maintain a consistently high level of service and strive to improve the Town's infrastructure components through these improvements.

The Town adopted an Asset Management Plan in December 2013, updated in May 2018, which serves as a guide as to what, and when, capital projects should be undertaken. The attached PWES Capital Project List 2019 – 2023 summarizes PWES projects proposed to be undertaken over the 2019 – 2023 period. Recommendations will be made requesting Council approve specific projects which begin in 2019 while adopting the five year capital plan; this gives authorization to proceed with the 2019 projects while 2020 to 2023 projects will come back to Council in subsequent years for approval to proceed.

## Comments

This section provides detailed information for all 2019 projects i.e. both those previously approved and those newly proposed for 2019. Comments are provided by **road, sidewalks and pathways, bridge, water, wastewater, storm sewer** and **municipal drain** categories. Generally, projects will contain expenditures related to all categories; for expediency purposes we have included project discussion on the main driver requiring the project be undertaken.

We have also included a section entitled **2020 to 2023 projects** that provides a higher level discussion on projects being proposed for future years. Some of the future projects are initiatives led by the County of Essex which will require further discussion regarding cost sharing agreements with the Town. In addition, there are some potential new developments in the Town that, depending on the actual development proposals, may drive the need for improvements to existing Town infrastructure. At this time, it is premature to estimate Town costs related to these potential future projects.

The attached PWES Capital Project List 2019 – 2023 **has been prepared assuming adequate funding is available in all lifecycle categories**. Discussion on those categories that are deficient can be found in the Financial Implications Section.

Certain projects have been proposed to be phased in over a two year period. Generally this occurs because either the project scope is too large or costly to be completed in one construction season or would be too disruptive over too large of an area and too long a period of time to the adjacent properties. Projects being phased would be tendered as two separate tender calls.

## ROAD PROJECTS

Public Works staff reviews roads for inclusion in the annual paving program. The Town's Road Needs Study has been used for reference in conjunction with Public Works input and suggestions from Council and residents to form the basis for the recommended annual paving projects. Public Works & Environmental Services investigates and categorizes the needs based on the condition of the roads in comparison with other roads of similar traffic volumes.

The list of roads proposed for tar and chip are based on Public Works staff review of observed conditions of the roads and maintenance needs in conjunction with Pavement Condition Index (PCI) ratings from the Road Needs Study. Based on this information, Administration recommends the installation of a new tar and chip surface and edge treatment for Snake Lane. Public Works also suggest earmarking an amount for remedial tar and chip repairs on roads other than those planned for. Every spring Public Works finds areas that require some repair from winter plowing activities, and this would be used to address those concerns.

Administration recommends that as part of the annual paving program, an amount be set aside for crack sealing of Town roads to extend the lifespan of the pavement before more substantial repairs or replacement are required. It is recommended that \$100,000 be set aside for crack sealing.

**RD 1. Tar & Chip, Asphaltting, and Crack Sealing**

Tar & Chip - \$100,000	Asphaltting - \$1,100,000	Crack Sealing - \$100,000
Snake Lane	Kimberly Court	Various Locations (TBD)
	Shawn Avenue	
	Jelso Place	
	Herbert Street (Intersection Road to Westlake Drive)	
	Malden Road (South Talbot Road to County Road No. 8)	
	Malden Road (Various repair areas)	

Inspection and project administration will be carried out by Public Works & Environmental Services staff upon award of the Contract by Council. Quality control of the materials will be carried out by a Consulting Geotechnical Engineer.

Funding to be provided from:

- Road Lifecycle Reserve \$1,300,000

**RD 2. Lesperance Road Bike Lane Pavement Markings**

Lesperance Road Bike Lane Pavement Markings - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$110,000	\$0	\$0	\$110,000

Lesperance Road, a Minor Arterial Road, is a key north-south spine in the transportation network for all modes of travel and the only continuous north-south road under the control of the Town of Tecumseh. Consideration has been given in the Transportation Master Plan (TMP) to modify the existing cross-section of Lesperance Road to remove the existing two-way left turn lane (TWLTL) between McNorton Street and Riverside Drive to permit the creation of on-road cycling lanes with a width of approximately 1.9 meters. The remaining travel laneway

portions of Lesperance Road would be 3.5 meters in width. Therefore, the removal of the TWLTL would not significantly affect intersection capacity or road safety.

At the May 22, 2018 Regular Meeting of Council, Council received Report No. PWES-2018-14 titled “Bike Lanes on Lesperance Road”, and passed the following motion: *(Motion RCM-168/18) “That a Public Information Centre on Lesperance Road Bike Lane Pavement Markings be held as soon as possible to gather public input on the project”.*

On September 26, 2018, a Public Information Centre was held at Tecumseh Town Hall. Plans showing the proposed configuration of the bike lanes with a potential future multi-use trail on the west side of the road within the public right-of-way were available for review and discussion.

The Town was successful in receiving funding for this project from the Ontario Municipal Commuter Cycling Program (OMCCP). If the works are completed by the end of 2019, OMCCP funding will cover 80% (\$88,000) of the project cost. In addition, the remainder of the project costs would be eligible for 50% funding from the CWATS Municipal Partnership Funding Program.

Upon review of the comments from September 26, 2018 Public Information Centre, Administration will report back to Council with a project update and recommendations on next steps.

Previously approved funding from:

- Road Lifecycle Reserve            \$110,000

**RD 3. Tecumseh Road / Lacasse Boulevard Intersection Improvements**

Tecumseh Road / Lacasse Boulevard Intersection Improvements - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$40,000	\$0	\$439,000	\$479,000

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included retaining Dillon Consulting Limited to review and analyse the potential reconfiguration of the existing lanes of Tecumseh Road east of Lacasse Boulevard. There is currently one westbound lane and two eastbound lanes, but there may be an opportunity to reconfigure the lanes to two westbound (straight and right turn) lanes, and one eastbound lane, which may alleviate the queue lengths and times for westbound traffic at that intersection.

Once the traffic analysis is completed, Administration will report back to Council with a project update and recommendations on next steps.

Previously approved funding from:

- Road Lifecycle Reserve            \$40,000

**RD 4. Tecumseh Road Community Improvement Plan (CIP) – Streetscape Plan & Design**

Tecumseh Road CIP Streetscape Plan & Final Design - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$1,604,700	<b>\$0</b>	\$31,149,740	\$32,754,440

At the May 10, 2016 Special Meeting of Council, Council approved the recommendations (Motion SCM-01/16) of Planning & Building Services Report No.10/16 titled “Tecumseh Road Main Street CIP, Streetscape Plan and Detail Design and Utility Lines” that selected the preferred streetscape design that calls for the removal of above-ground hydro poles, hydro wires and utility wires placing them underground.

At the July 12, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-257/16) of PWES Report No. 35/16 titled “Streetscape Plan and Design, Revised Scope & Budget Update, July 2016” that included a revised scope for 30% Schematic Design for the full project limits, 100% Tender Drawings and Specifications for Phase 1 and 90% Design Drawings and Specifications for Phase 2.

At the March 29, 2017 Public Meeting of Council, Council received (Motion PCM-09/17) the PWES Report No. 19/17 titled “Tecumseh Road Main Street CIP – Streetscape Plan and Design Project Update, March 2017”.

The tentative phasing and associated project costs are broken up into the five following phases:

- Phase 1: \$14,611,300 - Tecumseh Road (St. Anne to VIA) & Lesperance (St. Denis to Arbour)
- Phase 2: \$7,716,180 - Tecumseh Road (St. Anne to Shawnee)
- Phase 3: \$4,053,262 - Tecumseh Road (Shawnee to Southfield)
- Phase 4: \$4,187,530 - Tecumseh/Southfield intersection
- Phase 5: \$2,186,168 - Lesperance (McNorton to St. Denis)

Expected recoveries from the County of Essex are anticipated to be \$885,000 for a portion of the Tecumseh Road reconstruction (under the Connecting Link Agreement). Administration is still exploring recovery opportunities with some of the Utility companies.

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included approval of additional costs to finalize components of this project, specifically the 100% Tender Drawings and Specifications for Phase 1, and the 90% Design Drawings and Specifications for Phase 2. Preparation of the Tender Drawings and Specifications for Phase 1 and the 90% Design Drawings and Specifications for Phase 2 are on-going.

**RD 5. South Talbot Road Reconstruction and Replacement of Culverts No.46 and No.47**

South Talbot Road Reconstruction and Replacement of Culverts No.46 and No.47 Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$150,000	<b>\$2,786,500</b>	\$0	\$2,936,500

The section of South Talbot Road between County Road 9 (Howard Avenue) and County Road 11 (Walker Road) consists of a paved two-lane rural cross-section road. Over the last number of years, portions of this section have been rehabilitated: (i) A 1,030m section west of County Road 11 was milled and paved approximately nine years ago, and is still in relatively good shape, (ii) A 250m section east of County Road 9 was reconstructed approximately five years ago by the MTO as part of the realignment into the Laurier Parkway. The remaining section of South Talbot Road, a 1,590m length (250m east of County Road 9 to 400m east of Holden Road) is in need of repairs.

It was Administration’s intent to include the remaining section of South Talbot Road as part of the annual asphaltting program in 2017. However, a geotechnical investigation of the existing road structure confirmed that there was insufficient granular base and organic material within the subbase, and a full road reconstruction was recommended over a mill/pave operation.

At the November 8, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-384/16) of PWES Report No. 39/16 titled “2016 Culvert Needs Study (Structures with Spans < 3.0m)” that authorized Administration to use the recommendations contained within the report to form the basis of the annual PWES Capital Works Plan. In the 2016 Culvert Needs Study (Structures with Spans< 3.0m), both Culvert No. 46 (South Talbot Road at South Talbot Drain) and Culvert No. 47 (South Talbot Road at Dickson Drain) were identified to be replaced within the 1-5 year timeframe.

At the December 13, 2016 Regular Meeting of Council, Council approved the recommendation (Motion RCM-442/16) of PWES Report No. 54/16 titled “2017-2021 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2017 capital works projects which included retaining Dillon Consulting Limited to complete the engineering design for the South Talbot Road Reconstruction project and for Culverts No.46 and No.47.

In order to achieve the benefit from the efficiencies of completing the engineering, tendering, and construction in one package, Administration recommends that the South Talbot Road Reconstruction project and the replacement of Culverts No.46 and No.47 be combined into a single tender.

The project cost of \$2,936,500 includes \$2,330,500 for road construction, \$410,500 for Culvert No. 46 and \$195,500 for Culvert No. 47.

As Dillon Consulting Limited is nearing completion of the engineering design, Administration recommends continuing with Dillon Consulting Limited to complete the contract administration



and inspection for the construction of the South Talbot Road Reconstruction and Replacement of Culverts No.46 and No.47 project in 2019.

Funding to be provided from:

- Road Lifecycle Reserve           \$2,240,500
- Bridges Lifecycle Reserve       \$546,000

**RD 6. Road Needs Study**

Road Needs Study - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$63,000</b>	\$0	\$63,000

The Town of Tecumseh maintains an extensive network of urban, semi-urban and rural roads of all classes, with the exception of Class 1 roads such as County Road 22. The roads network is approximately 180 centerline-kilometers of roadway (varying from two to four lanes), consisting of varying materials such as asphalt, concrete, and tar and chip.

In the 2014 Roads Needs Study, it was found that the overall average pavement condition index (PCI) rating for the Town roads was 74.1. The study further found that approximately 17% of the total road system had a PCI rating less than 60 and would require some manner of rehabilitation within a 5 year timeframe. The key to managing the Town of Tecumseh roads is to apply the correct rehabilitation strategy at the correct time. This includes applying preventative maintenance strategies to roads in the early stages of deterioration (e.g. crack sealing), then applying rehabilitation strategies at later dates and ultimately reconstructing the road when the useful life has expired.

Road reconstruction is closely coordinated with other infrastructure replacements such as sewer and water in order to achieve a level of cost saving. Initiatives such as these help to increase the customers level of service as well as reduce the frequency of large scale construction activities. This is a key factor to achieving improvements while achieving overall benefits to the customer through the use of sound planning.

The Town will continue to utilize Road Needs Studies going forward on a five year basis to help prioritize road projects, and gauge the Town effectiveness in the replacement/rehabilitation strategies to date.

Administration recommends that Dillon Consulting Limited be retained to provide the engineering services for this project based on their experience with Town roads and past completion of the 2003, 2008 & 2014 Roads Needs Studies. As part of this study, Dillon Consulting Limited will be engaging StreetScan, a company that utilizes new automated road scanning technology, to obtain a more detailed assessment/inventory of the Town’s existing road system.

Funding to be provided from:

- Road Lifecycle Reserve           \$63,000

**RD 7. Traffic Signal Controller Upgrade**

Traffic Signal Controller Upgrades (Coordinated with the County of Essex) - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	\$150,000	\$0	\$150,000

Administration recommends that a yearly program be created to replace traffic signal controller equipment currently in use at the Town’s signalized intersections. The Town utilizes electronic equipment that is compatible with the County of Essex highways infrastructure due to the many intersections on shared roads. The equipment currently in use is dated and replacement parts are no longer available. Both the Town and County road departments are beginning a process to transition towards the next generation of traffic controller equipment. This program will take multiple years to complete and coordination between both road departments will ensure seamless operation and the potential for integration in the future between the two systems.

Funding to be provided from:

- Road Lifecycle Reserve            \$150,000

**RD 8. Brighton Road Traffic Study**

Brighton Road Traffic Study - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$32,000</b>	\$0	\$32,000

Based on comments received from Council and the public, Administration recommends that a traffic engineering assessment be undertaken for the Brighton Road corridor (including intersecting roads) in 2019. The assessment will generally include the following:

- Issue identification and review of information received to date by the Town and Police
- Public consultation to obtain community feedback regarding the existing circles
- Review of field operating conditions (i.e. User difficulty with the circles)
- Collection of updated traffic and speed data
- Determine if existing circles need to be modified or if alternatives need to be explored
- Development of concepts for consideration by the Town and community
- Community meeting regarding proposed changes

Administration recommends that Dillon Consulting Limited be retained to complete the Brighton Road Traffic Study based on their experience completing other traffic related studies for the Town, including the Transportation Master Plan, Traffic Signal Infrastructure Assessment, etc. and their experience with transportation and traffic matters throughout the Essex Region

Funding to be provided from:

- Road Lifecycle Reserve            \$32,000

**RD 9. Road Line Painter**

Road Line Painter - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$30,000</b>	\$0	\$30,000

The Town’s existing road line painter has reached the end of its service life. Administration recommends that a new road line painter be purchased for the Town Public Works Department and that the new road line painter be a high performance hydraulic airless line painter capable of creating precise lines with reflective beads.

Administration further recommends that the new line painter be purchased in accordance with the Town of Tecumseh’s approved purchasing policies.

Funding to be provided from:

- Road Lifecycle Reserve           \$30,000

**RD 10. Expansion/Improvements to the Public Works Yard (North)**

Expansion/Improvements to the Public Works Yard (North) - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$30,000</b>	\$0	\$30,000

Additional storage area is required for Public Works equipment and materials. Administration recommends that the Lacasse Public Works yard be expanded westerly in 2019 to include a portion of the previous Town dog park which was closed approximately 8 years ago. It is recommended that the area be stripped of topsoil and that a treed earth berm be constructed around the perimeter of the site. Site modifications will include construction of a gravel surface suitable for vehicle traffic and the construction of storage bins with concrete blocks.

Funding to be provided from:

- Road Lifecycle Reserve           \$30,000

**RD 11. Traffic Calming Guideline Study**

Traffic Calming Guideline Study - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$20,000</b>	\$0	\$20,000

Administration continues to receive complaints related to motor vehicles traveling above the post speed limit at numerous locations throughout the Town. As identified in the 2017 Tecumseh Transportation Master Plan (TTMP), one potential approach to improve this problem is the implementation of traffic calming principles (where appropriate). Traffic calming generally relates to physical devices aimed at slowing the speed of motorists to the desired speed, given the context of the street. To build on the general information provided in the

TTMP, Administration recommends that a Traffic Calming Guideline Study be completed in 2019. The scope of the study will include the following:

- Review and update (as required) the general policies on traffic calming contained in the TTMP.
- Outline the process for determining if a problem exists (beyond anecdotal statements).
- Outline the process for investigating the physical feasibility of implementing traffic calming measures.
- Outline the planning process to be followed for the consideration of traffic calming methods (i.e. how to determine study area, how to engage with the residents/stakeholders and how to determine what measure should be implemented (if any)).

Administration recommends that Dillon Consulting Limited be retained to complete the Traffic Calming Guideline Study in 2019 based on their experience completing other traffic related studies for the Town, including the Transportation Master Plan, Traffic Signal Infrastructure Assessment, etc. and their experience with transportation and traffic matters throughout the Essex Region.

Funding to be provided from:

- Road Lifecycle Reserve           \$20,000

**SIDEWALKS & PATHWAYS PROJECTS**

**SW 1. Sidewalk Repair Projects**

Sidewalk Repair Projects - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
----	<b>\$69,000</b>	----	<b>\$69,000</b>

The 2019 sidewalk program will be based on sidewalk conditions determined through the comprehensive sidewalk inspection conducted annually. Currently this inspection is completed by Public Works staff and, along with input from Council and residents, this information is used to develop the annual program for recommended sidewalk repair and replacements. Should this inspection generate large amounts of sidewalk replacement, a Request for Quotation (RFQ) will be issued.

Trip hazards identified throughout the Town will be addressed to keep the Town in compliance with minimum maintenance standards. Currently, a detailed list of sidewalks to be repaired/replaced has not been generated. The funding requested is for an upset limit to carry out the work. A detailed list of recommended sidewalk replacements will be circulated to Council for their information prior to issuing the RFQ. Inspection and project administration will be carried out by PWES Staff upon award of the Contract.

Funding to be provided from:

- Sidewalk Lifecycle Reserve   \$69,000

**SW 2. Riverside Drive Trail**

Riverside Drive Trail - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$850,000	\$0	\$0	\$850,000

At the October 25, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-372/16) of Planning & Building Services Report No. 32/16 titled “County Wide Active Transportation Study Plan, Town of Tecumseh 2017 Project, Trail on Riverside Drive from Tecumseh/Windsor Municipal Boundary to Manning Road” that endorsed in principle the construction of a 2.4m wide trail having a length of approximately 2.4km as a 2017 CWATS Project, subject to the resolution of a suitable design.

At the December 13, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-442/16) of PWES Report No. 54/16 titled “2017-2021 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2017 capital works projects including the design of the Riverside Drive Trail.

On Wednesday, September 13, 2017, a Public Information Centre was held to share details and gather public input on the Town’s above noted initiative to construct a multi-use recreational trail along Riverside Drive. Options under consideration included constructing the trail in the public right-of-way on the south side of the road or on the north side of the road. Comments received were reviewed by Administration and the Consulting Team. Following consideration of the comments, it was recommended that the preferred location for the trail was within the public right-of-way on the south side of the road.

On Wednesday, June 6, 2018, a second Public Information Centre was held to discuss the detailed analysis that had been completed since the first Public Information Centre and to convey the resulting best design solution for the new multi-use trail. Concept plans showing the multi-use trail on the south side of the road were presented for discussion and to gather public input.

Upon review of the comments from the June 6, 2018 Public Information Centre, Administration will report back to Council with a project update and recommendations on next steps.

Previously approved funding from:

- Infrastructure Lifecycle Reserve      \$850,000

**BRIDGE PROJECTS**

**BR 1. Bridges (with Spans > 3.0m) – Bridges No. 1004, 1013 & 1014**

Bridges (with Spans > 3.0m) – Bridges No. 1004, 1013 & 1014 Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$129,000	\$621,900	\$0	\$750,900

At the November 8, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-386/16) of PWES Report No. 48/16 titled “2016 Bridge and Culvert Needs Study (Structures with Spans > 3.0m)” that authorized Administration to use the recommendations contained within the report to form the basis of the annual PWES Capital Works Plan. The 2016 Bridge and Culvert Needs Study (Structures with Spans > 3.0m) identified the following Bridges for rehabilitation within a 1-5 year time frame.

- Bridge No.1004 (Pike Creek at 12<sup>th</sup> Concession Road)
- Bridge No.1013 (Merrick Creek at 8<sup>th</sup> Concession Road)
- Bridge No.1014 (Colchester Townline Drain at 6<sup>th</sup> Concession Road)

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included retaining Dillon Consulting Limited to complete the engineering design for Bridges No. 1004, 1013 &1014 in 2018. It was further proposed that all three Bridges should be combined into a single tender package for tendering and construction in 2019.

As Dillon Consulting Limited has completed the engineering design for Bridges No. 1004, 1013 & 1014, Administration recommends continuing with them to complete a single tender package for the three Bridges, contract administration and inspection during construction in 2019.

Funding to be provided from:

- Bridges Lifecycle Reserve      \$621,900

## **WATER & WASTEWATER PROJECTS**

Water and wastewater projects are intended to upgrade existing infrastructure while also providing for future development.

The methodology used to provide Council with recommendations for yearly capital projects are:

- a review of the Town of Tecumseh Water & Wastewater Master Plan.
- a review of lifecycle dollars available and possible government funding.
- a review of the Ministry of Environment regulations/guidelines.
- a review of other planned capital projects.
- a review of possible opportunities to improve/upgrade the existing infrastructure.

## WATER PROJECTS

### WA 1. Water and Wastewater Master Plan Update

Water and Wastewater Master Plan Update - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$100,000	<b>\$15,000</b>	\$0	\$115,000

Since the completion of the 2008 Water and Wastewater Master Plan Update, further planning studies and discussion papers related to the preparation of a new Official Plan have been completed. In order to ensure that the Town implements the most cost effective infrastructure servicing strategies required to support new growth and maintain a high level of service into the future, an update to the current Master Plan is being planned in accordance with the Class Environmental Assessment (EA) process for water and wastewater projects. The purpose of the Master Plan Update is to re-examine water and wastewater infrastructure timing and costing requirements for the existing settlement areas in the Town of Tecumseh.

This study was commenced in 2016 and it is expected to continue into early 2019.

Funding to be provided from:

- Watermain Reserve Fund \$7,500
- Wastewater Sewers Reserve Fund \$7,500

### WA 2. Highway No.3 / County Road 11 Watermain Replacement

Highway No.3 / County Road 11 Watermain Replacement - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$134,600	<b>\$0</b>	\$1,933,400	\$2,068,000

The Water Division recommended replacement of the existing 200mm diameter ductile iron watermain at the Highway No.3 / County Road 11 intersection. In recent years the 200mm diameter ductile iron watermain has been failing due to the age and material of the pipe. It was proposed to carry out the engineering in 2018 and proceed with construction in 2019.

The recommended works consist of the following:

- Replacement of approximately 410m of 200mm ductile iron watermain on Highway No.3 from County Road 11 westerly with a new 300mm diameter PVC;
- Replacement of approximately 345m of 200mm ductile iron watermain on County Road 11 from McCord Lane to just south of Highway No.3 with a new 300mm diameter PVC;
- The installation of approximately 430m of 300mm diameter PVC watermain on Highway No.3 from County Road 11 to Oldcastle Road.

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included retaining Stantec Consulting

Limited to complete the engineering design for the Highway No.3 / County Road 11 Watermain Replacement project in 2018.

Preliminary plans have been submitted to the Ontario Ministry of Transportation (MTO) for review/comment. Due to on-going discussions with MTO, it is now proposed that the engineering design will be completed in 2019 with construction proceeding in 2020.

Previously approved funding from:

- Watermain Reserve Fund \$134,600

**WA 3. Water Audit and Water Balance**

Water Audit and Water Balance - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$15,000</b>	\$0	\$15,000

One of the key components of a water distribution asset management program is the assessment and control of water losses. The assessment and control of real losses (i.e. leakage) can greatly impact the service life of a water distribution network and save costs associated with the production and distribution of our precious water resource.

The American Water Works Association (AWWA) Manual M36 (Water Audits and Loss Control Programs) recommends completing an International Water Association (IWA) Water Audit for water distribution systems. An IWA Water Audit identifies Revenue and Non-Revenue Water and quantifies each in terms of volumes of water and costs (both operational costs to purchase water from the Windsor Utilities Commission (WUC) and potential revenue losses from customer meters). The IWA Water Audit is considered a North American Best Management Practice for water utilities and is recommended to be completed annually in order to assess water losses and gauge the performance of ongoing water loss reduction measures.

Administration recognizes the importance of identifying and reducing Non-Revenue Water in the Town’s water distribution system. This is particularly important since the Town purchases water from the WUC and any water that does not reach customers because of leakage, or is not billed, becomes a cost for the Town. As a result, a third party IWA Water Audit was previously undertaken for the Town of Tecumseh in 2013/2014 with data from the year 2012 (IWA Water Audits are performed with a full years data).

Administration recommends that a new, independent, third party IWA Water Audit be completed to establish the current levels of Non-Revenue Water and water losses within the Town of Tecumseh water distribution system. Administration recommends that Kingsley Blease Consulting/Watermark Solutions be retained in 2019 to undertake an IWA Water Audit of the Town’s water distribution system based on their experience completing IWA Water Audits for numerous municipalities in Ontario and the Atlantic Provinces.

Funding to be provided from:

- Watermain Reserve Fund \$15,000



**WA 4. Tecumseh Water Tower – Internal Lining Replacement**

Tecumseh Water Tower – Internal Lining Replacement - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$470,000</b>	\$0	\$470,000

The Town of Tecumseh water tower was built in 1991 by Landmark Municipal Services (Landmark). In order to maintain the integrity of this facility, the Town cleans and inspects the water tower every 5 years in accordance with the recommendations of the Ontario Water Works Association and the American Water Works Association.

In 2013 Landmark was retained to clean and inspect the water tower. At that time, isolated repairs were made to the interior lining of the tank and the remaining life span of the interior lining was estimated to be approximately 3 to 5 years.

In early 2018, Landmark was retained to undertake the recommended 5 year cleaning and inspection of the water tower. The recent inspection confirmed that the interior tank lining has reached the end of its service life and requires replacement. The required works generally include cleaning/removal of tank sediment, removal/replacement of interior tank ladder, sandblast/reline tank interior surfaces and disinfect/fill tank.

Administration recommends that the water tank re-lining be completed in 2019. Administration will bring forward a separate report to Council in early 2019 with further details and recommendations on who should be retained to complete the works.

Funding to be provided from:

- Water Facilities Reserve Fund                      \$470,000

**WA 5. County Road 42 and County Road 43 Improvements – Advanced Engineering**

Highway No.3 / County Road 11 Watermain Replacement - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$50,000</b>	\$0	\$50,000

As part of the County of Essex 25-year capacity program, County Road 42 and County Road 43 road widening have been identified to be completed within the next couple of years. The County of Essex has engaged Dillon Consulting Limited to undertake the detailed design for the following:

- Widening of County Road 42 from the City of Windsor border with the Town of Tecumseh to the Pike Creek.
- Diversion of County Road 43 from Shields Avenue to approximately 250 metres south of County Road 42.

Administration has identified municipal services within the project limits that need to be designed and incorporated into the County’s overall project. The advanced engineering work required includes the design of watermains, sanitary sewers and the design of overland flow

routing from existing development located on the north side of County Road 42 to the Pike Creek located to the south of County Road 42. The design of these services is not included in the scope of work being completed by the County of Essex.

In order to ensure the Town’s servicing requirements are addressed, Administration recommends that Dillon Consulting Limited be retained in 2019 to complete the engineering design for the above noted municipal services to allow this work to be incorporated into the County of Essex contract drawings and specifications for their County Road 42 project. As construction proceeds in a phased manner, Administration will identify those applicable costs for municipal infrastructure in future capital works plans.

Funding to be provided from:

- Watermain Reserve Fund \$25,000
- Wastewater Sewers Reserve Fund \$16,000
- Storm Sewer Lifecycle Reserve \$9,000

**WASTEWATER PROJECTS**

**WW 1.County Road 11 (North) Sanitary Sewer Extension**

County Road 11 (North) Sanitary Sewer Extension - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$341,650	<b>\$1,250,950</b>	\$0	\$1,592,600

The next project considered under the North Talbot Road sanitary sewer service area is the extension of a sanitary sewer along County Road 11 from North Talbot Road to Highway 401.

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included continuing with Dillon Consulting Limited to complete the coordination of the utility relocations for the County Road 11 (North) Sanitary Sewer Extension project in 2018.

As recommended under Planning & Building Services Report No. 23/13 dated July 3, 2013, Council approved (Motion: RCM-218/13) a 3.0m wide trail along the east side of County Road 11 from Highway 401 to North Talbot Road. This trail is identified as Trail Segment Tec-3 in the CWATS Master Plan. This proposed CWATS project will be included as part of the sanitary sewer extension project.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$1,133,000. Estimated recoveries from the County of Essex for the CWATS trail would be \$174,000 (40% of trail costs including design work in 2018). The project cost of \$1,592,600 includes \$1,152,000 for sanitary sewers and \$434,600 for the installation of the 3.0m wide asphalt trail.

As Dillon Consulting Limited has completed the engineering design and the coordination of the utility relocations, Administration recommends continuing with them to complete the tendering,

contract administration and inspection during construction for the County Road 11 (North) Sanitary Sewer Extension project in 2019.

Funding to be provided from:

- Wastewater Sewers Reserve Fund      \$952,000
- Infrastructure Lifecycle Reserve      \$292,950

**WW 2.Sylvestre Drive Sanitary Sewer Extension**

Sylvestre Drive Sanitary Sewer Extension - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$187,400	<b>\$97,600</b>	\$1,616,450	\$1,901,450

This project consists of the extension of a sanitary sewer on Sylvestre Drive from Sylvestre Drive to County Road 19 (approximately 410-metres), as well as adjacent to the County Road 19 right-of-way through a future easement (approximately 215-metres). It is also proposed to reconstruct Sylvestre Drive from Jamsyl Drive to County Road 19 (approximately 760-metres).

As part of this project, a Schedule B Environmental Assessment is required to be undertaken due to the extension of a sanitary sewer through a future easement.

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included retaining Dillon Consulting Limited to complete the engineering design work and the Environmental Assessment for the Sylvestre Drive Sanitary Sewer Extension project in 2018.

The Environmental Assessment and engineering design are expected to be completed in early 2019. It is proposed to obtain the required property easements and project approvals during the remainder of 2019, and to proceed with construction in 2020.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$762,000. Assessments to be calculated by Administration and invoiced back to the landowners by means of a Part XII by-law (*Municipal Act*, s.391). The project cost of \$1,901,450 includes \$1,120,300 for road reconstruction, \$762,000 for sanitary sewers, and \$19,150 for storm sewers.

Funding to be provided from:

- Road Lifecycle Reserve      \$20,000
- Wastewater Sewers Reserve Fund      \$77,600

**WW 3.County Road 46, Webster and Laval Sanitary Sewer Extension**

County Road 46, Webster and Laval Sanitary Sewer Extension - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$370,250</b>	\$2,947,250	\$3,317,500

The County Road 46, Webster and Laval Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8<sup>th</sup> Concession Road sanitary service area. The project includes the extension of a sanitary sewer along County Road 46 from the 8<sup>th</sup> Concession Road to Webster Drive, as well as on Webster Drive (entire length), and the extension of a sanitary sewer through an easement just south of Highway 401. It is proposed to carry out the engineering design in 2019 and to proceed with construction in 2020. This project will be coordinated with the County’s planned road rehabilitation for County Road 46.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$1,767,000 and will be refined once the By-Law for the 8<sup>th</sup> Concession Road sanitary service area is completed. The project cost of \$3,317,500 includes \$1,065,500 for road reconstruction, \$36,300 for storm sewers, \$1,004,900 for sanitary sewers and \$1,210,800 for watermains.

Administration recommends Dillon Consulting Limited be retained to complete the engineering design for the County Road 46, Webster and Laval Sanitary Sewer Extension in 2019, based on their experience with the Town’s sanitary sewer infrastructure within the 8<sup>th</sup> Concession Service Area and their previous work on the 8<sup>th</sup> Concession Road Trunk Sanitary Sewer and Watermain (Phase 1) project.

Funding to be provided from:

- Road Lifecycle Reserve \$120,750
- Watermain Reserve Fund \$80,400
- Wastewater Sewers Reserve Fund \$166,700
- Storm Sewer Lifecycle Reserve \$2,400

**WW 4.Delduca Drive Sanitary Sewer Extension**

Delduca Drive Sanitary Sewer Extension - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$297,350</b>	\$2,672,650	\$2,970,000

The Delduca Drive Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8<sup>th</sup> Concession Road sanitary service area. The project includes the extension of a sanitary sewer along Delduca Drive. It is proposed to carry out the engineering in 2019, complete utility relocations and obtain the required easements in 2020, and proceed with construction in 2021.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$1,050,000 and will be refined once the By-Law for the 8<sup>th</sup> Concession Road sanitary service area is completed. The project cost of \$2,970,000 includes \$1,234,900 for road

reconstruction, \$679,200 for storm sewers, \$981,800 for sanitary sewers and \$74,100 for watermains.

Administration recommends Stantec Consulting Limited be retained to complete the engineering design for the Delduca Drive Sanitary Sewer Extension in 2019, based on their experience with wastewater projects throughout the Town.

Funding to be provided from:

- Road Lifecycle Reserve \$92,450
- Watermain Reserve Fund \$5,550
- Wastewater Sewers Reserve Fund \$148,500
- Storm Sewer Lifecycle Reserve \$50,850

**WW 5.Sanitary Sewer Rehabilitation (Inflow & Infiltration Removal) – Phase 3**

Sanitary Sewer Rehabilitation (Inflow & Infiltration Removal) - Phase 3 Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$3,637,824	<b>\$3,000,000</b>	\$0	\$6,637,824

At the December 13, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-442/16) of PWES Report No. 54/16 titled “2017-2021 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the Sanitary Sewer Rehabilitation (Inflow and Infiltration Removal) project components should the Town be successful in obtaining grant funding from upper levels of government.

This project involves the renewal and rehabilitation of approximately 30,000 linear metres of sanitary sewer pipe, 500 manholes and the rehabilitation of approximately 500 sanitary sewer service connections in Wards 1, 2 and 3. In 2017, the Town was successful in receiving two grants, the Ontario Community Infrastructure Fund (OCIF) and the Canada Water Wastewater Fund (CWWF). Based on the funding received, Phases 1 and 2 of this project were completed in 2017-2018. These phases included the following:

- Camera inspections of the sewer pipes to identify pipe condition, pipe defects and sources of inflow and infiltration using trenchless technology;
- Flushing and cleaning debris from the sanitary sewer pipes and service connections to facilitate leak testing and repair using trenchless technology; and
- Pressure testing and sealing of mainline joints, cracked or otherwise leaking pipes, tee connections, clean outs, risers and sanitary service connections using innovative trenchless technology.

The next component of the Sanitary Sewer Collection System Rehabilitation Project is Phase 3. Phase 3 includes sealing leaks in manholes, mainline sewers and laterals (private service connections). Completion of these works is subject to the Town obtaining grant funding from upper levels of government.

At the September 11, 2018 Regular Meeting of Council, Council approved the recommendations (Motion RCM-272/18) of PWES Report No. 2018-21 titled “National Disaster Mitigation Program-Intake 5” that authorized Administration to submit an application to the federal government for funding under the National Disaster Mitigation Program (NDMP) for the Phase 3 portion of this project. Subsequent to the September 11, 2018 Regular Meeting of Council, Administration submitted a funding application for this project to the NDMP. The NDMP funding application is for 50% of the project cost up to a maximum amount of \$1,500,000. The funding application is currently under review. If the funding application is approved, all works for this project must be completed by March 31, 2020.

Subject to confirmation of funding approval, Administration recommends proceeding with the Phase 3 portion of the Sanitary Sewer Collection System Rehabilitation Project in 2019. Administration further recommends that Blackrock Consulting be retained to complete the contract administration for Phase 3 based on their previous contract administration for Phases 1 & 2 and their experience with inflow and infiltration removal projects for other municipalities within Essex County.

Following confirmation of funding approval and completion of a tendering process, Administration will bring forward a report to Council with recommendations for the award of a construction contract for this project.

Funding to be provided from:

- Wastewater Sewers Reserve Fund      \$3,000,000

**WW 6.Sanitary Pump Station and Sanitary Metering Station Improvement**

Sanitary Pump Station and Sanitary Metering Station Improvements - Project Costs Summary			
Previously Approved	Requested for 2019	Future Costs	Total Project Costs
\$0	<b>\$32,500</b>	\$30,000	\$62,500

The Town owns and operates four (4) sanitary pump stations and five (5) sanitary metering stations. The 2016 Pump & Metering Station Condition Assessment identified ‘Immediate Repairs’ and ‘10 Year Repairs’ for the sanitary pump stations and metering stations. In addition, the Town of Tecumseh has a service agreement with the Ontario Clean Water Agency (OCWA) for the operation and maintenance of the Town sanitary pump stations and sanitary metering stations. In accordance with the service agreement, OCWA provides the Town with a rolling five year list of major maintenance recommendations to ensure the long term health and operation of these sanitary facilities.

In accordance with the 2016 Pump & Metering Station Condition Assessment and the OCWA recommendations, Administration recommends upgrades at the following sanitary facilities in 2019:

- Sylvestre Drive Sanitary Pump Station (\$15,000)
- Lakewood Sanitary Pump Station (\$7,500)
- Cedarwood Sanitary Metering Station (\$5,000)
- North Talbot Road Sanitary Metering Station (\$5,000)

Funding to be provided from:

- Wastewater Facilities Reserve Fund \$32,500

**WW 7.Sanitary Sewer Model Update and Flow Monitoring**

Sanitary Sewer Model Update and Flow Monitoring - Project Costs Summary			
Previously Approved \$0	<b>Requested for 2019</b> <b>\$250,000</b>	Future Costs \$0	Total Project Costs \$250,000

In 2011 Council received the report (Motion RCM-227/11) titled “Town of Tecumseh, Sanitary Sewer Assessment Report, dated May 2011”. The report included a recommendation that the Town update their existing sanitary sewer model every three to four years, as well as carryout a flow monitoring program.

In 2011, Dillon Consulting Limited was retained to update the sanitary sewer model for the sanitary sewer infrastructure located north of County Road 22 in order to assess the impacts of a proposed development. The findings of the model update and related assessment led to the preparation of the “Sanitary Sewerage Collection System Improvements Class Environmental Assessment – April 2013 (Dillon) to address the recommended improvements. Following completion of the EA, Dillon Consulting Limited was retained to update the sanitary sewer model for the sanitary infrastructure located south of County Road 22 which was completed in late 2013. Both models were then integrated into one model.

At the June 26, 2018 Regular Meeting of Council, Council approved the recommendation (Motion RCM-194/18) of PWES Report No. 2018-17 “Flood Mitigation Strategy” that the report be received. Continued flow monitoring and sanitary sewer modeling were recommended flood mitigation strategies in the report. The report further identified that updating the sanitary sewer model would be incorporated within the 5-year PWES Capital Works Plan.

Administration recommends that the Town’s existing sanitary sewer model be updated in 2019 including the installation of additional flow monitors within the sewer system to be used for model calibration. The flow monitors and updated modeling will provide insight into the existing flow characteristics of the sanitary sewer system and on available sanitary sewer capacity to accommodate infill development within the Town.

Administration recommends that Dillon Consulting Limited be retained to complete the Sanitary Sewer Model Update and Flow Monitoring project in 2019, based on their previous updates to the existing sanitary sewer model and their experience with wastewater projects throughout the Town.

Funding to be provided from:

- Wastewater Sewers Reserve Fund \$250,000

**WW 8.Manhole Restoration Program**

Manhole Restoration Program - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$0	<b>\$100,000</b>	\$0	\$100,000

Administration recommends a program whereby manholes that have been constructed in the travelled lanes of Town roadways will be reviewed and manholes that are found to have a significant difference in elevation between the rim and the surrounding roadway will be repaired. The method of repair is a technique that has been used by PWES for the last few years. It involves a machine to core drill around the manhole lid and the manhole is rebuilt and levelled to the surrounding pavement elevation. This method results in significantly less cracking of existing roadway pavement due to the circular excavation. It also allows the area around the manhole to be compacted prior to reinstatement of any pavement. PWES has experienced good success with this restoration method and it has been used by other municipalities to reconstruct manholes in travelled lanes.

Funding to be provided from:

- Wastewater Sewers Reserve Fund \$50,000
- Storm Sewer Lifecycle Reserve \$50,000

**STORM SEWER PROJECTS**

**ST 1. Storm Drainage Master Plan**

Storm Drainage Master Plan - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$600,000	<b>\$0</b>	\$0	\$600,000

At the December 13, 2016 Regular Council Meeting, Council approved the recommendations (Motion RCM-442/16) of PWES Report No. 54/16 titled “2017-2021 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the Storm Drainage Master Plan in 2017 and 2018.

The Town’s stormwater infrastructure network is supported through eight (8) stormwater pumping stations which are primarily located near the shore of Lake St. Clair due to the topography of the area within Wards 1, 2, and 3. The proposed Stormwater Master Plan will focus on an analysis of the storm infrastructure within the eight (8) storm pumping station service areas.

This analysis will review how the Town’s stormwater infrastructure functions during minor rainfall events (what can be contained within the storm sewer network) and major rainfall events (which would follow overland flood routes). The storm pumping stations will also be reviewed to determine if any modifications or improvements are required based on the recommended storm sewer network improvements (i.e. capacity upgrades).



The Master Plan will also look for efficiencies in the storm sewer network and whether a consolidation of storm pumping stations is feasible. The Master Plan will follow the Municipal Class Environmental Assessment (EA) process and is equivalent to the same steps that a Schedule 'B' EA would follow. This will provide the Town the necessary analysis/study under the Municipal Class EA process to complete future improvements, reconstruct and/or decommission storm pumping stations without having to complete a separate Schedule 'B' EA at a later date.

In 2017 the Town was successful in receiving approval from the Federation of Canadian Municipalities (FCM) for funding in the amount of up to \$175,000 under the Municipalities for Climate Innovation Program (MCIP) for the Town's Storm Drainage Master Plan feasibility study.

On Wednesday, July 25, 2018, a Public Information Centre was held to share details and gather public input on the preliminary findings of the Master Plan stormwater modelling assessment. The meeting was attended by 38 members of the public and 13 comments were received. Comments received will be considered as the project proceeds towards development of a preferred solution.

A second Public Information Centre is tentatively scheduled for January 2019 with completion of the final report and recommended solutions expected in early 2019.

Previous approved funding from:

- Storm Sewer Lifecycle Reserve      \$600,000

**ST 2. Storm Pump Stations - 2019 Repairs**

Storm Pump Stations, 2019 Repairs - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$100,000	<b>\$268,000</b>	\$0	\$368,000

At the December 13, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-440/16) of PWES Report No. 51/16 titled "2016 Pump & Metering Station Condition Assessment" that authorized Administration to use the recommendations contained within the "2016 Pump & Metering Station Condition Assessment" to form the basis of the annual PWES Capital Works Plan.

The Town owns and operates eight (8) storm pump stations. The 2016 Pump & Metering Station Condition Assessment identified 'Immediate Repairs' and '10 Year Repairs' for the storm pump stations. Administration recommends that the proposed 2019 works include repairs at (i) West St. Louis Storm Pump Station (Cost of \$66,300), (ii) Lesperance Road Storm Pump Station (Cost of \$117,200), and (iii) East St. Louis Storm Pump Station (Cost of \$84,500).

Funding to be provided from:

- Storm Sewer Lifecycle Reserve      \$268,000

**ST 3. Oldcastle Storm Drainage Master Plan**

Oldcastle Storm Drainage Master Plan - Project Costs Summary			
Previously Approved	<b>Requested for 2019</b>	Future Costs	Total Project Costs
\$120,000	<b>\$330,000</b>	\$0	\$450,000

At the December 12, 2017 Regular Meeting of Council, Council approved the recommendations (Motion RCM-441/17) of PWES Report No. 57/17 titled “2018-2022 Public Works & Environmental Services Capital Works Plan” that authorized Administration to proceed with the 2018 capital works projects which included retaining Stantec Consulting Limited to complete the Oldcastle Storm Drainage Master Plan.

The stormwater infrastructure network located within the Oldcastle Hamlet area is comprised of a combination of roadside ditches, Municipal Drains, storm sewers, swales/sub-drains, as well as County and Provincial storm infrastructure. There are three (3) distinct watershed areas within the Oldcastle Hamlet which include Little River (8 outlets), Turkey Creek (1 outlet), and River Canard (3 outlets).

The Oldcastle Storm Drainage Master Plan will focus on an analysis of the storm infrastructure within these watersheds and will set the framework for how stormwater is addressed for new and re-developments. This analysis will review how the storm infrastructure functions during minor rainfall events (what can be contained within the ditches, drains, and sewers), and major rainfall events (which would follow overland flood routes). The Master Plan will follow the Municipal Class Environmental Assessment (EA) process and is equivalent to the same steps that a Schedule ‘B’ EA would follow.

At the September 11, 2018 Regular Meeting of Council, Council approved the recommendations (Motion RCM-272/18) of PWES Report No. 2018-21 titled “National Disaster Mitigation Program-Intake 5” that authorized Administration to submit an application to the federal government for funding under the National Disaster Mitigation Program (NDMP) for the Oldcastle Storm Drainage Master Plan. Subsequent to the September 11, 2018 Regular Meeting of Council, Administration submitted a funding application for this project to the NDMP. The funding application is currently under review. If the funding application is approved, all works for this project must be completed by March 31, 2020.

Stantec Consulting Limited is proceeding with the Master Plan and is in the process of building the hydrologic and hydraulic models for the study area. Flow monitors have been installed at key locations with the existing storm sewer system to collect flow data that will be used for model calibration. This study will continue through 2019 with a final report anticipated in early 2020.

Funding to be provided from:

- Storm Sewer Lifecycle Reserve      \$330,000

**ST 4. Scully & St. Mark’s Storm Pump Station & Riverside Drive Storm Sewers**

Scully & St. Mark’s Storm Pump Station & Riverside Drive Storm Sewers - Project Costs Summary			
Previously Approved \$0	<b>Requested for 2019 \$797,250</b>	Future Costs \$13,173,650	Total Project Costs \$13,970,900

In 2016 a review of the St. Mark’s Storm Pump Station, the Scully (Edgewater) Storm Pump Station and the existing storm sewer infrastructure within the contributing drainage area was conducted. The results indicated that the storm pump stations would be unable to accommodate additional flows from local streets that were slated to be reconstructed with storm sewers having a 1:5-year level of service. These results were discussed and included in PWES Report No. 52/16 titled “Arlington Boulevard Improvements – Project Update, December 2016”, which was brought to Council at the December 13, 2016 Regular Meeting of Council. In addition, the detailed analysis of the stormwater infrastructure that has been conducted as part of the on-going Storm Drainage Master Plan, has confirmed that improvements are required to the existing Scully & St. Mark’s pump stations.

The proposed project consists of decommissioning the St. Mark’s storm pump station and redirecting those flows into an upgraded and expanded Scully storm pump station to provide a greater level of service. The Scully pump station upgrade is to increase pump capacity to accommodate the additional flows from the current St. Mark’s service area, as well as other adjacent areas where interconnections and overland flows have been identified as part of the Town’s current Storm Drainage Master Plan. This project also includes trunk storm sewer improvements along Riverside Drive to add resiliency to the system and improve the level of service to address area-wide issues of surface flooding.

At the July 24, 2018 Regular Meeting of Council, Council approved the recommendations (Motion RCM-232/18) of PWES Report No. 2018-19 titled “Disaster Mitigation and Adaptation Fund Expression of Interest” that authorized Administration to submit an Expression of Interest to the federal government for funding under the Disaster Mitigation and Adaptation Fund (DMAF). Accordingly, an Expression of Interest was submitted which included the Scully & St. Mark’s Storm Pump Station & Riverside Drive Trunk Storm Sewers project. On October 12, 2018, Administration received confirmation that the Expression of Interest was deemed conditionally eligible to proceed to a full application for funding. Administration is now in the process of completing the full application which is due on Friday, January 11, 2019.

The Storm Drainage Master Plan is scheduled to be complete in early 2019. Following completion of the Storm Drainage Master Plan, Administration recommends moving forward with the engineering design for Scully & St. Mark’s Storm Pump Station & Riverside Drive Storm Sewers project in 2019. The schedule for the engineering design may be modified if the Town’s application for DMAF funding is approved. The future timing for construction is contingent on the availability of funding and Council approval.

The project cost of \$13,970,900 includes \$12,846,800 for storm sewers and pumping stations, \$360,100 for sanitary sewers and \$764,000 for road reconstruction.

Administration recommends that Dillon Consulting Limited be retained to complete the engineering design for the Scully & St. Mark’s Storm Pump Station & Riverside Drive Storm

Sewers project in 2019, based on their on-going work on the Storm Drainage Master Plan and their experience with storm drainage projects throughout the Town.

Funding to be provided from:

- Storm Sewer Lifecycle Reserve \$733,100
- Wastewater Sewers Reserve Fund \$20,550
- Road Lifecycle Reserve \$43,600

## MUNICIPAL DRAIN PROJECTS

Town of Tecumseh is obligated to manage, repair, maintain and improve the Town's 120 Municipal Drains (totaling 221km) in accordance with the Drainage Act, including assessing costs to the benefitting upstream landowners according to the most current by-law. Municipal Drains are not municipal infrastructure and only the actual Town assessments are funded from the general tax rate.

There are currently over 119 active drainage projects that the Town is undertaking. These works include new municipal drains (1), maintenance of existing drains (58), drain improvements requiring an engineer's report (44) and apportionment agreements (16) all of which are at various stages of completion. The Drainage Superintendent receives requests for maintenance or repair and improvements for Municipal Drains, and determines which section of the Drainage Act is most suitable to proceed with the request. These drainage requests, and subsequent works, are addressed as they occur and brought before Council for their approval on a project by project basis.

Funding for the Town's assessment for Municipal Drains will generally come from the Drains Lifecycle Reserves.

### 2020 to 2023 Projects

This section provides a higher level discussion on projects being proposed for 2020 to 2023.

- **2020: Bridge and Culvert Needs Study (Structures with Spans > 3.0m)** (Cost of \$36,000)

There are a total of sixteen (16) existing bridges and culverts with a span greater than 3.0 metres that were inspected as part of the Bridge and Culvert Needs Study in 2018. Inspections of the sixteen structures within the Town were completed in accordance with the latest version of the Ontario Structure Inspection Manual (OSIM) published by the Ministry of Transportation of Ontario (MTO).

Inspections of the bridges and culverts are to take place every two years as legislated by Section 2(3) of The Public Transportation and Highway Act: "The structural integrity, safety and condition of every bridge shall be determined through the performance of at least one inspection in every second calendar year under the direction of a professional engineer and in accordance with the Ontario Structure Inspection Manual". It will be necessary to carry out a new Bridge and Culvert Needs Study in 2020 to comply with the legislation.

➤ **2020: Shoreline Management Plan (Cost of \$210,000)**

In 1973 the City of Windsor and surrounding areas (including Tecumseh and St. Clair Beach) experienced widespread flooding from Lake St. Clair and the Detroit River due to a combination of record high lake levels and strong on-shore winds. The properties along the shoreline as well as inland (lower lying) properties sustained significant flood damage during that event.

The water levels in Lake St Clair reached new record highs in 1985 (from the previous record set in 1973) which prompted the Essex Region Conservation Authority in coordination with many local municipalities to undertake Shoreline Management Plans, including:

- The City of Windsor, 1986
- Town of LaSalle (Township of Sandwich West), 1988
- Town of Amherstburg (Township of Malden), 1989
- Town of Kingsville (Township of Gosfield South), 1990

At the June 26, 2018 Regular Meeting of Council, Council approved the recommendation (Motion RCM-194/18) of PWES Report No. 2018-17 “Flood Mitigation Strategy” that the report be received. Completion of a Shoreline Management Plan was a recommended flood mitigation strategies in the report. The report further identified that completion of a Shoreline Management Plan would be incorporated within the 5-year PWES Capital Works Plan.

It is recommended that Tecumseh undertake a Shoreline Management Plan to determine the best ways to identify and manage flood and erosion risk to the developed shoreline of Lake St Clair and the Pike Creek. The plan will also determine opportunities where partners, stakeholders and landowners can work together to identify, manage and reduce the risk of flooding and erosion due to high lake levels and wave action.

➤ **2020: Traffic Signal Reconstruction (Lesperance/McNorton) (Cost of \$165,000)**

A condition assessment was conducted for all traffic signal infrastructure owned and maintained by the Town, including 11 intersections and one mid-block cross walk. Traffic signal infrastructure includes poles, luminaires, mast arms, traffic signal heads, pedestrian signal heads, pedestrian push buttons, hand holes, loop detectors, cabinets, controllers, wiring and conduit.

The traffic signal condition assessment has been used as the basis for identifying the recommended priority, scope and cost for traffic signal infrastructure improvements, which could be utilized by the Town to develop a long-term, comprehensive maintenance and capital replacement strategy.

At the September 22, 2015 Regular Meeting of Council, Council approved the recommendations (Motion RCM-319/15) of PWES Report 51/15 titled "Traffic Signal Infrastructure Assessment (2015)" where the report was adopted and Administration

was authorized to use the recommendations contained within the report to form the basis of the annual PWES Capital Works Plan.

Based on the Traffic Signal Infrastructure Assessment (2015), it is recommended that the Lesperance/McNorton intersection traffic signals be reconstructed in 2020.

In addition to this project, it is recommended that the Traffic Signal Infrastructure Reconstruction program should include the following projects subject to the timing of the Tecumseh Road CIP project:

- Lesperance Road/Tecumseh Road East
- Lesperance Road/Arbour Street
- Tecumseh Road East/Shawnee Road

➤ **2020+: Culvert Works (Structures with Spans < 3.0m)**

The 2016 Culvert Needs Study (Structures with Spans < 3.0m) had identified two (2) structures to be replaced immediately; 10 structures to be rehabilitated or replaced within a 1-5 year timeframe; and three (3) structures to be rehabilitated or replaced within a 6-10 year timeframe. The recommended culvert works are as follows:

- 2020 – Culvert No. 45, South Talbot Road (cost of \$326,000)
- 2020/2021 – Culvert No.54, Snake Lane Road (cost of \$490,000)
- 2020/2021 – Culvert No.53, Snake Lane Road (cost of \$490,000)
- 2020/2021 – Culvert No.42, Snake Lane Road (cost of \$490,000)
- 2021/2022 – Culvert No.51, 8<sup>th</sup> Concession Road (cost of \$150,000)
- 2021/2022 – Culvert No.70, 12<sup>th</sup> Concession Road (cost of \$160,000)
- 2024+ – Culvert No.48, Holden Road (cost of \$550,000)

➤ **2020 – 2021: Manning Road Improvement Project, Phases 2&3 (Cost of \$10,248,070)**

The Town completed a Class Environmental Assessment (EA) in April 2010 for improvements to the East Townline Drain (Manning Road) Storm Pump Station. The proposed upgrades to the pump station and drain enclosure along Manning Road provided an opportunity to improve this portion of Manning Road by constructing an urban cross-section that accommodates pedestrians, cyclists and urban design features to create an aesthetically pleasing gateway into Lakewood Park. The limits of the Class EA included Manning Road from Riverside Drive to St. Gregory's Road.

The Town actively pursued senior government funding and on July 8, 2011, the Ontario Minister of Finance announced a grant for financial assistance to the Town in the amount of \$6,183,333, which represented a one-third share of the total project cost of \$18.55M. The Town was able to amend the funding agreement with the Ontario Government so that the \$6.1M grant could be utilized in Phase 1, being the construction of the storm pump station and associated facilities, and the reconstruction of a section of Riverside Drive (Manning Road to Christy Lane), including the roundabout at the

Manning Road/Riverside Drive intersection. Construction of Phase 1 was completed in 2014.

At the December 13, 2016 Regular Council Meeting, Council approved the recommendations (Motion RCM-442/16) of PWES Report No. 54/16 titled "2017-2021 Public Works & Environmental Services Capital Works Plan" that authorized Administration to proceed with finalizing the engineering design for Manning Road Improvement Project, Phases 2 & 3 in 2017, and to proceed with construction in 2019 and 2020 respectively.

At the July 24, 2018 Regular Meeting of Council, Council approved the recommendations (Motion RCM-232/18) of PWES Report No. 2018-19 titled "Disaster Mitigation and Adaptation Fund Expression of Interest" that authorized Administration to submit an Expression of Interest to the federal government for funding under the Disaster Mitigation and Adaptation Fund (DMAF). Accordingly, an Expression of Interest was submitted which included the Manning Road Improvements Phases 2 & 3 projects. On October 12, 2018, Administration received confirmation that the Expression of Interest was deemed conditionally eligible to proceed to a full application for funding. Administration is now in the process of completing the full application which is due on Friday, January 11, 2019.

As noted above, it was originally planned to proceed with construction for Phases 2 & 3 in 2019 and 2020 respectively. Subject to the results of the DMAF funding application, these projects are now tentatively scheduled to proceed with construction in 2020 and 2021.

The total project cost of \$10,248,070 includes \$5,143,110 for Phase 2 and \$5,104,960 for Phase 3. Expected recoveries from the County of Essex are anticipated to be \$120,000 for a portion of the Bike Lanes (under CWATS), and \$450,000 for a portion of Manning Road reconstruction (under the Connecting Link Agreement).

➤ **2020-2021: Traffic Signal Upgrades/Maintenance** (Cost of \$92,500)

A condition assessment was conducted for all traffic signal infrastructure owned and maintained by the Town, including 11 intersections and one mid-block cross walk. Traffic signal infrastructure includes poles, luminaires, mast arms, traffic signal heads, pedestrian signal heads, pedestrian push buttons, hand holes, loop detectors, cabinets, controllers, wiring and conduit.

The traffic signal condition assessment has been used as the basis for identifying the recommended priority, scope and cost for traffic signal infrastructure improvements, which could be utilized by the Town to develop a long-term, comprehensive maintenance and capital replacement strategy.

At the September 22, 2015 Regular Meeting of Council, Council approved the recommendations (Motion RCM-319/15) of PWES Report 51/15 titled "Traffic Signal Infrastructure Assessment (2015) where the report was adopted, and authorized Administration to use the recommendations contained within the report to form the basis of the annual PWES Capital Works Plan.

Based on the Traffic Signal Infrastructure Assessment (2015), it is recommended that traffic signal upgrades/maintenance will be required at the following intersections.

- 2020 - Manning Road at Green Valley Plaza Intersection (\$20,625)
- 2020 - Tecumseh Road East and Manning Road Intersection (\$20,625)
- 2020 - Tecumseh Road East and Southfield Drive Intersection (\$21,250)
- 2021 - Manning Road and St. Gregory's Road Intersection (\$16,500)
- 2021 - Tecumseh Road East and Green Valley Plaza Intersection (\$13,500)

➤ **2020 - 2021: Riverside Drive In-line Storage Trunk Sanitary** (Cost of \$2,123,750)

In 2013, a Municipal Class Environmental Assessment titled "Class Environmental Assessment (Class EA) Environmental Screening Report for the Town of Tecumseh Sanitary Collection System Improvements, April 2013" was completed. As part of this 2013 Class EA, various alternative solutions were identified and evaluated to address the problem of basement flooding and the lack of capacity in the sanitary sewage system to accommodate future growth. Based on a comparative evaluation, an expansion and upgrading of the existing sanitary sewage collection system was identified as the preferred solution.

The functional design for the preferred solution identified a reduction in the risk of basement flooding and could accommodate new development. The recommended improvements included:

- Stage 1 (completed in 2014)
  - Lakewood Pump Station Improvements
  - Increased storage capacity – Lakewood Park Trunk Sewer
- Stage 2 (future considerations)
  - Increase storage capacity – Riverside Drive Trunk Sewer
- Stage 3 (future considerations)
  - Additional investigations and sanitary sewer modelling required on Dillon and Green Valley Drive

The Riverside Drive Trunk Sanitary Sewer project consists of replacing the existing sanitary sewer along Riverside Drive between Kensington Boulevard and Pentilly Road with an in-line storage facility. Approximately 395 metres of the existing 400mm diameter sanitary sewer will be replaced with 1500mm diameter sanitary sewer to provide remedial flooding measures to reduce sanitary sewer surcharging and reduce the risk of basement flooding due to current sanitary inflow and infiltration.

The project cost of \$2,123,750 includes \$1,375,000 for sanitary sewers and \$748,750 for road reconstruction.

Engineering design for this project is proposed to be completed in 2020 with construction proceeding in 2021.



The Government of Canada recently developed the Disaster Mitigation and Adaptation Fund (DMAF) to invest in the public infrastructure needed to mitigate the potential economic, environmental and social impacts of climate change, and strengthen resiliency to disasters triggered by natural hazards and extreme weather events. The Town submit an Expression of Interest to the federal government for funding under the DMAF that included the Riverside Drive Trunk Sanitary Sewer project. The Town's Expression of Interest was accepted and we were deemed conditionally eligible to proceed to the full application process. The Town will be proceeding with the full application process. Results of this funding application may change the proposed timelines for this project.

➤ **2020+: Zone 2 Booster Station (W-9) and Water Storage Facility (W-10)** (Cost of \$7,863,000)

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 a Water and Wastewater Master Plan Update. The purpose of the Master Plan Update was to re-examine water and wastewater infrastructure timing and costing requirements for the existing settlement areas in the Town of Tecumseh to ensure that the most cost effective infrastructure servicing strategies required to support new growth and maintain a high level of service into the future is implemented.

Through the Master Plan Update it is recommended that a second pressure zone is required for the South Service Area. Creation of a second pressure zone requires construction of the following facilities:

- W-9 - A new booster pumping station to provide adequate system pressure during peak demand conditions for existing and new growth including pressure reducing valves and/or check valves at all boundary connection points with the City of Windsor water system and zone isolation valves between the two Tecumseh pressure zones.
- W-10 - A new water storage facility to meet the long-term water storage requirements for fire protection.

Total project cost estimate is \$7,863,000 with \$2,675,000 for W-9 and \$5,188,000 for W-10. It is proposed to complete the engineering in 2020 with construction of W-9 and W-10 to follow in subsequent years as funding becomes available.

➤ **2020+: County of Essex (Initiated) Projects**

The County of Essex has a number of planned projects in the upcoming years, where the Town is obligated to meet financial contributions through cost sharing arrangements. The Town is also planning on a number of infrastructure improvements as part of these projects. As the projects are more clearly defined in the years to come, Administration will continue to communicate and negotiate with the County as to the Town's exact contribution. These projects consist of the following:

- **County Road 11/South Talbot Road (2020,Town's cost share to be negotiated)**

The County is currently completing the design of a roundabout at the County Road 11/South Talbot Road intersection. Town's cost share to be negotiated.

- **County Road 42 & County Road 43 (2020-2024+, Town cost of \$1,670,500)**

As part of the County's 25-year capacity program, County Road 42 and County Road 43 road widenings have been identified to be completed within the next couple of years. The Town's costs may consist of a cost share of traffic signal infrastructure and bike lanes, and the installation of sidewalks, multi-use trails, watermains, and sanitary sewers. Advanced engineering is recommended to be completed in 2019 for municipal services related to these County projects.

- **Westlake Drive Extension (2020, cost of \$438,500)**

The extension of Westlake Drive is a component of the County's planned advance construction works at the County Road 22/Lesperance Road intersection, the design details which continue to be the subject of discussion with the County. The Town has provided the County of Essex with a traffic study prepared by Dillon Consulting Limited which details the anticipated urban-cross section required for this road extension. The Town will be seeking to install full municipal services (storm, sanitary, watermain), for which those costs will be full recovery from the adjacent development lands.

- **County Road 19 (2021+, Town cost of \$214,500)**

The County is proposing advance construction works at the intersections of County Road 19/County Road 46 intersection and the County Road 19/County Road 34 intersection. The Town's costs are attributed to the replacement of the existing watermains.

- **2021+: Peter Cecile (Kensington) Storm Pump Station (Cost of \$6,218,000)**

In 2016 a review of the Peter Cecile (Kensington) Storm Pump Station and existing storm sewer infrastructure within the contributing drainage area was conducted. The results indicated that the pump station cannot accommodate the future projected flows from the drainage area once some of the existing streets are reconstructed to an urban (or semi-urban) cross section.

As part of the Storm Drainage Master Plan (currently underway), a further detailed analysis will be conducted on the stormwater infrastructure (including pump stations) to determine if any modifications or improvements are required. The Master Plan will also identify prioritization of recommended works based on various factors, such as their location within the system and their existing condition.

The project cost of \$6,218,000 includes \$ 5,938,000 for storm sewers and pump stations and \$280,000 for road reconstruction.

Although the Storm Drainage Master Plan has not yet been completed, Administration felt it was important to identify this project within the 5-year capital works plan as it will have an effect on the annual allocation to the storm sewer reserve fund. There is also benefit in having projects in a 'shovel ready' state in the event grant funding becomes available from upper levels of government. The timing of design and construction is contingent on the final recommendations and prioritization in the Storm Drainage Master Plan, the availability of funding, and Council approval.

- **2021 – 2022: Ure Street Sanitary Sewer Extension** (Cost of \$1,587,000, landowner recoveries approximately \$905,500)

The Ure Street Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8<sup>th</sup> Concession Road sanitary service area. This project includes the extension of a sanitary sewer along Ure Street from Delduca Drive to North Talbot Road. It is proposed to carry out the engineering in 2021 and to proceed with construction in 2022.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$905,500 and will be refined once the By-Law for the 8<sup>th</sup> Concession Road sanitary service area is completed. The project cost of \$1,587,000 includes \$509,000 for sanitary sewers, \$667,000 for road reconstruction and \$411,000 for storm sewers.

- **2021 – 2022: Lesperance Road Trail** (Cost of \$864,500)

As part of the Tecumseh Transportation Master Plan (TMP), a network of key Active Transportation facilities was developed to ensure connectivity in the larger network. This network has been coordinated with plans and recommendations from the County Wide Active Transportation Study (CWATS) and the City of Windsor Bicycle Use Master Plan (BUMP). The expansion of the Active Transportation Network is a municipal focus for several reasons, including: it promotes Environmental Sustainability, it promotes personal Health, and it promotes Equity in transportation service.

The Lesperance Road segment from County Road 22 to County Road 42 has been identified to have both On-Road and Off-Road facilities. The Off-Road facility will consist of a 2.4-metre wide asphalt trail with an approximate length of 3,075-metres.

- **2022: Bridge and Culvert Conditions Assessment (Structures with Spans < 3.0m)** (Cost of \$75,000)

At the November 8, 2016 Regular Meeting of Council, Council approved the recommendations (Motion RCM-384/16) of PWES Report No. 39/16 titled "2016 Culvert Needs Study (Structures with Spans < 3.0m)" that authorized Administration to use the recommendations contained within the report to form the basis of the annual PWES Capital Works Plan.

The "2016 Culvert Needs Study (Structures with Spans < 3.0m)" is being used by Administration to prioritize culvert works. It is recommended that a Bridge and Culvert Conditions Assessment be completed approximately every 5 to 6 years for structures with Spans < 3.0m. The recommended 2022 update will include the following:

- Condition assessment of the existing culvert;
- Signage and roadside safety review;
- Review site conditions and possible extensions of the culverts for roadside safety;
- Coordination with the Town's Drainage Superintendent as to active drainage reports;
- Recommend a schedule for repairs and replacements;
- Prepare detailed costs estimates for the recommended works

➤ **2022: Sanitary Pump Station Improvements** (Cost of \$30,000)

The Town owns and operates four (4) sanitary pump stations. The 2016 Pump & Metering Station Condition Assessment had identified 'Immediate Repairs' and '10 Year Repairs' for the sanitary pump stations. The proposed 2022 works consist of improvements at the Sylvestre Sanitary Pump Station, where the pump and structural supports will be replaced.

➤ **2022 – 2023: O'Neil Street Sanitary Sewer Extension** (Cost of \$1,794,000, landowner recoveries \$740,000)

The O'Neil Street Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8<sup>th</sup> Concession Road sanitary service area. This project includes the extension of a sanitary sewer along O'Neil Street from Delduca Drive to North Talbot Road. It is proposed to carry out the engineering in 2022 and to proceed with construction in 2023.

- Estimated recoveries from landowners for the sanitary sewers would be approximately \$740,000, and will be refined once the By-Law for the 8<sup>th</sup> Concession Road sanitary service area is completed. The project cost of \$1,794,000 includes \$566,000 for sanitary sewers, \$772,000 for road reconstruction and \$456,000 for storm sewers.
- 2022+: West Tecumseh Trunk Sewer & Watermain from County Road 22 to CP Railway (WW-1A & W-1A) & Diversion Sewer South of CP Railway (WW-2)** (Cost of \$5,436,000)

The West Tecumseh Trunk Sewer (WW-1A) is proposed to provide direct servicing for new development lands within the Tecumseh Hamlet West Planning Area (north of the CP Railway), and will provide an outlet for existing and new growth south of CP Railway. Based on preliminary design, a 1200mm diameter sewer is required. In order to comply with the Wastewater Agreement between the City of Windsor and the Town of Tecumseh, a flow measurement facility will be required on this trunk sewer prior to discharging to the outlet sewer on County Road 22.

In order to alleviate system surcharges in the Lesperance Road trunk sewer between CP Railway and County Road 22, a new diversion sewer (WW-2) will be constructed through the Hydro corridor south of CP Railway from the West Tecumseh Trunk Sewer to the trunk sewer on St. Alphonse Avenue. All flows from the St. Alphonse sewer will be diverted to the new outlet.

Total project cost estimate is \$5,436,000 with \$2,970,000 for WW-1A, \$1,553,000 for W-1A and \$913,000 for WW-2. It is proposed to complete the engineering in 2020, construction of WW-1A, W-1A and WW-2 to follow in subsequent years as funding becomes available.

**Note:** This information is based on the 2008 Water and Wastewater Master Plan Update and will be refined upon completion of the on-going update of the Water and Wastewater Master Plan that is schedule to be finalized in early 2019.

➤ **2022 – 2023: Riverside Drive Pathway – Arlington to Kensington (Cost of \$156,000)**

As part of the Tecumseh Transportation Master Plan (TMP), a network of key Active Transportation facilities was developed to ensure connectivity in the larger network. This network has been coordinated with plans and recommendations from the County Wide Active Transportation Study (CWATS) and the City of Windsor Bicycle Use Master Plan (BUMP). The expansion of the Active Transportation Network is a municipal focus for several reasons, including: it promotes Environmental Sustainability, it promotes personal Health, and it promotes Equity in transportation service.

The Riverside Drive Pathway from Arlington to Kensington will consist of a 2.4-metre wide asphalt trail with an approximate length of 400-metres.

➤ **2023+: Moynahan Street, Henin Drive and Regal Drive Sanitary Sewer Extension (Cost of \$2,194,000, landowner recoveries \$990,000)**

The Moynahan Street, Henin Drive and Regal Drive Sanitary Sewer Extensions are a continuation of the sanitary sewer servicing within the 8<sup>th</sup> Concession Road sanitary service area. It is proposed to carry out the engineering in 2023 and to proceed with construction in 2024.

Estimated recoveries from landowners for the sanitary sewers would be approximately \$990,000 and will be refined once the By-Law for the 8<sup>th</sup> Concession Road sanitary service area is completed. The project cost of \$2,194,000 includes \$692,000 for sanitary sewers, \$944,000 for road reconstruction and \$558,000 for storm sewers.

## Consultations

Financial Services  
Planning & Building Services

## Financial Implications

The capital expenditures proposed for 2019 totals just over \$13.9M with an additional \$49.9M projected over the remaining four years of the five-year capital works plan. Details of expenditures by project and year are included in the tables.

Generally speaking funding for most projects is covered through lifecycle, grants and rates however the following categories are projected to be in deficit positions:

### **Bridges Lifecycle Reserve**

This reserve estimates a small deficit for 2019 and 2020 in the \$50,000 to \$150,000 range. However, in 2021 three (3) culverts are planned to be replaced at a cost of \$1,344,000 which causes the deficit to exceed \$1,100,000. The annual \$390,000 allocation will likely be sufficient on a longer-term basis but it is not enough to fund the existing backlog of work that was required over the previous number of years.

Prior to 2021, Administration will consider options to offset the deficit including reallocating funds from the Road LC, borrowing, grants, increasing the annual allocation and stretching out the works over a longer period.

### **Storm Sewer Lifecycle Reserve**

The reserve is expected to be in a \$1,700,000 deficit position by the end of 2020 largely as a result of the \$1,668,000 required for Manning Road/ETLD Drain Relocation – Phase 2 project.

A major contributor to the deficit is that the Town has significantly enhanced storm infrastructure with funding coming from Storm Sewer LC whereas a portion of the funds should come from new infrastructure funds. Examples include Brighton and Manning Roads pump stations being enhanced, over what was previously in place, along with certain road projects in the St. Clair Beach and Oldcastle areas where the storm system is being enhanced. Deficits have been manageable using grants and additional funding provided by the Roads LC.

The Stormwater Master Plan is nearing completion. Preliminary results indicate that millions of dollars will be required over the next 20 years. The Scully & St. Mark's Storm Pump Station has been identified in the five-year capital works plan at an estimated project cost of almost \$13,000,000 of which \$700,000 has been allocated in 2019 for engineering to have the project in a "shovel ready" state in the event grants become available. The timing of design and construction is contingent on the final recommendations of the Master Plan, the availability of funding, and Council approval.

Discussions are on-going with regard to functional servicing for various developments that are being considered within the Town that may require advancement of Capital infrastructure. As proposals are brought forward, Administration will report back to Council with project details and potential financial implications.

Based on the current annual allocation of just over \$900,000, implementation of the Master Plan projects will require significant funding enhancements. Administration continues to look at a range of funding sources including debt, grants, increased lifecycle allocations etc. In the near term OCIF grant allocations have been preliminarily earmarked for storm sewer purposes and will be banked until an implementation plan is developed coming out of the master planning process.

### **Wastewater Sewers Reserve Fund**

This reserve fund continues to be in a deficit position, 2018 estimated to be \$4,688,000. Lack of sustained growth has meant the Town has had to fund infrastructure for longer

than originally anticipated. In addition, the Town expended \$11.9 million funding between 2011 and 2017 for trunk sanitary sewer construction for the 8th Concession Road sanitary service area. Local sewers are scheduled to be constructed over the next few years, which should result in significant recoveries to help reduce the deficit.

Administration is investigating at debt funding and other options in order to address the cash flow issues facing the wastewater infrastructure system.

The Town is updating its development charges study which includes dealing with a deficit in the reserve fund which will be combined with the above matter to develop a strategy to deal with this issue.

For purposes of putting together this PWES Capital Plan, Administration has assumed that new sidewalk and CWATS projects would be funded by the Infrastructure Reserve. Neither the Sidewalk LC nor the Trail LC annual allocations of \$74,000 and \$50,000 respectively allow for any significant new infrastructure. Administration continues to work at refining estimates for new infrastructure requirements to be funded from the Infrastructure LC as well as other methods of financing. Additional analysis will be brought before Council as these works continue.

Projected Lifecycle Reserve and Reserve Fund balances are provided in attached schedules.

### Link to Strategic Priorities

Applicable	2017-18 Strategic Priorities
<input checked="" type="checkbox"/>	Make the Town of Tecumseh an even better place to live, work and invest through a shared vision for our residents and newcomers.
<input checked="" type="checkbox"/>	Ensure that the Town of Tecumseh’s current and future growth is built upon the principles of sustainability and strategic decision-making.
<input type="checkbox"/>	Integrate the principles of health and wellness into all of the Town of Tecumseh’s plans and priorities.
<input checked="" type="checkbox"/>	Steward the Town’s “continuous improvement” approach to municipal service delivery to residents and businesses.
<input type="checkbox"/>	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:

John Henderson, P.Eng.  
Manager Engineering Services

Reviewed by:

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

Reviewed by:

Luc Gagnon, CPA, CA, BMath  
Director Financial Services & Treasurer

Reviewed by:

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

Recommended by:

Tony Haddad, MSA, CMO, CPFA  
Chief Administrative Officer

<b>Attachment Number</b>	<b>Attachment Name</b>
1	Capital Project Estimates 2019 – November 29, 2018
2	LCRoads2019 CC2 1500
3	LCBridges2019 CC2 1660
4	LCSidewalks2019 CC2 1550



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<b>Attachment Number</b>	<b>Attachment Name</b>
5	LCStorm2019 CC2 1650
6	RFSanitary2019 CC2 2550
7	RFSanitary2019 CC2 2560
8	RFWater2019 CC2 2520
9	RFWater2019 CC2 2530
10	RInfrastructure2019

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Roads</b>											
Paving	\$ 7,775,000	\$ -	\$ -	\$ 7,775,000	\$ 1,775,000	\$ 1,300,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Traffic Signal Controller Upgrade (w/ County)	\$ 150,000	\$ -	\$ -	\$ 150,000		\$ 150,000					
PW Yard (North) Expansion/Improvements	\$ 30,000			\$ 30,000		\$ 30,000					
Road Line Painter	\$ 30,000	\$ -	\$ -	\$ 30,000		\$ 30,000					
Traffic Calming Guideline Study	\$ -	\$ 20,000	\$ -	\$ 20,000		\$ 20,000					
Traffic Signal Upgrades/Maintenance	\$ 83,000	\$ 12,450	\$ 8,300	\$ 103,750			\$ 62,500	\$ 30,000			
Traffic Signal Reconstruction (Riverside/Lesperance)	\$ 105,000	\$ 30,000	\$ 5,300	\$ 140,300	\$ 140,300						
Traffic Signal Reconstruction (Lesperance/McNorton)	\$ 140,250	\$ 24,750	\$ -	\$ 165,000			\$ 165,000				
Tecumseh Road CIP - Phase 1	\$ 10,131,900	\$ 1,665,360	\$ 946,000	\$ 12,743,260	\$ 71,492	\$ 450,000					
Tecumseh Road CIP - Phase 2	\$ 5,579,980	\$ 846,540	\$ 538,020	\$ 6,964,540	\$ 10,298	\$ 78,000					
Tecumseh Road CIP - Phase 3	\$ 2,930,130	\$ 445,078	\$ 282,870	\$ 3,658,078							
Tecumseh Road CIP - Phase 4	\$ 3,027,950	\$ 459,522	\$ 292,050	\$ 3,779,522							
Tecumseh Road CIP - Phase 5	\$ 1,742,250	\$ 271,418	\$ 172,500	\$ 2,186,168							
Manning Road/ETLD Drain Relocation - Phase 2	\$ 617,500	\$ 96,555	\$ 18,525	\$ 732,580	\$ 50,000		\$ 682,580				
Manning Road Reconstruction - Phase 3	\$ 4,047,500	\$ 600,235	\$ 121,425	\$ 4,769,160	\$ 180,000			\$ 4,589,160			
South Talbot Road Reconstruction	\$ 2,039,500	\$ 189,000	\$ 102,000	\$ 2,330,500		\$ 2,240,500					
Rossi Drive Sanitary Sewer	\$ 950,000	\$ 155,000	\$ 47,500	\$ 1,152,500	\$ 1,075,000						
Sylvestre Drive Sanitary Sewer Extension	\$ 880,000	\$ 196,300	\$ 44,000	\$ 1,120,300	\$ 74,000	\$ 20,000	\$ 1,026,300				
Lesperance Road Bike Lanes	\$ 100,000	\$ 10,000	\$ -	\$ 110,000		\$ 110,000					
Tecumseh/Lacasse Intersection Improvements	\$ 365,000	\$ 77,000	\$ 36,500	\$ 479,000	\$ 15,000						
Brighton Road Traffic Circle Review	\$ -	\$ 32,000	\$ -	\$ 32,000		\$ 32,000					
Roads Needs Study	\$ -	\$ 63,000	\$ -	\$ 63,000		\$ 63,000					\$ 65,000
Scully & St Mark's Storm PS/Riverside Drive	\$ 615,000	\$ 87,200	\$ 61,500	\$ 764,000		\$ 43,600		\$ 720,400			
CR46/Webster/Laval Sanitary Sewer Exten. (LRPCP)	\$ 880,000	\$ 141,500	\$ 44,000	\$ 1,065,500		\$ 120,750	\$ 944,750				
Delduca Drive Sanitary Sewer (LRPCP)	\$ 1,000,000	\$ 184,900	\$ 50,000	\$ 1,234,900		\$ 92,450		\$ 1,142,450			
Riverside Drive In-line Storage Trunk Sanitary	\$ 575,000	\$ 116,250	\$ 57,500	\$ 748,750			\$ 58,125	\$ 690,625			
Kensington Storm PS *	\$ 200,000	\$ 60,000	\$ 20,000	\$ 280,000				\$ 30,000			\$ 250,000
Ure Street Sanitary Sewer (LRPCP)	\$ 533,900	\$ 80,100	\$ 53,400	\$ 667,000				\$ 40,000	\$ 627,000		
O'Neil Street Sanitary Sewer (LRPCP)	\$ 617,500	\$ 92,600	\$ 61,800	\$ 772,000				\$ 46,300	\$ 725,700		
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	\$ 755,300	\$ 113,300	\$ 75,500	\$ 944,000					\$ 56,650	\$ 887,350	
Oldcastle Road Sanitary Sewer (LRPCP)	\$ 1,150,000	\$ 172,500	\$ 115,000	\$ 1,438,000						\$ 5,000	
	\$ 48,201,660	\$ 6,415,058	\$ 3,268,690	\$ 57,886,308	\$ 3,391,090	\$ 4,780,300	\$ 3,939,255	\$ 7,492,235	\$ 2,423,700	\$ 1,782,350	\$ 2,207,350

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Sidewalks/Pathways</b>											
Sidewalk Repair Program	\$ 483,000	\$ -	\$ -	\$ 483,000	\$ 69,000	\$ 69,000	\$ 69,000	\$ 69,000	\$ 69,000	\$ 69,000	\$ 69,000
Riverside Drive Trail (Lesperance to Manning)	\$ 680,000	\$ 102,000	\$ 68,000	\$ 850,000		\$ 782,000					
Lesperance Road Trail (CR22 to CR42)	\$ 665,000	\$ 99,750	\$ 99,750	\$ 864,500				\$ 49,900	\$ 814,600		
Riverside Drive Pathway (Arlington to Kensington)	\$ 120,000	\$ 18,000	\$ 18,000	\$ 156,000					\$ 9,000	\$ 147,000	
Lesperance Road Trail (Riverside to McNorton)	\$ 350,000	\$ 52,500	\$ 52,500	\$ 455,000							\$ 26,250
CR42 / CR19 Roundabout (Sidewalks)	\$ 16,500	\$ -	\$ 2,500	\$ 19,000			\$ 19,000				
CR42: CR43 to Lesperance (Sidewalks)	\$ 352,000	\$ -	\$ 10,000	\$ 362,000					\$ 362,000		
CR42: Lesperance to CR19 (Sidewalks)	\$ 50,000	\$ -	\$ 7,500	\$ 57,500						\$ 57,500	
CR42: City Limits to CR43 (Sidewalks)	\$ 91,000	\$ -	\$ 13,700	\$ 104,700							\$ 104,700
	\$ 2,807,500	\$ 272,250	\$ 271,950	\$ 3,351,700	\$ 69,000	\$ 851,000	\$ 88,000	\$ 118,900	\$ 1,254,600	\$ 273,500	\$ 199,950

<b>CWATS Projects</b>											
CR11: Hwy 401 to NTR (Multi-Use Trail)	\$ 348,000	\$ 52,000	\$ 34,600	\$ 434,600	\$ 136,000	\$ 292,950					
CR42 / CR19 Roundabout (Bike Lanes)	\$ 1,000	\$ -	\$ -	\$ 1,000			\$ 1,000				
CR43: Banwell Diversion (Multi-Use Trail)	\$ 285,000	\$ -	\$ 57,000	\$ 342,000				\$ 342,000			
CR42: CR43 to Lesperance (Bike Lanes)	\$ 13,300	\$ -	\$ -	\$ 13,300					\$ 13,300		
CR42: Lesperance to CR19 (Bike Lanes)	\$ 4,200	\$ -	\$ -	\$ 4,200						\$ 4,200	
CR42: City Limits to CR43 (Bike Lanes)	\$ 2,000	\$ -	\$ 1,000	\$ 3,000							\$ 3,000
	\$ 653,500	\$ 52,000	\$ 92,600	\$ 798,100	\$ 136,000	\$ 292,950	\$ 1,000	\$ 342,000	\$ 13,300	\$ 4,200	\$ 3,000

<b>Bridges</b>											
Bridge & Culvert Condition Assessment (<3m Span)	\$ -	\$ 75,000	\$ -	\$ 75,000					\$ 75,000		
Bridge & Culvert Needs Study (>3m Span)	\$ -	\$ 108,000	\$ -	\$ 108,000	\$ 32,000		\$ 36,000		\$ 36,000		\$ 36,000
Culvert #46: South Talbot Road	\$ 290,500	\$ 90,000	\$ 30,000	\$ 410,500		\$ 370,500					
Culvert #47: South Talbot Road	\$ 131,500	\$ 50,000	\$ 14,000	\$ 195,500		\$ 175,500					
Culvert #35: Rossi Drive	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 10,000						
Sullivan Creek at 12th Concession (1004)	\$ 155,000	\$ 87,500	\$ 7,800	\$ 250,300	\$ 43,000	\$ 207,300					
Townline Road Drain at 6th Concession Road (1014)	\$ 155,000	\$ 87,500	\$ 7,800	\$ 250,300	\$ 43,000	\$ 207,300					
Merrick Creek at 8th Concession Road (1013)	\$ 155,000	\$ 87,500	\$ 7,800	\$ 250,300	\$ 43,000	\$ 207,300					
Culvert #45: South Talbot Road (CR11/STR Works)	\$ 250,000	\$ 38,000	\$ 38,000	\$ 326,000			\$ 326,000				
Culvert #42: Snake Lane Road	\$ 400,000	\$ 70,000	\$ 20,000	\$ 490,000			\$ 42,000	\$ 448,000			
Culvert #53: Snake Lane Road	\$ 400,000	\$ 70,000	\$ 20,000	\$ 490,000			\$ 42,000	\$ 448,000			
Culvert #54: Snake Lane Road	\$ 400,000	\$ 70,000	\$ 20,000	\$ 490,000			\$ 42,000	\$ 448,000			
Culvert #51: 8th Concession Road	\$ 80,000	\$ 60,000	\$ 10,000	\$ 150,000				\$ 30,000	\$ 120,000		
Culvert #70: 12th Concession Road	\$ 85,000	\$ 60,000	\$ 15,000	\$ 160,000				\$ 30,000	\$ 130,000		
Culvert #48: Holden Road	\$ 422,000	\$ 64,000	\$ 64,000	\$ 550,000							\$ 32,000
	\$ 3,214,000	\$ 1,073,500	\$ 297,400	\$ 4,584,900	\$ 171,000	\$ 1,167,900	\$ 488,000	\$ 1,404,000	\$ 361,000	\$ -	\$ 68,000

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Watermains</b>											
Water & Wastewater Master Plan Update (2016)	\$ -	\$ 57,500	\$ -	\$ 57,500	\$ 50,000	7500					
Tecumseh Road CIP - Phase 1	\$ 430,000	\$ 92,520	\$ 43,000	\$ 565,520							
Tecumseh Road CIP - Phase 2	\$ 298,900	\$ 47,030	\$ 29,890	\$ 375,820							
Tecumseh Road CIP - Phase 3	\$ 157,150	\$ 24,727	\$ 15,715	\$ 197,592							
Tecumseh Road CIP - Phase 4	\$ 162,250	\$ 25,529	\$ 16,225	\$ 204,004							
Tecumseh Road CIP - Phase 5	\$ -	\$ -	\$ -	\$ -							
Water Metering Facilities Repairs	\$ 85,000	\$ -	\$ -	\$ 85,000	\$ 85,000						
Mack Court Watermain Replacement	\$ 200,645	\$ 44,105	\$ 10,035	\$ 254,790	\$ 239,790						
Lacasse Park Watermain Replacement	\$ 290,820	\$ 59,830	\$ 14,540	\$ 365,190	\$ 350,190						
Tecumseh Road Watermain Abandonment	\$ 183,520	\$ 44,665	\$ 9,175	\$ 237,360	\$ 222,360						
Alden Crescent Watermain Replacement	\$ 130,835	\$ 31,735	\$ 6,545	\$ 169,120	\$ 154,120						
Hwy#3/Roscon Watermain Interconnection	\$ 131,100	\$ 32,775	\$ 6,555	\$ 170,430	\$ 155,430						
Rossi Drive Sanitary Sewer	\$ 35,000	\$ 25,000	\$ -	\$ 60,000	\$ 35,000						
Manning Road/ETLD Drain Relocation - Phase 2	\$ 373,000	\$ 58,325	\$ 11,190	\$ 442,520			\$ 417,520				
County Road 11 (North) Sanitary Sewer	\$ -	\$ -	\$ -	\$ -							
Hwy#3/Walker Rd Watermain Replacement	\$ 1,700,000	\$ 300,000	\$ 68,000	\$ 2,068,000	\$ 60,000	\$ 74,600	\$ 1,933,400				
Anode Protection Program	\$ 375,000	\$ -	\$ -	\$ 375,000	\$ 375,000						
SCADA Software/Server/Nodes Update	\$ 73,500	\$ -	\$ -	\$ 73,500	\$ 73,500						
Water Meter Reader System Update	\$ 15,000	\$ -	\$ -	\$ 15,000	\$ 15,000						
Westlake Drive - San, Stm, Water	\$ 85,000	\$ 12,750	\$ 12,750	\$ 110,500			\$ 110,500				
Water Tower Internal Lining Replacement	\$ 470,000	\$ -	\$ -	\$ 470,000		\$ 470,000					
Water Loss Audit	\$ -	\$ 15,000	\$ -	\$ 15,000		\$ 15,000					
CR46/Webster/Laval Sanitary Sewer Exten. (LRPCP)	\$ 1,000,000	\$ 160,800	\$ 50,000	\$ 1,210,800		\$ 80,400	\$ 1,130,400				
Delduca Drive Sanitary Sewer (LRPCP)	\$ 60,000	\$ 11,100	\$ 3,000	\$ 74,100		\$ 5,550		\$ 68,550			
CR42 & CR43 Advanced Engineering	\$ -	\$ 25,000	\$ -	\$ 25,000		\$ 25,000					
CR42 / CR19 Roundabout - Water & Sanitary	\$ 225,000	\$ 33,750	\$ 22,500	\$ 281,000			\$ 281,000				
Zone 2 Booster Station (W-9)	\$ 2,140,000	\$ 321,000	\$ 214,000	\$ 2,675,000			\$ 360,500				\$ 2,314,500
Zone 2 Water Storage Facility (W-10)	\$ 4,150,000	\$ 622,500	\$ 415,000	\$ 5,188,000			\$ 611,250				\$ 4,576,750
CR19 @ CR46 Advanced Construction	\$ 125,000	\$ 18,750	\$ 18,750	\$ 162,500				\$ 162,500			
West Tecumseh Trunk Watermain (W-1A)	\$ 1,150,000	\$ 230,000	\$ 172,500	\$ 1,553,000				\$ 115,000			\$ 1,438,000
CR19 @ CR34 Advanced Construction	\$ 40,000	\$ 6,000	\$ 6,000	\$ 52,000				\$ 52,000			
CR42: Lesperance to CR19 - Watermain	\$ 320,000	\$ 48,000	\$ 32,000	\$ 400,000						\$ 400,000	
	\$ 14,406,720	\$ 2,348,391	\$ 1,177,370	\$ 17,933,246	\$ 1,815,390	\$ 678,050	\$ 4,844,570	\$ 231,050	\$ 167,000	\$ 400,000	\$ 8,329,250

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Wastewater Projects</b>											
Water & Wastewater Master Plan Update (2016)	\$ -	\$ 57,500	\$ -	\$ 57,500	\$ 50,000	\$ 7,500					
Tecumseh Road CIP - Phase 1	\$ 400,000	\$ 92,520	\$ 40,000	\$ 532,520							
Tecumseh Road CIP - Phase 2	\$ 298,900	\$ 47,030	\$ 29,890	\$ 375,820							
Tecumseh Road CIP - Phase 3	\$ 157,150	\$ 24,727	\$ 15,715	\$ 197,592							
Tecumseh Road CIP - Phase 4	\$ 162,250	\$ 25,529	\$ 16,225	\$ 204,004							
Tecumseh Road CIP - Phase 5	\$ -	\$ -	\$ -	\$ -							
Sanitary Sewer Rehabilitation (I&I Removal) - Ph1&2	\$ 3,637,824	\$ -	\$ -	\$ 3,637,824	\$ 2,827,324						
Sanitary Sewer Rehabilitation (I&I Removal) - Ph3	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000		\$ 3,000,000					
Manning Road/ETLD Drain Relocation - Phase 2	\$ 94,300	\$ 14,750	\$ 2,830	\$ 111,880			\$ 91,880				
Rossi Drive Sanitary Sewer	\$ 450,000	\$ 85,000	\$ 22,500	\$ 557,500	\$ 515,000						
County Road 11 (North) Sanitary Sewer	\$ 875,000	\$ 172,000	\$ 105,000	\$ 1,152,000	\$ 75,000	\$ 952,000					
Sylvestre Drive Sanitary Sewer Extension	\$ 600,000	\$ 132,000	\$ 30,000	\$ 762,000	\$ 109,200	\$ 77,600	\$ 575,200				
Pump Station Emergency Response Plan	\$ -	\$ 35,000	\$ -	\$ 35,000	\$ 35,000						
SCADA Software/Server/Nodes Update	\$ 26,250	\$ -	\$ -	\$ 26,250	\$ 26,250						
Manhole Restoration Program	\$ 50,000	\$ -	\$ -	\$ 50,000		\$ 50,000					
Sylvestre Drive Sanitary PS Improvements	\$ 45,000	\$ -	\$ -	\$ 45,000		\$ 15,000		\$ 30,000			
Lakewood Sanitary PS Improvements	\$ 7,500	\$ -	\$ -	\$ 7,500		\$ 7,500					
Sanitary Metering Station Repairs	\$ 10,000	\$ -	\$ -	\$ 10,000		\$ 10,000					
Westlake Drive - San, Stm, Water	\$ 132,000	\$ 20,000	\$ 20,000	\$ 172,000			\$ 172,000				
CR46/Webster/Laval Sanitary Sewer Exten. (LRPCP)	\$ 830,000	\$ 133,400	\$ 41,500	\$ 1,004,900		\$ 166,700	\$ 838,200				
Scully & St Mark's Storm PS/Riverside Drive	\$ 290,000	\$ 41,100	\$ 29,000	\$ 360,100		\$ 20,550		\$ 339,550			
Delduca Drive Sanitary Sewer (LRPCP)	\$ 795,000	\$ 147,000	\$ 39,750	\$ 981,800		\$ 148,500		\$ 833,300			
CR42 / CR19 Roundabout - Water & Sanitary	\$ 15,000	\$ 2,300	\$ 1,500	\$ 18,800			\$ 18,800				
Sanitary Sewer Model Update	\$ -	\$ 250,000	\$ -	\$ 250,000		\$ 250,000					
Riverside Drive In-line Storage Trunk Sanitary	\$ 1,100,000	\$ 165,000	\$ 110,000	\$ 1,375,000			\$ 82,500	\$ 1,292,500			
CR42 & CR43 Advanced Engineering	\$ -	\$ 16,000	\$ -	\$ 16,000		\$ 16,000					
Ure Street Sanitary Sewer (LRPCP)	\$ 407,500	\$ 61,100	\$ 40,800	\$ 509,000				\$ 31,000	\$ 478,000		
West Tecumseh Trunk Sanitary (WW-1A)	\$ 2,200,000	\$ 440,000	\$ 330,000	\$ 2,970,000					\$ 220,000		\$ 2,750,000
Diversion San Sewers (Intersection Rd) (WW-2)	\$ 676,000	\$ 135,200	\$ 101,400	\$ 913,000					\$ 67,600		\$ 845,400
O'Neil Street Sanitary Sewer (LRPCP)	\$ 471,300	\$ 70,700	\$ 23,600	\$ 566,000					\$ 35,350	\$ 530,650	
CR42: Lesperance to CR19 - Sanitary	\$ 40,000	\$ 6,000	\$ 4,000	\$ 50,000						\$ 50,000	
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	\$ 576,400	\$ 86,500	\$ 28,800	\$ 692,000						\$ 43,250	\$ 648,750
Oldcastle Road Sanitary Sewer (LRPCP)	\$ 1,630,000	\$ 244,500	\$ 163,000	\$ 2,037,500							\$ 5,000
	\$ 18,977,374	\$ 2,504,856	\$ 1,195,510	\$ 22,678,490	\$ 3,637,774	\$ 4,721,350	\$ 1,778,580	\$ 2,156,800	\$ 1,170,500	\$ 623,900	\$ 4,249,150

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Storm Sewers</b>											
Tecumseh Road CIP - Phase 1	\$ 700,000	\$ -	\$ 70,000	\$ 770,000	\$ 27,410						
Tecumseh Road CIP - Phase 2	\$ -	\$ -	\$ -	\$ -							
Tecumseh Road CIP - Phase 3	\$ -	\$ -	\$ -	\$ -							
Tecumseh Road CIP - Phase 4	\$ -	\$ -	\$ -	\$ -							
Tecumseh Road CIP - Phase 5	\$ -	\$ -	\$ -	\$ -							
Storm Drainage Master Plan	\$ -	\$ 600,000	\$ -	\$ 600,000	\$ 300,000						
Rossi Drive Sanitary Sewer	\$ 386,500	\$ 70,000	\$ 19,300	\$ 475,800	\$ 440,800						
Manning Road/ETLD Drain Relocation - Phase 2	\$ 1,428,600	\$ 257,383	\$ 42,850	\$ 1,728,830			\$ 1,668,830				
Manning Road Reconstruction - Phase 3	\$ 285,000	\$ 42,300	\$ 8,500	\$ 335,800				\$ 335,800			
Sylvestre Drive Sanitary Sewer Extension	\$ 15,000	\$ 3,400	\$ 750	\$ 19,150	\$ 4,200		\$ 14,950				
Pump Station Emergency Response Plan	\$ -	\$ 35,000	\$ -	\$ 35,000	\$ 35,000						
SCADA Software/Server/Nodes Update	\$ 5,250	\$ -	\$ -	\$ 5,250	\$ 5,250						
West St. Louis Storm PS - Repairs	\$ 51,000	\$ 7,650	\$ 7,650	\$ 66,300		\$ 66,300					
Lesperance Road Storm PS - Repairs	\$ 181,000	\$ 18,100	\$ 18,100	\$ 217,200	\$ 100,000	\$ 117,200					
(East) St. Louis Storm PS - Repairs	\$ 65,000	\$ 9,750	\$ 9,750	\$ 84,500		\$ 84,500					
Manhole Restoration Program	\$ 50,000	\$ -	\$ -	\$ 50,000		\$ 50,000					
Westlake Drive - San, Stm, Water	\$ 120,000	\$ 18,000	\$ 18,000	\$ 156,000			\$ 156,000				
Oldcastle Storm Drainage Master Plan	\$ -	\$ 450,000	\$ -	\$ 450,000	\$ 120,000	\$ 330,000					
CR46/Webster/Laval Sanitary Sewer Extension	\$ 30,000	\$ 4,800	\$ 1,500	\$ 36,300		\$ 2,400	\$ 33,900				
Scully & St Mark's Storm PS/Riverside Drive	\$ 10,346,000	\$ 1,466,200	\$ 1,034,600	\$ 12,846,800		\$ 733,100			\$ 12,113,700		
Delduca Drive Sanitary Sewer (LRPCP)	\$ 550,000	\$ 101,700	\$ 27,500	\$ 679,200		\$ 50,850		\$ 628,350			
Shoreline Management Plan	\$ -	\$ 210,000	\$ -	\$ 210,000			\$ 210,000				
Kensington Storm PS *	\$ 4,750,000	\$ 712,500	\$ 475,000	\$ 5,938,000				\$ 356,250			\$ 5,581,750
Ure Street Sanitary Sewer (LRPCP)	\$ 328,800	\$ 49,300	\$ 32,900	\$ 411,000				\$ 25,000	\$ 386,000		
O'Neil Street Sanitary Sewer (LRPCP)	\$ 380,300	\$ 57,000	\$ 19,000	\$ 456,000					\$ 28,500	\$ 427,500	
CR42 & CR43 Advanced Engineering	\$ -	\$ 9,000	\$ -	\$ 9,000		\$ 9,000					
CR42: Lesperance to CR19 - Storm	\$ 50,000	\$ 9,000	\$ 5,000	\$ 64,000						\$ 64,000	
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	\$ 465,100	\$ 69,800	\$ 23,300	\$ 558,000						\$ 34,900	\$ 523,100
	\$ 20,852,550	\$ 4,293,383	\$ 1,847,000	\$ 26,993,130	\$ 1,032,660	\$ 1,443,350	\$ 2,083,680	\$ 1,345,400	\$ 12,528,200	\$ 526,400	\$ 6,104,850
<b>Municipal Drains</b>											
Manning Road/ETLD Drain Relocation - Phase 2	\$ 1,735,000	\$ 340,300	\$ 52,000	\$ 2,127,300			\$ 2,022,300				
	\$ 1,735,000	\$ 340,300	\$ 52,000	\$ 2,127,300	\$ -	\$ -	\$ 2,022,300	\$ -	\$ -	\$ -	\$ -
<b>TOTAL</b>	<b>\$ 110,848,304</b>	<b>\$ 17,299,738</b>	<b>\$ 8,202,520</b>	<b>\$ 136,353,174</b>	<b>\$ 10,252,914</b>	<b>\$ 13,934,900</b>	<b>\$ 15,245,385</b>	<b>\$ 13,090,385</b>	<b>\$ 17,918,300</b>	<b>\$ 3,610,350</b>	<b>\$ 21,161,550</b>

\* Subject to final recommendations and prioritization in the Storm Drainage Master Plan, available funding, and council approval

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
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**MAJOR PROJECTS SUMMARY**

**Oldcastle - North Talbot - Sanitary Area**

Rossi Drive Sanitary Sewer	\$ 1,831,500	\$ 335,000	\$ 89,300	\$ 2,255,800	\$ 2,075,800	\$ -	\$ -	\$ -	\$ -	\$ -
County Road 11 (North) Sanitary Sewer	\$ 1,223,000	\$ 224,000	\$ 139,600	\$ 1,586,600	\$ 211,000	\$ 1,244,950	\$ -	\$ -	\$ -	\$ -
Olympia-Astor-Solar Sanitary Sewer	\$ 649,500	\$ 97,400	\$ 65,000	\$ 812,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
County Road 11 (South) Sanitary Sewer	\$ 300,000	\$ 45,000	\$ 30,000	\$ 375,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

**Oldcastle - 8th Concession - Sanitary Area**

CR46/Webster/Laval Sanitary Sewer Extension	\$ 2,740,000	\$ 440,500	\$ 137,000	\$ 3,317,500	\$ -	\$ 370,250	\$ 2,947,250	\$ -	\$ -	\$ -
Delduca Drive Sanitary Sewer (LRPCP)	\$ 2,405,000	\$ 444,700	\$ 120,250	\$ 2,970,000	\$ -	\$ 297,350	\$ -	\$ 2,672,650	\$ -	\$ -
Ure Street Sanitary Sewer (LRPCP)	\$ 1,270,200	\$ 190,500	\$ 127,100	\$ 1,587,000	\$ -	\$ -	\$ -	\$ 96,000	\$ 1,491,000	\$ -
O'Neil Street Sanitary Sewer (LRPCP)	\$ 1,469,100	\$ 220,300	\$ 104,400	\$ 1,794,000	\$ -	\$ -	\$ -	\$ -	\$ 110,150	\$ 1,683,850
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	\$ 1,796,800	\$ 269,600	\$ 127,600	\$ 2,194,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 134,800
Oldcastle Road Sanitary Sewer (LRPCP)	\$ 2,780,000	\$ 417,000	\$ 278,000	\$ 3,475,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,000

**County of Essex (Initiated) Projects**

CR11: Hwy 401 to NTR (Multi-Use Trail)	\$ 348,000	\$ 52,000	\$ 34,600	\$ 434,600	\$ 136,000	\$ 292,950	\$ -	\$ -	\$ -	\$ -
Culvert #45: South Talbot Road (CR11/STR Works)	\$ 250,000	\$ 38,000	\$ 38,000	\$ 326,000	\$ -	\$ -	\$ 326,000	\$ -	\$ -	\$ -
Westlake Drive - San, Storm, Water	\$ 337,000	\$ 50,750	\$ 50,750	\$ 438,500	\$ -	\$ -	\$ 438,500	\$ -	\$ -	\$ -
CR42 / CR19 Roundabout	\$ 257,500	\$ 36,050	\$ 26,500	\$ 319,800	\$ 120,000	\$ -	\$ 319,800	\$ -	\$ -	\$ -
CR19 @ CR46 Advanced Construction	\$ 125,000	\$ 18,750	\$ 18,750	\$ 162,500	\$ -	\$ -	\$ -	\$ 162,500	\$ -	\$ -
CR43: Banwell Diversion (Multi-Use Trail)	\$ 285,000	\$ -	\$ 57,000	\$ 342,000	\$ -	\$ -	\$ -	\$ 342,000	\$ -	\$ -
CR42: CR43 to Lesperance	\$ 365,300	\$ -	\$ 10,000	\$ 375,300	\$ -	\$ -	\$ -	\$ -	\$ 375,300	\$ -
CR19 @ CR34 Advanced Construction	\$ 40,000	\$ 6,000	\$ 6,000	\$ 52,000	\$ -	\$ -	\$ -	\$ -	\$ 52,000	\$ -
CR42: Lesperance to CR19	\$ 464,200	\$ 63,000	\$ 48,500	\$ 575,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 575,700
CR42: City Limits to CR43	\$ 93,000	\$ -	\$ 14,700	\$ 107,700	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 104,700

**TOWN OF TECUMSEH**  
**Public Works and Environmental Services**  
**2019 - 2023 Public Works & Environmental Services Capital Works Plan**

	Construction	Engineering	Contingency	Total	2018	2019	2020	2021	2022	2023	2024
<b>Other</b>											
Water & Wastewater Master Plan Update (2016)	\$ -	\$ 115,000	\$ -	\$ 115,000	\$ 100,000	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -
Manning Road/ETLD Drain Relocation - Phase 2	\$ 4,248,400	\$ 767,313	\$ 127,395	\$ 5,143,110	\$ 50,000	\$ -	\$ 4,883,110	\$ -	\$ -	\$ -	\$ -
Manning Road - Road Reconstruction - Phase 3	\$ 4,332,500	\$ 642,535	\$ 129,925	\$ 5,104,960	\$ 180,000	\$ -	\$ -	\$ 4,924,960	\$ -	\$ -	\$ -
Tecumseh Road CIP - Phase 1	\$ 11,661,900	\$ 1,850,400	\$ 1,099,000	\$ 14,611,300	\$ 98,902	\$ 450,000	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh Road CIP - Phase 2	\$ 6,177,780	\$ 940,600	\$ 597,800	\$ 7,716,180	\$ 10,298	\$ 78,000	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh Road CIP - Phase 3	\$ 3,244,430	\$ 494,532	\$ 314,300	\$ 4,053,262	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh Road CIP - Phase 4	\$ 3,352,450	\$ 510,580	\$ 324,500	\$ 4,187,530	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh Road CIP - Phase 5	\$ 1,742,250	\$ 271,418	\$ 172,500	\$ 2,186,168	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Riverside Drive Trail	\$ 680,000	\$ 102,000	\$ 68,000	\$ 850,000	\$ -	\$ 782,000	\$ -	\$ -	\$ -	\$ -	\$ -
Lesperance Road Trail (CR22 to CR42)	\$ 665,000	\$ 99,750	\$ 99,750	\$ 864,500	\$ -	\$ -	\$ -	\$ 49,900	\$ 814,600	\$ -	\$ -
Riverside Drive Pathway (Arlington to Kensington)	\$ 120,000	\$ 18,000	\$ 18,000	\$ 156,000	\$ -	\$ -	\$ -	\$ -	\$ 9,000	\$ 147,000	\$ -
Lesperance Road Trail (Riverside to McNorton)	\$ 350,000	\$ 52,500	\$ 52,500	\$ 455,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,250
Sanitary Sewer Rehabilitation (I&I Removal) - Ph1&2	\$ 3,637,824	\$ -	\$ -	\$ 3,637,824	\$ 2,827,324	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sanitary Sewer Rehabilitation (I&I Removal) - Ph3	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -	\$ -	\$ -	\$ -	\$ -
Storm Drainage Master Plan	\$ -	\$ 600,000	\$ -	\$ 600,000	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
South Talbot Road Reconstruction & Culverts	\$ 2,461,500	\$ 329,000	\$ 146,000	\$ 2,936,500	\$ -	\$ 2,786,500	\$ -	\$ -	\$ -	\$ -	\$ -
Manhole Restoration Program	\$ 100,000	\$ -	\$ -	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh/Lacasse Intersection Improvements	\$ 365,000	\$ 77,000	\$ 36,500	\$ 479,000	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Mack Court Watermain Replacement	\$ 200,645	\$ 44,105	\$ 10,035	\$ 254,790	\$ 239,790	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lacasse Park Watermain Replacement	\$ 290,820	\$ 59,830	\$ 14,540	\$ 365,190	\$ 350,190	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tecumseh Road Watermain Abandonment	\$ 183,520	\$ 44,665	\$ 9,175	\$ 237,360	\$ 222,360	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Alden Crescent Watermain Replacement	\$ 130,835	\$ 31,735	\$ 6,545	\$ 169,120	\$ 154,120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy#3/Roscon Watermain Interconnection	\$ 131,100	\$ 32,775	\$ 6,555	\$ 170,430	\$ 155,430	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hwy#3/Walker Rd Watermain Replacement	\$ 1,700,000	\$ 300,000	\$ 68,000	\$ 2,068,000	\$ 60,000	\$ 74,600	\$ 1,933,400	\$ -	\$ -	\$ -	\$ -
Anode Protection Program	\$ 375,000	\$ -	\$ -	\$ 375,000	\$ 375,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA Software/Server/Nodes Update	\$ 105,000	\$ -	\$ -	\$ 105,000	\$ 105,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Tower Internal Lining Replacement	\$ 470,000	\$ -	\$ -	\$ 470,000	\$ -	\$ 470,000	\$ -	\$ -	\$ -	\$ -	\$ -
Water Loss Audit	\$ -	\$ 15,000	\$ -	\$ 15,000	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -
Zone 2 Booster Station (W-9)	\$ 2,140,000	\$ 321,000	\$ 214,000	\$ 2,675,000	\$ -	\$ -	\$ 360,500	\$ -	\$ -	\$ -	\$ 2,314,500
Zone 2 Water Storage Facility (W-10)	\$ 4,150,000	\$ 622,500	\$ 415,000	\$ 5,188,000	\$ -	\$ -	\$ 611,250	\$ -	\$ -	\$ -	\$ 4,576,750
Sylvestre Drive Sanitary Sewer Extension	\$ 1,495,000	\$ 331,700	\$ 74,750	\$ 1,901,450	\$ 187,400	\$ 97,600	\$ 1,616,450	\$ -	\$ -	\$ -	\$ -
Sanitary Sewer Model Update	\$ -	\$ 250,000	\$ -	\$ 250,000	\$ -	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ -
Riverside Drive In-line Storage Trunk Sanitary	\$ 1,675,000	\$ 281,250	\$ 167,500	\$ 2,123,750	\$ -	\$ -	\$ 140,625	\$ 1,983,125	\$ -	\$ -	\$ -
West St. Louis Storm PS - Repairs	\$ 51,000	\$ 7,650	\$ 7,650	\$ 66,300	\$ -	\$ 66,300	\$ -	\$ -	\$ -	\$ -	\$ -
Lesperance Road Storm PS - Repairs	\$ 181,000	\$ 18,100	\$ 18,100	\$ 217,200	\$ 100,000	\$ 117,200	\$ -	\$ -	\$ -	\$ -	\$ -
(East) St. Louis Storm PS - Repairs	\$ 65,000	\$ 9,750	\$ 9,750	\$ 84,500	\$ -	\$ 84,500	\$ -	\$ -	\$ -	\$ -	\$ -
Oldcastle Storm Drainage Master Plan	\$ -	\$ 450,000	\$ -	\$ 450,000	\$ 120,000	\$ 330,000	\$ -	\$ -	\$ -	\$ -	\$ -
Shoreline Management Plan	\$ -	\$ 210,000	\$ -	\$ 210,000	\$ -	\$ -	\$ 210,000	\$ -	\$ -	\$ -	\$ -
Scully & St Mark's Storm PS/Riverside Drive	\$ 11,251,000	\$ 1,594,500	\$ 1,125,100	\$ 13,970,900	\$ -	\$ 797,250	\$ -	\$ -	\$ 13,173,650	\$ -	\$ -
West Tecumseh Trunk Watermain (W-1A)	\$ 1,150,000	\$ 230,000	\$ 172,500	\$ 1,553,000	\$ -	\$ -	\$ -	\$ -	\$ 115,000	\$ -	\$ 1,438,000
West Tecumseh Trunk Sanitary (WW-1A)	\$ 2,200,000	\$ 440,000	\$ 330,000	\$ 2,970,000	\$ -	\$ -	\$ -	\$ -	\$ 220,000	\$ -	\$ 2,750,000
Diversion San Sewers (Intersection Rd) (WW-2)	\$ 676,000	\$ 135,200	\$ 101,400	\$ 913,000	\$ -	\$ -	\$ -	\$ -	\$ 67,600	\$ -	\$ 845,400
Kensington Storm PS *	\$ 4,750,000	\$ 712,500	\$ 475,000	\$ 6,218,000	\$ -	\$ -	\$ -	\$ 356,250	\$ -	\$ -	\$ 5,581,750



Attachment 2 - 2019 - 2023 PWES Five (5) Year Capital Works Plan

LC Road (1500)

	2019	2020	2021	2022	2023
Reserve Balance Start of Year	\$8,981,000	\$8,533,330	\$6,713,875	\$3,933,140	\$5,650,940
Budget Allocation	\$4,160,000	\$4,160,000	\$4,160,000	\$4,160,000	\$4,160,000
OMCC Grant re Lesperance Road Bike Lanes Surplus	\$80,000				
Sale of Electricity to Grid	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Grants	\$80,000				
CWATS	\$30,000		\$120,000		
County Connecting Link Agreement DC re unfinanced amounts			\$450,000		
<b>Funds Available</b>	<b>\$13,341,000</b>	<b>\$12,703,330</b>	<b>\$11,453,875</b>	<b>\$8,103,140</b>	<b>\$9,820,940</b>
<b>Committed</b>					
Lesperance Road Bike Lanes	\$110,000				
IT GIS Tech % share	\$27,370	\$27,900	\$28,500	\$28,500	\$29,100
<b>Balance Committed</b>	<b>\$137,370</b>	<b>\$27,900</b>	<b>\$28,500</b>	<b>\$28,500</b>	<b>\$29,100</b>
<b>Balance Uncommitted</b>	<b>\$13,203,630</b>	<b>\$12,675,430</b>	<b>\$11,425,375</b>	<b>\$8,074,640</b>	<b>\$9,791,840</b>
<b>Proposed</b>					
Road Paving - Asphaltting 1)	\$1,300,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Traffic Signal Controller Upgrade (with County)	\$150,000				
PW Yard (North) Expansion/Improvements	\$30,000				
Road Line Painter	\$30,000				
Brighton Road Traffic Study	\$32,000				
Traffic Calming Guideline Study	\$20,000				
Traffic Signal Upgrades/Maintenance		\$62,500	\$30,000		
Traffic Signal Reconstruct (Lesperance/McNorton)		\$165,000			
Tecumseh Road CIP Phase 1	\$450,000				
Tecumseh Road CIP Phase 2	\$78,000				
Manning Road - Phase 2 - Road Work		\$682,580			
Manning Road - Phase 2 - Drain Relocation		\$2,022,300			
Manning Road - Phase 3 - Road Reconstruction			\$4,589,160		
South Talbot Road Reconstruction	\$2,240,500				
Roads Needs Study	\$63,000				
Sylvestre Drive (Sanitary Sewer)	\$20,000	\$1,026,300			
Scully & St. Mark's Storm PS/Riverside Drive	\$43,600			\$720,400	
CR#46/Webster/Laval Sanitary Ext. (LRPCP)	\$120,750	\$944,750			
Delduca Drive (Sanitary Sewer LRPCP)	\$92,450		\$1,142,450		
Riverside Drive In-Line Storage Trunk Sanitary		\$58,125	\$690,625		
Kensington Storm PS/Riverside Drive Sanitary				\$30,000	
Ure Street (Sanitary Sewer LRPCP)			\$40,000	\$627,000	
O'Neil Street Sanitary Sewer (LRPCP)				\$46,300	\$725,700
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)					\$56,650
CR#11/South Talbot Roundabout \$ unknown					
<b>Balance Proposed</b>	<b>\$4,670,300</b>	<b>\$5,961,555</b>	<b>\$7,492,235</b>	<b>\$2,423,700</b>	<b>\$1,782,350</b>
<b>Balance Available</b>	<b>\$8,533,330</b>	<b>\$6,713,875</b>	<b>\$3,933,140</b>	<b>\$5,650,940</b>	<b>\$8,009,490</b>

Notes:

1) General allowance for asphaltting

Attachment 3 - 2019 - 2023 PWES Five (5) Year Capital Works Plan

LC Bridges (1660)

	2019	2020	2021	2022	2023
Reserve Balance Start of Year	\$ 731,100	\$ (46,800)	\$ (144,800)	\$ (1,158,800)	\$ (1,129,800)
Budget Allocation	\$ 390,000	\$ 390,000	\$ 390,000	\$ 390,000	\$ 390,000
Grant					
<b>Funds Available</b>	<b>\$ 1,121,100</b>	<b>\$ 343,200</b>	<b>\$ 245,200</b>	<b>\$ (768,800)</b>	<b>\$ (739,800)</b>
<b>Committed</b>					
<b>Balance Committed</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Balance Uncommitted</b>	<b>\$ 1,121,100</b>	<b>\$ 343,200</b>	<b>\$ 245,200</b>	<b>\$ (768,800)</b>	<b>\$ (739,800)</b>
<b>Proposed</b>					
Culvert Condition Assessment (<3m Span)				\$ 75,000	
Bridge/Culvert Needs Study (>3m)		\$ 36,000		\$ 36,000	
Culvert #46: South Talbot Road	\$ 370,500				
Culvert #47: South Talbot Road	\$ 175,500				
Sullivan Creek at 12th Concession (1004)	\$ 207,300				
Townline Road Drain at 6th Conc Rd (1014)	\$ 207,300				
Merrick Creek at 8th Concession (1013)	\$ 207,300				
Culvert #45: South Talbot (CR11/STR Works)		\$ 326,000			
Culvert #42: Snake Lane Road		\$ 42,000	\$ 448,000		
Culvert #53: Snake Lane Road		\$ 42,000	\$ 448,000		
Culvert #54: Snake Lane Road		\$ 42,000	\$ 448,000		
Culvert #51: 8th Concession			\$ 30,000	\$ 120,000	
Culvert #70: 12th Concession			\$ 30,000	\$ 130,000	
<b>Balance Proposed</b>	<b>\$ 1,167,900</b>	<b>\$ 488,000</b>	<b>\$ 1,404,000</b>	<b>\$ 361,000</b>	<b>\$ -</b>
<b>Balance Available</b>	<b>\$ (46,800)</b>	<b>\$ (144,800)</b>	<b>\$ (1,158,800)</b>	<b>\$ (1,129,800)</b>	<b>\$ (739,800)</b>

Attachment 4 - 2019 - 2023 PWES Five (5) Year Capital Works Plan

LC Sidewalk (1550)

	2019	2020	2021	2022	2023
Reserve Balance Start of Year	\$233,800	\$238,800	\$243,800	\$248,800	\$253,800
Budget Allocation	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000
<b>Funds Available</b>	<b>\$307,800</b>	<b>\$312,800</b>	<b>\$317,800</b>	<b>\$322,800</b>	<b>\$327,800</b>
<b>Committed</b>					
<b>Balance Committed</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Balance Uncommitted</b>	<b>\$307,800</b>	<b>\$312,800</b>	<b>\$317,800</b>	<b>\$322,800</b>	<b>\$327,800</b>
<b>Proposed</b>					
Sidewalk repair program 1)	\$69,000	\$69,000	\$69,000	\$69,000	\$69,000
<b>Balance Proposed</b>	<b>\$69,000</b>	<b>\$69,000</b>	<b>\$69,000</b>	<b>\$69,000</b>	<b>\$69,000</b>
<b>Balance Available</b>	<b>\$238,800</b>	<b>\$243,800</b>	<b>\$248,800</b>	<b>\$253,800</b>	<b>\$258,800</b>

Notes:

1) General allowance

**Attachment 5 - 2019 - 2023 PWES Five (5) Year Capital Works Plan**

**LC Storm Sewer (1650)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Reserve Balance Start of Year	\$148,600	(\$547,050)	(\$1,728,030)	(\$2,170,730)	(\$13,796,230)
Budget Allocation	\$902,700	\$902,700	\$902,700	\$902,700	\$902,700
<b>Funds Available</b>	<b>\$1,051,300</b>	<b>\$355,650</b>	<b>(\$825,330)</b>	<b>(\$1,268,030)</b>	<b>(\$12,893,530)</b>
<b>Committed</b>					
Pump Station Emergency Response Plan	\$35,000				
Oldcastle Storm Drainage Master Plan	\$120,000				
<b>Balance Committed</b>	<b>\$155,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Balance Uncommitted</b>	<b>\$896,300</b>	<b>\$355,650</b>	<b>(\$825,330)</b>	<b>(\$1,268,030)</b>	<b>(\$12,893,530)</b>
<b>Proposed</b>					
West St. Louis Storm PS Repairs	\$66,300				
Lesperance Road Storm PS Repairs	\$117,200				
East St. Louis Storm PS Repairs	\$84,500				
Manhole Restoration Program	\$50,000				
Manning Road/ETLD Drain Relocation - Phase 2		\$1,668,830			
Manning Road Reconstruction - Phase 3			\$335,800		
Sylvestre Drive Sanitary Sewer Extension		\$14,950			
Westlake Drive - Sanitary/Storm/Water		\$156,000			
CR#46/Webster/Laval Sanitary Ext. (LRPCP)	\$2,400	\$33,900			
Oldcastle Storm Drainage Master Plan	\$330,000				
Scully & St. Mark's Storm PS/Riverside Drive	\$733,100			\$12,113,700	
Delduca Drive (LRPCP)	\$50,850		\$628,350		
Shoreline Management Plan		\$210,000			
Kensington Storm PS/Riverside Drive Sanitary			\$356,250		
Ure Street (Sanitary LRPCP)			\$25,000	\$386,000	
O'Neil Street Sanitary Sewer (LRPCP)				\$28,500	\$427,500
CR42:CR43 Advance Engineering	\$9,000				
CR42: Lesperance to CR19 - Sanitary					\$64,000
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)					\$34,900
<b>Balance Proposed</b>	<b>\$1,443,350</b>	<b>\$2,083,680</b>	<b>\$1,345,400</b>	<b>\$12,528,200</b>	<b>\$526,400</b>
<b>Balance Available</b>	<b>(\$547,050)</b>	<b>(\$1,728,030)</b>	<b>(\$2,170,730)</b>	<b>(\$13,796,230)</b>	<b>(\$13,419,930)</b>

Attachment 6 - 2019 - 2023 PWES Five (5) Year Capital Works Plan

**RF Wastewater Sewers (2550)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Reserve Balance Start of Year	(\$3,047,500)	(\$4,012,705)	(\$1,828,540)	(\$969,641)	(\$1,010,541)
Estimated Allocation	\$1,841,499	\$1,847,599	\$1,956,599	\$1,970,000	\$1,990,000
Estimated Interest	(\$91,000)	(\$120,000)	(\$55,000)	(\$29,000)	(\$30,000)
Development Charges	\$163,300	\$150,000	\$150,000	\$150,000	\$150,000
Capital Sewer Charges	\$1,133,000	\$2,529,000	\$1,050,000	(\$905,500)	\$740,000
National Disaster Mitigation Program	\$1,500,000				
<b>Funds Available</b>	<b>\$1,499,299</b>	<b>\$393,894</b>	<b>\$1,273,059</b>	<b>\$215,859</b>	<b>\$1,839,459</b>
<b>Committed</b>					
Debt payments - Lakewood Pump Station	\$200,000	\$100,000			
Debt payments - 2012 Non-DC debt	\$57,400	\$57,400	\$57,400	\$57,400	\$57,400
Debt payments - DC Debt	\$538,384	\$258,554			
IT GIS Tech % share	\$27,370	\$27,900	\$28,500	\$28,500	\$29,100
<b>Balance Committed</b>	<b>\$823,154</b>	<b>\$443,854</b>	<b>\$85,900</b>	<b>\$85,900</b>	<b>\$86,500</b>
<b>Balance Uncommitted</b>	<b>\$676,145</b>	<b>(\$49,960)</b>	<b>\$1,187,159</b>	<b>\$129,959</b>	<b>\$1,752,959</b>
<b>Proposed</b>					
Water/Wastewater Master Plan Update	\$7,500				
Sewer Model Update & Flow Monitoring	\$250,000				
Manhole Restoration Program	\$50,000				
Scully & St. Mark's Storm PS/Riverside Drive	\$20,550			\$ 339,550	
Manning Rd/ETLD Relocation - Phase 2		\$91,880			
West Tecumseh Trunk (WW-1A)				\$ 220,000	
Diversion Sewers Intersection Road (WW-2)				\$ 67,600	
County Road 11 (Walker Road)	\$952,000				
Sylvestre Drive Sanitary Extension	\$77,600	\$575,200			
Westlake Drive - Sanitary, Storm, Water		\$172,000			
County Road #46/Webster/Laval Sanitary Extension	\$166,700	\$838,200			
CR42:CR43 Advance Engineering	\$16,000				
CR42 / CR 19 Roundabout - Water & Sanitary		\$18,800			
CR42: Lesperance to CR19 - Sanitary					\$50,000
Delduca Drive (Sanitary Sewer LRPCP)	\$148,500		\$833,300		
Sanitary Sewer Rehabilitation (I&I Removal - Phase	\$3,000,000				
Riverside Drive In-Line Storage Trunk Sanitary		\$82,500	\$1,292,500		
Ure Street (LRPCP)			\$31,000	\$478,000	
O'Neil Street Sanitary Sewer (LRPCP)				\$35,350	\$530,650
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)					\$43,250
<b>Total Proposed</b>	<b>\$4,688,850</b>	<b>\$1,778,580</b>	<b>\$2,156,800</b>	<b>\$1,140,500</b>	<b>\$623,900</b>
<b>Balance Available</b>	<b>(\$4,012,705)</b>	<b>(\$1,828,540)</b>	<b>(\$969,641)</b>	<b>(\$1,010,541)</b>	<b>\$1,129,059</b>

Attachment 7 - 2019 - 2023 PWES Five (5) Year Capital Works Plan

RF Wastewater Facilities (2560)

	2019	2020	2021	2022	2023
Reserve Balance Start of Year	\$1,417,200	\$1,827,200	\$2,282,000	\$2,750,500	\$3,253,000
Estimated Allocation	\$400,000	\$400,000	\$400,000	\$450,000	\$450,000
Estimated Interest	\$42,500	\$54,800	\$68,500	\$82,500	\$97,600
<b>Funds Available</b>	<b>\$1,859,700</b>	<b>\$2,282,000</b>	<b>\$2,750,500</b>	<b>\$3,283,000</b>	<b>\$3,800,600</b>
<b>Committed</b>					
Pump Station Emergency Response Plan	\$35,000				
<b>Balance Committed</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Balance Uncommitted</b>	<b>\$1,859,700</b>	<b>\$2,282,000</b>	<b>\$2,750,500</b>	<b>\$3,283,000</b>	<b>\$3,800,600</b>
<b>Proposed</b>					
Pump & Metering Station - Sylvestre	\$15,000			\$ 30,000	
Pump & Metering Station - Lakewood	\$7,500				
Pump & Metering Station - Cedarwood/NTR	\$10,000				
<b>Total Proposed</b>	<b>\$32,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$30,000</b>	<b>\$0</b>
<b>Balance Available</b>	<b>\$1,827,200</b>	<b>\$2,282,000</b>	<b>\$2,750,500</b>	<b>\$3,253,000</b>	<b>\$3,800,600</b>

**Attachment 8 - 2019 - 2023 PWES Five (5) Year Capital Works Plan**

**RF Watermain (2520)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Reserve Balance Start of Year	\$3,019,600	\$4,453,680	\$2,458,560	\$4,109,310	\$5,987,110
Estimated Allocation	\$1,621,000	\$1,822,000	\$1,886,500	\$2,000,000	\$2,040,000
Estimated Interest	\$90,600	\$133,600	\$73,800	\$123,300	\$179,600
Development Charges	\$57,900	\$50,000	\$50,000	\$50,000	\$50,000
<b>Funds Available</b>	<b>\$4,789,100</b>	<b>\$6,459,280</b>	<b>\$4,468,860</b>	<b>\$6,282,610</b>	<b>\$8,256,710</b>
<b>Committed</b>					
Tools	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Meters	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
IT GIS Tech % share	\$27,370	\$27,900	\$28,500	\$28,500	\$29,100
<b>Balance Committed</b>	<b>\$127,370</b>	<b>\$127,900</b>	<b>\$128,500</b>	<b>\$128,500</b>	<b>\$129,100</b>
<b>Balance Uncommitted</b>	<b>\$4,661,730</b>	<b>\$6,331,380</b>	<b>\$4,340,360</b>	<b>\$6,154,110</b>	<b>\$8,127,610</b>
Rossi Drive					
Water & Wastewater Master Plan Update (2016)	\$7,500				
Manning Road/ETLD Drain Relocation - 2		\$417,520			
Hwy # 3 Watermain Replacement	\$74,600	\$1,933,400			
Westlake Drive - San, Storm, Water		\$110,500			
Water Loss Audit	\$15,000				
CR46/Webster/Laval Sanitary Sewer Ext	\$80,400	\$1,130,400			
Delduca Drive (Sanitary Sewer LRPCP)	\$5,550		\$68,550		
CR42 & CR43 Advanced Engineering	\$25,000				
CR42 / CR 19 Roundabout - Water & Sanitary		\$281,000			
CR42: Lesperance to CR19 - Watermain					\$400,000
West Tecumseh Trunk Watermain (W-1A)				\$115,000	
CR19@CR46 Advanced Construction			\$162,500		
CR19@CR34 Advanced Construction				\$52,000	
<b>Total Proposed</b>	<b>\$208,050</b>	<b>\$3,872,820</b>	<b>\$231,050</b>	<b>\$167,000</b>	<b>\$400,000</b>
<b>Balance Available</b>	<b>\$4,453,680</b>	<b>\$2,458,560</b>	<b>\$4,109,310</b>	<b>\$5,987,110</b>	<b>\$7,727,610</b>

**Attachment 9 - 2019 - 2023 PWES Five (5) Year Capital Works Plan**

**RF Water Facilities (2530)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Reserve Balance Start of Year	\$7,324,600	\$7,230,670	\$6,655,720	\$7,058,920	\$7,498,220
Estimated Allocation	\$129,000	\$152,000	\$175,000	\$199,000	\$220,000
Estimated Interest	\$247,070	\$244,800	\$228,200	\$240,300	\$254,000
<b>Funds Available</b>	<b>\$7,700,670</b>	<b>\$7,627,470</b>	<b>\$7,058,920</b>	<b>\$7,498,220</b>	<b>\$7,972,220</b>
<b>Committed</b>					
<b>Balance Committed</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Balance Uncommitted</b>	<b>\$7,700,670</b>	<b>\$7,627,470</b>	<b>\$7,058,920</b>	<b>\$7,498,220</b>	<b>\$7,972,220</b>
<b>Proposed</b>					
Water Tower Internal Lining	\$470,000				
Zone 2 Booster Station (W-9)		\$360,500			
Zone 2 Water Storage Facility (W-10)		\$611,250			
<b>Total Proposed</b>	<b>\$470,000</b>	<b>\$971,750</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Balance Available</b>	<b>\$7,230,670</b>	<b>\$6,655,720</b>	<b>\$7,058,920</b>	<b>\$7,498,220</b>	<b>\$7,972,220</b>



**Attachment 10 - 2019 - 2023 Infrastructure Five (5) Year Projections**

**LC Infrastructure (1085)**

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Reserve Balance Start of Year	\$4,294,600	\$4,850,250	\$6,651,150	\$7,766,550	\$7,793,450
Budget Allocation - New Infrastructure Levy	\$1,300,000	\$1,300,000	\$1,300,000	\$1,300,000	\$1,300,000
Budget Allocation - NIL Sportsplex	\$50,000	\$250,000	\$350,000	\$450,000	\$450,000
DC - repayments	\$91,100	\$90,000	\$90,000	\$90,000	\$90,000
Investment income above base budget	\$457,000	\$457,000	\$457,000	\$457,000	\$457,000
Tecumseh Baseball re scoreboard	\$8,500	\$8,500	\$8,500	\$8,500	\$8,500
GenSet Revenues	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
CWATS	\$174,000	\$400	\$136,800	\$5,300	\$1,700
<b>Funds Available</b>	<b>\$6,390,200</b>	<b>\$6,971,150</b>	<b>\$9,008,450</b>	<b>\$10,092,350</b>	<b>\$10,115,650</b>
<b>Committed</b>					
Official Plan	\$22,500				
Development Charge Study	\$2,000				
Tecumseh Hamlet Secondary Plan	\$37,000				
Sportsplex - Capital Funding allocation	\$50,000	\$300,000	\$650,000	\$1,100,000	\$1,550,000
CWATS: CR11 - Hwy 401 to NTR (Multi-Use Trail)	\$136,000				
Riverside Dr. Trail	\$782,000				
<b>Balance Committed</b>	<b>\$1,029,500</b>	<b>\$300,000</b>	<b>\$650,000</b>	<b>\$1,100,000</b>	<b>\$1,550,000</b>
<b>Balance Uncommitted</b>	<b>\$5,360,700</b>	<b>\$6,671,150</b>	<b>\$8,358,450</b>	<b>\$8,992,350</b>	<b>\$8,565,650</b>
<b>Proposed</b>					
CWATS: CR11 - Hwy 401 to NTR (Multi-Use Trail)	\$292,950				
Lesperance Road Trail (CR22 to CR42)			\$49,900	\$814,600	
Riverside Dr Pathway (Arlington to Kensington)				\$9,000	\$147,000
CR42/CR19 Roundabout (Sidewalks)		\$19,000			
CR42: CR43 to Lesperance (Sidewalks)				\$362,000	
CR42: Lesperance to CR19 (Sidewalks)					\$57,500
CWATS: CR42/CR19 Roundabout (Bike Lanes)		\$1,000			
CWATS: CR43 Banwell Diversion (Multi-Use Lanes)			\$342,000		
CWATS: CR42: CR43 to Lesperance (Bike Lanes)				\$13,300	
CWATS: Lesperance to CR19 (Bike Lanes)					\$4,200
McAuliffe Park - New Washroom Building *	\$217,500				
Pickleball Complex Lacasse Park *			\$200,000		
Town Hall \$1,900,000					
<b>Balance Proposed</b>	<b>\$510,450</b>	<b>\$20,000</b>	<b>\$591,900</b>	<b>\$1,198,900</b>	<b>\$208,700</b>
<b>Balance Available</b>	<b>\$4,850,250</b>	<b>\$6,651,150</b>	<b>\$7,766,550</b>	<b>\$7,793,450</b>	<b>\$8,356,950</b>

\* See 2019 - 2023 Parks Five (5) Year Capital Works Plan