Town of Tecumseh Distribution System

Drinking Water Quality Management System

Operational Plan

Water Services

Revision Date: February 27, 2024

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Town of Tecumseh Distribution System Drinking Water Quality Management System Operational Plan

Introduction

Quality Management Systems and Standards have been widely used in North America since the early 1950's. In 1984, the International Organization for Standardization (ISO) released the first version of the ISO 9001 Quality Management System Standard, which is used worldwide.

As recommended by Justice Dennis O'Connor, in Part 2 of the Walkerton Inquiry, the government of Ontario has implemented a licensing program for municipal drinking water systems. The program requires owners and operating authorities of drinking water systems to incorporate the concepts of quality management into water system operation and maintenance. In response to this recommendation, the Ministry of the Environment, Conservation and Parks developed the Drinking Water Quality Management Standard, which sets out the framework for the development of a Quality Management System. Owners and operating authorities of a drinking water system are mandated to implement a Quality Management System by the provincial government through the Safe Drinking Water Act, 2002.

The Town of Tecumseh Drinking Water Quality Management System Operational Plan was first endorsed and committed to by Council in 2008. The Operational Plan provides an understanding of the drinking water system, the roles and responsibilities of the owner and operational staff, procedures to operate and maintain the drinking water system, and a commitment and endorsement by the owner to provide safe drinking water to consumers.

The Operational Plan provides a foundation for consistency, safety, and efficiency, as well as meeting legislative and regulatory requirements.

Element 1 Quality Management System

This Operational Plan documents the Drinking Water Quality Management System for The Corporation of Town of Tecumseh Water Distribution System. The Corporation of the Town of Tecumseh Water Distribution System is owned and operated by The Corporation of the Town of Tecumseh. The Drinking Water Quality Management System (DWQMS) for The Corporation of the Town of Tecumseh covers the transmission and distribution of potable drinking water to consumers within the Town of Tecumseh.

Under the terms and conditions of the 2004 Water Agreement executed among the Windsor Utilities Commission (WUC), City of Windsor and The Corporation of the Town of Tecumseh, the Tecumseh water distribution system (formerly north and south Tecumseh water distribution systems) is currently supplied by the Windsor Water System.

Treated potable drinking water is purchased from the Windsor Utilities Treatment Plant, which is owned by the Windsor Utilities Commission (WUC) and is a separately held entity managed by ENWIN Utilities, which operates and manages the production and distribution of potable water.

The potable water enters The Corporation of the Town of Tecumseh Water Distribution System through 12 locations bordering the City of Windsor, Town of LaSalle and the Town of Tecumseh. Each location is metered and monitored using a Supervisory Control and Data Acquisition system (SCADA). Storage for equalization and peak hour flow of water for Tecumseh is the responsibility of the Windsor Utilities Commission (WUC).

The Corporation of the Town of Tecumseh, in turn, supplies potable drinking water to the Town of Lakeshore at 4 locations all bordering Manning Road: Scott Side Rd; County Rd. 42; Little Baseline; and Amy Croft.

The Corporation of the Town of Lakeshore owns and operates the production and distribution facilities of potable water within their boundary. The Corporation of the Town of Lakeshore is a fully owned local government and is represented by elected officials of the Town of Lakeshore.

The Corporation of the Town of Tecumseh is connected with the Town of LaSalle at one location bordering Howard Avenue. The Corporation of the Town of LaSalle owns and operates the distribution facilities of potable water within their boundary. Town of LaSalle`s treated potable drinking water is purchased from the Windsor Utilities

Treatment Plant, which is owned by the Windsor Utilities Commission (WUC) and is a separately held entity managed by ENWIN Utilities, which operates and manages the production and distribution of potable water. The Corporation of the Town of LaSalle is a fully owned local government and is represented by elected officials of the Town of LaSalle.

Additional details about the Town of Tecumseh Water Distribution System are included in Element 6 – Drinking Water System.

Element 2 Quality Management System Policy

The Corporation of the Town of Tecumseh is committed to supplying a safe, consistent, drinking water supply while maintaining strict adherence to all applicable legislative and regulatory requirements. The Corporation of the Town of Tecumseh will strive to achieve these goals through the implementation of a management system and staff competency to our consumers.

The municipal owners, management and the employees of The Corporation of the Town of Tecumseh who are directly involved in the supply of drinking water, share in the responsibilities of implementing, maintaining, and contributing to the continual improvement of the Drinking Water Quality Management System (DWQMS).

The Quality Management System Policy is available on the Town's website at https://www.tecumseh.ca/en/living-here/water-quality.aspx.

Element 3 Commitments and Endorsement

This Operational Plan has been reviewed and approved by The Corporation of the Town of Tecumseh. The purpose of this document is for the planning, operation, and maintenance of The Corporation of the Town of Tecumseh Water Distribution System.

This document will be reviewed and approved by:

- **Municipal Owner/Operating Authority**: Mayor and Council
- **Top Management**: Chief Administrative Officer, Director of Public Works and Engineering Services and the Manager, Water Services/ORO (Overall Responsible Operator)

Top Management and Owner endorsement includes the following commitments:

a) ensuring that a Quality Management System is in place that meets the requirements of the Drinking Water Quality Management Standard,

b) ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements,

c) communicating the Quality Management System according to the procedure for communications, and

d) determining, obtaining or providing the resources needed to maintain and continually improve the Quality Management System.

The DWQMS Representative will keep the DWQMS document up-to-date and promote continual improvement. All recommended changes are to be approved by Municipal Owner/Operating Authority resolution (refer to Appendix 1 - Commitments and Endorsement).

Element 4 Drinking Water Quality Management System (DWQMS) Representative

The Corporation of the Town of Tecumseh has designated a DWQMS Representative and an alternate DWQMS Representative:

DWQMS Representative

Name: Nicole Bradley

Position: DWQMS Representative/Water Distribution Operator

Alternate DWQMS Representative

Name: Brad Dupuis

Position: Manager, Water Services/ORO or designate

The DWQMS Representative is responsible for the following:

- Ensures that processes and procedures needed for the DWQMS are established and maintained,
- Reports to Top Management on the performance of the DWQMS and any need for improvement, as needed, or during the Management Review meetings,
- Ensures that current versions of documents required by the DWQMS are being used at all times, and reviews DWQMS documentation and record control,
- With members of Top Management, ensures that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the drinking water system, and
- Promotes awareness of the DWQMS throughout Water Services and The Corporation of the Town of Tecumseh.

Element 5 Document and Records Control

This procedure is applicable to the following DWQMS documents:

- Operational Plan and associated procedures
- DWQMS Forms
- Equipment Manuals
- As Built Drawings
- Applicable drinking water regulations (e.g. O. Reg. 170/03, O. Reg. 128/04, O.Reg. 169/03)

5.1 Creating New or Updating Existing Documents

The need for document changes or for new documents may be identified through Audits, Management Reviews, DWQMS Committee or staff. Any employee of Water Services may request a change to an existing DWQMS document. The request must be made in writing, using the “Request for new or changed DWQMS Document” form, dated and submitted to the DWQMS Representative.

The request must include the following information:

- Reason for the new or changed document (one of the following needs to apply):
    - Is it required by the DWQMS?
    - Will it enhance process control?
    - Can it reduce risk?
    - Will it support regulatory requirements?
    - Will it improve operational efficiency?
- A proposed document change or new document content applicable to Water Services or the Operational Plan.

5.2 Proposed Document Change or New Document Content

The requester shall develop the new/changed document and submit it to the DWQMS Representative for review.

The DWQMS Representative shall review the Request for new or changed DWQMS document form and the document, make any changes as required, and if required the DWQMS Committee will review approved changes if applicable.

5.3 Approving Documents

- DWQMS-related documents may be approved by Municipal Owner; Operating Authority's Top Management: CAO, Director of Public Works & Engineering Services, Manager, Water Services/ORO or designate; or the DWQMS Representative.

- DWQMS documentation shall be stored at the Water Services office or stored in document control software.

- Water Services staff has read-only access to the electronic version of the documentation. The Manager, Water Services/ORO or designate, DWQMS Representative and Clerical Staff have access rights to manage and/or edit the electronic version of DWQMS-related documents.

- The DWQMS Representative is responsible to ensure that new or changed documents are communicated and /or distributed to the appropriate staff members.

- Documents shall be collected, archived, stored, and disposed of as per legislation under the Safe Drinking Water Act 2002 and The Corporation of the Town of Tecumseh Records Retention By-law, By-law 2018-39.

5.4 Reviewing Documents

The Operational Plan and procedures shall be reviewed by the DWQMS Committee for applicability and relevance.

5.5 Document Availability

- The current copy of the Operational Plan, procedures and associated documents are retained electronically on The Corporation of the Town of Tecumseh network servers and at the Water Services office.

- Original sets of equipment manuals / specifications and drinking water regulations are kept at the Water Services office.

- Copies of As-Builts are stored at the Water Services office and electronically on The Corporation of the Town of Tecumseh network servers.

5.6 DWQMS Records Control

This procedure is applicable to all records and documents that demonstrate conformance to the DWQMS and compliance to legislative requirements:

- **DWQMS records and documents** include (and are not limited to) Council Resolutions (for Operational Plan endorsement); risk assessment outcomes, training information, evidence of communications, procurement-related (e.g. specifications for essential supplies and services), evidence of infrastructure reviews, evidence of equipment maintenance and calibration, emergency preparedness, results of internal and external audits, and management review meetings.

- **Compliance records and documents** demonstrate compliance with legislative requirements and include (and are not limited to) the records required by the Safe Drinking Water Act and related regulations (e.g. O.Reg. 170/03, O.Reg. 128/04, O.Reg. 169/03, etc.), the Municipal Drinking Water License (and its parts, including: Drinking Water Works Permit, approved Financial Plan, Accreditation) and all related records (e.g. annual reports, Operator certification, sampling and testing, forms documenting changes to the distribution system, etc.).

- **Records are stored** in such a manner as to prevent their deterioration. All records are filed and/or archived (as per retention table) at the Water Services office and The Corporation of the Town of Tecumseh network servers.

5.7 Records Management

Records are stored and protected to ensure that they are kept legible, readily identifiable, and are retrievable when they are required by personnel of the Town of Tecumseh Drinking Water System.

Paper records are maintained on-site in file folders, filing cabinets, binders, or by other means deemed acceptable by the individual responsible for the records. Electronic records are stored on the organization's network, and within the Town of Tecumseh's Management System Software. Regularly scheduled back-ups help protect electronic information from damage or loss.

All employees have access to the files appropriate to their roles and responsibilities. The Management System Software is also used to facilitate access to and retrieval of the required information.

Minimum record retention periods are determined according to appropriate legislative and regulatory requirements. Retention periods for records not governed by standards or legislation are established through the by-laws of the Town of Tecumseh. Records specific to the Town of Tecumseh Water Distribution System have been documented on a Record Retention Table. The records will be disposed of by either recycling, shredding, or in the case of electronic documentation archival and deletion.

Element 6 Drinking Water System

6.1 System Overview

Element 1 of this Operational Plan provides a general overview of the Town of Tecumseh's Water Distribution System and its connections to other area Municipalities' water systems with different Owners and Operating Authorities (refer to Appendix 2 - the overall service area is identified on Map 1). The Town of Tecumseh's Water Distribution System is classified as a Class II Distribution System.

The Town is responsible for its own distribution system within the boundaries of Tecumseh and is responsible for any new storage works that may be required to supply its fire flow of water. The Town of Tecumseh also has a 4,546m3 elevated water tower, located in the North end of Tecumseh. This elevated water tower is monitored by Windsor Utilities Commission (WUC) and the Town of Tecumseh through SCADA (Supervisory Control and Data Acquisition system).

The north Tecumseh water service area (north of Highway 401) includes the urban settlement areas of Tecumseh, St. Clair Beach, Tecumseh Hamlet and rural areas north of Highway 401; and is supplied from the Windsor Water System through metering facilities at the Town boundary on Dillon Drive, McNorton Street, Tecumseh Road, Mulberry Drive, County Road 42, Baseline Road and, in the future, on Intersection Road.

The south Tecumseh water service area (south of Highway 401) includes urban settlement areas of Oldcastle Hamlet, Maidstone Hamlet and rural areas south of Highway 401; and is supplied from the Windsor Water System through existing metering facilities at the Town boundary in Oldcastle Hamlet on the 8th Concession Road, County Road 46, Walker Road and North Talbot Road. The south Tecumseh water service area is also supplied from the Town of LaSalle through a connection at Howard Avenue.

6.2 Service Areas and Water Distribution System Components

a) North Tecumseh Water Service Area

The distribution system in the north Tecumseh water service area is operated by The Corporation of the Town of Tecumseh and consisting of watermains ranging in size from 100 mm (4") to 600 mm (24") in diameter (refer to Appendix 2 - the north service area boundary is identified on Map 2).

The feedermains on Dillon Drive, McNorton Street, Tecumseh Road and Mulberry Drive extend from the Town boundary through the centre of Tecumseh (Planning Area) to the elevated water tower on Tecumseh Road, and are interconnected through a new 300 mm diameter feedermain on Lesperance Road and the existing 400 mm diameter trunk watermain on Lacasse Boulevard. The 600 mm diameter feedermain on County Road 22 extends from the Town boundary to Manning Road (County Road 19) and is connected to the 400 mm diameter feedermain on Tecumseh Road. The 600 mm diameter feedermain on County Road 42 extends from the Town Boundary to Lesperance Road and is connected to the 300 mm diameter distribution mains on St. Alphonse Avenue and on Lesperance Road.

b) South Tecumseh Water Service Area

The distribution system in the south Tecumseh water service area is operated by The Corporation of the Town of Tecumseh consisting of watermains ranging in size from 100 mm (4") to 600 mm (24") in diameter (refer to Appendix 2 - the south service area boundary is identified on Map 3).

The feedermains on 8th Concession Road and County Road 46 supply the northeast end of Oldcastle Hamlet. The 300 mm diameter feedermain on Walker Road and North Talbot Street connect to the 300 mm diameter trunk watermain on Talbot Road (Highway 3) which supplies Oldcastle Hamlet, the rural areas south of Highway 401, and Maidstone Hamlet.

c) Consolidated Water Distribution System

The existing water distribution system will be operated as a single distribution system with connections through the Windsor Supply System. In the future, the Town intends to extend trunk watermains from County Road 42 to connect to the south service area to improve system performance. A copy of the approved Water and Wastewater Master Plan can be viewed at the Water Services office or online on Tecumseh's website (refer to Appendix 2 – Table 1 Watermain Material Type and Length in Tecumseh Water Distribution System).

d) Sampling and Monitoring Disinfectant Residuals

Tecumseh Water Distribution System staff sample and monitor disinfectant residuals on a regular basis through regulatory sampling programs and during response activities related to consumer water quality calls.

Staff also carry-out work to improve disinfectant residuals within the distribution system through:

- regular maintenance programs (e.g. flushing);
- the practice of cycling water in the elevated water tower (reducing water age);
- optimizing distribution system flows (e.g. close-looping and eliminating system dead ends); and
- responding in a timely manner to watermain breaks (and carrying out proper disinfection in accordance with the province's Watermain Disinfection Procedure).

Element 7 Risk Assessment

7.1 Risk Assessment Team

The Risk Assessment Team shall be no less than a three-member forum and will be made up of the Manager, Water Services/ORO or designate in conjunction with the Lead Water Distribution Operator and one other Water Distribution Operator.

The Risk Assessment Team shall meet once a calendar year to review the validity of the assumptions and the currency of the information used in the risk assessment. A comprehensive risk assessment will be done every thirty-six months unless changing conditions indicate that it should be done more frequently. In each of the risk assessment update activities, the risk assessment outcomes are presented to Top Management at Management Review for their official review and approval.

The Risk Assessment Team considers the Ministry's "Potential Hazardous Events for Municipal Drinking Water Systems" (dated April 2022) in the risk assessment process and is to identify and assess:

- Potential hazardous events and associated hazards as listed in the Ministry's document, and any additional potential hazardous events,
- The risks with the occurrence of potential hazardous events which could affect the water system,
- The ranking of hazardous events according to the associated risk,
- The control measures to address the potential hazards and hazardous events,
- The Critical Control Points and their respective Critical Control Limits,
- The associated procedures and/or processes to monitor Critical Control Limits,
- The procedures to respond to deviations from the Critical Control Limits,
- The procedures for reporting and recording deviations from the Critical Control Limits, and
- Consideration of the reliability and redundancy of equipment.

Element 8 Risk Assessment Outcomes

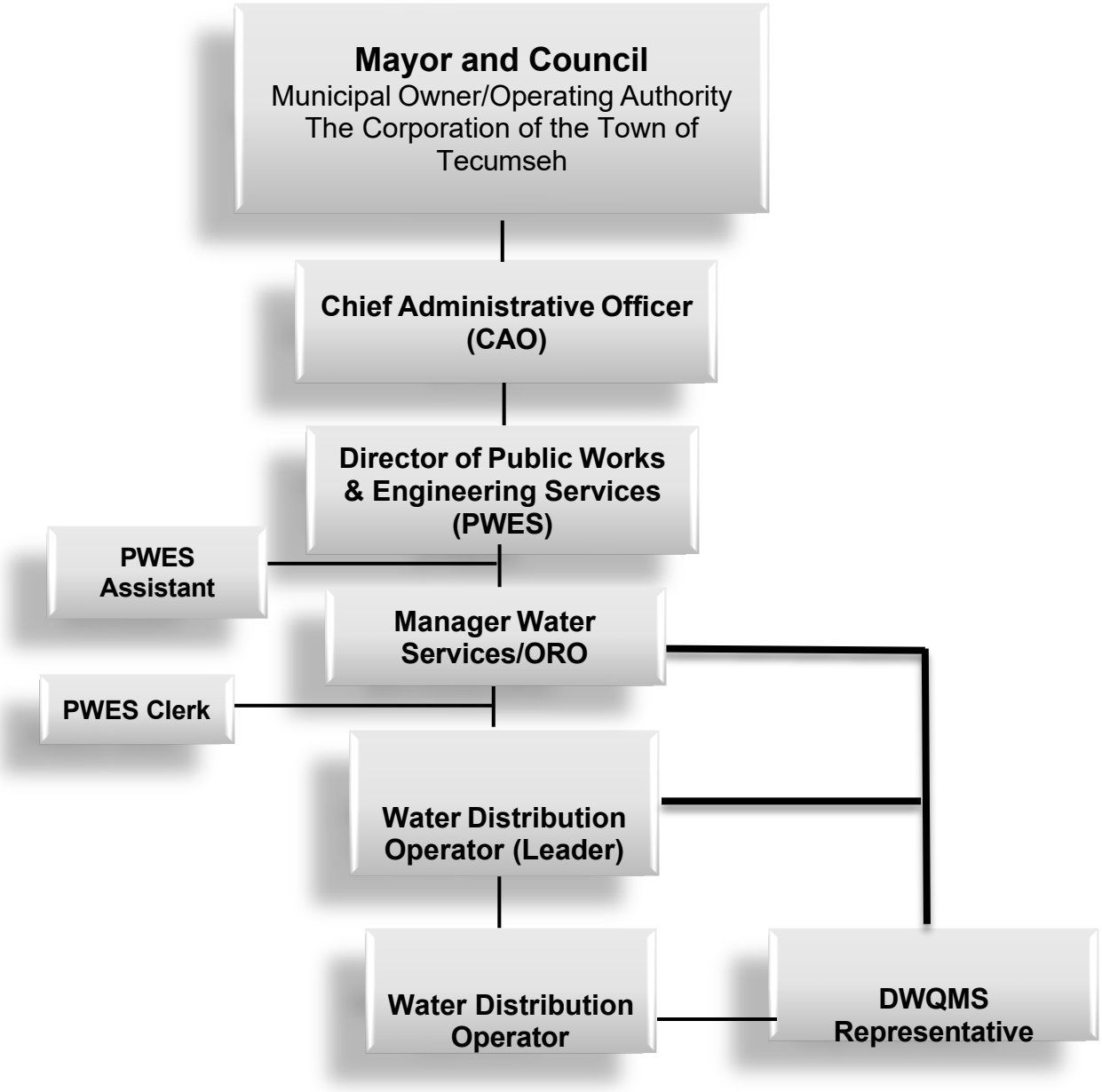
The risk assessment will be facilitated by developing and completing Risk Assessment Worksheets. As the Risk Assessment Team conducts this assessment, it will document the results of each step of the risk assessment procedure. The risk assessment process is an ongoing activity.

The DWQMS Representative shall ensure that relevant information is circulated to all members of the Risk Assessment Team; and update the outcomes of each risk assessment activity (whether it is for the calendar year or thirty-six-month update).

- Refer to Appendix 3 – Risk Assessment
- Refer to Appendix 4 – Risk Assessment Outcomes

Element 9 Organizational Structure, Roles, Responsibilities and Authorities

9.1 The Corporation of the Town of Tecumseh Water Services Organizational Chart



9.2 Operational Roles, Responsibilities and Authorities

Position	Responsibilities	Authorities	Required Competencies
Municipal Owner Operating Authority **Mayor and Council**	• Responsible for the legal oversight and provision of safe drinking water within The Corporation of the Town of Tecumseh's water distribution system and the DWQMS as regulated under the Safe Drinking Water Act 2002. • Ensure compliance with applicable legislation and regulations while endorsing the DWQMS and providing a representative to the DWQMS management review committee. • Participate in Council meetings and Council committee meetings and meetings of other bodies to which they are appointed by Council. • Consider information about the operation or administration of the Municipality from the CAO and/or other appropriate Town staff. • Evaluate policies and programs such as bylaw enforcement, taxation, property permits and inspections, planning, public works (roads, water and sewer), parks and recreation, fire services and police services.	• Authorize and provide resources, finances and administrative authority to improve or change the drinking water system, the distribution of safe drinking water and the DWQMS. • Approve and review by-laws and policies for the management and operation of Town assets. • Hire, evaluate, discipline or terminate Town Management staff and contracted service providers.	• https://www.ontario.ca/document/ontario-municipal-councillors-guide/1-role-council-councillor-and-staff
Top Management **Chief Administrative Officer (CAO)**	• Direct supervision of senior department directors, managers, operations and management of all Town departments. • Ensure that policies and direction from Council are effectively communicated to senior department managers and are carried out by the appropriate departments. • Endorse the ongoing development of the DWQMS and participate on the DWQMS Management Review Committee.	• Communicate information between senior department managers and Council and to convey and mandate Council policy. • Request expenditure approval from Council and implement approved expenditures. • To staff, hire, evaluate, discipline or terminate utility management staff (within the guidelines of the Corporation of The Town of Tecumseh and any collective agreements).	• Working knowledge of the professional/technical disciplines related to the functions and service delivery by all Municipal departments. • Ability to research information from appropriate sources and to monitor trends and developments. • General knowledge of the Municipal Act and associated Regulations. • Working knowledge of current techniques for determining citizens' needs, satisfaction with services delivered. • Ability to maintain technical/professional contacts/liaisons.
Director of Public Works & Engineering Services	• Ensure safe, reliable and compliant management and operation of all of the Towns physical infrastructure as well as the Water Distribution system. • Direct supervision of Engineering Services and Public Works supervisors and administrative staff. • Coordinate budget preparation and preparation and presentation of department reports to Council. • Administer the Collective Bargaining Agreement for department personnel. • Ensure adequate and competent staff and their appropriate training. • Investigate and respond to public complaints and inquiries. • Represent Municipal Owner on DWQMS Management Review committee.	• Develop, evaluate, prioritize and implement long term department needs and administrative and technical policies. • Prepare, review and approve design specifications including contractors and equipment. • Recruit, hire, evaluate, discipline or terminate Public Works and Engineering Services staff in accordance with Town policies. • Communicate directly with regulatory agencies and the public on behalf of the Town Municipal Owner/Operating Authority. • Appoint temporary ORO in absence of designated ORO.	• An action-oriented team builder with strong leadership, supervisory and communication skills. • Sound planning, time management, analytical and budget and financial resource management skills. • Well organized with the ability to think strategically, provide advice, develop sound conclusions and recommendations. • Advanced computer literacy in Microsoft Office operating systems, geographical information systems and internet-based applications. • Ability to effectively deal with staff, senior management, other levels of government, contractors, community groups and stakeholders.

			• Ensure adherence to Occupational Health & Safety Act, Employment Standards Act, Provincial/Federal legislation and Town by-laws and policies. • Hold a valid Class G driver's licence.
Position	**Responsibilities**	**Authorities**	**Required Competencies**
Manager of Water Services / ORO	• Ensure efficient, safe and compliant operation of the water distribution system. • Provide supervision, technical direction and training to Water Services staff. • Maintain provincial operator certification. • Assist the Director of Public Works & Engineering Services with the water distribution budget and long-term planning. • Communicate with regulatory authorities to ensure compliance with applicable legislation. • Prepare and present Municipal distribution information to Council, Town staff, Managers and the public. • Serve as the alternate DWQMS representative and participate on the DWQMS Management Review Committee. • Investigates and responds to public complaints and inquiries.	• As the ORO (overall responsible operator); shall be available to be contacted 24/7. If unavailable, arrangements will be made with the Director of Public Works & Engineering Services for a designated replacement ORO. • Develop, approve and implement operations, maintenance, safety policies, Town by-laws and procedures relating to water distribution. • Supervise and inspect the work of contractors and order/purchase necessary supplies and services. • Evaluate and prioritize the long-term rehabilitation and upgrade to the Town's water infrastructure. • Participate in hiring, evaluating and disciplining of unionized and non-unionized staff.	• Ontario Class 2 Water Distribution Certification • Excellent interpersonal, organizational, analytical, communication, planning, presentation, problem solving, leadership and supervisory skills. • Excellent skills in the design, supervision and contract management of municipal infrastructure. • Demonstrate judgment and ability to critically assess options within the context of applicable legislation and Town policies to guide decisions. • Demonstrate ability in corporate core competencies including customer service, teamwork, self-management, accountability and adaptability. • Proficient in Microsoft Office applications and adaptability to program specific software and is familiar with water and sanitary modeling software. • Demonstrated ability in writing and presenting reports to members of the senior management team and Council. • Hold a valid Class G driver's licence.
DWQMS Representative / Operator and Designated DWQMS Representative Alternate	• Promote awareness of DWQMS, applicable legislative and regulatory requirements as relating to job duties and report DWQMS results to staff, Municipal Owner/Operating Authority and Top Management as required. • Review and approve DWQMS documentation and ensure it is prepared and maintained as required. • Provide staff with technical and administrative consultation relating to DWQMS document preparation and implementation. • Implements and oversees document control procedure. • Co-ordinates internal and external audits and acts as audit liaison. • Communicate DWQMS information to staff and facilitate all aspects of training when required. • Investigate and respond to public complaints and inquiries.	• Will assume the overall managing role, responsible for overseeing the development and implementation of the DWQMS.	• Ontario Class 1 Water Distribution Certification • Thorough knowledge of and ability to interpret and administer governing drinking water regulations/legislation, contractual agreements and related municipal by-laws and servicing agreements. • Proficiency in completing forms, maintaining accurate records, use of Microsoft Office software and program specific software. • Demonstrated knowledge of drinking water sampling and testing practices/operations, the safe operation of tools and equipment used within all areas of water distribution systems. • Excellent interpersonal, organizational, analytical, leadership, communication (oral & written), planning and presentation skills. • Hold a valid DZ driver's licence.
Water Distribution Certified Operator (Leader)	• Oversees day-to-day activities relating to the maintenance of the water distribution system. • Communicates and liaises with the Manager, Water Services/ORO, Water Distribution Certified Operators and Clerical staff. • Works with the Manager, Water Services/ORO in completing the Water Distribution Certified Operators performance assessments.	• Directs Water Distribution Certified Operators in day-to-day operations of the water distribution system. • Orders day-to-day supplies as needed. • Respond to public complaints as relayed from Manager, Water Services/ORO, Clerical staff and/or after-hours answering service.	• Ontario Class 1 Water Distribution Certification • Knowledge of and ability to interpret governing drinking water regulations, contractual agreements and related municipal by-laws and servicing agreements. • Demonstrated knowledge of sampling, flushing, pressure testing, swabbing, chlorinating and

	• Assists with and has input into developing procedures and processes for assuring water quality. • Investigate and respond to public complaints and inquiries.		maintenance of valves, hydrants and water infrastructure. • Ensure the safe operations of tools (powered and non-powered), equipment, machinery and vehicles. • Posses technical and leadership abilities, good verbal & written communication skills and make independent decisions to maintain operations. • Be in good overall health, perform activities that require manual dexterity and coordination. • Hold a valid Class 1 Water Distribution certificate and a valid DZ driver's licence.
Position	Responsibilities	Authorities	Required Competencies
Water Distribution Certified Operator	• Perform weekly testing of drinking water. • Perform regular maintenance of the water distribution system. • Reports any incidents of non-compliance. • Responds to repairs. • Investigates and responds to public complaints and inquiries.	• Monitor process and equipment of day-to-day operations of the water distribution system. • Respond to public concerns as relayed from the Manager, Water Services/ORO, Clerical Staff, Water Distribution Certified Operator (Leader) and/or after-hours answering service.	• Ontario Class 1 Water Distribution Certification • Demonstrated knowledge of sampling, flushing, pressure testing, swabbing, chlorinating and maintenance of valves, hydrants and water infrastructure. • Proficiently and safely operate such equipment as: tapping machines, various gas pumps, pipe cutting tools, various hand tools, locators, back hoe, air compressors, gas detectors and rescue saw. • Ensure responsibility and accuracy in completing forms and decision making. • Sufficiently perform physical requirements of the classification to operate and maintain the water distribution system. • Hold a valid DZ driver's license.
Clerical Staff	• Communicates/liaises with the following: Director, Public Works & Engineering Services, Manager, Water Services/ORO, Water Distribution Certified Operator (Leader) and Water Distribution Certified Operator. • Respond to and document public inquires dealing with water issues. • Prepares reports as required by regulations and circulates to management. • Assist with DWQMS documentation and record control. • Assist with communication during emergency situations. • Investigates and responds to public complaints and inquiries.	• Update and implement document changes as directed by applicable administration as identified in the Water Services Organizational Chart.	• Possess a diploma in Office Administration. • Demonstrate excellent computer and communication skills, including proficiency in Microsoft Office. • Shall have excellent time management skills to manage multiple overlapping deadlines and time frames.

Element 10 Competencies

The MECP classified The Corporation of the Town of Tecumseh as a "Water Distribution Subsystem Class II". The following identifies the competencies required of staff whose performance may have a direct impact on drinking water quality.

10.1 Municipal Owners/Operating Authorities

Municipal Owners/Operating Authorities who have complete legal oversight of The Corporation of The Town of Tecumseh Water Distribution System and the DWQMS are briefed on operating conditions and are provided updates by Senior Management to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water and shall maintain records of these activities. They may also attend relevant drinking water training courses, conferences, and seminars to assist in their overall knowledge pertaining to regulatory and legislative requirements.

10.2 Director Public Works & Engineering Services

The Director shall possess advanced theoretical and working knowledge of administrative skills expected of a senior level manager. In addition, the Director shall possess an intermediate theoretical and working knowledge of the Safe Drinking Water Act, 2002 and applicable regulations and legislations, and The Corporation of the Town of Tecumseh Drinking Water Distribution System. When necessary, will appoint a temporary Over All Responsible Operator (ORO) position, in absence of the designated ORO.

10.3 Manager Water Services/ORO

Shall possess advanced theoretical and working knowledge of administrative skills. The Manager, Water Services/ORO or designate shall also possess advanced theoretical and working knowledge of the Safe Drinking Water Act, 2002 and applicable regulations and legislation. The Manager, Water Services/ORO or designate should also have a good working knowledge of The Corporation of the Town of Tecumseh Drinking Water Distribution System and its components. Is the Overall Responsible Operator (ORO) and therefore must be available to be contacted 24/7. The ORO will make arrangements with the Director of Public Works & Engineering Services for a designated ORO in the event he/she is not available and cannot be contacted.

10.4 New Operators in Training (OITs)

Must complete the OIT Water Distribution Prep Course and OIT exam as per MECP O.Reg.128/04 requirements.

10.5 Class I Water Distribution Operators

The operator must successfully complete the Class I Water Distribution Exam and obtain the required training credits to become a Class I Water Distribution Operator as per MECP O.Reg.128/04 requirements.

10.6 Class II Water Distribution Operators

The Class I level operator can advance to a Class II Water Distribution operator by successfully completing the Class II Water Distribution Exam and obtaining the required training credits as per MECP O.Reg.128/04 requirements.

10.7 Class III Water Distribution Operators

The Class II level operator can advance to a Class III Water Distribution operator by successfully completing the Class III Water Distribution Exam and obtaining the required training credits as per MECP O.Reg.128/04 requirements.

10.8 Water Distribution Operator Competencies as per Town policies

a) Water Distribution Operator Competencies

- Water Distribution Operators Shall possess an OIT or Class 1 Operating Certificate as per O.Reg. 128/04 requirements.
- The ORO shall have a minimum Class II Water Distribution Certificate as per O.Reg. 128/04 requirements.

b) Water Distribution Operator Skills and Knowledge

- The Water Distribution Operator performs a variety of skilled and semi-skilled tasks independently, or as part of the Water Services team, including;
  - Safe operation of heavy machinery and locate/metering equipment.
  - Utilizes GIS mapping software and applies their working knowledge in interpreting blueprints/drawings to aide in the construction, repair and

maintenance of the water distribution system as well as various public buildings and facilities.

- Collaborates with private contractors as authorized and oversees and inspects the work to ensure projects are performed and completed as planned.

- Maintaining work and preventative maintenance records, addressing public inquiries and customer billing issues, completing infrastructure locates as per Ontario One Call.

- Liaises with municipal staff, contractors/suppliers, Ministry officials / inspectors, auditors and the general public maintaining co-operative working relationships with all groups.

- Ensures compliance and conformance to current standards legislated by the Ministry of Environment, Conservation and Parks and is required to maintain detailed and concise records and logs.

c) Methods to Develop, Assess and Maintain Competencies

The following methods develop, assess and maintain the required competencies for personnel performing duties directly affecting drinking water quality:

i. Identify Training Requirements

The Manager, Water Services/ORO or designate and Water Distribution Operators must meet the training requirements as per MECP O.Reg.128/04 requirements.

The required competencies include, but are not limited to the following:

- Class I Water Distribution Operator Certificate

- Understanding the Quality Management System

- Familiarity with the Town's water distribution system

- Knowledge of regulations and identifying, reporting and responding to adverse drinking water conditions as required by regulations.

ii. Assess Competencies

The Corporation of the Town of Tecumseh may administer certain tests, conduct interviews, verify references and/or request specific documentation as part of the hiring process in order to verify skills, experience and knowledge.

In order to meet the ongoing changes to technology, software, the requirements of O.Reg. 128/04 and Water Services processes, Water Distribution Operators shall receive training as required by O. Reg. 128/04, at a minimum. The training may be provided on or off site by qualified employees or contracted subject matter experts. Training effectiveness is evaluated when appropriate through testing, or a demonstration of knowledge gained.

Training records are maintained by the Manager, Water Services/ORO or designate and/or the DWQMS Representative, stored in document control software and filed in hard copy in the Water Services office as proof that the required training has been successfully completed. The Manager, Water Services/ORO or designate is responsible for ensuring that all identified training is completed.

iii. Maintain Competencies

The Manager, Water Services/ORO or designate will ensure that the Standard Operating Procedures and Quality Management System are reviewed every calendar year. Furthermore, the Water Distribution Operators will meet or exceed the training hours required by MECP O.Reg.128/04 to maintain Water Distribution Operator Certificates. Training hours and courses completed by the Water Distribution Operators are logged and tracked by the Manager, Water Services/ORO or designate and/or the DWQMS Representative and are documented in document control software.

Element 11 Personnel Coverage

Water Services is staffed as per the Collective Agreement between the Corporation of the Town of Tecumseh and the Outside Bargaining workers represented by CUPE Local 702.1. The Manager, Water Services is the designated ORO. After hours calls are managed by the Water Distribution Operator (Leader) using an emergency call-out service with the staff seniority list for overtime as set out by the Collective Agreement.

11.1 Regular Hours Coverage

- All work orders are generated through the Water Services office during regular working hours.
- Created work orders will have date and time of the call, location of the problem, details of the problem, name and contact information of person initiating service call.
- Work orders are distributed through the Manager, Water Services/ORO or designate and the Water Distribution Operator (Leader).

11.2 After Hours Coverage

- The Water Distribution Operator (Leader) receives a call from the answering service, assesses information and provides direction.
- If the Water Distribution Operator (Leader) cannot be contacted, the call will bump to the next Water Distribution Operator according to seniority.
- When necessary, staff is called in to do repairs, and or deal with public inquiries.
- All reports and forms are authorized by the Manager, Water Services/ORO or designate.
- Reports, forms and or work orders, will have date and time of the call, location of the problem, details of the problem, name and contact information of person initiating service call.
- If required, sub-contractors are approved by the Manager, Water Services/ORO or designate and are used in digression of the Water Distribution Operator.

11.3 **Pandemic, Strikes and/or Lockouts**

The provisions for personnel coverage during situations where staff may not be available to work include the following:

a) Pandemic

- Should a pandemic occur the Town will request from surrounding Municipalities with qualified licensed operators as well as private contractors for assistance.

b) Strikes and/or Lockouts

- The Manager, Water Services is designated as the Overall Responsible Operator (ORO) for the distribution system and has the appropriate Water Distribution Operators License. In the event of a union strike and/or lockout, the ORO is qualified to maintain the water distribution system.

- In the event the ORO is not available or if additional staff is required to maintain the distribution system, Town will request from surrounding Municipalities with qualified licensed operators as well as private contractors for assistance.

In the event of either a) Pandemic or b) Strikes and/or Lockouts, O. Reg 819/21 may also be used to provide the Town with direction during those situations where staff are not available to work.

Element 12 Communications

The DWQMS Representative shall ensure the Municipal Owner/Operating Authority and Top Management is provided with a current copy of the Operational Plan. The DWQMS Representative shall keep the Municipal Owner/Operating Authority and Top Management informed of any changes to the DWQMS as a result of Management Review and other DWQMS issues when necessary.

A current version of the Operational Plan is available to staff at the Water Services office. A hard copy of the DWQMS Operational Plan will be kept at the Water Services office and an electronic copy can be obtained using the document control software. Personnel will be informed of DWQMS changes or updates through regular staff meetings with the DWQMS Representative or the Manager, Water Services/ORO or designate.

Any suggested revisions or recommendations to the DWQMS Operational Plan submitted by staff will be documented and provided to the DWQMS Representative.

The DWQMS Committee will meet to review and update the Operational Plan and review any staff recommendations.

Town of Tecumseh Water Services will utilize a web-based survey/questionnaire to allow the public and essential suppliers to have input and communication with all levels of the Town's Water Services and Management. The Manager, Water Services/ORO or designate will collect and analyze all data communicated to the town. The Manager, Water Services/ORO or designate will then make changes if necessary/ or may make recommendations to the Municipal Owners/ Operating Authority any changes or improvements identified.

Essential suppliers and service providers receive relevant DWQMS information regarding product or service requirements from the purchaser in the form of quality / quantity specifications and timeframes, as required by regulations, the Municipal Drinking Water Licence and Drinking Water Works Permit.

Notification is provided to The Corporation of the Town of Tecumseh suppliers and service providers that a copy of the current Water Distribution System Standards and Material Specifications is available on the Town's website or in hardcopy from the Water Services office.

The DWQMS Policy is available to the consumers of The Corporation of the Town of Tecumseh water distribution system at the Water Services office, Town Hall and can be

viewed on the Town's website https://www.tecumseh.ca/en/living-here/water-quality.aspx.

Element 13 Essential Supplies and Services

Where applicable, supplies must meet AWWA and NSF/ANSI standards. Supplies are verified against the order requisition when received (refer to Appendix 5 - Essential Supplies and Service List).

Element 14 Review and Provision of Infrastructure

Infrastructure for The Corporation of the Town of Tecumseh consists of a water distribution system, water tower and monitoring equipment at the boundary meters. The Corporation of the Town of Tecumseh has in place a Water & Wastewater Master Plan, which has been accepted and adopted by the Municipal Owners/Operating Authority.

Rehabilitation and renewal of the water distribution system is performed on a needs schedule in association with the Water & Wastewater Master Plan. Capital and operational money is allocated each calendar year for improvements to the system.

The Director, Public Works & Engineering Services, under the advisement of the Manager, Water Services/ORO or designate and Manager, Engineering Services, will identify areas needed for rehabilitation and renewal taking into consideration risk assessment.

A report detailing the maintenance programs, any requirements for infrastructure, rehabilitation and renewal is prepared annually by the Director, Public Works & Engineering Services and Director, Financial Services/Treasurer. The capital requirements are then submitted to Top Management and Municipal Owner/Operating Authority for budgetary approval.

Element 15 Infrastructure Maintenance, Rehabilitation and Renewal

The Manager, Water Services/ORO or designate will annually review the planned and unplanned maintenance reports and programs. A summary will be prepared and communicated to the Director, Public Works & Engineering Services under advisement of the Manager, Engineering Services and will identify areas that may need rehabilitation and renewal planning (refer to Appendix 6: Public Works & Engineering Services Capital Works Plan).

15.1 Planned Maintenance

All planned maintenance is scheduled and communicated to staff by the Manager, Water Services/ORO or designate. All records are retained at the Water Services office.

- Annual valve exercising programs
- Annual flushing programs
- Annual hydrant inspection, maintenance and painting

Planned maintenance is scheduled on an electronic spreadsheet stored on the central office computer server. Server files are backed up daily. The long-term forecast of major infrastructure maintenance, rehabilitation and renewal activities is kept current by reviewing planned rehabilitation and renewal programs on an annual basis as capital works are planned for each calendar year by the Manager, Water Services/ORO or designate with the following: Director, Public Works & Engineering Services; Director, Financial Services/Treasurer; Manager, Engineering Services; and Manager, Public Works & Transportation.

Scheduled tasks are typically defined by manufacturer's literature when available and revised as needed according to operator experience/observations. Planned maintenance tasks are communicated to the person responsible by issuance of work orders from the Manager, Water Services/ORO or designate or the Water Distribution Operator (Leader). Completed work orders are reviewed and signed by the Manager, Water Services/ORO or designate or DWQMS Representative.

If feasible, rehabilitation or replacement of water distribution piping is coordinated with the Town's scheduled wastewater and road resurfacing projects.

15.2 **Unplanned Maintenance**

Unplanned maintenance is conducted as required. All unplanned maintenance activities are authorized by the Manager, Water Services/ORO or designate.

- Service leaks
- Meter repairs
- Emergency hydrant repairs
- Water quality inquiries
- General consumer inquiries

Element 16 Sampling, Testing and Monitoring

Sampling, testing and monitoring of the treated water produced at the Windsor Utilities Commission (WUC) Water Treatment Plant is conducted by Windsor Utilities Commission Water Distribution Operators as required by O.Reg. 170/03.

A competent certified Water Distribution Operator for the Town performs all in house sampling. Results are recorded on a weekly log sheet and monitored by Water Distribution Operators. Detailed procedures for all tests performed on-site are provided in Standard Operating Procedures (SOP's).

The operators ensure that the water supplied to The Corporation of the Town of Tecumseh Water Distribution System meets the Safe Drinking Water Act, 2002. Sampling and testing for The Corporation of the Town of Tecumseh Water Distribution System is limited to the distribution system only as required by O.Reg. 170/03.

The results at all boundary meters and the water tower are displayed and recorded on the SCADA system and monitored by the Manager, Water Services/ORO or designate and Water Distribution Operators.

Free chlorine will be done in-house. All other regulatory testing is contracted out and performed by an accredited lab chosen by The Corporation of the Town of Tecumseh. Records and logs are kept at the Water Services office.

Sampling and monitoring Standard Operating Procedures (SOP) are established for operating the water distribution system. Provisions have been made when sampling and monitoring under abnormal circumstances.

16.1 **Adverse Water Quality Sample**

- If the accredited laboratory discovers adverse water quality in a sample, they are obligated to notify Water Services within 24 hours. All adverse water results prescribed by Schedule 16 of O.Reg.170/03 must be immediately reported by Water Services to the Medical Officer of Health, Spill Action Centre and the MECP.

- During adverse water quality incidents, maps and drawings are provided to the local health authority whereby direction is given to the Town as to the locations of sampling and monitoring upstream and downstream of the location from which the adverse sample was found.

16.2 Power/Communication Loss

- Water Services staff is alerted via telephone in the event of a power/communication loss that affects the SCADA system (refer to Element 11 for call-out procedure during working hours and after working hours).

- The SCADA system is programmed to continue calling the emergency contact list until the alarm is acknowledged.

16.3 Inclement Weather

- Additional Staff and/or equipment will be provided as needed.

Element 17 Measurement and Recording Equipment Calibration and Maintenance

The measurement and recording equipment used and their associated maintenance and calibration requirements are outlined in the Index of Calibration and Maintenance.

The measurement and recording equipment are calibrated by contractors according to the manufacturers' specifications or as mandated by legislation. All calibrations are recorded and filed at the Water Services office.

Contractors that are used for performing calibrations are identified in the "Essential Supplies and Services List" (refer to Appendix 5 - Essential Supplies and Services List).

Element 18 Emergency Management

The Corporation of the Town of Tecumseh's Water Distribution Operators have in-house emergency training and are aware of the location of written procedures to deal with emergencies in the water distribution system. Specific instructions for responding to emergencies, including emergency situations that have the potential to result in acute drinking water health risks, are saved in hardcopy form in the Water Services office and electronically in the document control software. Once a year, a training exercise will be conducted to test selected emergency procedures. If present methods should change, or if new employees are brought into the system, semi-annual training will occur on dealing with emergencies. Senior employees or direct supervisors would provide this training. All training is documented and placed in employee training files.

Water Distribution Operators are on twenty-four hour call to ensure that a qualified staff member will attend and assess any water emergency.

18.1 **Emergencies**

- Adverse Water Quality
- Water distribution cannot supply fire protection or safe drinking water
- Situations in the water distribution system that have the potential to result in acute drinking water health risks

In the event of an identified emergency the Manager, Water Services/ORO or designate shall be contacted immediately. The Manager, Water Services/ORO or designate is designated to be responsible for overall management, decision-making, and communications at the entail level of emergency.

In the event the Manager, Water Services/ORO or designate is unavailable, the Director of Public Works and Engineering Services shall be contacted and will appoint a temporary ORO.

The Manager, Water Services/ORO or designate will then report all incidents and corrective actions to the Director, Public Works and Engineering Services or designate.

The Director, Public Works and Engineering Services, in collaboration with the Manager, Water Services/ORO or designate, will advise the Municipal Owners/Operating Authorities of the system.

The Mayor and CAO of The Corporation of the Town of Tecumseh shall only be notified in the event that water cannot be supplied to the Town in sufficient amounts for fire protection, or that water quality poses an acute health risk to consumers and a boil water advisory or drinking water advisory must be issued.

The Water Services Emergency Response Plan is an emergency plan consisting of a set of guidelines assembled to assist water staff in emergency response procedures and is intended to facilitate a systematic and coordinated response to a variety of water emergencies or major incidents. The Water Services Emergency Response Plan has been formulated to assign emergency response roles and responsibilities, and to guide immediate and long-term response to incidents adversely affecting the water operations.

In the event of a problem occurring greater than a water emergency the Corporation of the Town of Tecumseh Emergency Response Plan will be implemented. A hardcopy is stored in the Water Services office and electronically in the document control software.

An extensive emergency contact list is provided within the Water Services Emergency Response Plan. The Water Services Emergency Response Plan is reviewed on an annual basis.

Element 19 Internal Audits

Internal audits will be performed in entirety at least once every calendar year as legislated, to ensure the DWQMS conforms to the requirements of the DWQMS Operational Plan. These requirements include ensuring that the DWQMS has been effectively implemented and properly maintained.

The Corporation of the Town of Tecumseh will conduct internal audits by trained auditors internally or by a contracted trained auditor chosen by The Corporation of the Town of Tecumseh.

19.1 Internal Audits Conducted by Town of Tecumseh Auditors

- The assignment of auditor's and schedules will be the responsibility of the DWQMS Representative.
- Internal audits will be conducted by a person who has successfully completed a recognized Internal Auditor workshop.
- Internal audits will be scheduled based on the availability and schedules of the participants.
- DWQMS will be audited as per the legislative requirements.
- The auditor shall review all related DWQMS documentation.
- The auditor shall observe activities, review records, review previous internal and external audit results, and interview personnel as necessary to ensure that the status of the audited Elements of the DWQMS has been effectively covered.
- The auditor shall submit completed reports to the DWQMS Representative and the Manager, Water Services/ORO or designate.
- The report shall include any corrective actions requests required to address discrepancies.
- Responses to corrective action request shall be designated to the responsible individual by the DWQMS Committee.

Element 20 Management Review

Management Review (Also referred to as the DWQMS Committee) ensures and evaluates the continuing suitability, adequacy and effectiveness of the DWQMS. This process reviews the effectiveness of the DWQMS by the DWQMS Committee.

20.1 Review Participants

Management Reviews shall be conducted during a meeting of the DWQMS Committee that is comprised of the following:

- Chief Administrative Officer (CAO)
- The Director of Public Works & Engineering Services
- The Manager, Water Services/ORO or designate
- The meeting is chaired by DWQMS Representative

The DWQMS Rep will communicate the meeting minutes to all DWQMS Committee members.

20.2 Review Frequency

Management Reviews shall be conducted after the internal audit has been completed and submitted to the DWQMS Representative by the Internal Auditor. The Management Review shall be conducted at least once a calendar year unless additional meetings are required as per the DWQMS Committee.

20.3 Review Input

The DWQMS Representative and/or Manager, Water Services/ORO or designate shall provide information and data concerning the following categories for the review if requested:

- Incidents of adverse drinking water tests
- Results of Internal Audits
- Results of External Audits

- Results of MECP Inspection
- Incidents of non-compliance with applicable regulations
- Consumer feedback
- Operational performance
- Changes to services, activities, regulations etc. that could affect DWQMS
- Infrastructure review results
- Currency of operational plan
- Deviations from CCP limits
- Effectiveness of risk assessment process
- Emergency preparedness
- Trends in quality of raw water & drinking water supply
- Resources needed for DWQMS maintenance
- Town of Tecumseh website
- Retention table
- Review of best practices
- Comments / suggestions made by water services personnel

20.4 **Review Process**

The DWQMS Committee shall review and discuss all information presented.

The DWQMS Committee shall make recommendations and initiate an action plan, including the person(s) responsible for delivering the action items and the proposed timelines, to improve the content and implementation of the Operational Plan and related procedures, and to ensure the provision of adequate resources.

The DWQMS Representative shall be responsible for communication and implementation of the Management Review findings.

Element 21 Continual Improvement

The Corporation of the Town of Tecumseh strives to continually improve the effectiveness of its DWQMS. Issues of non-compliance, non-conformance and opportunities for improvement are presented through:

- The review of best management practices (BMP's) at least once every 36 months (including the review of MECP's BMP document, when published) will undergo the same schedule as the comprehensive risk assessment.
- MECP compliance inspections.
- Adverse water quality incidents.
- External DWQMS accreditation audits.
- Internal DWQMS audits.
- Corrective Action Reports.
- Management reviews.
- Staff suggestions.
- Consumer calls.
- Other means (e.g. near-misses, other utilities' experiences, etc.).

The Request for New or changed DWQMS Document form included in Appendix 7 allows Operators to provide insight, feedback and ideas on how to keep DWQMS documents and forms current and relevant. By using this form, the DWQMS Representative has an effective means of tracking and measuring continual improvement.

Corrective actions are taken to address issues (e.g. non-conformities, non-compliances and other drinking water system failures) where:

- Causes of the issues are investigated.
- Actions taken to correct the issues are documented.
- Actions are taken to prevent the issues from re-occurring.

- Reviews of actions taken to correct / prevent the issues are carried out to verify they are implemented and effective in correcting / preventing the re-occurrence of the issue.

Preventative actions may also be taken to eliminate potential issues – and these are documented and reviewed to ensure they are implemented effectively in preventing the potential issue from occurring.

Appendices

Appendix 1 Commitment and Endorsement

The endorsement of the Tecumseh Distribution System Operational Plan by Municipal Owner/Operating Authority (The Corporation of the Town of Tecumseh, Municipal Council) will be added to Appendix 1 when the report to Council, submitted by the Manager, Water Services/ORO or designate, is formerly approved.

**The Corporation of the
Town of Tecumseh**

Public Works & Engineering Services

To: Mayor and Members of Council

From: Phil Bartnik, Director Public Works & Engineering Services

Date to Council: February 27, 2024

Report Number: PWES-2024-13

Subject: Drinking Water Quality Management System
Operational Plan

Recommendations

It is recommended:

That Report PWES-2024-13 Drinking Water Quality Management System Operational Plan **be received**;

And that Tecumseh Town Council **endorse and commit to** the Town of Tecumseh Distribution System, Drinking Water Quality Management System Operational Plan, Revision Date: February 27, 2024.

Background

Following the contamination of the water supply in Walkerton, Ontario in May 2000, a provincial inquiry was held that investigated the cause of the water contamination, which then triggered an examination of the state of drinking water protection in Ontario.

The Walkerton Inquiry Report outlined a number of recommendations for drinking water protection in Ontario that resulted in the Safe Drinking Water Act and Clean Water Act that regulate our water systems today.

The legacy of events in Walkerton has resulted in a significantly improved legal framework for drinking water protection that includes a multi-barrier approach.

The requirement for Owners and Operating Authorities of municipal residential drinking water systems to develop and implement Drinking Water Quality Management Systems (DWQMS) was legislated under the Safe Drinking Water Act (SDWA) and forms part of the Ministry of the Environment, Conservation and Parks (MECP) Municipal Drinking Water Licensing Program. The idea of mandated implementation of a DWQMS originated as recommendations in Part Two of the Walkerton Inquiry Report.

The DWQMS requires that an Operational Plan for the Drinking Water System is established and that this Operational Plan be endorsed and committed to by the Owners/Operating Authority – Tecumseh Town Council.

The Operational Plan must include elements that are fundamental to ensuring the long-term sustainability of a Drinking Water System including: management processes employed within the system; the maintenance of infrastructure used to supply drinking water; and identification of potential risks and risk mitigation strategies for items such as system security, water treatment, and the impacts of climate change.

As legislatively required by the province, the Town of Tecumseh is required to review, update, and maintain its DWQMS Operational Plan on an annual basis. This is an important element, which is key to the continuous improvement process.

Comments

Updates to the Operational Plan are administered through staff suggestions, changes in administrative or work processes, internal audits, external audits, MECP inspections and regulatory updates.

Management Review is a key component of the DWQMS to assess and ensure the continuing adequacy and effectiveness of the Town's DWQMS. Updates to the Operational Plan are submitted to and approved by the Management Review Committee, which is comprised of the Town's Chief Administrative Officer (Marg Misek-Evans), Director Public Works & Engineering Services (Phil Bartnik), Manager Water Services (Brad Dupuis) and the DWQMS Representative/Water Operator (Nicole Bradley).

Updates to the Operational Plan in 2023 were due in part to the following:

1. Management Review Committee Recommendations

   The Management Review Committee approved the suggested updates to the Operational Plan at their meetings from the 2023 calendar year and most recently, at the February 13, 2024 meeting. The minutes recorded from each meeting are provided as Attachments 2, 3, and 4, respectively.

Key updates and revisions to the Operational Plan include but are not limited to the following:

Element No.	Title	Revision	Page No. in Operational Plan
5	Document and Records Control	Amended Section 5.1: Addition of statement "using the Request for new or changed DWQMS document form". Amended Section 5.2: Wording for reviewing and approving DWQMS documents.	12 13
6	Drinking Water System	Addition of the class of the distribution system in the description.	16
9	Organizational Structure, Roles, Responsibilities and Authorities	Addition of responsibility to all positions with the exception of Owner and CAO. Amended Section 9.2: Changed to Table format.	22 22
17	Measurement and Recording Equipment Calibration and Maintenance	Addition of wording to include creation of Index of Calibration and Maintenance spreadsheet.	39
19 & 20	Internal Audits & Management Review	Name change from "DWQMS Management Review Committee" to "DWQMS Committee".	42 & 43

21	Continual Improvement	Addition of "Corrective Action Reports" to 1st bullet list. Addition of wording to clarify the purpose of DWQMS Document change form.	46 46
General	Appendix 4 – Throughout	Spelling and grammar revisions.	80
General	Appendix 5 – Throughout	Contact information of Essential Supplies and services updated: Computer Systems: Name change from "Information Services" to "Technology and Client Services. Communications: Name Change from "Information Services" to "Technology and Client Services".	 102 101
General	Appendix 7	Correction to Title.	103

The above-noted revisions were implemented in the updated Operational Plan, dated February 27, 2024, which is appended in this report as Attachment 1.

Tecumseh's Water Services staff strives to continually improve the effectiveness of its DWQMS to provide reliable and safe drinking water for consumers.

Consultations

Chief Administrative Officer
Ministry of the Environment, Conservation and Parks

Financial Implications

There are no financial implications arising from this report.

Link to Strategic Priorities

Applicable	2023-2026 Strategic Priorities
☐	Sustainable Growth: Achieve prosperity and a livable community through sustainable growth.
☒	Community Health and Inclusion: Integrate community health and inclusion into our places and spaces and everything we do.
☐	Service Experience: Enhance the experience of Team Tecumseh and our citizens through responsive and respectful service.

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:

Dana Reid
Public Works & Engineering Services Assistant

Reviewed by:

Brad Dupuis, C. Tech.
Manager Water Services

Reviewed by:

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

Recommended by:

Margaret Misek-Evans, MCIP, RPP
Chief Administrative Officer

Attachment Number	Attachment Name
1	Town of Tecumseh Distribution System Drinking Water Quality Management System Operational Plan, Revision Date: February 27, 2024
2	Management Review Committee Meeting Minutes dated: February 13, 2024
3	Management Review Committee Meeting Minutes dated: July 11, 2023
4	Management Review Committee Meeting Minutes dated: March 27, 2023

Appendix 2 Drinking Water System

2.1 Watermain Material Type and Length in Tecumseh Water Distribution System

a) Table 1: Watermain Type and Length

Watermain Material	50mm dia. (m)	100mm dia. (m)	150mm dia. (m)	200mm dia. (m)	250mm dia. (m)	300mm dia. (m)	400mm dia. (m)	600mm dia. (m)	Total Length (m)
Cast Iron	-	103.2	17,322.2	112.2	784	-	3.4	-	**18,325**
Concrete	-	-	-	-	-	-	2,525.5	-	**2,525.5**
Ductile Iron	-	-	10,002	6,498.8	1,062	1,659.7	2,428.5	500.2	**22,151.2**
Poly Vinyl Chloride (PVC)	734.1	1768	58,698.2	71,475.5	15,903	20,051	9366.6	3,821.2	**181,817.6**
Polyethylene	7.7	-	60.2	-	-	-	-	145.6	**213.5**
Copper	6.7	-	-	-	-	-	-	-	**6.7**
Total	**523.8**	**1871.2**	**86,082.6**	**78,086.5**	**17,749**	**21,710.7**	**14,324**	**4,467**	**225,039.5**

2.2 **Metering Connections**

a) North Distribution System

The north distribution system is currently supplied from the Windsor Water System through the following metering connection:

- 400 mm diameter feedermain on Dillon Drive
- 300 mm diameter feedermain on McNorton Street
- 400 mm diameter feedermain on Tecumseh Road
- 600 mm diameter feedermain on Mulberry Drive
- 600 mm diameter feedermain on County Road 42
- (future) 600 mm diameter feedermain on Intersection Road

b) South Distribution System

The south distribution system is currently supplied from the Windsor Water System through the following connections:

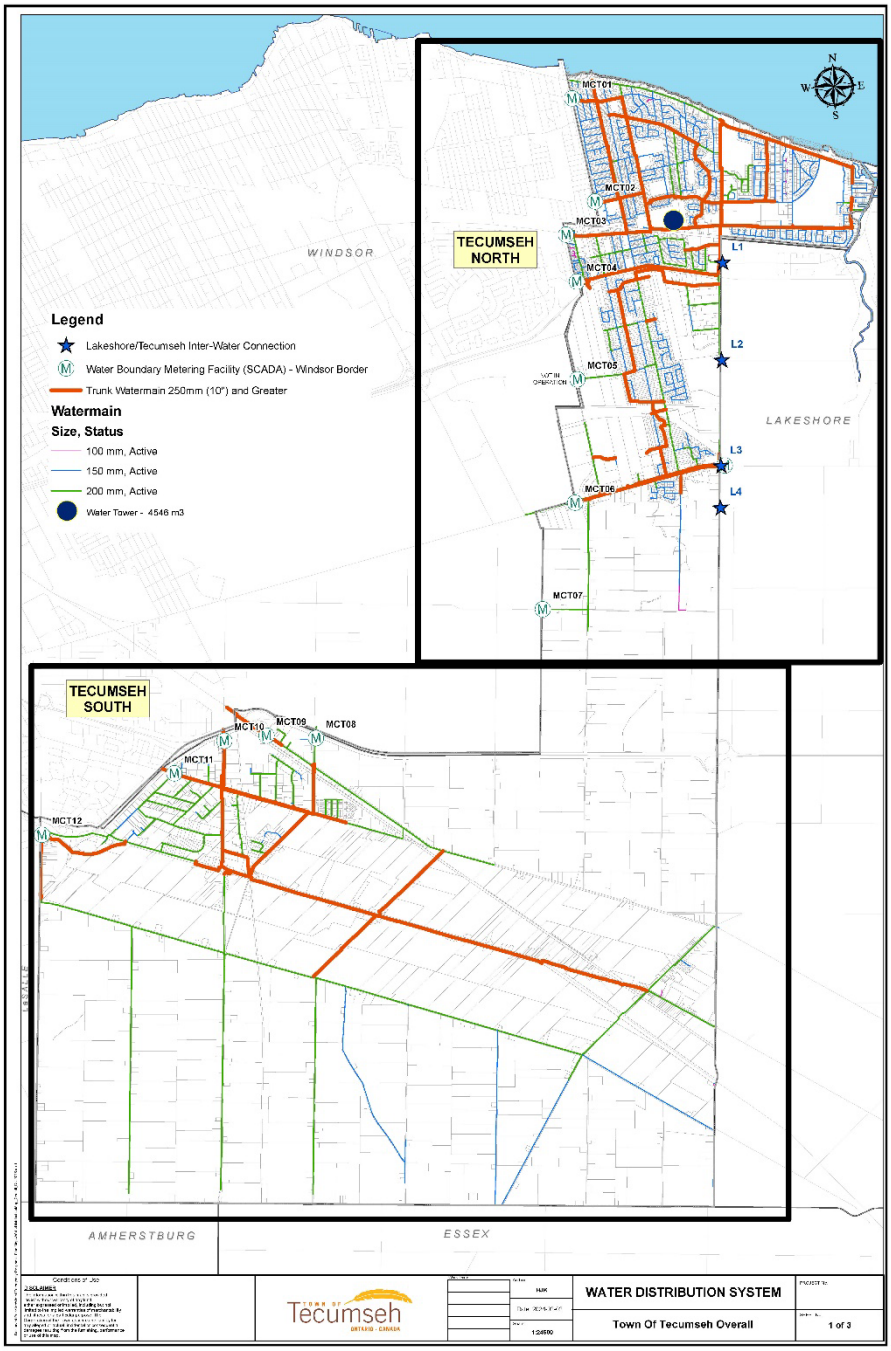
- 200 mm diameter feedermain on Baseline Road
- 200 mm diameter feedermain on 8th Concession Road
- 600 mm diameter feedermain on County Road 46
- 300 mm diameter feedermain on Walker Road
- 300 mm diameter feedermain on North Talbot Road

The south distribution system is also supplied from the Town of LaSalle Water System through the following connection:

- 200 mm diameter feedermain on Howard Avenue

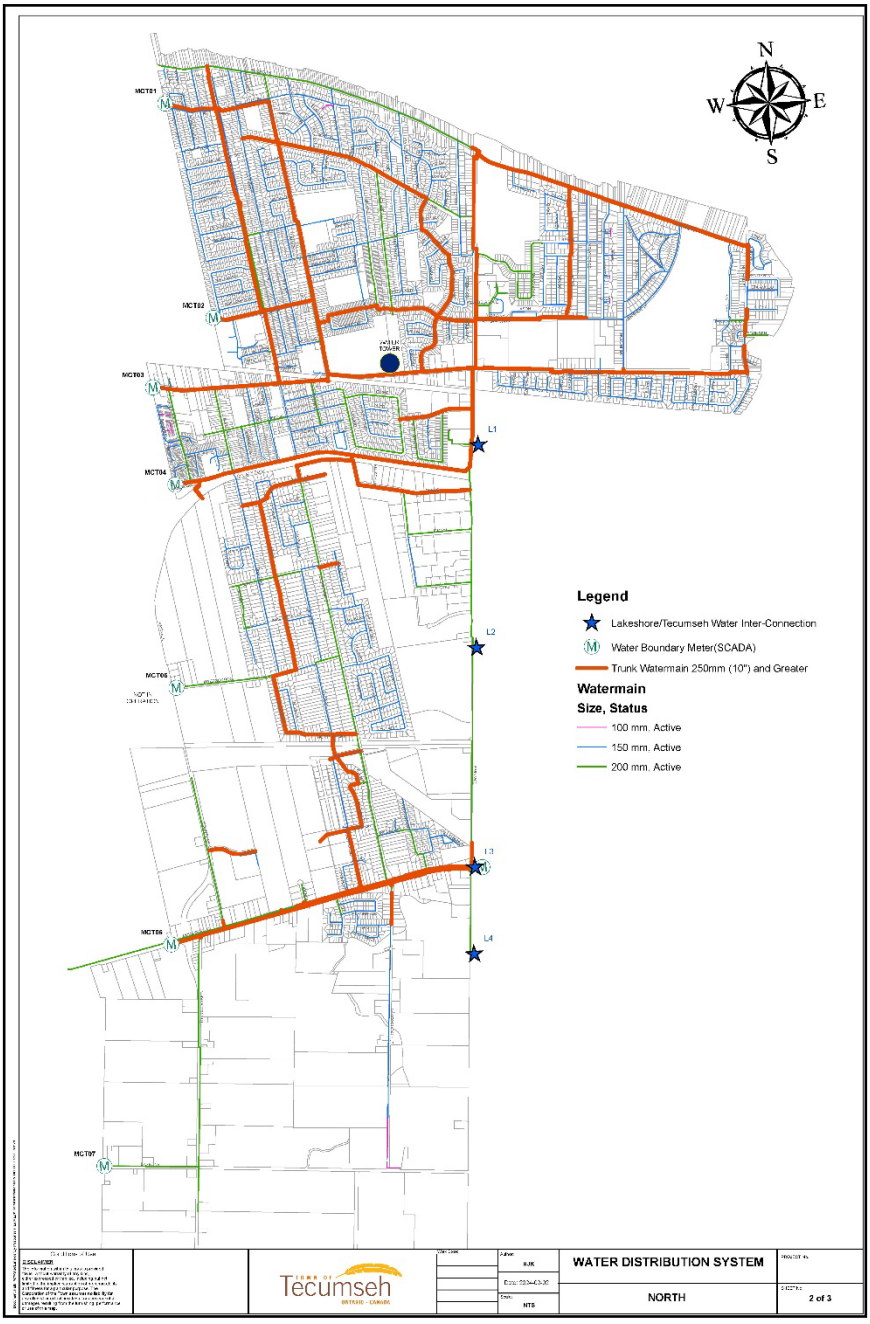
2.3 Town of Tecumseh Water Distribution System, Overall Service Area

a) Map 1: Overall Service Area



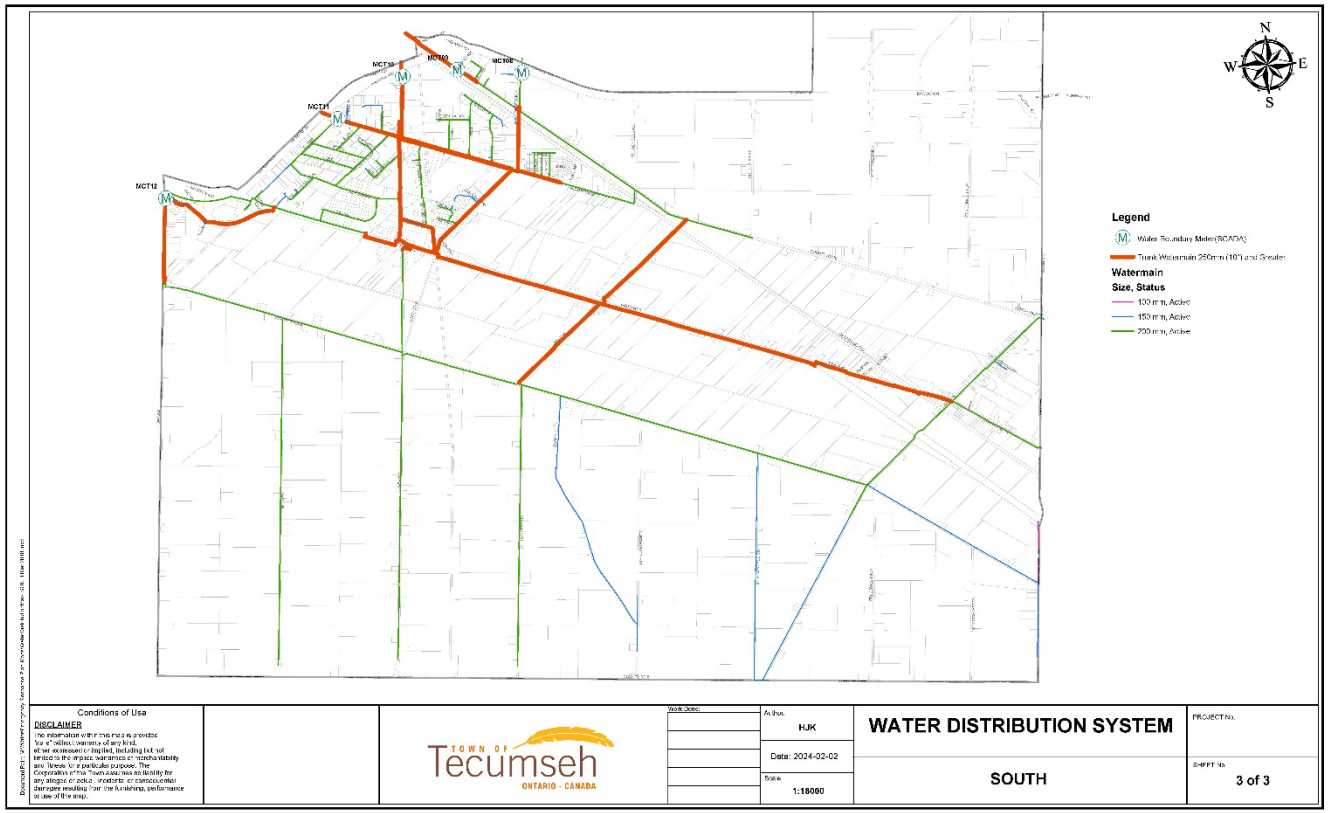
2.4 Town of Tecumseh Water Distribution System, North Service Area

a) Map 2: North Service Area



2.5 **Town of Tecumseh Water Distribution System, South Service Area**

a) Map 3: South Service Area



Appendix 3 Risk Assessment

3.0 Completing the Hazard Analysis and Critical Control Point Worksheet Procedure

The Risk Assessment Team is to complete the tasks outlined in Element 7 Risk Assessment and Element 8 Risk Assessment Outcomes (included as part of this Operational Plan) along with the instructions included as part of Appendix 3 – Risk Assessment (this section) and Appendix 4 – Risk Assessment Outcomes.

The Hazard Analysis & Critical Control Point (CCP) Worksheets included in Appendix 4 are reviewed and used to record the results of the risk assessment.

A. **Getting Started**: Follow the flow and process of receiving and delivering of clean drinking water to the consumer.

B. **Activity or Process Step:** This column refers to specific areas within a particular process step (pumps, tower, distribution system, etc.).

C. **Description of Hazard:** This column refers to an incident or situation that can lead to the presence of a hazard. Hazards and Hazardous events can result from natural or technological causes, or from human activities. At a minimum, the Ministry's "Potential Hazardous Events for Municipal Drinking Water Systems" (dated April 2022) is considered as part of this assessment. Any additional potential hazardous events and associated hazards also need to be included.

D. **Potential Result of Hazard:** This column refers to the source of danger or a property that may cause drinking water to be unsafe for human consumption. Biological, Chemical, Physical and Radiological. A description of each hazard is outlined in (Table 1).

E. **Comments:** This column refers to any additional information that will help in the description of the hazard or identification.

F. **Available Monitoring & Control Measures:** This column refers to any monitoring and control measures in place or need to be identified as a need to be put in place. Control measures must be addressed for all potential hazards and hazardous events, regardless of whether they are CCP's or not. This may include monitoring, preventive measures, regular inspection, back-up equipment, written standard operating procedures etc.

G. **Emergency Procedures or Contingency Plan:** This column identifies any emergency procedure or contingency plan in place to deal with the hazards identified.

H. **Likelihood, Consequence, Detectability and Total:** These columns refer to the ranking criteria identified in (Tables 2, 3, 4, 5.).

I. **Critical Control Point (CCP):** Identifies the total value of the columns, and determines if the value are above or below the set threshold.

J. **Control Procedure:** This column is where you apply some sort of control, to prevent or eliminate a drinking water health hazard or to reduce the health hazard to an acceptable level.

- Hazards identified as CCP's or Recommended Minimum CCP's require control measures, which are documented in procedures or work instructions.

Control Measures include:

- Work Instructions.
- Monitoring, reporting and recording requirements.
- Support information.
- Response for a deviation from critical control point.
- Recovery procedures if necessary.
- Equipment reliability and redundancies.

3.1 **Determining the Level of Risk for each Hazard**

A. Using the Ranking criteria set out at the bottom of each work sheet estimate the level of risk for each hazard.

B. Using the criteria set out at the bottom of the work sheet assign a value to each **Likelihood, Consequence and Detectability**.

C. Once the value for each is assigned, add the three values together **A+B+C=Total**.

D. The **Total** will be ranked as per the criteria in the “Total Analysis” table found at the bottom of the work sheet.

E. If the Total is in the High or Very High range as a hazard, it will require either a Critical Control Point procedure, or a response procedure.

3.2 Table 1: Hazards

Type of Hazard	Description of Hazard
Biological Hazards	Biological pathogens are usually considered the most significant drinking water health risk because the effects are acute; Waterborne biological hazards include bacterial, viral and parasitic organisms. These organisms are commonly associated with faecal wastes from humans and other animals, and some can occur naturally in the environment.
Chemical Hazards	Chemical hazards in drinking water may come from a source or occur in the treatment and distribution system. They include but are not limited to: toxic spills, naturally occurring minerals, heavy metals, dissolved gases (e.g. radon), pesticides, fertilizers, endocrine disruptors, personal care products and pharmaceutical residuals, cyanotoxins, flocculants, coagulants, lubricants, copper, iron, zinc, and lead from pipes and fittings.
Physical Hazards	Sediments are the most common physical hazard associated with drinking water and are of concern as they may carry with them microbiological hazards and interfere with disinfection system efficiency. Other physical hazards include biofilms, pipe materials etc.
Radiological Hazards	Radiological hazards may arise from man-made or natural sources, with naturally occurring chemicals (uranium, radon, etc.) most frequently found in groundwater.

3.3 Table 2: Likelihood

Description	Likelihood of Hazardous Event Occurring	Rating
Rare	May occur in exceptional circumstances, and has not occurred in past.	1
Unlikely	Could occur at some time, historically has occurred less than once every five or 10 years.	2
Possible	Has occurred or may occur once or more per year.	3
Likely	Has occurred or may occur on a monthly to quarterly basis.	4
Very Likely	One or more occurrences on a monthly or more frequent basis.	5

3.4 Table 3: Consequence

Description	Consequence of Hazardous Event Occurring	Rating
Insignificant	Insignificant impact, little public exposure, little or no health risk.	1
Minor	Limited public exposure, minor health risk.	2
Moderate	Minor public exposure, health impact on small part of the population.	3
Major	Large part of the population at risk.	4
Catastrophic	Major impact for large part of the population, complete failure of systems.	5

3.5 Table 4: Detectability

Description	Detectability of Hazardous Event Occurring	Rating
Very Detectable	Easy to detect, on-line monitoring through SCADA.	1
Moderately Detectable	Moderately detectable, alarm present but not in SCADA, may require operator to walk by and notice alarm; problem is indicated promptly by in-house lab test results.	2
Normally Detectable	Normally detectable, visually detectable on rounds or through regular maintenance.	3
Unlikely Detectable	Unlikely detectable, visually detectable but not inspected on a regular basis; not normally detected before problem becomes evident; lab tests are not done on a regular basis (e.g. quarterly).	4
Undetectable	Cannot be detected.	5

3.6 Table 5: Risk Analysis (Total)

Likelihood + Consequence + Detectability	(Total) Risk Category
3 to 5	Low
6 to 7	Moderate
8 to 11	High
12 to 16	Very High

3.7 Provincial Government Bulletin

Ontario

Ministry of the Environent, Conservation and Parks

Potential Hazardous Events for Municipal Residential Drinking Water Systems
to Consider in the DWQMS Risk Assessment

April 2022

1.0 Background

A risk assessment must be conducted for all municipal residential drinking water systems, as part of the operational plans for those systems. These operational plans form the basis upon which third party auditors assess conformance to the Drinking Water Quality Management Standard.

This approach includes identification of potential risks and risk mitigation strategies for items such as system security, water treatment, and the impacts of climate change. This document lists the potential hazardous events and associated hazards that are, at a minimum, required to be assessed as part of these risk assessments.

2.0 Definitions

All Systems - all municipal residential drinking water systems, including distribution-only systems.

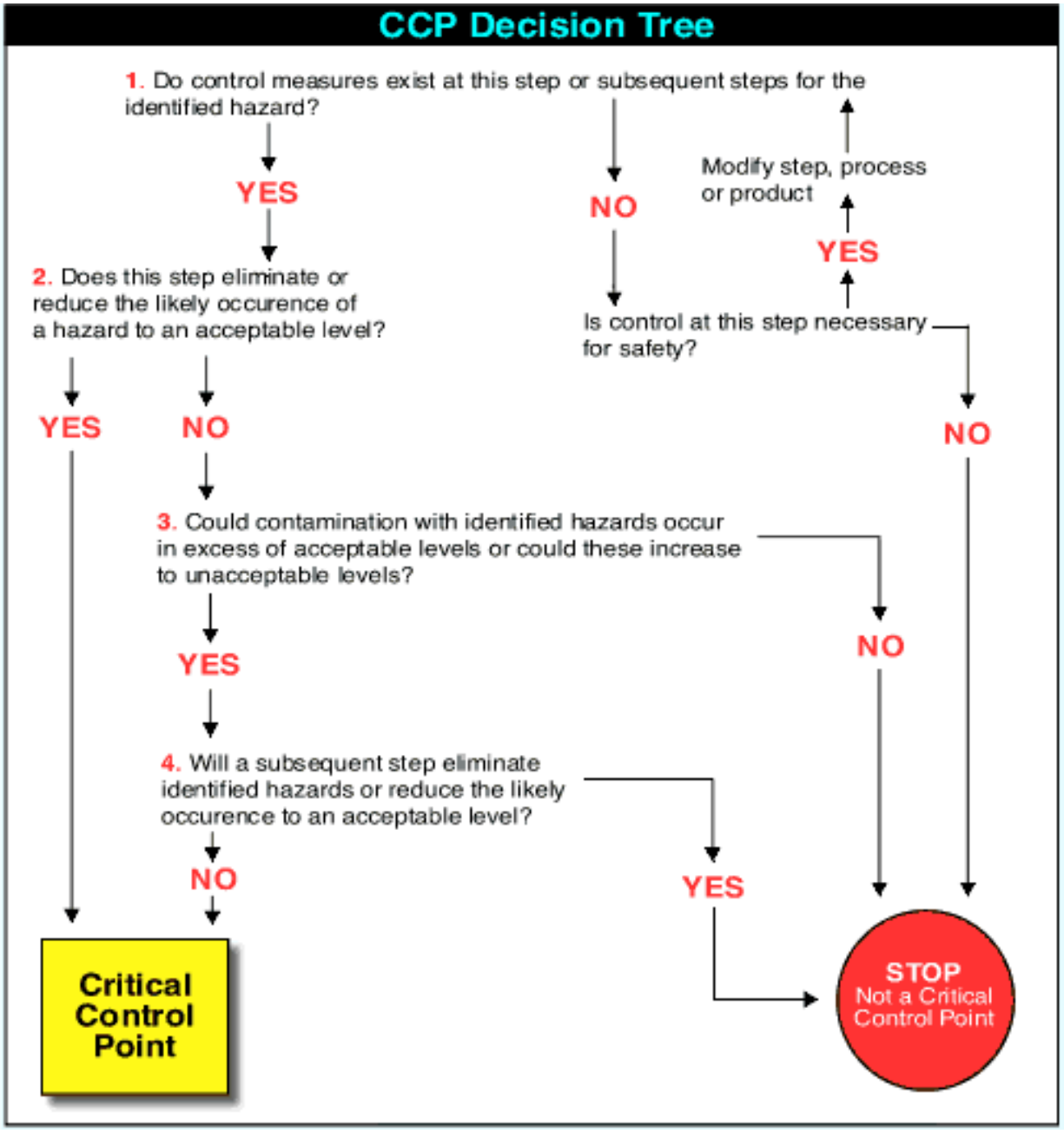
Treatment Systems - all municipal residential drinking water systems that include equipment used to provide primary and/or secondary disinfection of the drinking water, including those with groundwater and/or surface water sources unless otherwise noted.

3.0 Potential Hazardous Events

System Type	Description of Hazardous Event / Hazard
All systems	Long Term Impacts of Climate Change
All systems	Water supply shortfall
All systems	Extreme weather events (e.g., tornado, ice storm)
All systems	Sustained extreme temperatures (e.g., heat wave, deep freeze)
All systems	Chemical spill impacting source water
All systems	Terrorist and vandalism actions
All systems	Cybersecurity threats
Distribution Systems	Sustained pressure loss
Distribution Systems	Backflow
Treatment Systems	Sudden changes to raw water characteristics (e.g., turbidity, pH)
Treatment Systems	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system).
Treatment Systems and Distribution Systems providing secondary disinfection	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
Treatment Systems using Surface Water	Algal blooms

Appendix 4 Risk Assessment Outcomes

Once the values for likelihood, consequence, and detectability are assessed, the determination of whether an identified risk is also a critical control point (CCP) is made using the following decision tree:



The control points generally meet the characteristics of an ideal critical control point as they typically are:

- Able to prevent, eliminate or reduce hazards,
- Monitored, preferably in real time,
- Able to have determined control limits, and,
- Essential to ensure the safety of the drinking water.

These control points also provide important barriers in the multiple barrier process to ensure that pathogens that could be present in the water are effectively inactivated and/or removed, and that secondary disinfection is maintained in the distribution system. CCP's often have corresponding Critical Control Limits, which are identified in the following tables:

Critical Control Point (CCP)	Critical Control Limit (CCL)	Monitoring Process and/or Procedures	Response Procedure
Loss of Chlorine Residual (Secondary Disinfection)	**Free Chlorine** Target Residual in the Distribution System: • > 0.20 ppm (operational minimum) Reportable under the SDWA: • 0.05 ppm	• Certified and competent operators performing regulatory sampling, testing, and monitoring of system residuals as applicable. • Watermain flushing programs. • Installation of blow-offs and auto-flushers in dead ends. • Regular samples taken and analyzed for chlorine residual. • Water quality concerns tracked through consumer complaints. • SOP-002: Distribution Sampling for Chlorine Residuals.	Emergency Response procedures: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.3 Loss of Secondary Disinfectant (Chlorine) • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations • Response to consumer calls • Service Request tracking and monitoring Repair and system rehabilitation • Use of appropriately certified and competent contractors and suppliers

Critical Control Point (CCP)	Critical Control Limit (CCL)	Monitoring Process and/or Procedures	Response Procedure
Commissioning new Watermains causing Contamination Distribution	**Free Chlorine** Target Residual in the Distribution System: • 0.20 ppm (operational minimum) Reportable under the SDWA: • 0.05 ppm	• Certified and competent operators performing microbiological sampling, monitoring, and testing of chlorine residuals throughout the watermain commissioning process. • Watermain flushing procedures during commissioning of watermain. • Pressure testing and monitoring processes • SOP-007: *Commissioning New Watermains*	Emergency Response procedures: • 2.1 2.1 Boil Water Advisory (if bacteriological) • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.11 Watermain Break • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations • Contact MOH, MECP & SAC • Communicate water advisory, if issued by MOH • Follow corrective actions required by O.Reg. 170/03

4.1 Hazard Analysis and Critical Control Point Worksheets

Worksheet Number and Description Page No.

Worksheet 1 – Contamination of Source Water 75
Worksheet 2 – Vandalism/Tampering of Water Infrastructure 76
Worksheet 3 – Sediment Build-up in Water Distribution System 77
Worksheet 4 – Terrorism 78
Worksheet 5 – Spills from Freight Trains on Railway Tracks 79
Worksheet 6 – Power Failure 80
Worksheet 7 – Loss of Communication 81
Worksheet 8 – Watermain Breaks within the Distribution System 82
Worksheet 9 – Loss of Chlorine Residual (Secondary Disinfection) 83
Worksheet 10 – Commissioning New Watermains Causing Contamination 84
Worksheet 11 – Loss of Pressure Resulting from a Watermain Break 85
Worksheet 12 – Bacteriological Test Failure 86
Worksheet 13 – Failure of Backflow Prevention Device 87
Worksheet 14 – Adverse Drinking Water Lead Results 88
Worksheet 15 – Extreme Cold/Heat/Long-term Impacts of Climate Change 89
Worksheet 16 – Loss of Pressure Resulting from Major Fire 90
Worksheet 17 – Loss of System Pressure 91
Worksheet 18 – Staff Shortage 92
Worksheet 19 – Cyber Security 93

Worksheet No. 1 Contamination of Source Water

Contamination of Source Water			
Activity or Process Step: • Source Water			
Description of Hazard: • Contamination of Source Water			
Potential Results of Hazard: • Biological • Chemical • Physical			
Comments: • No Control • System water received from Windsor Utilities Commission			
Identified Control Measures: • Mandatory weekly sampling throughout distribution system as per O.Reg.170/03 • On-line monitoring at (WUCTP) • Reference SOP-012: *Bad Sample or Adverse Water Quality* • Contact MECP, MOH & SAC • Communication with the (WUCTP) • Conducting all sampling and testing as necessary or as directed at points in the distribution system under the direction of the MOH. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.4 Contamination of Water Transmission System • 2.14 Water Shortage • 2.16 Establishing Potable Filling Stations • 2.20 Epidemic / Pandemic			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	4
		Detectability	2
		(High Risk Threshold = 8)	***Total* = 7 (CCP = No)**

Worksheet No. 2 Vandalism/Tampering of Water Infrastructure

Vandalism/Tampering of Water Infrastructure		
Activity or Process Step: • Water Distribution System		
Description of Hazard: • Vandalism/ Tampering		
Potential Results of Hazard : • Biological	• Physical	• Chemical
Comments: • Limited Control • Water distribution system infrastructure such as but not limited to sample stations, hydrants, auto-flushers and meter chambers are covered within this work sheet.		
Identified Control Measures: • Security fence locked and gated • Secure entry into Water Tower through pass card and key • Alarm system with SCADA • Security Cameras • Visual inspections of infrastructure completed • Where applicable, infrastructure is locked • Reference SOP-013: *SCADA Alarm Procedure* and SOP-022: *Fire Hydrant Inspection, Maintenance & Flushing* • Contact Emergency Services, MOH, MECP & SAC • Communicate drinking water advisory if issued by MOH • Sample water quality until two consecutive samples are negative within 48hrs. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples* • Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service* • Conduct sampling, microbiological & Cl2 residual. Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Contact WUCTP about closure of water valve for tower		
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.4 Contamination of Water Transmission System • 2.5 Emergency Evacuation • 2.6 Illegal Entry / Vandalism • 2.8 Loss of Access to Facility		• 2.9 Bomb Threat at any Water Facility • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations • 2.20 Epidemic / Pandemic • 2.21 Terrorism

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	4
		Detectability	1
		(High Risk Threshold = 8)	***Total= 6 (CCP = No)***

Worksheet No. 3 Sediment Build-up in Water Distribution System

Sediment Build-up in Water Distribution System			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Sediment buildup			
Potential Results of Hazard: • Biological • Chemical • Physical			
Comments: • No Control • Flushing program in place to aide in system water circulation / flow			
Identified Control Measures: • Inspection of tower every 5 years as prescribed by AWWA standards or per legislation • Monitoring water levels • Sample testing of chlorine residuals weekly. Reference SOP-004: *Chlorine Residual Sampling and Calibration of Chlorine Analyzer (Water Tower)* • Cleaning tower using a qualified contractor • Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.3 Loss of Secondary Disinfectant (Chlorine) • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	3
		Detectability	3
		(High Risk Threshold = 8)	***Total*= 7 (CCP = No)**

Worksheet No. 4 Terrorism

Terrorism			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Terrorism			
Potential Results of Hazard: • Biological	• Physical	• Chemical	
Comments: • No Control			
Identified Control Measures: • Security fence locked and gated • Secure entry • Alarm system with SCADA • Security Cameras • Reference SOP-013: *SCADA Alarm Procedure* • Contact Emergency Services, MOH, MECP & SAC • Communicate drinking water advisory if issued by MOH • Sample water quality until two consecutive samples are negative within 48hrs. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples* • Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service* • Conduct sampling, microbiological & Cl_2 residual. Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Contact WUCTP about closure of water valve for tower			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.4 Contamination of Water Transmission System • 2.5 Emergency Evacuation • 2.6 Illegal Entry / Vandalism • 2.8 Loss of Access to Facility		• 2.9 Bomb Threat at any Water Facility • 2.14 Water Shortage • 2.16 Establishing potable water filling stations • 2.20 Epidemic / Pandemic • 2.21 Terrorism	
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	5
		Detectability	1
		(High Risk Threshold = 8)	***Total* = 7** **(CCP = No)**

Worksheet No. 5 Spills from Freight Trains on Railway Tracks

Spills from Freight Trains on Railway Tracks

Activity or Process Step:
- Water Distribution System

Description of Hazard:
- Spills from CN freight trains on VIA tracks.

Potential Results of Hazard:
- Physical
- Biological
- Chemical

Comments:
- No Control

Identified Control Measures:
- Security fence locked and gated
- Secure entry at Water Tower through pass card and key
- Alarm system with SCADA
- On-line monitoring at (WUCTP)
- Security Cameras
- Reference SOP-013*: SCADA Alarm Procedure*
- Passenger & Freight trains limited to max speed of 50mph zone
- Contact Emergency Services, MOH, MECP & SAC
- Communicate drinking water advisory if issued by MOH
- Sample water quality until two consecutive samples are negative within 48hrs. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples*
- Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service*
- Conduct sampling, microbiological & Cl2 residual. Reference SOP-002: *Distribution Sampling for Chlorine Residuals*
- Contact WUCTP about closure of water valve for tower

Emergency Response Procedure:
- 2.1 Boil Water Advisory
- 2.4 Contamination of Water Transmission System
- 2.5 Emergency Evacuation
- 2.8 Loss of Access to Facilities
- 2.12 On-Site Injury
- 2.14 Water Shortage
- 2.16 Establishing Potable Water Filling Stations

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	3
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 5** **(CCP = No)**

Worksheet No. 6 Power Failure

Power Failure			
Activity or Process Step: • Power Supply / Communications			
Description of Hazard: • Physical			
Potential Results of Hazard: • Loss of SCADA network			
Comments: • Limited Control • Power loss in general and also from extreme weather conditions			
Identified Control Measures: • UPS battery backup at monitoring stations • UPS battery backup on server • Reference SOP-013: *SCADA Alarm Procedure* • System alarmed • Backup generator for server • SCADA system checks completed on scheduled work days • Data is backed up daily onto main server			
Emergency Response Procedure: • 2.7 Interruption of SCADA Components • 2.15 Failure of Control Systems • 2.18 Equipment Failure			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	2
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 4** **(CCP = No)**

Worksheet No. 7 Loss of Communication

Loss of Communications			
Activity or Process Step: • Power Supply / Communications			
Description of Hazard: • Physical			
Potential Results of Hazard: • Failure of business telephone lines • Failure of local telephone provider's circuit connections, radio signals, and Ethernet connections • Failure of cellular telephones			
Comments: • None			
Identified Control Measures: • UPS battery backup at monitoring stations • UPS battery backup on server • Reference SOP-013: *SCADA Alarm Procedure* • System alarmed • Backup generator for server • SCADA system checks completed on scheduled work days • Data is backed up daily onto main server			
Emergency Response Procedure: • 2.7 Interruption of SCADA Components • 2.15 Failure of Control Systems • 2.18 Equipment Failure			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	5
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 7** **(CCP = No)**

Worksheet No. 8 Watermain Breaks within the Distribution System

Watermain Breaks within the Distribution System			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Watermain breaks within the distribution system possibly causing adverse conditions.			
Potential Results of Hazard: • Biological • Chemical • Physical			
Comments: • No control			
Identified Control Measures: • Consumer complaints; low pressure or visual inspection • General inspection of distribution system • Controlling valves, looping and replacing watermain • SCADA alarm system • Reference SOP-009: *Watermain Repair Procedure Category 1* • Reference SOP-010: *Watermain Repair Procedure Category 2* • Reference SOP-014: *Responding to Afterhours Call Outs* • Reference SOP-021: *Valve Exercising Maintenance Program*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.3 Loss of Secondary Disinfection • 2.4 Contamination of Water Transmission System • 2.11 Watermain Break • 2.13 Street Flooding Due to Watermain Break • 2.17 Damage to Main Supply Transmission Line			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	4
		Consequence	2
		Detectability	3
		(High Risk Threshold = 8)	***Total*= 9** **(CCP = No)**

Worksheet No. 9 Loss of Chlorine Residual (Secondary Disinfection)

Loss of Chlorine Residual (Secondary Disinfection)			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Loss of chlorine residual (secondary disinfection)			
Potential Results of Hazard: • Biological • Physical			
Comments: • Critical Control Limit of 0.05ppm free chlorine residual			
Identified Control Measures: • Weekly monitoring chlorine residuals throughout the distribution system • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-004: *Chlorine Residual Sampling and Calibration of Chlorine Analyzer- Water Tower* • Flush affected area to increase Cl_2 residual • Follow corrective actions required by O.Reg. 170/03. • Resample and reference SOP-011: *Low Chlorine Result Procedure*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.3 Loss of Secondary Disinfectant (Chlorine) • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	2
		Consequence	3
		Detectability	3
		(High Risk Threshold = 8)	***Total*= 8** **(CCP = Yes)**

Worksheet No. 10 Commissioning New Watermains Causing Contamination

Commissioning New Watermains Causing Contamination			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Commissioning new watermains causing contamination			
Potential Results of Hazard: • Biological • Chemical • Physical			
Comments: • Critical Control Limit of 0.05ppm free chlorine residual			
Identified Control Measures: • Reference SOP-007: C*ommissioning New Watermains* • Check Cl_2 residuals. Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Take microbiological samples. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples* • Follow corrective action as per O.Reg.170/03 • Communicate Boil Water Advisory if issued by MOH • Reference SOP-019: *Accepting / Inspecting Material meeting Water Standards & Material Specifications*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.11 Watermain Break • 2.14 Water Shortage • 2.15 Failure of Control Systems • 2.16 Establishing Potable Water Filling Stations • 2.18 Equipment Failure			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	3
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 5** **(CCP = Yes)**

Worksheet No. 11 Loss of Pressure Resulting from a Watermain Break

Loss of Pressure Resulting from a Watermain Break		
Activity or Process Step: • Water Distribution System		
Description of Hazard: • Loss of pressure due to watermain break		
Potential Results of Hazard: • Biological	• Chemical	• Physical
Comments: • As a best practice measure a Water Distribution System pressure of 20psi is targeted.		
Identified Control Measures: • Consumer complaints • Pressure gauges on boundary meters and tower monitored and alarmed by SCADA • Backflow prevention by-law and program • Check pressures in affected area. If necessary, discuss with MOH and MECP/SAC • Communicate water advisory if issued by MOH • Restore pressure and chlorine residuals and conduct testing and sampling in affected area • Notify (WUCTP) of low-pressure alarms • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-004: *Chlorine Residual Sampling and Calibration of Chlorine Analyzer- Water Tower* • Reference SOP-006: *Distribution Flow Testing Program* • Reference SOP-009: *Watermain Repair Procedure Category 1* • Reference SOP-010: *Watermain Repair Procedure Category 2.* • Reference SOP- 011: *Low Chlorine Result Procedure* • Reference SOP-013: *SCADA Alarm Procedure* • Reference SOP-014: *Responding to Afterhours Call Out* • Reference SOP-017: *Meter-Backflow Inspection Procedure*		
Emergency Response Procedure: • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.11 Watermain Break		• 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations • 2.17 Damage to Main Supply Transmission Line

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	2
		Consequence	4
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 7** **(CCP = No)**

Worksheet No. 12 Bacteriological Test Failure

Bacteriological Test Failure			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Bacteriological test failure			
Potential Results of Hazard: • Biological			
Comments: • No control			
Identified Control Measures: • Weekly monitoring: bacteriological testing throughout the distribution system • Contact MOH, MECP & SAC • Communicate water advisory if issued by MOH • Sample water quality until two consecutive samples are negative within 48hrs • Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service* • Flush affected area to increase Cl_2 residual. Reference SOP-006: *Distribution Flow Testing Program* • Follow corrective actions required by O.Reg. 170/03. • Reference SOP-001: *Distribution Sampling for Bacteriological & HPC* • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-012: *Bad Sample or Adverse Water Quality*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.3 Loss of Secondary Disinfection • 2.4 Contamination of Water Transmission System • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	3
		Consequence	3
		Detectability	2
		(High Risk Threshold = 8)	***Total*= 8** **(CCP = No)**

Worksheet No. 13 Failure of Backflow Prevention Device

Failure of Backflow Prevention Device			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Failure of Backflow Prevention Device			
Potential Results of Hazard: • Biological • Chemical • Radiological			
Comments: • Limited control			
Identified Control Measures: • Visual on- site inspection • Backflow prevention by-law and program • If backflow is suspected, report to MOH and MECP, SAC • Isolate area. Flush the system and sample as needed. Re-pressurize system • Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples* • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-006: *Distribution Flow Testing Program* • Reference SOP-017: *Meter-Backflow Inspection Procedure*			
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.14 Water Shortage • 2.15 Failure of Control Systems • 2.16 Establishing Potable Water Filling Stations • 2.18 Equipment Failure			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	4
		Detectability	4
		(High Risk Threshold = 8)	***Total*= 9** **(CCP = No)**

Worksheet No. 14 Adverse Drinking Water Lead Results

Adverse Drinking Water Lead Results			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Adverse drinking water lead results			
Potential Results of Hazard: • Biological • Chemical • Physical			
Comments: • No control			
Identified Control Measures: • Reference SOP-005: *Lead Testing Procedure* • Reference SOP-012*: Bad Sample or Adverse Water Quality Procedure* • O.Reg. 170/03 mandating every water system in Ontario to test for lead in the drinking water			
Emergency Response Procedure: • 2.2 Adverse Laboratory Water Quality Results			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	2
		Detectability	2
		(High Risk Threshold = 8)	***Total*= 5** **(CCP = No)**

Worksheet No. 15 Extreme Cold/Heat/Long-term Impacts of Climate Change

Extreme Cold/Heat/Long-term Impacts of Climate Change			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Physical			
Potential Results of Hazard: • Can't Maintain fire protection • No access to water from the distribution system if pipes are frozen • Can't Maintain reliable and safe drinking water to consumers			
Comments: • No control • Extreme cold / heat / long-term impacts of climate change (including frozen pipes, potential for wildfires)			
Identified Control Measures: • SCADA alarms • Reference SOP-013: *SCADA Alarm Procedure* • Maintenance program for infrastructure: installation of insulating blankets on boundary meters, blowing out sample station, Insulating auto flushers, etc. performed annually • Installing indicators, such as, hydrant reflectors and valve locators on water distribution system infrastructure • Reference SOP-024: *Frozen Water Services and Frozen Water Meters* • Monitoring weather conditions via weather sites			
Emergency Response Procedure: • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations • 2.19 Severe Storm (Tornado, Wind, Hurricane, Winter Storm etc.)			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	1
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 3** **(CCP = No)**

Worksheet No. 16 Loss of Pressure Resulting from Major Fire

Loss of Pressure Resulting from Major Fire		
Activity or Process Step: • Water Distribution System		
Description of Hazard: • Loss of pressure due to major fire		
Potential Results of Hazard: • Biological	• Chemical	• Physical
Comments: • No Control		
Identified Control Measures: • Notification from the fire department • Firefighters trained to monitor pressure gauges on trucks so as not to drop distribution system pressure below 20psi. • Consumer complaints • Pressure gauges on boundary meters and tower monitored and alarmed by SCADA • Backflow prevention • Check pressures in affected area. If necessary, discuss with MOH and MECP/SAC • If necessary, issue water advisory with consultation of MOH. Reference SOP-012*: Bad Sample or Adverse Water Quality* • Restore pressure and chlorine residuals and conduct testing and sampling in affected area • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-004: *Chlorine Residual Sampling and Calibration of Chlorine Analyzer-Water Tower* • Notify (WUCTP) of low-pressure alarms		
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.10 Major Fire at any Facility • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Stations		

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	3
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 5** **(CCP = No)**

Worksheet No. 17 Loss of System Pressure

Loss of System Pressure		
Activity or Process Step: • Water Distribution System		
Description of Hazard: • Loss of system pressure		
Potential Results of Hazard: • Biological	• Chemical	• Physical
Comments: • No Control		
Identified Control Measures: • Consumer complaints • Pressure gauges on boundary meters and tower monitored and alarmed by SCADA • Backflow prevention • Check pressures in affected area if necessary discuss with MOH and MECP/SAC • If necessary, issue water advisory with consultation of MOH. Reference SOP-012: *Bad Sample or Adverse Water Quality* • Restore pressure and chlorine residuals and conduct testing and sampling in affected area • Reference SOP-002: *Distribution Sampling for Chlorine Residuals* • Reference SOP-004: *Chlorine Residual Sampling and Calibration of Chlorine Analyzer-Water Tower* • Reference SOP-009: *Watermain Repair Procedure-Category 1* and SOP-010: *Watermain Repair Procedure-Category 2* • Notify (WUCTP) of low pressure alarms		
Emergency Response Procedure: • 2.1 Boil Water Advisory • 2.2 Adverse Laboratory Water Quality Results • 2.4 Contamination of Water Transmission System • 2.14 Water Shortage • 2.16 Establishing Potable Water Filling Station		

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	3
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 5** **(CCP = No)**

Worksheet No. 18 Staff Shortages

Staff Shortage			
Activity or Process Step: • Water Distribution System			
Description of Hazard: • Staff shortage			
Potential Results of Hazard: • Physical			
Comments: • No Control • Due to lottery, retirements, Illness/Pandemic, Strike/Lock-out			
Identified Control Measures: • Collective Agreements for both outside and inside workers • Attendance/medical records • MOH health advisories • Town's Wellness Committee • Having the proper amount of Licensed Water Distribution Operators • The ORO has a Class III Water Distribution Operators License • The ORO has the required competencies to maintain the water distribution system • Town of Tecumseh Water Services Emergency Response Plan • Will contract outside licensed Water Distribution Operators to assist the ORO if necessary • Reference SOP No. 11: *Low Chlorine Result Procedure* • Reference SOP No. 12: *Bad Sample or Adverse Water Quality Procedure* • Reference SOP No. 13: *SCADA Alarm Procedure* • Reference SOP No. 14: *Responding to Afterhours Call-Out*			
Emergency Response Procedure: • 2.20 Epidemic / Pandemic			
Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	4
		Detectability	1
		(High Risk Threshold = 8)	***Total*= 6** **(CCP = No)**

Worksheet No. 19 Cyber-Security

Cyber-Security

Activity or Process Step:
- Power Communications & Water Distribution System

Description of Hazard:
- Cyber-Security

Potential Results of Hazard:
- Biological
- Physical

Comments:
- Limited Control

Identified Control Measures:
- Town authorized internal firewalls, spyware, malware etc. on the network
- Individual user passwords and login names
- Individual user folders for saving documents and records
- Employee training on detection of phishing messages and how to react
- Security fence locked and gated
- Security Cameras
- Reference SOP-013: *SCADA Alarm Procedure*
- Contact Emergency Services, MOH, MECP & SAC
- Communicate drinking water advisory if issued by MOH
- Sample water quality until two consecutive samples are negative within 48hrs. Reference SOP-001: *Distribution Sampling for Bacteriological and HPC Samples*
- Take Tower offline if necessary and monitor conditions. Return to service when safe to do so. Reference SOP-023: *Removal of Drinking Water Storage Tower from Service*
- Conduct sampling, microbiological & Cl_2 residual. Reference SOP-002: Distribution Sampling for Chlorine Residuals
- Contact WUCTP about closure of water valve for tower

Emergency Response Procedure:
- 2.1 Boil Water Advisory
- 2.4 Contamination of Water Transmission System
- 2.5 Emergency Evacuation
- 2.6 Illegal Entry / Vandalism
- 2.8 Loss of Access to Facility
- 2.9 Bomb Threat at any Water Facility
- 2.14 Water Shortage
- 2.16 Establishing potable water filling stations
- 2.21 Terrorism

Risk Analysis Ranking		*RISK ANALYSIS*	*RANKING*
[A] LIKELIHOOD 1 to 5 [B] CONSEQUENCE 1 to 5 [C] DETECTABILITY 1 to 5 *[A] + [B] +[C] = Total*	3 to 5 = LOW 6 to 7 = MODERATE 8 to 11= HIGH 12 to 15 = VERY HIGH	**Likelihood**	1
		Consequence	5
		Detectability	1
		(High Risk Threshold = 8)	***Total* = 7** **(CCP = No)**

Appendix 5 Essential Supplies and Services

A list of supplies and services has been developed and is provided below. The list includes suppliers / service providers for each essential supply and service. A secondary source is also listed for each supply and service to ensure supplies and services are available as needed. This list is reviewed by the Manager, Water Services/ORO or designate to ensure that it is current and up to date.

All supplies and services shall meet AWWA and NSF/ANSI standards; these purchases must be in accordance with the Town of Tecumseh By-Law 2021-60 with the amending By-Law 2021-103 for replacing Schedule B, a by-law to govern procurement and procedures.

5.1 Essential Supplies and Service List

Product/Service	Primary Source	Secondary Source
Treated Drinking Water Supply	Windsor Utilities Commission P.O. Box 1625, Station A 4545 Rhodes Drive Windsor, ON N8W 5T1 Tel: 519-251-7300 Fax: 519-255-7423 www.enwin.com	Refer to the Water Services Emergency Response Plan, Section 2, Sub-Section 2.16 “Establishing Potable Water Filling Stations”
Accredited Laboratory Services	Caduceon Environmental Laboratories 3201 Marentette Ave. Windsor, ON N8X 4G3 Tel: 519-966-9541 Fax: 519-966-9567 contactwindsor@caduceonlabs.com	SGS Environmental Services 657 Consortium Crt. London, ON N6E 2S8 Tel: 519-672-4500 Fax: 519-672-0361 emily.crowey@sgs.com
Instrumentation Calibration	SCG Flowmetrix 2088 Jetstream Rd London, ON N5V 3P6 Tel: 519-870-3569 1-866-491-5156 Fax: 519-268-3459 service@flowmetrix.ca	ACI Instrumentation Limited 14 Gormley Industrial Ave, Unit 5 Gormley, ON L0H 1G0 Tel: 905-888-0063 Fax: 905-888-6381 bhadresa@aciltd.ca

Product/Service	Primary Source	Secondary Source
Meter Supply & Service	Evans Utility and Municipal Products Supply Limited 338 Neptune Crescent London, ON N6M 1A1 Tel: 519-453-6515 Fax: 519-453-7756 www.evansupply.com	Underground Specialties Wolseley 5340 Walker Road Oldcastle, ON N0R 1L0 Tel: 519737-1263 Fax: 519-737-1712 bob.bezaire@wolseleyinc.ca
AMR/ERT Supply & Service	Underground Specialties Wolseley 5340 Walker Road Oldcastle, ON N0R 1L0 Tel: 519737-1263 Fax: 519-737-1712 bob.bezaire@wolseleyinc.ca	Itron Headquarters 2111 N Molter Rd Liberty Lake, WA 99019 Tech Support 1-877-487-6602 Chris.Jay@wolseleyinc.ca
Health & Safety Supplies	Great Lakes Safety Supply 3545Walker Rd. Windsor, ON N8W 3S5 Tel: 519-972-6605 Fax: 519-972-6620 sales@glspi.com	HD Supply 3350 North Talbot Rd. Tecumseh, ON Tel: 519-737-7023 Fax: 519-737-9157 Meredith.stpierre@hdsupply.com
SCADA & Instrumentation	Onyx Engineering Ltd. 2960 Jefferson Blvd. Windsor, ON N8T 3J2 Tel: 519-948-4324 sales@onyxengineering.com	Summa Engineering Limited 3230 American Drive Mississauga, ON L4V 1B3 Tel: 905-678-3388 Fax: 905-678-0444 www.summaeng.com
Construction Contracting Services	Coco Paving Inc. 6725 South Service Road East Windsor, ON N8N 2M1 Tel: 519-948-7133 Fax: 519-948-7469 www.cocogroup.com	Amico Contracting and Engineering 2199 Blackacre Drive Oldcastle, ON N0R 1L0 Tel: 519-737-1577 Fax: 519-737-1929 sdraper@triamico.com

Product/Service	Primary Source	Secondary Source
Distribution Parts	Emco Waterworks 5255 County Rd 42 Windsor, ON N8N 2M1 Tel: 519-944-3626 Fax: 519-948-4210 www.emcoltd.com	Underground Specialties Wolseley 5340 Walker Road Oldcastle, ON N0R 1L0 Tel: 519737-1263 Fax: 519-737-1712 bob.bezaire@wolseleyinc.ca
Disinfectant (Sodium Hypochlorite)	Emco Waterworks 5255 County Rd 42 Windsor, ON N8N 2M1 Tel: 519-944-3626 Fax: 519-948-4210 www.emcoltd.com	Underground Specialties Wolseley 5340 Walker Road Oldcastle, ON N0R 1L0 Tel: 519737-1263 Fax: 519-737-1712 bob.bezaire@wolseleyinc.ca
Water Testing Supplies	SCG Flowmetrix 2088 Jetstream Rd London, ON N5V 3P6 Tel: 519-870-3569 Fax: 519-268-3459 service@flowmetrix.ca	Hach Canada 3020 Gore Rd London, ON N5V 4T7 Tel: 800-665-7635 Fax: 866-259-0984 www.ca.hach.com
Locators	Ontario One Call 104 Cooper Dr, Suite 1 Guelph, ON N1C 1C3 Tel: 800-400-2255 solutions@accu-link.ca	G-Tel Engineering 1150 Frances Street London, ON N5W 5N5 Tel: 866-692-0208 Fax: 866-692-0809 bgowan@gtel.ca
Communications Supplies	Technology & Client Services Corporation of the Town of Tecumseh 917 Lesperance Road Tecumseh, ON N8N 1W9 Tel: 519-735-2184 sfuerth@tecumseh.ca	Kelcom 363 Eugenie St. E. Windsor, ON N8X 2Y2 Tel: 519-250-5070 www.kelcom.com

Product/Service	Primary Source	Secondary Source
Computer Systems Supplies	Technology & Client Services Corporation of the Town of Tecumseh 917 Lesperance Road Tecumseh, ON N8N 1W9 Tel: 519-735-2184 sfuerth@tecumseh.ca	Summa Engineering Limited 3230 American Drive Mississauga, ON L4V 1B3 Tel: 905-678-3388 Fax: 905-678-0444 www.summaeng.com ONYX Engineering 2960 Jefferson Blvd. Windsor, ON N8T 3J2 Tel: 519-948-4324 Ext 210 Fax: 519-948-4840
Answering Service	Engineering Services Corporation of the Town of Tecumseh 917 Lesperance Road Tecumseh, ON N8N 1W9 Tel: 519-735-2184	After hour call Kelcom Answering Service Tel: 971-2866

Appendix 6 Public Works and Engineering Services 2024-2028 Capital Works Plan

The Corporation of the Town of Tecumseh

Public Works & Engineering Services

To: Mayor and Members of Council

From: Phil Bartnik, Director Public Works & Engineering Services

Date to Council: February 13, 2024

Report Number: PWES-2024-07

Subject: 2024-2028 Public Works & Engineering Services Five-Year Capital Works Plan

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Recommendations

It is recommended:

That the Public Works & Engineering Services (PWES) Capital projects for 2024, **as summarized in Attachment 1** to Report PWES-2024-07, 2024-2028 Public Works & Engineering Services Five-Year Capital Works Plan, **be approved**;

And that the 2024 PWES Capital projects **be funded** through the following reserves and reserve funds as set out in Report PWES-2024-07;

- Road Lifecycle Reserve
- Sidewalk Lifecycle Reserve
- Bridges Lifecycle Reserve
- Watermain Reserve Fund
- Water Facilities Reserve Fund
- Wastewater Sewers Reserve Fund
- Wastewater Facilities Reserve Fund
- Storm Sewer Lifecycle Reserve
- Infrastructure Reserve

And further that the Public Works & Engineering Services Capital Works Plan for 2024-2028, **as outlined in Attachment 2** to Report PWES-2024-07, **be approved**.

Executive Summary

The Public Works & Engineering Services (PWES) Department is recommending approval of the 2024 PWES Capital Works Projects and funding allocations for 2024 as well as approval of the capital works plan for 2024-2028.

The total number of 2024 projects for PWES is 35, representing $94.6M in budget allocation, of which $82.9M was previously allocated and $11.7M is newly requested allocation for 2024. Most of these projects are on-going and approximately 14 are new projects. The new projects generally relate to water, road, sanitary and bridge repairs/ improvements required to maintain existing infrastructure, support proposed growth-related developments and/or satisfy funding agreements. Notable projects for 2024 consist of the following:

- Continuation of construction for the Scully/St. Mark's Storm Pump Station under the Disaster Mitigation and Adaptation Fund program;
- Detailed design for the PJ Cecile Storm Pump Station under the Disaster Mitigation and Adaptation Fund program;
- Detailed design and construction of the Tecumseh Secondary Plan Area Northwest water and wastewater infrastructure Phases;
- Detailed design and construction of the Arbour Street to Southfield Lane watermain extension;
- Construction of the County Road 46, Webster and Laval Sanitary Sewer Extension;
- Construction of the Del Duca Drive Sanitary Sewer Extension;
- Construction of the County Road 43 Trunk Watermain (W-4) from County Road 42 to the CP Railway;
- Construction of the Lesperance Road Trail from County Road 22 to County Road 42;
- Finalization of various studies such as the Stormwater Rates Study, 8th Concession Sanitary Sewer By-Law and the Sanitary Sewer Model Update;

Details and in-progress updates for the 2024-2028 projects are provided within the following sections of this report.

Background

Approval of 2024 PWES Capital Works Projects and the full 2024-2028 capital works plan is sought to maintain a consistently high level of service and strive to improve the Town's infrastructure components in a timely manner. This capital works plan continues to promote capital priorities in accordance with Council's growth-related direction.

Council received presentations on the PWES Capital Priorities 2023-2031 at the March 29, 2022 and May 5, 2022 Special Council Meetings (SCMs).

At the May 5, 2022 SCM, Administration was directed to incorporate the recommended hybrid scenario within the 2022 and 2023-2027 PWES Capital Works Plans. This hybrid scenario will address the strategic priorities of growth and economic development as well as Council approved mandates.

The recommended hybrid scenario was structured for proposed capital expenditures at 156% ($15.10M annually) of the Town's past 10-year average ($9.67M annually) for Public Works & Engineering Services. It also highlighted the need for extraordinary resources (staffing, financial, consulting services and construction) above the normal annual PWES capital program. Subsequent to the completion of the May 2022 PWES Capital Priorities assessment, the Town has experienced a significant increase in construction costs as a result of recent inflation and market trends, including supply chain limitations.

In general, many of the projects listed in this report for 2024 are ongoing projects that require works to continue into 2024. Additionally, new projects are recommended to implement Council's growth-related direction, satisfy applicable legislation, and maintain assets. Applicable grants and user contributions are identified, where available (confirmed and applied).

The report is structured so that all projects with a funding allocation request in the 2024 budget year are detailed first in Section A, followed by ongoing projects which have prior funding allocations in Section B. Section C provides highlights of projects proposed for 2024-2028. Section D rounds out the report with municipal drain projects.

Comments

Detailed information is provided for all 2024 projects, both those previously approved and those newly proposed to commence in 2024. Generally, the description for each project includes cost estimates for each of the related infrastructure categories (i.e., roads, water, wastewater, storm, etc.). Project descriptions also outline the main project drivers, grant funding available, sources of internal funding and prior reports to Council.

Attachment 1 details the cost of each project by related infrastructure category and includes previously approved budget allocations, and requested budget allocations for 2024, as well as future and total costs. Attachment 2 provides the entire proposed Capital Works Plan for 2024-2028. Attachment 3 illustrates the geographic location of the 2024 projects, by ward.

Certain projects have been proposed to be phased in over a multi-year period because the project scope is too large or costly to be completed in one construction season or

would be too disruptive over a large area and for too long relative to the adjacent properties. Phased projects are typically tendered as separate tender calls.
Finally, all new projects, and infrastructure replacement projects, will be designed to be compliant with the current requirements of the Accessibility for Ontarians with Disabilities Act (AODA).

In the following sections, unless otherwise noted, these acronyms are used: "CR" means County Road; "Class EA" means a Municipal Class Environmental Assessment; "FSR" means Functional Servicing Report; "ERCA" means Essex Region Conservation Authority and "Ha" means hectares.

Section A: Projects Requiring Funding Allocations in 2024

A1. Annual Tar & Chip, Asphalting and Crack Sealing

Work	**Requested for 2024**	Location of Work	Extent
Asphalting	**$700,000**	Little River Blvd. St. Gregory's Road Lesperance Road St. Anne Street	Donalda to Manning Michael to Green Valley Calvary to Westlake Gouin to Intersection
Tar & Chip	**$150,000**	Sexton Sideroad Sexton Sideroad	CR46 to Hwy. No. 3 Hwy. No. 3 to STR
Crack Sealing	**$150,000**	Various locations	To be determined.

Roads recommended for inclusion in the annual paving program are selected with reference to the Town's Road Needs Study, PWES staff input and recommendations from the Manager of Public Works & Transportation. PWES investigates and categorizes the needs based on the condition of the roads in comparison with other similar traffic volumes.

PWES also recommends that 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. An amount of $150,000 is set aside for crack sealing in the annual paving program.

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

Funding is to be provided from Road Lifecycle Reserve in the amount of $1,000,000.

- **Reference Reports:**
  - Report PWES-2020-21, "Town of Tecumseh Road Needs Study 2019, Study Completion and Adoption", April 28, 2020; Motion RCM-139/20.

A2. Annual Project Contingency

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$250,000**	$0	$250,000

Administration recommends carrying an Annual Project Contingency for Public Works & Engineering Services. This allocation has been approved for the past 3 years and is used to efficiently address issues that arise from time to time that cannot be anticipated during the preparation of the PWES Five Year Capital Works Plan. The allocation will be used in accordance with the Town Purchasing and Procurement Policies. Use of these funds is communicated through quarterly budget variance reports to Council.

Funding for this Annual Project Contingency is to be provided from the Road Lifecycle Reserve in the amount of $250,000.

A3. 2024 Sidewalk Repair Projects

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$69,000**	$0	$69,000

The 2024 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 and as a risk management measure. 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. Inspection and project administration will be carried out by PWES Staff upon award of the Contract.

Funding for the 2024 sidewalk repair project is to be provided from the Sidewalk Lifecycle Reserve in the amount of $69,000.

A4. 2024 Road Needs Study

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$160,000**	$0	$160,000

The Town of Tecumseh maintains an extensive network of urban, semi-urban and rural roads of all classes, except for 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 2019 Road Needs Study, it was found that the overall average pavement condition index (PCI) rating for the Town roads was 77.0 which exceeds the minimum average level of 70.0 identified in the Town's Asset Management Plan Version 3.0 (2022). The study further found that approximately 6.3% 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 to achieve a level of cost saving. Initiatives such as these help to maximize the level of service as well as reduce the frequency of large-scale construction activities. This is a key factor to achieving improvements while also 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 and 2019 Road Needs Studies. As part of this study, updated traffic count data will be collected for Town roads. Dillon Consulting Limited will also be engaging StreetScan Canada ULC (StreetScan), a company that utilizes automated road scanning technology, to obtain a more detailed assessment/inventory of the Town's existing road system. StreetScan is identified as a preferred service provider by Local Authority Services (LAS) which is part of the Association of Municipalities of Ontario (AMO) Business Services.

Funding for this study is to be provided from the Road Lifecycle Reserve in the amount of $160,000.

- **Reference Reports:**
  - Report PWES-2020-21, "Town of Tecumseh Road Needs Study 2019 Study Completion and Adoption", April 28, 2020; Motion RCM-139/20.

A5. Boulevard Street Trees

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$125,000**	$500,000	$625,000

Well-maintained and healthy trees act as our "green infrastructure". Trees and (urban) forests reduce stormwater runoff by capturing and storing rainfall in the canopy and releasing water into the atmosphere through evapotranspiration. Other benefits include, cleaner air, cooler temperatures, increased property values, and energy savings. In an urban context, street trees define the space of the street, and when mature, provide canopy. They demarcate the pedestrian space, calm traffic and help protect the pedestrian from motor vehicles. When laid out with consistent sizes and alignment, street trees bring order to the street, visually soften the streetscape, and reintroduce nature to the urban street.

On May 30, 2017, Bill 68 entitled "Modernizing Ontario's Municipal Act", 2016, received royal assent. This bill included an amendment to Section 270 of the Municipal Act, 2001, which requires all municipalities to adopt and maintain policies with respect to the protection and enhancement of the tree canopy and natural vegetation in the municipality.

Section 270(1) requires that:

> A municipality shall adopt and maintain policies with respect to the following matters…
>
> > 7. The manner in which the municipality will protect and enhance the tree canopy and vegetation in the municipality.

At the December 8, 2020 Policies and Priorities Committee Meeting, the Committee adopted the Tree Maintenance and Removal Policy No. 108 which was included in Report PWES-2020-20. Adoption of this policy broadened the protection and enhancement of the Town's tree cover by providing direction with regard to tree planting, maintenance and removal in accordance with amended Section 270 of the Municipal Act, 2001.

In December 2019, Council approved the recommendations of Report CAO-2019-12 which declared a Climate Emergency and directed Administration to work towards the reduction of emissions and preparing for our climate future.

In consultation with Community & Recreation Services (CRS) and acknowledging the benefits of healthy "green infrastructure" as a climate adaptation measure, Administration recommends that the Town move forward with a boulevard street tree enhancement program to improve the tree canopy within Town road right of ways and further address the requirements of the Municipal Act, 2001. To achieve this objective it is recommended that, in addition to the approximately 100 trees that are planted by CRS annually, an additional 250 boulevard trees be planted annually. Project inspection and administration will be carried out by PWES in consultation with CRS staff upon award of a Contract by Council.

Funding for this project is to be provided from the Road Lifecycle Reserve in the amount of $125,000.

- **Reference Reports:**
  - Report PWES-2020-20, "Tree Maintenance and Removal Policy", December 8, 2020; Motion PPC-14/20.
  - Report CAO-2019-12, "Climate Change Emergency Declaration", December 10, 2019; Motion RCM-390/19.

A6. County Road 46 Municipal Class Environmental Assessment

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$70,000	**$10,000**	$0	$80,000

The County of Essex is proceeding with a Class EA for CR46 from the City of Windsor limits to CR19. This Class EA will analyze all modes of transportation within this corridor and recommend improvements to the infrastructure based on the interim and long-term needs.

In January 2023, Council approved the recommendations of Report PWES-2023-01 that authorized Administration to partner with the County of Essex on the Class EA, with an expanded scope to include the 8th & 9th Concession Roads (from CR46 to City of Windsor limits). This will ensure the integration between the CR46 Class EA and the Sandwich South Master Servicing Plan currently being undertaken by the City of Windsor.

The County of Essex completed a Request for Proposal process with BT Engineering Inc. being the successful proponent. In November 2023, Council approved the recommendations of Report PWES-2023-71 that authorized retaining BT Engineering Inc. for the Engineering Consulting Services specific to the Town's portion of the CR46 Class EA.

Additional funding for this project is to be provided from the Road Lifecycle Reserve in the amount of $10,000.

- **Reference Reports:**
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.
  - Report PWES-2023-71, "County Road 46 Municipal Class Environmental Assessment 8th and 9th Concession Roads (Hwy 401 to County Road 46) Award of Engineering Consulting Services", November 14, 2023; Motion RCM-305/23.

A7. Lesperance Right Turn Lane at CR22

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$400,000**	$0	$400,000

In response multiple complaints regarding the traffic operations of the Lesperance Road/CR22 intersection, R.C. Spencer Associates Inc. (RC Spencer) was retained to evaluate existing conditions and to identify if geometric and/or traffic control improvements are needed on Lesperance Road from CR22 to Westlake Drive.

In October 2023, Council received Report PWES-2023-70 which provided an overview of RC Spencer's findings and recommendations with regard to the subject section of Lesperance Road. Report PWES-2023-70 also recommended that the proposed road/intersection improvements be included in a future PWES Capital Works Plan.

Administration recommends that RC Spencer be retained for detailed design (i.e. construction drawing/specifications, tender documents, lighting, wiring, line painting, signage, etc.), contract administration and construction observations for the addition of a dedicated northbound right turn lane at the intersection of Lesperance Road and CR22. Project design and tendering are planned for 2024 with construction anticipated in 2025.

Funding for this project is to be provided from the Road Lifecycle Reserve in the amount of $400,000.

- **Reference Reports:**
  - Report PWES-2023-70, "Lesperance Road (County Road 22 to Westlake Drive) Traffic Operations Review", October 10, 2023; Motion RCM-277/23.

A8. Riverside Drive Streetlight Improvements

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$250,000**	$0	$250,000

Riverside Drive East is a significant east/west traffic corridor extending through Tecumseh from the Tecumseh/Windsor border to Brighton Road. The road is classified as a minor arterial from the Tecumseh/Windsor border to Arlington Boulevard, and as an urban collector from Arlington Boulevard to Brighton Road. The annual average daily traffic volumes along Riverside Drive East range between approximately 5000 to 12000 vehicles with the larger volumes generally occurring west of Manning Road.

During recent PWES site visits along the Riverside Drive East corridor after dusk, variations in streetlight intensity and coverage were observed. Due to the high corridor usage, Administration recommends that a consultant be engaged to review the existing streetlights in accordance with current standards and that recommended improvements from that review be implemented. Administration further recommends that an allowance of $250,000 be approved to undertake the study and potential improvements in 2024.

Funding for this project is to be provided from the Road Lifecycle Reserve in the amount of $250,000.

A9. Traffic Signal Upgrades (movement detection cameras)

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$100,000**	$0	$100,000

In December 2018, Council approved the recommendations of Report PWES-2018-08 which included upgrades to the Town's traffic signal controller equipment. This was intended to be a multi-year program that would be completed in coordination with the County of Essex to ensure compatibility with their equipment at shared intersections. Public Works recently completed the replacement of all traffic signal controllers throughout the Town.

With the new traffic signal controllers installed, Public Works is now able to improve our system with the installation of intersection monitoring equipment that will allow staff to monitor intersections remotely in the event of service calls. This equipment also provides advanced technology to monitor traffic movement on all legs of an intersection to allow for the signals to operate as designed.

Along with the signal operation and the remote monitoring capability, the movement detection cameras would replace the physical wire pavement loops which are cut into

the asphalt to detect cars at signalized intersections. These wire pavement loops are prone to failure as they age and/or as the pavement ages. Many of the existing pavement loops at Town signalized intersections are more than ten years old. The cameras will avoid the need for future loop replacements. In addition, the cameras will allow staff to investigate/resolve certain complaints without attending an intersection.

Movement detection cameras were included at the recently constructed Tecumseh Road and Dorset Park signalized intersection. Administration recommends that intersection monitoring equipment be installed at all ten of the Town's remaining signalized intersections.

Work will be completed by Public Works staff with assistance from the equipment supplier.

Funding for this project is to be provided from the Road Lifecycle Reserve in the amount of $100,000.

- **Reference Reports:**
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.

A10. Multi-Use Recreational Trails: Lesperance Road (Riverside Drive to First Street) & Little River Boulevard (Lesperance to City Limits) & Lesperance Road Rehabilitation (McNorton Street to First Street)

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$4,700,000	**$350,000**	$0	$5,050,000
Grant (confirmed): Active Transportation Fund - $2,616,000			

At the March 8, 2022 Regular Meeting of Council, Council authorized Administration, under report PWES-2022-11, to submit an application for funding under the Active Transportation Fund for a future commitment to install a multi-use recreational trail on the west side of Lesperance Road (from Riverside Drive to First Street) and on the north side of Little River Boulevard (from Lesperance Road to Gauthier Street).

The Active Transportation Fund (ATF) is a national, merit-based contribution program intended to support projects that improve active transportation infrastructure across Canada. The Fund made available $400 million over five years to help build new and expanded networks of pathways, bike lanes, trails and pedestrian bridges, as well as support Active Transportation planning and stakeholder engagement activities. Projects approved under the Capital Stream of the ATF could be funded up to 60% with no maximum amount payable.

In late December 2022, the Town received notification that our funding application to the ATF for our multi-use recreational trails on Lesperance Road and Little River Boulevard (totalling $4,360,000) was approved for a funding total of $2,616,000.

In January 2023, Council approved the recommendations of Report PWES-2023-01 which approved the allocation of project funds for both multi-use recreational trails as well as the proposed Lesperance Road Rehabilitation (McNorton Street to First Street).

In March 2023, Council approved the recommendations of Report PWES-2023-24 that authorized the Mayor and Clerk to sign the required Transfer Payment Agreement with the Minister of Intergovernmental Affairs, Infrastructure and Communities for the Town's Active Transportation project.

A Request for Proposal (RFP) was posted on the Town's Bids & Tenders account and on the Town's website on March 22, 2023. Proposals were received up to and including April 20, 2023, at which time seven (7) engineering consulting firms submitted a proposal. In May 2023, Council approved the recommendation of Report PWES-2023-41 that awarded the engineering consulting services for this project to R.C. Spencer Associates Inc. (RC Spencer).

Based on the design work completed to date, additional improvements are now anticipated for the McNorton and Lesperance intersection. To provide continuity in the bike lanes through the intersection, it is anticipated that the intersection will need to be widened requiring the relocation of existing infrastructure. It is recommended that an allowance of $350,000 be authorized for the design and construction of the intersection improvements.

The updated project cost estimate is $5,050,000, with $4,360,000 for the Multi-Use Recreational Trails and $690,000 for the rehabilitation of Lesperance Road from McNorton Street to First Street including improvement to the McNorton and Lesperance intersection.

Additional funding is to be provided from the Road Lifecycle Reserve in the amount of $350,000.

- **Reference Reports:**
  - Report PWES-2022-11, "Active Transportation Fund, Multi-Use Recreational Trails: Lesperance Road & Little River Boulevard", March 8, 2022; Motion RCM-84/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

- Report PWES-2023-24, "Active Transportation Fund - Multi-Use Recreational Trails Lesperance Road and Little River Boulevard and the Rehabilitation of Lesperance Road", March 14, 2023; Motion RCM-67/23.
- Report PWES-2023-41, "Active Transportation Fund Multi-Use Trail on Lesperance Road and Little River Boulevard Award of Engineering Consulting Services", May 23, 2023; Motion RCM-158/23.

A11. 2024 Bridge & Culvert Needs Study (>3m Span)

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$50,000**	$0	$50,000

The Town has a total of sixteen (16) existing bridges and culverts with a span greater than 3.0 metres that need to be inspected in accordance with the latest version of the Ontario Structure Inspection Manual (OSIM) published by the Ministry of Transportation of Ontario (MTO).

In accordance with Ontario Regulation 104/97 passed pursuant to the Public Transportation and Highway Improvement Act, the Town of Tecumseh is required to undertake an inspection, under the direction of a Professional Engineer, for every bridge and culvert (with spans greater than 3.0 m) at least once every two years. With the last inspection taking place in 2022, it is now necessary to carry out a new Bridge and Culvert Needs Study in 2024 to comply with the legislation.

Continuity is an important component in assessing the on-going changes to the Town's bridge infrastructure. Administration recommends retaining Dillon Consulting Ltd. to provide engineering services on this project based on their past completion of the 2003, 2008, 2014, 2016, 2018, 2020 and 2022 Bridge and Culvert Needs Studies.

Funding for this project is to be provided from the Bridge Lifecycle Reserve in the amount of $50,000.

- **Reference Reports:**
  - Report PWES-2023-02, "2022 Bridge and Culvert Needs Study Structures with Spans Greater than 3.0 m", January 25, 2023; Motion RCM-07/23.

A12. Tecumseh Water Tower – Internal Cleaning and Inspection

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$32,000**	$0	$32,000

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. Regular cleaning and inspection of water towers are essential practices to safeguard water quality, comply with regulations, prevent contamination, maintain system integrity, and ensure the long-term efficiency of this critical water infrastructure. These measures are fundamental to public health, environmental protection, and the overall well-being of the community.

In 2018, Landmark was retained to undertake the recommended 5 year cleaning and inspection of the water tower. This inspection identified that the interior tank lining had reached the end of its service life and required replacement. In December 2018, Council approved the recommendations of Report PWES-2018-08 that authorized the re-lining of the water tank's interior surfaces as part of the 2019 Capital works project.

In accordance with the recommended 5 year cleaning and inspection cycle, Administration recommends that the water tower be cleaned and inspected in 2024. Based on their extensive history with the Town's water tower, Administration further recommends that Landmark Municipal Services be retained to complete this work.

Funding for this project is to be provided from the Water Facilities Reserve Fund in the amount of $32,000.

- **Reference Reports:**
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18

A13. Arbour Street to Southfield Lane Watermain

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$260,000**	$0	$260,000

The Town Water Division has advised that a looped watermain connection between Arbour Street and Southfield Lane would improve water quality and provide additional redundancy within the Town's water distribution system. It is intended that this watermain loop would be constructed from the west end of the existing 200 mm watermain on Arbour Street, through the Town's Southfield Park, to the existing 200 mm watermain on Southfield Lane.

Based on a project review meeting with Community & Recreation Services (CRS), it was confirmed that CRS is planning improvements to Southfield Park in accordance with the Parks Five (5) Year Capital Works Plan 2023-2027. The planned improvements

include a multi-use court, pathway, splash pad, community garden and washroom. In July 2023, Council adopted Report CRS-2023-16 which recommended the deferral of the Southfield Park improvements to allow time to coordinate this works with the planned watermain project.

To avoid potential conflicts, and for construction efficiencies, it is preferred to install a new 200 mm watermain through Southfield Park in advance of the park improvements. Administration recommends that the Arbour Street to Southfield Lane watermain be designed and constructed in 2024 and that water connections be included to accommodate the proposed park improvements.

Funding for this project is to be provided from the Watermain Reserve Fund in the amount of $260,000.

- **Reference Reports:**
  - Report CRS-2023-16, "CRS Five (5) Year Capital Works Plan Update" July 25, 2023; Motion RCM-204/23.

A14. Brouillette Court Watermain Replacement

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$255,000**	$0	$255,000

Brouillette Court is currently serviced by an old 150 mm diameter ductile iron watermain from Shawnee Road to the original Brouillette Manor long term care facility. Characteristics of aging ductile iron watermain pipe include the potential for decreased water quality and the increased potential for watermain breaks. Watermain breaks further increase the risk for poor water quality and the potential for boil water advisories. The watermain from Shawnee Road is a main water source for the Brouillette Manor long-term care facility. Watermain breaks can have significant impacts on this type of facility including reduced fire protection, challenges with boil water advisories, dirt from breaks being conveyed into the facility requiring system flushing, etc.

To reduce these risks, the Water Division is recommending that the existing 150 mm diameter ductile iron watermain be replaced with approximately 85 metres of 200 mm diameter PVC watermain and 50 metres of 150 mm diameter PVC watermain. It is further recommended that the detailed design and tendering for this project be completed in 2024 with construction planned for 2025.

Funding for this project is to be provided from the Watermain Reserve Fund in the amount of $255,000.

A15. Fire Hydrant Upgrades

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$20,000**	$80,000	$100,000

As per Ontario Regulation 170/03, it is the responsibility of the water system owner to ensure that all owned fire hydrants are easily accessible and in good working condition. The Town currently owns and maintains 1373 fire hydrants with various pumper port connection fittings. In accordance with the Town Water Standards and Specifications, all new fire hydrants are required to have Storz pumper port connection fittings. The Storz pumper port connection fitting aligns with the current hose fitting connections on all fire department apparatus and allows for a simple direct connection with a quarter-turn locking method. Currently there are approximately 784 existing Town fire hydrants that do not have Storz pumper port connection fittings which require various adaptors to connect pumper hoses. To save time during emergency situations and to avoid the need for various adaptors, the Fire Department has recommended that all fire hydrants be converted to Storz pumper port connection fittings.

In consultation with Fire Services, the Water Division recommends that a multi-year project be implemented to convert all Town fire hydrants to Storz pumper port connection fittings. It is further recommended that this conversion be completed by Town Water Operators during routine fire hydrant maintenance.

Funding for this project is to be provided from the Watermain Reserve Fund in the amount of $20,000.

A16. Watermain Auto Flusher Replacements

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$45,000**	$90,000	$135,000

As per Ontario Regulation 170/03, it is the responsibility of the water system owner to ensure that all owned water infrastructure is easily accessible and in good working condition. The Town currently owns and maintains 17 watermain auto flusher units. These units play a crucial role in preventing the accumulation of stagnant water in Town watermains which reduces the risk of waterborne contaminants and ensures compliance with regulatory water quality standards. Many of these existing units exceed their typical life expectancy of approximately 10 years.

The implementation of regular maintenance and life cycle replacement programs contribute to the overall reliability of the water distribution system and reduces the likelihood of unforeseen failures. To ensure the Town has continuous and reliable access to safe drinking water, the Water Division recommends that a new multi-year

project be implemented to replace all units over a three-year period (2024, 2025 and 2026). It is further recommended that the units be replaced by Town Water Operators.

Funding for this project is to be provided from the Watermain Reserve Fund in the amount of $45,000.

A17. Centennial Drive & Woodridge Drive Watermain Replacement Project

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$3,500,000	**$1,062,000**	$0	$4,562,000
Grant (confirmed): ICIP, Green Stream Stage II 2021 Intake - $2,566,550			

In September 2021 Special Meeting of Council, Council authorized Administration to apply to the ICIP Green Stream Stage II 2021 Intake for the watermain replacement on the full length of Centennial Drive, a section of Woodridge Drive (from Dillon Drive to St. Thomas Street) and interconnections with Little River Boulevard and St. Thomas Street.

In April 2022, the Town received correspondence that their application to ICIP Green Stream Stage II 2021 Intake was successful. Projects under this intake are subject to a $5 million funding cap for total eligible costs, with funding allocations of 40% Federal, 33.33% Provincial and 26.67% Municipal.

In June 2022, Council approved the recommendations of Report PWES-2022-21 that authorized Administration to add the Centennial Drive & Woodridge Drive Watermain Replacement project to the 2022 Capital Works projects. Total project expenditures of $3,500,000 were also funded through the Watermain Reserve Fund.

A Request for Proposals was issued and HRYCAY Consulting Engineers Inc. (HRYCAY) was retained in September 2022 to undertake detailed design, contract administration and inspection for the project. Detailed design will be undertaken in 2022, 2023 and 2024, with construction tentatively scheduled for 2025.

HRYCAY progressed with detailed design in 2023. Due to the age of the existing storm sewers, and the significant construction required for the watermain replacement, Administration requested that HRYCAY complete an assessment of the storm sewers within the watermain replacement area. A number of storm sewer deficiencies were found during this inspection. To achieve construction efficiencies and to minimize future disruption to residents, Administration recommends that the repair of the storm sewer deficiencies be included in the watermain replacement project.

Based on the design completed to date, the updated project estimate is $4,562,000 including $3,547,000 for the watermain replacement and $1,015,000 for the storm sewer repairs.

Additional funding for this project is to be provided from the following:

- Watermain Reserve Fund in the amount of $47,000
- Storm Sewer Lifecycle Reserve in the amount of $1,015,000

- **Reference Reports:**

  - Report PWES-2021-38, "Investing in Canada Infrastructure Program, Green Stream Stage II, 2021 Intake, Watermain Replacement Project: Centennial Drive & Woodridge Drive", September 8, 2021; Motion SCM-20/21.

  - Report PWES-2022-21, "Investing in Canada Infrastructure Program, Agreement for Green Stream Stage II, 2021 Intake, Watermain Replacement Project: Centennial Drive & Woodridge Drive", June 28, 2022; Motion RCM-197/22.

  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

A18. Sanitary Sewer Model Update and Flow Monitoring

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$345,000	**$40,000**	$0	$385,000

In June 2018, Council approved the recommendation of Report PWES-2018-17 "Flood Mitigation Strategy" that the report be received. Continued flow monitoring and sanitary sewer modeling were recommended flood mitigation strategies included in the report. The report further identified that updating the sanitary sewer model would be incorporated within the 5-year PWES Capital Works Plan.

In December 2018, Council approved the recommendations of Report PWES-2018-08 that authorized Administration to complete a Sanitary Sewer Model Update and Flow Monitoring project. In accordance with this report, Dillon Consulting Ltd. was retained to undertake the modelling project.

A significant component of the model development is model calibration/verification. In order to calibrate/verify a model, flow monitoring data is used to confirm that the flows generated by the model are representative of actual flows measured in the sewers during recorded events. In order to assess rain derived inflow and infiltration, a significant rainfall event is required. During the scheduled flow monitoring period, only minor rain events occurred. Accordingly, the flow monitoring was extended into Fall 2021 which captured the significant rainfall event of July 16, 2021.

Throughout 2022 and 2023 additional model updates were completed to review the Cedarwood sanitary pump station, potential impacts of Additional Residential Units

(ARUs), potential impacts of development intensification in the Tecumseh Hamlet Secondary Planning Area and the Manning Road Secondary Planning Area, etc. It is anticipated that the final report will be brought forward to Council in early 2024, including a presentation by Dillon Consulting Ltd. The updated model will provide insight into the existing flow characteristics of the sanitary sewer system as well as on available sanitary sewer capacity to accommodate infill development within the Town.

Additional funding for this project is to be provided from the Wastewater Sewers Reserve Fund in the amount of $40,000.

- **Reference Reports:**
  - Report PWES-2018-17, "Flood Mitigation Strategy", June 26, 2018; Motion RCM-194/18.
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2022-03 "Approval of 2022 Public Works & Engineering Services, 2022 Capital Works Projects", January 25, 2022; Motion RCM-23/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

A19. 2024 Sanitary Pump Station Improvements

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$175,000**	$0	$175,000

The Town owns and operates four (4) sanitary pump stations. The 2016 Pump & Metering Station Condition Assessment identified 'Immediate Repairs' and '10 Year Repairs' for the sanitary pump stations. In addition, the Town contracts the Ontario Clean Water Agency (OCWA) as the Overall Responsible Operator for the Town's pump stations. Accordingly, OCWA also provides recommendation to the Town for the on-going maintenance needs of our pump stations.

Administration recommends the following sanitary pump station works be undertaken in 2024, based on the recommendations contained in the 2016 Pump & Metering Station Condition Assessment and the recommendations provided by OCWA:

- Sylvestre Drive Sanitary Pump Station (Estimated Cost $140,000)
  - New electrical panel
  - Internal pipe rehabilitation
- Gauthier Sanitary Pump Station (Estimated Cost $10,000)
  - Spare emergency transfer switch (can also be used for Sylvestre PS)
- St. Alphonse Sanitary Pump Station (Estimated Cost $25,000)
  - ESA defects - Scada network fix between OCWA and ONYX

Funding for this project is to be provided from the Wastewater Facilities Reserve Fund in the amount of $175,000.

- **Reference Reports:**
  - Report PWES No. 51/16, "2016 Pump & Metering Station Condition Assessment", December 13, 2016; Motion RCM-440/16.

A20. Little River Pollution Control Plant Expansion Municipal Class EA

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$0	**$60,000**	$0	$60,000

The City of Windsor (City) is undertaking a Schedule 'C' Municipal Class Environmental Assessment (Class EA) for the Little River Pollution Control Plant (LRPCP). In general, the study objective is to follow the planning process defined under the Environmental Assessment Act to arrive at an environmentally responsible and cost-effective solution to address the need for additional wastewater treatment capacity at the LRPCP.

In 2020, the City completed its first comprehensive Sewer and Coastal Flood Protection Master Plan (SMP). The SMP identified treatment capacity issues at the LRPCP and confirmed that, during severe wet weather conditions, the facility is unable to treat all wet weather flow. During these events, flow in excess of the LRPCP wet weather treatment capacity is by-passed to the nearby Pontiac Pumping Station and discharged to the Little River as a combined sewer overflow (CSO). The Ministry of Environment, Conservation and Parks has indicated that any future expansion of the LRPCP should eliminate the need for CSO.

A significant portion of the Town of Tecumseh (Town) settlement area, including areas north of CR42 and a significant part of Oldcastle, are within the service area of the LRPCP. In November 2004, the Town entered into an Amending Wastewater Servicing Agreement (Agreement) with the City which documents the Terms and Conditions for the Town to direct wastewater from the Town to the LRPCP and/or to the Lou Romano Water Reclamation Plant (LRWRP). The Agreement sets out specific discharge rates

for the Town to each facility. The Agreement also set out a cost sharing schedule to identify the costs each party would be required to pay for future incremental plant expansions at the LRPCP. The Agreement identified that the Plant had a rated capacity of 16 MGD in 2004 and identified an ultimate capacity of 32 MGD. It was further identified the City would utilize and pay for 12/16ths (75%) of the increased capacity, while the Town would utilize and pay for 4/16ths (25%) of the future upgrades.

Based on the Agreement, future expansions of the LRPCP will have significant financial implications for the Town. It is therefore critical to ensure that the Town's future wastewater needs are addressed in a financially responsible manner as the City proceeds through the Class EA process to determination an environmentally responsible and cost-effective solution to address the need for additional wastewater treatment capacity at the LRPCP.

In March 2020, Council approved the recommendation of Report PWES-2020-15 that adopted the 2018 Water and Wastewater Master Plan Update prepared by CIMA+. The Master Plan Update is a critical component in the Town's committed approach to providing sustainable services and forms the framework and vision for the water and wastewater servicing needs for the Town to 2038 and beyond.

Based on CIMA+'s extensive experience with pollution control plants and their knowledge of the Town's existing and future wastewater needs, Administration recommends that they be retained to provide the Town with Advisory Services related to the City's LRPCP Class EA. It is further recommended that an allowance of $60,000 be approved for these services.

Funding for this project is to be provided from the Wastewater Sewers Reserve Fund in the amount of $60,000.

- **Reference Reports:**
  - Report PWES-2020-15, "2018 Water and Wastewater Master Plan Update Study Completion and Final Adoption", March 10, 2020; Motion RCM-87/20.

A21. Ministry of Environment, Conservation and Parks – Consolidated Linear Infrastructure

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$50,000	**$17,500**	$0	$67,500

The Province has adopted a Consolidated Linear Infrastructure Permissions Approach (CLI) to replace the current Ontario Environmental Compliance Approvals (ECA) framework for low risk projects related to municipal sanitary collection and stormwater management.

The purpose of the CLI is to consolidate certain municipal sewage works approvals into the following: a single CLI ECA for all of a municipality's sanitary collection works and a single CLI ECA for all of a municipality's stormwater management works (collectively, CLI ECAs).

The Province's stated objective with transitioning to CLI and consolidating approvals under the CLI ECAs is to reduce administrative regulatory burden, provide clear and consistent requirements across the province and improve environmental protection. The CLI will replace the current 'one-for-one' or 'pipe-by-pipe' environmental compliance approval system with a consolidated list of approved municipal sewage works, in one approval document for each type of municipal sewage system, that will cover all infrastructure, as applicable, within i) the Town's sewage collection system and ii) the Town's stormwater management system.

The Town's CLI ECAs for both storm and sanitary linear infrastructure were issued on April 28, 2023. In addition to the previously understood municipal requirements under the CLI ECA program, the received approvals also require the Town to install public information signage at specific Municipal Stormwater Management and Sewage Collection Facilities/Systems. The approvals include specifications for the signage and the signage is to be installed on or before May 25, 2025.

Administration recommends allocating an allowance of $17,500 for the design, supply, and installation of the signage.

Funding for this project is to be provided from the following:

- Storm Sewer Lifecycle Reserve in the amount of $17,000
- Wastewater Sewers Reserve Fund in the amount of $500

- **Reference Reports:**
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.
  - Report PWES-2023-65, "Ministry of Environment, Conservation and Parks Consolidated Linear Infrastructure Environmental Compliance Approval Sanitary Collection System & Stormwater Management System", October 10, 2023: Motion RCM-276/23.

A22. Tecumseh Hamlet Environmental Assessment & Functional Servicing Report

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$805,000	**$50,000**	$0	$855,000

In December 2019, Council authorized Administration to undertake various initiatives to move forward with the Tecumseh Hamlet Secondary Plan area. These initiatives included a stormwater management analysis, finalizing the road network and commencing the Class EA, which would run concurrently with the related planning process for the Tecumseh Hamlet Secondary Plan.

This project incorporates the strategic priorities of growth and economic development as outlined within the May 5, 2022 SCM Presentation.

The Class EA and Functional Servicing Report have progressed in 2023 including, but not limited to, the following:

- Completion of the Cultural Heritage Study.
- Completion of the Methane and Groundwater Study to support infrastructure planning and design near the former MTO landfill site.
- Storm, sanitary and water infrastructure design to support the Functional Servicing Report.
- On-going and extensive stakeholder engagement.
- Review and update of Sanitary Sewer model to analyze effects of increased population densification in the Hamlet and other contributing catchments.
- Two Public Information Centres were held to present Class EA preferred options for Transportation, SWM facilities, sanitary and water infrastructure.
- Presentations to Council to provide updates on the progress of the Class EA and engineering studies.

Completion of the above work included items that were not anticipated in the original project budget such as the following:

- Increased level of stakeholder consultation (landowners, developers MECP), including meetings, analysis of alternative design solutions and land use adjustments.
- Additional analysis of sanitary sewer capacity due to landowner requests for increased population densification.
- Consultant fees for cultural heritage study as requested by the Ministry of Citizenship and Multiculturalism.

To account for these additional tasks, a project budget increase of $50,000 is required. The Class EA and Functional Servicing Report are scheduled to be completed in early 2024.

Additional funding for this project is to be provided from the following:

- Road Lifecycle Reserve in the amount of $5,000
- Watermain Reserve Fund in the amount of $5,000
- Wastewater Sewers Reserve Fund in the amount of $5,000
- Storm Sewer Lifecycle Reserve in the amount of $35,000

- **Reference Reports:**

- Report PWES-2019-49, "2020-2024 Public Works & Environmental Services Five Year Capital Works Plan", December 10, 2019; Motion RCM-401/19.
- Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
- Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects'", January 25, 2022; Motion RCM-23/22.
- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

A23. Tecumseh Hamlet Secondary Plan Area – Northwest Water & Wastewater Infrastructure Projects

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$16,618,500	**$6,943,900**	$7,727,500	$31,289,900

In June 2022, Council approved the recommendations of Report PWES-2022-27 that authorized Administration to add the Tecumseh Hamlet Secondary Plan Area (THSPA) – Northwest Water & Wastewater Infrastructure Projects to the 2022 Capital Works projects. Expenditures for the completion of the detailed engineering design and funding for project management resources in 2022 and 2023 as outlined in the May 5, 2022 Special Council Meeting (SCM) PWES Capital Plan 2023-2031 Presentation to Council, were also authorized.

The recommended hybrid scenario from the May 5, 2022 SCM identified water and wastewater infrastructure projects to commence in the northwest area of the Tecumseh Hamlet between 2023 to 2026. This infrastructure will help facilitate development along the Banwell Road corridor (north of CP Rail) as well as provide sanitary relief to allow the area along the Manning Road corridor (south of CP Rail) to develop. The water and wastewater infrastructure includes the projects identified in the Town's Water & Wastewater Master Plan, 2018 Update, being: West Tecumseh Watermain (W-1), West Tecumseh Sanitary (WW-1) and Diversion Sanitary Sewer (WW-2).

In February 2023, Council approved the recommendations of PWES-2023-21 that expanded the project scope and budget to obtain efficiencies in construction and to facilitate the development of lands south of the CP Rail and Hydro Corridor in a shorter timeline. This report further recommended that the project be completed in the following two phases:

- Phase 1 Contract – Northern infrastructure between Intersection Road and CR22 including the reconstruction of a portion of Intersection Road.
  (Detailed Design in 2023 with tendering and construction in 2024)

- Phase 2 Contract – Southern infrastructure between Intersection Road and the southern limit of the Hydro corridor.
  (Detailed Design in 2023 with construction in Winter 2024/2025)

In April 2023, Council approved the recommendations of Report PWES-2023-35 which awarded the Consulting Services for the THSPA – Northwest Water and Wastewater Infrastructure Project in the amount of $1,155,465 excluding HST to Stantec Consulting Ltd.

Report PWES-2023-21 identified a total project cost estimate, inclusive of both Phase 1 and Phase 2, of $16,618,500. Through the detail design process, the total project cost estimate was updated in January 2024 to $31,289,900 (an increase of $14,671,400) which includes $3,510,000 for road reconstruction, $2,006,900 for storm sewers, $21,326,400 for sanitary sewers and $4,446,600 for watermains.

The increased costs can be attributed to the following:

- Refinement of the preliminary "high-level" estimate as part of the detailed design phase;
- Increase in cost required to "micro-tunnel" the new sanitary and watermain beneath CP Rail and the Hydro corridor in order to avoid existing hydro towers and limit disruption within the corridor;
- Removal and replacement of storm sewers on Intersection Road not previously identified in the preliminary estimate, but recommended during detailed design to improve conveyance and provide for future storm sewer upgrades on Shawnee Road;
- Connecting the Gouin Street and Maisonneuve Street watermains into the new trunk watermain.

As a result of the significant cost increase, and potential challenges with trying to construct Phase 1 in a single construction season, Administration has re-evaluated the project and recommends a revised project phasing plan. The revised approach will maintain Council's growth priorities but defers portions of the work to spread project costs over a longer timeline. The following revised phasing is recommended:

- Phase 1 – Construction of trunk water and wastewater infrastructure from CR22 to Intersection Road in 2024/2025 ($14.0M)

- Phase 2 – Construction of water and wastewater infrastructure on Intersection Road in 2025 ($2.6M)

- Phase 3 – Re-construction of Intersection Road including storm sewer improvements, road reconstruction, multi-use pathway, etc. beyond the 2028 planning horizon ($5.5M)

- Phase 4 – Construction of trunk water and wastewater infrastructure from Intersection Road to the south side of the Hydro corridor beyond the 2028 planning horizon ($9.2M)

It is further recommended that Phases 1 and 2 be tendered in 2024 with construction planned for 2024 and 2025. Proceeding with Phase 1 and 2 provides the following growth opportunities:

- Installation of the trunk infrastructure between CR22 and Intersection Road provides the necessary water and wastewater infrastructure for landowners to start subdivision site servicing designs for that area.

- Installation of the water and wastewater infrastructure on Intersection Road provides a component of the infrastructure needed to facilitate development in a portion of the Manning Road Secondary Planning Area as well as the easterly portion of the Tecumseh Hamlet Secondary Planning Area south of the CP Rail adjacent to Manning Road.

The estimated cost for Phases 1 and 2 is $16,571,700 which includes $14,517,400 for sanitary sewers and $2,054,300 for watermains. It is planned to tender Phases 1 and 2 in Q1 2024 with a subsequent report to Council for tender award.

As recommended above, Phases 3 and 4 are planned to proceed beyond the 2028 planning horizon. It is anticipated that this deferral may allow for some cost recoveries assuming development proceeds north of Intersection Road.

In late January 2024, the Province of Ontario released Program Guidelines for the Housing-Enabling Water Systems Fund – 2024 Intake (HEWSF). The HEWSF is an application-based program that will provide $200 million in Provincial funding over the next 3-years. Projects funded through the program will aim to protect communities by investing in the repair, rehabilitation and expansion of core water, wastewater, and stormwater projects to promote growth and enable housing. Eligible applicants include all municipalities that own water, wastewater and stormwater infrastructure. Under this program the Province will fund approved projects a maximum of 73% (up to $35 million) with the municipality required to fund all remaining eligible project costs (27%). Applications are due on April 19, 2024 with funding notifications being made in summer 2024.

Based on the information available, it appears that Phases 1 and 2 of the THSPA – Northwest Water & Wastewater Infrastructure Project would be ideal candidates for the HEWSF program. As noted above, the estimated Phases 1 and 2 cost is $16,571,700. Under the HEWSF program, up to 73% of the Phases 1 and 2 costs would be covered, totalling approximately $12,097,300. Administration will bring forward a future report to Council to obtain approval to make application to the HEWSF program for Phases 1 and 2 of the THSPA – Northwest Water & Wastewater Infrastructure Project.

Additional funding for Phases 1 and 2 is to be provided from the Wastewater Sewer Reserve Fund in the amount of $6,943,900.

- **Reference Reports:**
  - Report PWES-2020-15, "2018 Water and Wastewater Master Plan Update, Study Completion and Final Adoption", March 10, 2020; Motion RCM-87/20.
  - Report PWES-2022-27, "Amendment to the 2022 PWES Capital Works Projects, Tecumseh Secondary Plan Area – Northwest Water & Wastewater Infrastructure Projects", June 28, 2022; Motion RCM-199/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.
  - Report PWES-2023-21, "Amendment to the 2023-2027 PWES Capital Works Plan Tecumseh Secondary Plan Area Northwest Water & Wastewater Infrastructure Project, February 28, 2023; Motion RCM-47/23.
  - Report PWES-2023-35, Tecumseh Hamlet Secondary Plan Area Northwest Water and Wastewater Infrastructure Project Tender Award for Consulting Services, April 25, 2023; Motion RCM-119/23.

Section B: Carry Over Projects from 2023 Not Requiring Additional Funding in 2024

B1. Lesperance Road Multi-Use Trail – CR22 to CR42

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$2,798,750	**$0**	$0	$2,798,750
Grant (confirmed): ICIP, Public Transit Stream 2019 Intake - $466,707			

In May 2019, Council approved the recommendation of Report No. PBS-2019-16 that endorsed this Multi-Purpose Pathway as a candidate project for funding through the Investing in Canada Infrastructure Program (2019 Intake of the Public Transit Funding Stream). Following this meeting, an application for funding was submitted which was ultimately approved by the funding agency. The maximum amount of funding available for this project is $466,707 which will offset Town funds for the total project costs.

Dillon Consulting Ltd. was retained and is proceeding with the detailed design. A Public Information Centre was held on November 22, 2023 to present the proposed trail layout and receive public comments. It is planned to tender and construct the project in 2024.

Funding for this project was previously provided from the Infrastructure Reserve in the amount of $2,798,750.

- **Reference Reports:**
  - Report PBS-2019-16, "Investing in Canada Infrastructure Program, 2019 Intake of the Public Transit Funding Stream, Lesperance Road Multi-Purpose Pathway – Cty Rd 22 to Cty Rd 42 Final Recommendation", May 28, 2019; Motion RCM-150/19.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services, 2022 Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B2. Pike Creek Drain at Baseline Road (1005)

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$250,000	**$0**	$0	$250,000

In December 2020 Council approved the recommendations of Report PWES-2020-33 which included bank stabilization works on a section of the Pike Creek Drain along Baseline Road at Bridge No. 1005. Public Works has continued to monitor this section of drain bank and has observed no change.

Dillon Consulting Ltd. is currently preparing a municipal drainage report for the Pike Creek Drain and it would be beneficial to include this bank repair in the drainage report. Public Works will continue to monitor this bank and will proceed with the bank repair as a Capital Works project in 2024 if conditions change.

Funding for this project was previously provided from the Bridges Lifecycle Reserve in the amount of $250,000.

- **Reference Reports:**
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.

B3. Hwy 3/CR34 Water Valve Replacement

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$456,300	**$0**	$0	$456,300

In December 2020, Council approved the recommendations of Report PWES-2020-33 that authorized Administration to proceed with the Hwy 3/CR43 Water Valve Replacement Project. This watermain was originally installed in the late 1990's and recent maintenance works determined that there were issues with the water valves used for that project. Accordingly, it was planned to replace all water valves on the existing 300 mm diameter watermain located on Highway No.3 (Oldcastle Road to CR34) and on CR34 (Highway No.3 to Malden Road). It was further intended to tender the replacement of all valves as single project, however, the Town recently determined that all valves are not impacted. Accordingly, the Water Division now intends to approach this as a multi-year project where Town staff investigates the condition of the existing water valves and replaces valves as required.

Funding for this project was previously provided from the Watermain Reserve Fund in the amount of $456,300.

- **Reference Reports:**
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects"", January 25, 2022; Motion RCM-23/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B4. County Road 19 Improvements – County Road 22 to Jamsyl Drive

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$1,022,000	**$0**	$0	$1,022,000

In 2017 the County implemented an interim solution at the CR22/CR19 intersection, and made improvements to the north, east and west legs to provide a greater level of service until the ultimate solution could be implemented. At this time, the south leg improvements of the intersection were not completed. The County of Essex is now proceeding with the design and construction of the south leg, which involves the interim widening of CR19 south of CR22 to Jamsyl Drive.

In March 2021, Council approved the recommendations of Report PWES-2021-13 that authorized Administration to add the CR19 Trunk Watermain Installation project to the 2020 Capital Works projects. Project expenditures of $758,000 were also funded through the Watermain Reserve Fund. The installation of the 400 mm diameter trunk watermain on CR19 was be incorporated as part of the County's Improvement Project to CR19. In January 2023, Council approved the recommendations of Report PWES-2023-01 that increased the approved budget for this project to $1,022,000 to reflect current market conditions. Detailed design has been ongoing since 2020, however, the County recently advised that construction is not planned in 2024. In addition, with anticipated development in the Manning Road Secondary Planning Area (MRSPA), Town Administration recommended that a holistic review of the planned CR19 drainage improvements be undertaken with consideration of the MRSPA development to optimize the drainage solution for all parties. This drainage review will continue into 2024 and, upon completion, should allow the County to advance their CR19 design as well as the design for the MRSPA.

Funding for this project was previously provided from the Watermain Reserve Fund in the amount of $1,022,000.

- **Reference Reports:**
  - Report PWES-2020-15, "2018 Water and Wastewater Master Plan Update, Study Completion and Final Adoption", March 10, 2020; Motion RCM-87/20.
  - Report PWES-2021-13, "Amendment to the 2021 PWES Capital Works Projects, County Road 19 Trunk Watermain Installation (from County Road 22 to south of Jamsyl Drive)", March 9, 2021; Motion RCM-75/21.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B5. County Road 46, Webster and Laval Sanitary Sewer Extension

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$4,131,000	**$0**	$0	$4,131,000
Estimated Landowner Recoveries (Sanitary Sewers): $1,767,000			

In December 2018, Council approved the recommendations of Report PWES-2018-08 that authorized Administration to complete the engineering design for the CR46 Webster and Laval Sanitary Sewer Extension. In accordance with this report, Dillon Consulting Ltd. was retained to complete the engineering design.

The CR46 Webster and Laval Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8th Concession Road sanitary service area. The project includes the extension of a sanitary sewer along CR46 from the 8th 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. This project will incorporate the strategic priorities of growth and economic development as outlined within the May 5, 2022 SCM Presentation and confirmed in Council's new Strategic Plan.

Detailed design, consultation with utility companies and preparation of final easement documentation continued in 2022. Detailed design was completed in 2023 including the preparation of tender documents, completion of the excess soil investigations and submission of approval applications.

The project was tendered in late 2023 and in January 2024, Council approved the recommendation of Report PWES-2024-05 that awarded the tender to Rudak Excavating Inc. in the amount of $3,158,200 excluding HST. Construction is planned to proceed in 2024.

The project tendered/projected cost estimate of $4,131,000 includes $1,383,200 for road reconstruction, $842,900 for storm sewers, $1,799,100 for sanitary sewers and $105,800 for watermains.

Estimated recoveries from landowners for the sanitary sewers would be approximately $1,767,000. This amount will be refined once the Part XII By-Law for the 8th Concession Road sanitary service area is finalized. Administration plans to bring forward a report to Council in mid-2024 to request Council's approval for the Part XII By-Law.

Funding for this project was previously provided from the following:

- Road Lifecycle Reserve in the amount of $1,383,200
- Wastewater Sewers Reserve Fund in the amount of $1,799,100
- Storm Sewer Lifecycle Reserve in the amount of $842,900
- Watermain Reserve Fund in the amount of $105,800

- **Reference Reports:**
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects'", January 25, 2022; Motion RCM-23/22.

- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

- Report PWES-2024-05, "County Road 46, Webster Drive and Laval Sanitary Sewer Extension – Tender Award", January 23, 2024; Motion RCM13/24.

B6. Del Duca Drive Sanitary Sewer Extension

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$5,404,700	**$0**	$0	$5,404,700
Estimated Landowner Recoveries (Sanitary Sewers): $1,050,000			

In December 2018, Council approved the recommendations of Report PWES-2018-08 that authorized Administration to complete the engineering design for the Del Duca Drive Sanitary Sewer Extension. In accordance with this report, Stantec Consulting Ltd. was retained to complete the detailed design.

The Del Duca Drive Sanitary Sewer Extension is a continuation of the sanitary sewer servicing within the 8th Concession Road sanitary service area. The project includes the extension of a sanitary sewer along Del Duca Drive and will incorporate the strategic priorities of growth and economic development as outlined within the May 5, 2022 SCM Presentation and confirmed in Council's new Strategic Plan.

The Oldcastle Stormwater Master Plan was being completed concurrently with the design for the Del Duca Drive Sanitary Sewer Extension. Through the Oldcastle Stormwater Master Plan, it was determined that a future major storm event flow route is required from the Del Duca Drive cul-de-sac southerly to the Hurley Relief Drain. Coordination has occurred between these two projects to ensure that the Del Duca design provides for the recommendations of the Oldcastle Stormwater Master Plan. Based on this coordination, it was determined that a previously identified sanitary easement needed to be modified to accommodate a future storm sewer. Discussions continued in 2023 with property owners to secure the required easements. In late 2023, settlement offers were accepted by the property owners and it is anticipated that the Town's solicitor will finalize the registration of the easements in early 2024.

Detailed design was completed in 2023 including the preparation of tender documents, completion of the excess soil investigations and submission of approval applications. The project was tendered in late 2023. It is planned to bring forward a report to Council in early 2024 to award the tender which will allow construction to proceed in 2024.

The project cost estimate of $5,404,700 includes $2,153,900 for road reconstruction, $1,898,200 for storm sewers, $1,316,700 for sanitary sewers and $35,900 for watermains.

Estimated recoveries from landowners for the sanitary sewers would be approximately $1,050,000. This amount will be refined once the Part XII By-Law for the 8th Concession Road sanitary service area is finalized. Administration plans to bring forward a report to Council in mid-2024 to request Council's approval for the Part XII By-Law.

Funding for this project was previously provided from the following:

- Road Lifecycle Reserve in the amount of $2,153,900
- Wastewater Sewers Reserve Fund in the amount of $1,316,700
- Storm Sewer Lifecycle Reserves in the amount of $1,898,200
- Watermain Reserve Fund in the amount of $35,900

- **Reference Reports:**
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2022-03 "Approval of 2022 Public Works & Engineering Services Capital Works Projects'", January 25, 2022; Motion RCM-23/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B7. 8th Concession Sanitary Sewer Outlet Area - Cost Recovery By-Law

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$45,000	**$0**	$0	$45,000

The Oldcastle Hamlet is approximately 815 Ha of land which has largely developed for industrial purposes to date. Many existing developments within the hamlet had historically been serviced by private on-site sewage disposal (septic) systems. Several studies, however, identified significant pollution problems and potential health risks attributed to the discharge of raw wastewater from failing septic systems into roadside open ditches. As a result of these studies, the Town commenced the phased introduction of sanitary sewers into the Oldcastle Hamlet in 2010. The Oldcastle

Hamlet is serviced by two trunk sanitary sewers: North Talbot Road Trunk Sanitary Sewer and 8th Concession Road Trunk Sanitary Sewer.

In December 2011, Council approved the recommendations of PWES Report No.39/11 where it was recommended that the cost of the sanitary sewer collection system (including the municipal sanitary sewers (sewer mains) and the pipes within the municipal road allowances that connect each property to a sewer main (laterals)) for the area within the North Talbot Road Sanitary Sewer Outlet be assessed against the benefitting lands within that area. Based on this approach, assessments were calculated for all benefiting lands and, in accordance with Part XII of the Municipal Act 2001, Council adopted the "North Talbot Road Sanitary Sewer Outlet Main and Lateral Charges By-Law".

In 2022 Watson & Associates was retained to assist the Town with the preparation of a Part XII By-Law to recover the sanitary servicing costs from the benefitting lands within the 8th Concession Sanitary Sewer Outlet Area. In November 2023, Council approved the recommendations of Report PWES-2023-73, which authorized Administration to proceed with a Public Information Centre (PIC) to communicate the estimated charges to property owners within the 8th Concession Road Sanitary Sewer Outlet Area. The PIC is planned for early 2024 following which Administration will report back to Council on comments received and next steps for the preparation of the 8th Concession Road Sanitary Sewer Outlet Area Main and Lateral Charges Cost Recovery Part XII By-Law.

Funding for this project was previously provided from the Wastewater Sewers Reserve Fund in the amount of $45,000.

- **Reference Reports:**
  - Report PWES No. 39/11, "North Talbot Road Sanitary Sewer Outlet, Part XII By- Law", December 13, 2011; Motion RCM-427/11.
  - Report PWES No. 45/17, "8th Concession Road Sanitary Sewer Outlet, Main and Lateral Charges Cost Recovery By-Law", September 26, 2017; Motion SCM- 13/17.
  - Report PWES-2018-01, "8th Concession Road Sanitary Sewer Outlet, Main and Lateral Charges Cost Recovery Part XII By-Law", February 13, 2018; Motion SCM-02/18.
  - Report PWES-2022-03 "Approval of 2022 Public Works & Engineering Services Capital Works Projects"", January 25, 2022; Motion RCM-23/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

- Report PWES-2023-73, "8th Concession Road Sanitary Sewer Outlet Area Main and Lateral Charges Cost Recovery Part XII By-Law, November 28, 2023; Motion RCM-311/23.

B8. Scully & St. Mark's Storm Pump Station & Riverside Drive Storm Sewers

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$23,346,900	**$0**	$0	$23,346,900
Grant (confirmed): DMAF 2020 Intake - $6,820,000			

This 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 consolidated Scully St. Mark's pump station is to have increased 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 Storm Drainage Master Plan (2019). 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.

In October 2020 the Town was advised that our funding application to the federal Disaster Mitigation and Adaptation Fund (DMAF) was approved for funding totalling $10.7M for the following projects:

- Scully & St. Mark's Storm Pump Station & Riverside Drive Trunk Storm Sewers project.
- P.J. Cecile Storm Pump Station Improvements project.

Under DMAF, all works must be completed by March 31, 2028. The Scully & St. Mark's Storm Pump Station & Riverside Drive Trunk Storm Sewer project is a major infrastructure improvement project that will enhance the level of service and provide approximately 6-times more capacity than the existing pump station to accommodate the growing frequency of heavy rainfall events.

The DMAF projects were originally valued at $26.7M with the Town receiving $10.7M in DMAF grant funding. Phase 1, the Scully-St. Mark's Pump Stations and Riverside Storm Trunk Sewer was estimated at $17.05M and Phase 2 PJ Cecile Storm Pump Station was estimated at $9.70M.

In early 2023, the detailed design for the project was completed and tender documents for construction were posted to the Town's Bids and Tenders portal on April 26, 2023. The tender closed on June 8, 2023 with two submissions being received. In June 2023, Council adopted the recommendations of Report PWES-2023-44, which awarded

construction to Sterling Ridge Infrastructures Inc. in the amount of $19,202,990.28 (excluding HST).

A Request for Proposal (RFP) was posted on the Town's Bids & Tenders portal on the Town's website on April 26, 2023, for the services of qualified engineering professionals to provide construction services including, but not limited to, contract administration, construction inspection, quality control, and commissioning services for this project. Bid proposals were received up to and including June 1, 2023, at which time one (1) firm had submitted a proposal. In June 2023, Council adopted the recommendations of Report PWES-2023-48, which awarded the engineering consulting services to Dillon Consulting Ltd. in the amount of $941,056.50 (excluding HST).

The total projected project cost estimate is $23,346,900 (including non-rebated HST) which is broken down as $2,626,700 for road reconstruction, $410,600 for watermains, $1,180,900 for sanitary sewers and $19,128,700 for storm sewers and pumping stations. Administration continues to ask DMAF staff if there is potential for the grant funding allocation of $10.7M to be increased. To date, there has been no indication that additional DMAF funding will be available for this project.

Construction commenced in late 2023 and is anticipated to be complete by the end of 2024.

Funding for this project was previously provided from the following:

- Road Lifecycle Reserve in the amount of $2,626,700
- Watermain Reserve Fund in the amount of $410,600
- Wastewater Sewers Reserve Fund in the amount of $1,180,900
- Storm Sewer Lifecycle Reserve in the amount of $19,128,700

- **Reference Reports:**
  - Report PWES-2018-17, "Flood Mitigation Strategy", June 26, 2018; Motion RCM-194/18.
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.
  - Report PWES-2019-02, "Disaster Mitigation and Adaptation Fund, Special Spring 2019 Flooding Intake, Expression of Interest and Full Application", July 23, 2019; Motion RCM-229/19.
  - Report PWES-2019-50, "Storm Drainage Master Plan, Study Completion and Final Adoption", December 10, 2019; Motion RCM-402/19.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services, 2022 Capital Works Projects", December 8, 2020; Motion RCM-375/20.

- Report PWES-2021-03, "Disaster Mitigation and Adaptation Fund, Agreement for Climate Change and Flood Resiliency Project, Storm Infrastructure Improvements", February 9, 2021; Motion RCM-40/21.
- Report PWES-2022-03 "Approval of 2022 Public Works & Engineering Services, 2022 Capital Works Projects", January 25, 2022; Motion RCM-23/22.
- Report PWES-2022-34 "Disaster Mitigation and Adaptation Fund 2020 Intake Ancillary Consulting Services for the Scully and St. Marks Pump Stations – Tender Award", August 09, 2022; Motion RCM-250/22
- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.
- Report PWES-2023-44, "Disaster Mitigation and Adaptation Fund Phase 1: Scully-St. Mark's Pump Station and Riverside Drive East Reconstruction Project - Construction Services Tender Award", June 27, 2023; Motion RCM-173/23.
- Report PWES-2023-48, "Disaster Mitigation and Adaptation Fund Phase 1: Scully-St. Mark's Pump Station Replacement and Riverside Drive East Reconstruction Project Award of Engineering Consulting Services" June 27, 2023; Motion RCM-176/23.

B9. P.J. Cecile (Kensington) Storm Pump Station

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$11,639,800	**$0**	$0	$11,639,800
Grant (confirmed): DMAF 2020 Intake - $3,880,000			

This project consists of the construction of a new pump station over the footprint of the existing structure with increased capacity and larger inlet and outlet piping.

As indicated in B8 above, the Town received federal funding for this project through the DMAF program. As noted, under the DMAF, all works must be completed by March 31, 2028.

The P.J. Cecile (Kensington) Storm Pump Station is a major infrastructure improvement project that will enhance the level of service and provide approximately 8-times more capacity than the existing pump station to accommodate the growing frequency of heavy rainfall events.

The DMAF projects were originally valued at $26.7M with the Town receiving $10.7M in DMAF grant funding. Phase 1, the Scully-St. Mark's Pump Stations and Riverside Storm Trunk Sewer was estimated at $17.05M and Phase 2 PJ Cecile Storm Pump Station was estimated at $9.70M.

As per Report PWES-2023-01, the project cost estimates were updated to be more in line with recent market conditions and inflation. The P.J. Cecile Pump Station was increased to $11,639,800 from $9.70M, which is broken down as $11,311,000 for storm sewers and pump stations and $328,800 for road reconstruction. Administration continues to ask DMAF staff if there is potential for the grant funding allocation of $10.7M to be increased. To date, there has been no indication that additional DMAF funding will be available for this project.

A Request for Proposal (RFP) for Engineering Consulting Services for the detailed design, contract administration and inspection was posted on the Town's Bids & Tenders account and on the Town's website on November 18, 2022. Proposals were received up to and including December 15, 2022, at which time one (1) firm had submitted a proposal. In February 2023, Council adopted the recommendations of Report PWES-2023-14, which awarded the engineering consulting services to Stantec Consulting Ltd. (Stantec) in the amount of $1,157,400 (excluding HST). Stantec has commenced design which is anticipated to be completed in late 2024 or early 2025. Depending on receipt of approvals, construction may commence in early 2025 or 2026.

Funding for this project was previously provided from the following:

- Storm Sewer Lifecycle Reserve in the amount of $11,311,000
- Road Lifecycle Reserve in the amount of $328,800

- **Reference Reports:**
  - Report PWES-2018-17, "Flood Mitigation Strategy", June 26, 2018; Motion RCM-194/18.
  - Report PWES-2018-08, "2019-2023 Public Works & Environmental Services Five Year Capital Works Plan", December 11, 2018; Motion RCM-361/18.
  - Report PWES-2019-02, "Disaster Mitigation and Adaptation Fund, Special Spring 2019 Flooding Intake, Expression of Interest and Full Application", July 23, 2019; Motion RCM-229/19.
  - Report PWES-2019-50, "Storm Drainage Master Plan, Study Completion and Final Adoption", December 10, 2019; Motion RCM-402/19.
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.

- Report PWES-2021-03, "Disaster Mitigation and Adaptation Fund, Agreement for Climate Change and Flood Resiliency Project, Storm Infrastructure Improvements", February 9, 2021; Motion RCM-40/21.

- Report PWES-2022-03 "Approval of 2022 Public Works & Engineering Services, 2022 Capital Works Projects", January 25, 2022; Motion RCM-23/22.

- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

- Report PWES-2023-14, "Disaster Mitigation and Adaptation Fund 2020 Intake Phase 2: P.J. Cecile Storm Pump Station Replacement Project Award of Engineering Consulting Services", February 14, 2023; Motion RCM-29/23.

B10. Stormwater Rate Study

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$45,000	**$0**	$0	$45,000

In December 2019, Council authorized Administration to undertake a Stormwater Rate Study to assess the feasibility of implementing a user fee system to meet the significant funding requirements needed to implement stormwater infrastructure improvements. Watson & Associates Economists Ltd. were retained to undertake the Study. A draft report was received in 2023 and is currently being reviewed by Administration. Software options for implementation are also being investigated and a future report will be brought forward to Council regarding recommendations for this project.

Funding for this project was previously provided from the Storm Sewer Lifecycle Reserve in the amount of $45,000.

- **Reference Reports:**

  - Report PWES-2019-50, "Storm Drainage Master Plan, Study Completion and Final Adoption", December 10, 2019; Motion RCM-402/19.

  - Report PWES-2019-49, "2020-2024 Public Works & Environmental Services Five Year Capital Works Plan", December 10, 2019; Motion RCM-401/19.

  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.

- Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects'", January 25, 2022; Motion RCM-23/22.
- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B11. Manning Road Secondary Plan Area (MRSPA) – Stormwater Infrastructure

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$2,780,000	**$0**	$9,955,000	$12,735,000
Estimated Landowner Recoveries (Stormwater): $10,188,000			

In December 2019 through Report PWES-2019-49, Council authorized Administration to complete the detailed design for the Manning Road Secondary Plan Area (MRPSA) stormwater facility and to move forward with acquiring property for the MRSPA stormwater management pond in 2020. In accordance with this report, Dillon Consulting Ltd. was retained based on their previous work on the MRSPA EA, MRSPA EA Addendum and related Functional Servicing Report (FSR).

This project will incorporate the strategic priorities of growth and economic development as outlined within the May 5, 2022 SCM Presentation and confirmed in Council's new Strategic Plan.

During 2020, the Town acquired property for the MRSPA stormwater management facility. It was originally intended to update the previous 2015 Environmental Study Report and FSR to reflect the current storm design criteria as provided in the Windsor/Essex Region Stormwater Management Standards Manual (December 2018) and then complete the detailed design for the MRSPA stormwater facility in 2023. Based on consultation with MRSPA landowners, however, this process was paused in 2023 to provide the opportunity to consider alternative servicing approaches for this area.

It is anticipated that a future report will be brought forward to Council to provide a project update following consideration of alternative servicing approaches.

Funding for this project was previously provided from the Storm Sewer Lifecycle Reserve in the amount of $2,780,000.

- **Reference Reports:**
  - Report PWES-2019-55, "Amendment to 2019-2023 PWES Five Year Capital Works Plan, Manning Road Secondary Plan Area, Stormwater Management Facility", November 12, 2019; Motion RCM-369/19.

- Report PWES-2019-49, "2020-2024 Public Works & Environmental Services Five Year Capital Works Plan", December 10, 2019; Motion RCM-401/19.
- Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
- Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects"", January 25, 2022; Motion RCM-23/22.
- Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.

B12. CR43 Trunk Watermain W-4 (CP Rail to CR42)

Previously Approved	**Requested for 2024**	Future Costs	Total Project Costs
$4,886,000	**$0**	$0	$4,886,000

In December 2020, Council approved the recommendations of Report PWES-2020-33 that authorized Administration to proceed with the engineering design of two sections of watermain on CR43 and Banwell Road. These locations included:

- CR43 from CR42 to Shields Drive ($260,000)
- Banwell Road/CR43 from Intersection Road to South of CP Rail ($800,000)

In January 2023, Council approved the recommendations of Report PWES-2023-01 which combined these projects into one project entitled "County Road 42 and County Road 43 Improvements – Phase 2".

Subsequent to Report PWES-2023-01, discussions occurred between ENWIN Utilities Ltd. (ENWIN) and Town Administration on the possibility of extending a trunk watermain on Banwell Road (from Mulberry Drive to the CP Rail), with the intent to create a looped trunk watermain on Banwell/CR43 that would connect to the trunk watermain on CR42. Additionally, this trunk watermain would benefit the Tecumseh Hamlet Secondary Planning Area as well as provide redundancy in the ENWIN watermain distribution system for secondary service to both the NextStar Battery Plant on Banwell Road, and the Future Hospital at CR42/9th Concession Road.

In May 2023, Council approved the recommendations of Report PWES-2023-42 which provided authorization to proceed with the following:

- The design of the CR43 Trunk Watermain Project W-4 (CP Rail to CR42) in 2023 with construction in 2024 as part of the County of Essex's CR42 & CR43 Improvement Project Phase 2;

- The expenditures of $4,886,000 for the engineering and construction costs to be funded from the Watermain Reserve Fund;
- That Dillon Consulting Limited be retained for engineering consulting services, including completion of the detailed design, drawings and specifications, contract administration and inspection for the CR43 Trunk Watermain Project W-4 (CP Rail to CR42);
- That the local watermain projects for the CR42 & CR43 Improvements Phase 2, as contained within report PWES-2023-01 2023-2027 PWES Five-Year Capital Works Plan, in the updated estimate amount of $1,146,500, be cancelled.

Subsequent to Report PWES-2023-42, the Town Water Division advised that, to avoid major service disruption if a problem occurs on the private side that requires a watermain to be shut down, it is preferred to service individual private properties from a local watermain. With a separated local and trunk system, the local watermain can be isolated with no interruption to the remainder of the trunk watermain service area. Accordingly, the Town Water Division recommended that, in addition to the proposed trunk watermain, a local watermain be maintained on CR43 and Banwell Road to service the adjacent private properties.

In addition to the above, the intended design for the CR43 Trunk Watermain W-4 (CP Rail to CR42) Project included a 300 mm diameter watermain extending easterly from CR43 and then northerly to connect to the 300 mm diameter watermain (W-1) that was proposed to be constructed as part of the Tecumseh Secondary Plan Area – Northwest Water & Wastewater Infrastructure Project. As described earlier in this report, the proposed Phasing for the Tecumseh Secondary Plan Area – Northwest Water & Wastewater Infrastructure Project has been revised and the planned construction date for the section of 300 mm diameter watermain (W-1) from Intersection Road to the south side of the Hydro corridor is now beyond 2028. Accordingly, it is recommended that the 300 mm diameter section of watermain be removed from the CR43 Trunk Watermain W-4 (CP Rail to CR42) Project.

The CR43 Trunk Watermain W-4 (CP Rail to CR42) is being coordinated with the County of Essex revised phasing plan for their CR42/43 improvements project. Construction is planned to commence in 2024.

Administration recommends that the CR43 Trunk Watermain W-4 (CP Rail to CR42) Project be expanded to include the replacement of the local watermain on Banwell Road and that the planned 300 mm diameter section of watermain extending easterly from CR43 be removed from the CR43 Trunk Watermain W-4 (CP Rail to CR42) Project.

Funding for this project was previously provided from the Watermain Reserve Fund in the amount of $4,886,000.

- **Reference Reports:**
  - Report PWES-2020-33, "Pre-Approval of 2021 Public Works & Environmental Services Capital Works Projects", December 8, 2020; Motion RCM-375/20.
  - Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services Capital Works Projects"", January 25, 2022; Motion RCM-23/22.
  - Report PWES-2023-01, "2023-2027 Public Works & Engineering Services Five-year Capital Works Plan", January 26, 2023; Motion RCM-04/23.
  - Report PWES-2023-42, "Amendment to the 2023-2027 PWES Capital Works Plan County Road 43 Trunk Watermain Project W-4 (CP Rail to County Road 42), May 9, 2023; Motion RCM-141/23.
  - Report PWES-2023-21, "Amendment to the 2023-2027 PWES Capital Works Plan Tecumseh Secondary Plan Area Northwest Water & Wastewater Infrastructure Project, February 28, 2023; Motion RCM-47/23.
  - Report PWES-2023-35, "Tecumseh Hamlet Secondary Plan Area Northwest Water and Wastewater Infrastructure Project Tender Award for Consulting Services", April 25, 2023; Motion RCM-119/23.

Section C: 2025-2028 Capital Projects

This section provides highlights of projects proposed for 2025-2028. Council approval and funding allocations will be sought for under the 5-year capital works plans that are brought forward to Council on an annual basis.

- **2025: Traffic Signal PHM 125's ($65,000)**

  Preparation of legal drawings for each signalized Town intersection which will include signal timing, clearances, signage, etc. prepared by a qualified professional engineer.

- **2025: Bridge & Culverts Needs Study (Spans < 3m) ($80,000)**

  A condition assessment was completed in 2016 on the Town's 72 bridges and culverts with spans that were less than 3.0 metres. It is recommended that an update to the study be completed to determine and prioritize the short, medium and long term recommended works.

- **2025: Lakewood Park Pedestrian Bridge Maintenance ($200,000)**

As identified in the 2022 Bridge & Culvert Needs Study (Spans >3m), the Lakewood Park pedestrian bridge is showing signs of corrosion on the floor system (stringer members). It is recommended that maintenance be completed on the stringers and floor beams.

- **2025: Roadside Safety Improvements – Bridge #1010 ($70,000)**

  A roadside safety assessment, in accordance with the 2017 MTO Roadside Design Manual, of the Town's bridges and culverts identified the need to install a guide rail at Bridge #1010.

- **2025: Water & Wastewater Master Plan Update ($200,000)**

  The last update to the Water and Wastewater Master Plan was completed and brought to Council for approval in late 2019. Since that time, several studies are ongoing or completed that will impact the servicing strategy and warrant the need for a Master Plan update. These studies include:
  - Water Model Update – South Service Area
  - Water Model Update – North Service Area
  - Tecumseh Hamlet Secondary Plan Area – Class EA and FSR
  - Sanitary Sewer Model update

- **2025-2026: Riverside Drive East Pathway Improvements ($487,500)**

  Installation of a multi-use trail on the south side of Riverside Drive to connect the existing pathways between Arlington Boulevard and Kensington Boulevard. It is also recommended to install cross-rides at the intersections between Brighton Road and Manning Road and to conduct a lighting assessment to ensure the safety of trail users.

- **2025-2026: Brighton Road Pathway Extension and Traffic Calming ($312,000)**

  Extension of the existing pathway on the west side of Brighton Road, south of the Tecumseh Road roundabout for approximately 75-metres. This work would be in conjunction with a pedestrian cross-over and traffic calming measure on Brighton Road midway between Tecumseh Road and VIA Rail. The traffic calming measure was recommended as part of the 2019 Brighton Road Corridor Review.

- **2025-2026: Gauthier (Cedarwood) Sanitary Pump Station Replacement ($9,000,000)**

  The Gauthier (Cedarwood) Sanitary Pump Station was constructed in 1972. It services Tecumseh and St. Clair Beach areas north of County Road 22, totaling

approximately 920 hectares. Obtaining replacement parts has become more challenging, and the frequency of maintenance and costs are increasing. It is prudent to replace this aging infrastructure in advance of a mechanical failure. Funding programs to offset the cost of this project will be pursued.

- **2025-2027: CR42 & CR43 Improvements ($859,550)**

  The County of Essex commenced the first phase of construction in 2022 and it is anticipated to be completed in early 2024. It is currently planned to complete the CR42 surface works including roads, sidewalks and bike lanes in 2025-2027.

- **2025-2028: CR19 Improvements ($4,272,000)**

  The County of Essex is planning to commence the first phase of construction in 2025 on CR19 from CR22 to south of Jamsyl Drive ($1,022,000). The timing of construction and costs allocated to the Town for the subsequent phases are as follows:
  - 2027: Phase 2 Jamsyl to CP Rail – watermains ($2,730,000)
  - 2028: Phase 3 CP Rail Grade Separation – watermains ($520,000)
  - 2029: Phase 4 CP Rail to CR42 – watermains ($975,000)

- **2026: (Tecumseh) Storm Drainage Master Plan Update ($200,000)**

  The Tecumseh Storm Drainage Master Plan was completed in 2019 and had identified recommended solutions in the amount of $107M. Its study area comprised the existing built-up area north of CR42 to Lake St. Clair. It is recommended to conduct an update to the Master Plan in 2026 to expand the study area to include lands in the Tecumseh Hamlet Secondary Planning area and the stormwater solutions that were determined in the stand-alone Class Environmental Assessments and Functional Servicing Reports for this area.

- **2026: Shoreline Management EA/Implementation Plan ($400,000)**

  The Tecumseh Coastal Flood Risk Assessment Study was completed in 2022. The study investigated the Town vulnerability to the combined impacts of coastal and rainfall flooding. The study also presented high level conceptual mitigation options to reduce the vulnerability. Additional planning, such as an Environmental Assessment, is required to refine the flood hazard mitigation options and costs for community-scale initiatives to upgrade existing shore protection at low-lying waterfront lots.

- **2026: Town Property Shoreline Protection Condition Assessment ($70,000)**

  The Town owns shoreline properties with shore protection structures of varying age, type and condition. To maintain this infrastructure and provide for necessary improvements in future capital works plans, it is recommended that a condition assessment be undertaken.

- **2026 & 2028: Bridge & Culvert Needs Study (Spans > 3m) ($50,000 each)**

  Inspection of the Town's 16 bridges and culverts with a span greater than 3.0 metres are to take place every two years as legislated by Section 2(3) of the *Public Transportation and Highway Act*. Previous studies were completed in 2003, 2008, 2014, 2016, 2018, 2020 and 2022.

- **2026-2027: Oldcastle Stormwater Master Plan – Property & Easement Acquisition ($4,000,000)**

  The Oldcastle Stormwater Master Plan was completed and adopted by Council in June 2022. The Master Plan recommended stormwater solutions across the various watershed areas. It also recommended that the Town proceed as soon as possible to secure the lands and easements required for these improvements.

- **2026-2028: Ure Street Sanitary Sewer Extension ($5,351,000)**

  Ure Street Sanitary Sewer extension is a continuation of the sanitary sewer servicing within the 8th Concession Road sanitary service area in the Oldcastle Hamlet.

- **2026-2028: O'Neil Street Sanitary Sewer Extension ($6,227,000)**

  O'Neil Street Sanitary Sewer extension is a continuation of the sanitary sewer servicing within the 8th Concession Road sanitary service area in the Oldcastle Hamlet.

- **2027: Manning Road Improvements, Phase 3 ($8,041,980)**

  Phase 3 relates to the road re-construction component of the project from Riverside Drive to St. Gregory's Road including improvements to an urban cross-section that accommodates pedestrians, cyclists and urban design features to create a gateway into Lakewood Park. It is also intended to construct the storm overflow from St. Thomas Street to Lakewood Park which had been identified as a recommendation in the Town's Storm Drainage Master Plan as project ESL-1.

- **2027: Sylvestre Drive Sanitary Sewer Extension ($2,211,900)**

  This project consists of the extension of a sanitary sewer on Sylvestre Drive from Sylvestre Drive to CR19 (approximately 410-metres), as well as adjacent to the CR19 right-of-way through a future easement (approximately 215-metres) or within an expanded County road right of way as part of a future CR19 improvement project.

- **2027+: AODA Sidewalk Ramp Repairs ($100,000 Annually)**

  Review and repair sidewalk ramps throughout the Town to ensure that they are AODA compliant. The sidewalk ramp condition, alignment and location will all be reviewed as part of the assessment.

- **2028-2030: Moynahan-Henin-Regal Sanitary Sewer Extension ($8,776,000)**

  Moynahan-Henin-Regal Sanitary Sewer extension is a continuation of the sanitary sewer servicing within the 8th Concession Road sanitary service area in the Oldcastle Hamlet.

Section D: 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 approximately 63 active drainage projects that the Town is undertaking. These works include new municipal drains (2), maintenance of existing drains (24), drain improvements requiring an engineer's report (36) and apportionment agreements (1) 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 are 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 Reserve.

Consultations

Financial Services
Development Services

Financial Implications

The 2024-2028 PWES Capital Works Plan is guided by Council's five-year strategic capital plan adopted in principle in May 2022 with primary focus on advancing Council's strategic priority of investment in infrastructure works to promote growth through development.

In addition to the capital projects adopted in 2022, additional projects have been added and or accelerated, including Multi-Use Recreational Trails on Lesperance Road, future phases of CR19 improvements, future phases of CR42 & CR43 improvements, MRSPA Stormwater Facility, Lesperance/CR22 Turning Lane, Riverside Drive Street Light Improvements, Boulevard Street Trees, Traffic Signal Upgrades (movement detection cameras), Arbour Street to Southfield Watermain, Brouillette Watermain Replacement and Del Duca Sanitary Sewer Extension.

Construction inflation costs and project scope changes also contribute to the growing capital expenditure forecast.

Capital expenditures anticipated for 2024 total $44.8M with an additional $90.8M projected for years 2025-2028, for a total of $135.6M as compared to the 2022 plan which forecast expenditures of $79M for years 2024-2028.

Some of this difference is due to timing, where delayed project starts such as the Scully/St. Mark's Storm Pump Station replacement, effectively accounts for close to $10M of this increased expenditure forecast for years 2024-2028.

Grants, property owner contributions and partnership funding are expected to contribute $46M towards projects planned for this five-year timeframe offsetting some of the total cost. As well, Development Charge (DC) fees for growth-related projects are expected to offset a portion of growth-related infrastructure investment. The timing and pace of development will impact the timing of DC recoveries and therefore directly impact Reserve Funds.

Notwithstanding these offsetting sources of funds, the estimated net cost increases, if materialized, will significantly impact capital reserves.

Generally, funding for most projects is covered through reserves, reserve funds and grants where reserves and reserve funds accumulate funds through annual budget allocations. There is, however, long-term debt planned with respect to the Scully/St. Marks and PJ Cecile Storm Pumping Station projects, with borrowing of up to $15M (PWES-2021-03) over the course of a few years available commencing in 2024.

The Town's overall capital reserve/reserve funds are relatively healthy today. The build-up of reserves over the past few years has been in anticipation of investment in significant capital projects. With much planning and design complete, construction of several major initiatives will commence and draw upon those reserves. Three of the

eight Reserve/Reserve Funds that fund PWES projects are forecast to be in deficit positions in this five-year plan, including:

- Storm LC Reserve – projected deficit of $18M. This deficit was anticipated with borrowing of up to $15M planned in the next two to three years. The Storm LC annual budget allocation is $1.46M with a target of $2.0M. Further increases to this annual allocation to get it to $2.0M is recommended.

- Sidewalk LC Reserve – projected deficit of $1M. This deficit is due to several large projects in a short timeframe. Administration recommends a one-time transfer from LC Roads Reserve to fund the bulk of this deficit as several large projects are associated with roadway work.

- Wastewater Facilities Reserve Fund – projected deficit of $4M. This is largely due to the Cedarwood Pump Station project. The Town has applied for DMAF Intake 5 grant towards this project, which if successful, will contribute up to 40% of cost to this project. Long-term debt may need to be considered in outlook years.

- Wastewater Sewers Reserve Fund- projected surplus of $6M. This figure could change greatly as grant funding from HEWSF of $10.5M is included in our forecast, however has yet to be awarded. Development Charge fees are based on estimated timing and pace of development. Long-term debt may need to be considered if a grant application is not successful and/or if DC recoveries are delayed.

The recent volatility in construction costs, capacity constraints in the construction sector and unpredictability with supply chains appears to be improving. Administration will continue to pursue transfer payment adjustments for grants secured to combat inflationary increases. Further, the Town's existing capital reserves and relatively low debt levels provide for financial flexibility and some additional funding capacity.

Administration is comfortable recommending the advancement of the projects identified in this report. However, should recent inflationary pressures experienced with 2022 and 2023 capital projects continue in upcoming 2024 project tenders, alterations to capital plans may need to be considered.

Projected Lifecycle Reserve and Reserve Fund balances for 2024 are provided in Attachment 4.

Link to Strategic Priorities

Applicable	2023-2026 Strategic Priorities
☒	Sustainable Growth: Achieve prosperity and a livable community through sustainable growth.
☒	Community Health and Inclusion: Integrate community health and inclusion into our places and spaces and everything we do.
☒	Service Experience: Enhance the experience of Team Tecumseh and our citizens through responsive and respectful service.

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:

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

Reviewed by:

Brian Hillman, MA, MCIP, RPP
Director Development Services

Reviewed by:

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

Recommended by:

Margaret Misek-Evans, MCIP, RPP
Chief Administrative Officer

Attachment Number	Attachment Name
1	Requested 2024 Budget Allocations
2	2024-2028 PWES Five Year Capital Works Plan
3	Location Map of 2024 Projects
4	Lifecycle Reserve Summaries

Attachment 1
2024-2028 PWES Five Year Capital Works Plan

	Previously Approved	Requested for 2024	Future Costs	Total Costs
Sidewalk Projects				
1. Sidewalk Repair Program - Various Locations	$ -	$ 69,000	$ -	$ 69,000
Sub-Total	$ -	$ 69,000	$ -	$ 69,000
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ -	$ -
Sidewalk Lifecycle Reserve:	$ -	$ 69,000	$ -	$ 69,000
New Infrastructure				
1. Lesperance Road Trail (CR22 to CR42)	$ 2,798,750	$ -	$ -	$ 2,798,750
2. Multi-Use Trails: Lesperance & Little River	$ 4,360,000	$ -	$ -	$ 4,360,000
Sub-Total:	$ 7,158,750	$ -	$ -	$ 7,158,750
Grants:	$ -	$ -	$ 3,082,707	$ 3,082,707
Recoveries:	$ -	$ -	$ -	$ -
Infrastructure Reserve:	$ 7,158,750	$ -	-$ 3,082,707	$ 4,076,043
Road Projects				
1. Road Paving - Asphalting	$ -	$ 700,000	$ -	$ 700,000
2. Road Paving - Tar and Chip	$ -	$ 150,000	$ -	$ 150,000
3. Road Paving - Crack Sealing	$ -	$ 150,000	$ -	$ 150,000
4. 2024 Road Needs Study	$ -	$ 160,000	$ -	$ 160,000
5. Boulevard Trees	$ -	$ 125,000	$ 500,000	$ 625,000
6. Lesperance Right Turn Lane at CR22	$ -	$ 400,000	$ -	$ 400,000
7. Riverside Drive Streetlight improvements	$ -	$ 250,000	$ -	$ 250,000
8. Traffic Signal Upgrades (movement detection cameras)	$ -	$ 100,000	$ -	$ 100,000
9. Lesperance Rd Rehabilitation (McNorton to First)	$ 340,000	$ 350,000	$ -	$ 690,000
10. Tecumseh Hamlet SPA EA FSR	$ 98,000	$ 5,000	$ -	$ 103,000
11. Scully & St. Mark's Storm PS/Riverside Drive	$ 2,626,700	$ -	$ -	$ 2,626,700
12. Cty Rd 46/Webster/Laval Sanitary Sewer Extension	$ 1,383,200	$ -		$ 1,383,200
13. Del Duca Drive Sanitary Sewer	$ 2,153,900	$ -	$ -	$ 2,153,900
14. TSPA Northwest W & WW Infrast (WW-1&WW-2)	$ 3,510,000	$ -	$ -	$ 3,510,000
15. Annual Project Contingency	$ -	$ 250,000	$ -	$ 250,000
16. County Road 46 Municipal Class EA	$ 70,000	$ 10,000	$ -	$ 80,000
17. PJ Cecile Storm Pump Station	$ 328,800	$ -	$ -	$ 328,800
Sub-Total	$ 10,510,600	$ 2,650,000	$ 500,000	$ 13,660,600
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ -	$ -
Road Lifecycle Reserve:	$ 10,510,600	$ 2,650,000	$ 500,000	$ 13,660,600
Bridge Projects				
1. 2024 Bridge & Culvert Needs Study (>3m Span)	$ -	$ 50,000	$ -	$ 50,000
2. Pike Creek Drain at Baseline Road (1005)	$ 250,000	$ -	$ -	$ 250,000
Sub-Total:	$ 250,000	$ 50,000	$ -	$ 300,000
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ -	$ -
Bridges Lifecycle Reserve:	$ 250,000	$ 50,000	$ -	$ 300,000

Attachment 1
2024-2028 PWES Five Year Capital Works Plan

	Previously Approved	Requested for 2024	Future Costs	Total Costs
Water Projects				
1. Arbour to Southfield Watermain	$ -	$ 260,000	$ -	$ 260,000
2. Brouillette Watermain Replacement	$ -	$ 255,000	$ -	$ 255,000
3. Fire Hydrant Upgrades	$ -	$ 20,000	$ 80,000	$ 100,000
4. Watermain Auto Flusher Replacements	$ -	$ 45,000	$ 90,000	$ 135,000
5. Scully St. Mark's Pump Station	$ 410,600	$ -	$ -	$ 410,600
6. CR43 Trunk Watermain W-4 (CP Rail to CR42)	$ 4,886,000	$ -	$ -	$ 4,886,000
7. Hwy3-CR34 Water Valve Replacement	$ 456,300	$ -	$ -	$ 456,300
8. Tecumseh Hamlet SPA EA FSR	$ 98,000	$ 5,000	$ -	$ 103,000
9. Cty Rd 46/Webster Laval Sanitary Sewer Exten.	$ 105,800	$ -	$ -	$ 105,800
10. Del Duca Drive Sanitary Sewer	$ 35,900	$ -	$ -	$ 35,900
11. TSPA Northwest W & WW Infrastructure (W-1)	$ 4,185,000	$ -	$ 261,600	$ 4,446,600
12. CR19 Improvements (CR22 to Jamsyl) (W-2B)	$ 1,022,000	$ -	$ -	$ 1,022,000
13. Centennial & Woodridge Watermain Replacements	$ 3,500,000	$ 47,000	$ -	$ 3,547,000
Sub-Total:	$ 14,699,600	$ 632,000	$ 431,600	$ 15,763,200
Grants:	$ -		$ 2,566,550	$ 2,566,550
Recoveries:	$ -	$ -	$ -	$ -
Watermain Reserve Fund:	$ 14,699,600	$ 632,000	-$ 2,134,950	$ 13,196,650
Water Facility Projects				
1. Tecumseh Water Tower - Internal Cleaning/Inspection	$ -	$ 32,000	$ -	$ 32,000
Sub-Total	$ -	$ 32,000	$ -	$ 32,000
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ -	$ -
Water Facilities Reserve Fund:	$ -	$ 32,000	$ -	$ 32,000
Wastewater Projects				
1. Little River Pollution Control Plant EA	$ -	$ 60,000	$ -	$ 60,000
2. Tecumseh Hamlet SPA EA FSR	$ 113,000	$ 5,000	$ -	$ 118,000
3. Cty Rd 46/Webster/Laval Sanitary Sewer Exten.	$ 1,799,100	$ -	$ -	$ 1,799,100
4. Scully & St. Mark's Storm PS/Riverside Drive	$ 1,180,900	$ -	$ -	$ 1,180,900
5. Del Duca Drive Sanitary Sewer	$ 1,316,700	$ -	$ -	$ 1,316,700
6. Sanitary Sewer Model Update	$ 345,000	$ 40,000	$ -	$ 385,000
7. TSPA Northwest W&WW Infrastructure (WW-1, WW-2)	$ 7,573,500	$ 6,943,900	$ 6,809,000	$ 21,326,400
8. MECP Consolidated Linear Infrastructure ECA	$ 25,000	$ 500	$ -	$ 25,500
9. 8th Concession Sanitary Sewer By-Law	$ 45,000	$ -	$ -	$ 45,000
Sub-Total:	$ 12,398,200	$ 7,049,400	$ 6,809,000	$ 26,256,600
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ 2,817,000	$ 2,817,000
Wastewater Sewers Reserve Fund:	$ 12,398,200	$ 7,049,400	$ 3,992,000	$ 23,439,600
Wastewater Facility Projects				
1. Sylvestre Drive Sanitary PS - 2024 Improvements	$ -	$ 140,000	$ -	$ 140,000
2. Gauthier Sanitary PS - 2024 Improvements	$ -	$ 10,000	$ -	$ 10,000
3. St. Alphonse Sanitary PS - 2024 Improvements	$ -	$ 25,000	$ -	$ 25,000
Sub-Total:	$ -	$ 175,000	$ -	$ 175,000
Grants:	$ -	$ -	$ -	$ -
Recoveries:	$ -	$ -	$ -	$ -
Wastewater Facilities Reserve Fund:	$ -	$ 175,000	$ -	$ 175,000

Attachment 1
2024-2028 PWES Five Year Capital Works Plan

	Previously Approved	Requested for 2024	Future Costs	Total Costs
Stormwater Projects				
1. Centennial and Woodbridge Watermain	$ -	**$ 1,015,000**	$ -	$ 1,015,000
2. Tecumseh Hamlet SPA EA FSR	$ 496,000	**$ 35,000**	$ -	$ 531,000
3. Cty Rd 46/Webster/Laval Sanitary Sewer Exten.	$ 842,900	$ -	$ -	$ 842,900
4. Scully & St. Marks Storm PS/Riverside Drive	$ 19,128,700	$ -	$ -	$ 19,128,700
5. MRSPA Stormwater Infrastructure	$ 2,780,000	$ -	$ 9,955,000	$ 12,735,000
6. Del Duca Drive Sanitary Sewer	$ 1,898,200	$ -	$ -	$ 1,898,200
7. TSPA Northwest W & WW Infrast (WW-1&WW-2)	$ 1,350,000	$ -	$ 656,900	$ 2,006,900
8. Stormwater Rate Study	$ 45,000	$ -	$ -	$ 45,000
9. PJ Cecile Pump Station	$ 11,311,000	$ -	$ -	$ 11,311,000
10. MECP Consolidated Linear Infrastructure ECA	$ 25,000	**$ 17,000**	$ -	$ 42,000
Sub-Total:	$ 37,876,800	$ 1,067,000	$ 10,611,900	$ 49,555,700
Grants:	$ -	$ -	$ 10,700,000	$ 10,700,000
Recoveries:	$ -	$ -	$ 10,188,000	$ 10,188,000
Storm Sewer Lifecycle Reserve:	$ 37,876,800	$ 1,067,000	-$ 10,276,100	$ 28,667,700

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TOWN OF TECUMSEH
2024 - 2028 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2024	2025	2026	2027	2028
Roads									
Paving	$ 5,800,000	$ -	$ -	$ 5,800,000	$ 1,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
2024 Roads Needs Study	$ -	$ 160,000	$ -	$ 160,000	$ 160,000				
Boulevard Street Trees	$ 625,000	$ -	$ -	$ 625,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000
Lesperance Right Turn Lane at CR22	$ 300,000	$ 50,000	$ 50,000	$ 400,000	$ 40,000	$ 360,000			
Traffic Signal PHM 125's	$ -	$ 65,000	$ -	$ 65,000		$ 65,000			
Riverside Drive Streetlight Improvements	$ 200,000	$ 30,000	$ 20,000	$ 250,000	$ 250,000				
Traffic Signal Upgrades (motion detection cameras)	$ 100,000	$ -	$ -	$ 100,000	$ 100,000				
Lesperance Road Rehabilitation (McNorton to First) **CFWD+**	$ 600,000	$ 65,000	$ 25,000	$ 690,000	$ 30,000	$ 660,000			
CR42/CR43 Phase 3 **CFWD**	$ 50,000	$ 10,000	$ 10,000	$ 70,000		$ 23,775	$ 23,775		
Tecumseh Hamlet SPA EA FSR **CFWD+**	$ -	$ 98,000	$ 5,000	$ 103,000	$ 16,000				
Lesperance/VIA Rail Improvements **CFWD**	$ 2,594,700	$ 567,800	$ 583,500	$ 3,746,000	$ 300,000				
Manning Road Reconstruction - Phase 3 **CFWD**	$ 6,863,880	$ 898,000	$ 286,000	$ 8,047,880				$ 7,722,380	
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ 895,700	$ 173,500	$ 44,800	$ 1,114,000				$ 1,020,000	
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 2,199,000	$ 259,000	$ 168,700	$ 2,626,700	$ 2,585,200				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,099,900	$ 213,600	$ 69,700	$ 1,383,200	$ 1,302,200				
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 1,900,000	$ 194,200	$ 59,700	$ 2,153,900	$ 2,062,700				
Ure Street Sanitary Sewer (LRPCP)	$ 1,898,000	$ 190,000	$ 95,000	$ 2,183,000			$ 142,500		$ 2,040,500
O'Neil Street Sanitary Sewer (LRPCP)	$ 2,209,000	$ 221,000	$ 110,000	$ 2,540,000			$ 165,500		$ 2,374,500
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ 3,003,000	$ 300,000	$ 150,000	$ 3,453,000					$ 225,000
TSPA NW Infra-Ph3-Intersection Reconstruction **CFWD**	$ 3,129,800	$ 204,600	$ 175,600	$ 3,510,000					
PJ Cecile Storm PS **CFWD**	$ 234,000	$ 70,800	$ 24,000	$ 328,800	$ 40,000	$ 216,600	$ 72,200		
County Road 46 Municipal Class EA **CFWD+**	$ -	$ 70,000	$ 10,000	$ 80,000	$ 70,000				
Annual Project Contingency	$ -	$ -	$ 1,250,000	$ 1,250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
	$ 33,701,980	$ 3,840,500	$ 3,137,000	$ 40,679,480	$ 8,331,100	$ 2,900,375	$ 1,978,975	$ 10,317,380	$ 6,215,000
Sidewalks/Pathways									
Sidewalk Repair Program	$ 345,000	$ -	$ -	$ 345,000	$ 104,000	$ 69,000	$ 69,000	$ 69,000	$ 69,000
AODA Sidewalk Ramp Repair	$ 200,000	$ -	$ -	$ 200,000				$ 100,000	$ 100,000
Riverside Drive Trail (Lesperance-Manning) **CFWD**	$ 1,954,700	$ 382,500	$ 164,889	$ 2,502,089	$ 60,000				
Lesperance Road Trail (CR22 to CR42) **CFWD**	$ 2,400,000	$ 177,500	$ 221,250	$ 2,798,750	$ 2,662,750				
Lesperance Road Trail (Riverside to First) & Little River **CFWD**	$ 3,625,000	$ 435,000	$ 300,000	$ 4,360,000	$ 50,000	$ 4,211,400			
Riverside Drive East Pathway Improvements	$ 375,000	$ 56,250	$ 56,250	$ 487,500		$ 60,000	$ 427,500		
CR42/CR43 Phase 3 (Sidewalks)	$ 80,000	$ -	$ 12,000	$ 92,000			$ 92,000		
CR42/CR43 Phase 4 (Sidewalks)	$ 400,000	$ -	$ 10,000	$ 410,000				$ 410,000	
Brighton Traffic Calming (Tecumseh to VIA)	$ 240,000	$ 36,000	$ 36,000	$ 312,000		$ 50,000	$ 262,000		
	$ 9,619,700	$ 1,087,250	$ 800,389	$ 11,507,339	$ 2,876,750	$ 4,390,400	$ 850,500	$ 579,000	$ 169,000

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TOWN OF TECUMSEH
2024 - 2028 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2024	2025	2026	2027	2028
CWATS Projects									
CR42/CR43 Phase 3 (Bike Lanes)	$ 85,000	$ -	$ -	$ 85,000			$ 85,000		
CR42/CR43 Phase 4 (Bike Lanes)	$ 225,000	$ -	$ -	$ 225,000				$ 225,000	
	$ 310,000	$ -	$ -	$ 310,000	$ -	$ -	$ 85,000	$ 225,000	$ -
Bridges									
2024 Bridge & Culvert Needs Study (>3m Span)	$ -	$ 150,000	$ -	$ 150,000	$ 50,000		$ 50,000		$ 50,000
Bridge & Culvert Condition Assessment (<3m Span)	$ -	$ 80,000	$ -	$ 80,000		$ 80,000			
Pike Creek Drain at Baseline Road (1005) **CFWD**	$ 190,000	$ 40,000	$ 20,000	$ 250,000	$ 250,000				
Culvert #42: Snake Lane Road **CFWD**	$ 487,200	$ 85,800	$ 19,800	$ 592,800	$ 78,330				
Culvert #53: Snake Lane Road **CFWD**	$ 374,800	$ 66,000	$ 15,300	$ 456,100	$ 60,250				
Culvert #54: Snake Lane Road **CFWD**	$ 388,000	$ 68,300	$ 15,795	$ 472,095	$ 62,375				
Roadside Safety Improvements - Bridge #1010	$ 50,000	$ 10,000	$ 10,000	$ 70,000		$ 70,000			
Lakewood Park Pedestrian Bridge	$ 200,000	$ -	$ -	$ 200,000		$ 200,000			
	$ 1,690,000	$ 500,100	$ 80,895	$ 2,270,995	$ 500,955	$ 350,000	$ 50,000	$ -	$ 50,000
Watermains									
Arbour to Southfield Watermain	$ 160,000	$ 65,000	$ 35,000	$ 260,000	$ 260,000				
Brouillette Watermain Replacement	$ 140,000	$ 80,000	$ 35,000	$ 255,000	$ 60,000	$ 195,000			
CR43 Trunk Watermain W-4 (CP Rail to County Road 42) **CFWD+**	$ 3,910,000	$ 586,000	$ 390,000	$ 4,886,000	$ 3,446,000				
Clean and Inspect Water Tower	$ -	$ 25,000	$ 7,000	$ 32,000	$ 32,000				
Fire Hydrant Upgrades	$ 100,000	$ -	$ -	$ 100,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Watermain Auto Flusher Replacements	$ 135,000	$ -	$ -	$ 135,000	$ 45,000	$ 45,000	$ 45,000		
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 344,000	$ 40,200	$ 26,400	$ 410,600	$ 410,600				
Riverside Drive Trail (Lesperance-Manning) **CFWD**	$ 22,900	$ 4,500	$ 1,431	$ 28,831					
Hwy3-CR34 Water Valve Replacement **CFWD**	$ 370,700	$ 30,000	$ 55,600	$ 456,300	$ 87,000	$ 87,000	$ 87,000	$ 87,000	$ 87,000
Lesperance/VIA Rail Improvements **CFWD**	$ 63,000	$ 13,800	$ 2,300	$ 79,100					
Tecumseh Hamlet SPA EA FSR **CFWD+**	$ -	$ 98,000	$ 5,000	$ 103,000	$ 16,000				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 28,200	$ 75,800	$ 1,800	$ 105,800	$ 30,800				
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 30,500	$ 4,100	$ 1,300	$ 35,900	$ 30,440				
Ure Street Sanitary Sewer (LRPCP)	$ 50,000	$ 5,000	$ 3,000	$ 58,000			$ 4,000		$ 54,000
O'Neil Street Sanitary Sewer (LRPCP)	$ 59,000	$ 6,000	$ 3,000	$ 68,000			$ 4,500		$ 63,500
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ 351,000	$ 35,000	$ 18,000	$ 404,000					$ 26,500
CR42/43 Phase 1 (Water) **CFWD**	$ 2,895,000	$ 264,000	$ 200,000	$ 3,359,000					
TSPA NW Infra-Ph1-CR22 to Inter(W-1&WW-1) **CFWD**	$ 1,415,100	$ 50,000	$ 75,000	$ 1,540,100	$ 665,550	$ 770,050			
TSPA NW Infra-Ph2-Intersection(W-1&WW-2) **CFWD**	$ 454,200	$ 34,000	$ 26,000	$ 514,200		$ 514,200			
TSPA NW Infra-Ph4-Inter to Hydro(W-1,4&WW-1,6) **CFWD**	$ 2,181,300	$ 91,000	$ 120,000	$ 2,392,300					
CR19 Improvements Ph1: CR22 to Jamsyl (W-2B) **CFWD**	$ 846,000	$ 88,000	$ 88,000	$ 1,022,000	$ 70,000	$ 937,200			
CR19 Improvements Ph2: Jamsyl to CPR (W-2B)	$ 2,100,000	$ 315,000	$ 315,000	$ 2,730,000		$ 180,000		$ 2,550,000	
CR19 Improvements Ph3: @ CPR (W-2B & W-5A)	$ 400,000	$ 60,000	$ 60,000	$ 520,000			$ 45,000		$ 475,000
CR19 Improvements Ph4: CPR to CR42 (W-5A)	$ 750,000	$ 112,500	$ 112,500	$ 975,000				$ 60,000	
Centennial & Woodridge Watermain Replacements **CFWD+**	$ 2,860,000	$ 258,000	$ 429,000	$ 3,547,000	$ 20,000	$ 3,401,000			
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ 100,000		$ 100,000			
	$ 19,665,900	$ 2,440,900	$ 2,010,331	$ 24,117,131	$ 5,193,390	$ 6,249,450	$ 205,500	$ 2,717,000	$ 726,000

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TOWN OF TECUMSEH
2024 - 2028 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2024	2025	2026	2027	2028
Wastewater Projects									
Wastewater Facility Signage (CLI-ECA)	$ 500	$ -	$ -	$ 500	$ 500				
Little River Pollution Control Plant EA	$ -	$ 60,000	$ -	$ 60,000	$ 60,000				
Gauthier (Cedarwood) Sanitary PS Replacement	$ 6,920,000	$ 1,040,000	$ 1,040,000	$ 9,000,000		$ 1,176,000	$ 7,824,000		
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ 940,000	$ 290,400	$ 94,000	$ 1,324,400				$ 1,137,600	
Sylvestre Drive Sanitary PS - 2024-2028 Improvements	$ 195,000	$ -	$ -	$ 195,000	$ 140,000	$ 25,000		$ 30,000	
Lakewood Sanitary PS - 2024-2028 Improvements	$ 40,000	$ -	$ -	$ 40,000		$ 20,000	$ 20,000		
Gauthier Sanitary PS - 2024-2028 Improvements	$ 484,000	$ -	$ -	$ 484,000	$ 10,000	$ 55,000	$ 24,000	$ 10,000	$ 385,000
St. Alphonse Sanitary PS - 2024-2028 Improvements	$ 25,000	$ -	$ -	$ 25,000	$ 25,000				
Tecumseh Hamlet SPA EA FSR **CFWD+**	$ -	$ 113,000	$ 5,000	$ 118,000	$ 17,600				
Lesperance/VIA Rail Improvements **CFWD**	$ 80,300	$ 17,600	$ 2,900	$ 100,800					
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,398,700	$ 311,800	$ 88,600	$ 1,799,100	$ 1,652,100				
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 988,000	$ 117,000	$ 75,900	$ 1,180,900	$ 1,152,000				
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 1,100,000	$ 165,700	$ 51,000	$ 1,316,700	$ 967,700				
Sanitary Sewer Model Update **CFWD+**	$ -	$ 385,000	$ -	$ 385,000	$ 40,000				
CR42/43 Phase 1 (Wastewater) **CFWD**	$ 2,671,000	$ 246,000	$ 200,000	$ 3,117,000					
Ure Street Sanitary Sewer (LRPCP)	$ 1,308,000	$ 131,000	$ 65,000	$ 1,504,000			$ 98,000		$ 1,406,000
O'Neil Street Sanitary Sewer (LRPCP)	$ 1,522,000	$ 152,000	$ 76,000	$ 1,750,000			$ 114,000		$ 1,636,000
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ 2,069,000	$ 207,000	$ 103,000	$ 2,379,000					$ 155,000
TSPA NW Infra-Ph1-CR22 to Inter(W-1&WW-1) **CFWD**	$ 11,433,700	$ 402,000	$ 625,000	$ 12,460,700	$ 6,041,250	$ 6,230,350			
TSPA NW Infra-Ph2-Intersection(W-1&WW-2) **CFWD**	$ 1,817,700	$ 136,000	$ 103,000	$ 2,056,700		$ 2,056,700			
TSPA NW Infra-Ph4-Inter to Hydro(W-1,4&WW-1,6) **CFWD**	$ 6,210,000	$ 259,000	$ 340,000	$ 6,809,000					
8th Concession Sanitary Sewer By-Law **CFWD**	$ -	$ 45,000	$ -	$ 45,000	$ 15,000				
MECP Consolidated Linear Infrastructure ECA	$ -	$ 25,000	$ -	$ 25,000					
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ 100,000		$ 100,000			
	$ 39,202,900	$ 4,203,500	$ 2,869,400	$ 46,275,800	$ 10,121,150	$ 9,663,050	$ 8,080,000	$ 1,177,600	$ 3,582,000

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TOWN OF TECUMSEH
2024 - 2028 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2024	2025	2026	2027	2028
Storm Sewers									
Storm Facility Signage (CLI-ECA)	$ 14,000	$ 1,500	$ 1,500	$ 17,000	$ 17,000				
Shoreline Management EA/Implementation Plan	$ -	$ 400,000	$ -	$ 400,000			$ 400,000		
Centennial and Woodbridge Watermain	$ 818,000	$ 74,000	$ 123,000	$ 1,015,000	$ 20,000	$ 995,000			
Manning Road Reconstruction - Phase 3 **CFWD**	$ 266,800	$ 42,000	$ 13,300	$ 322,100				$ 319,600	
Riverside Drive Trail (Lesperance-Manning) **CFWD**	$ 456,400	$ 89,300	$ 54,496	$ 600,196					
Lesperance/VIA Rail Improvements **CFWD**	$ 275,300	$ 60,200	$ 9,800	$ 345,300					
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ 43,500	$ 10,000	$ 5,000	$ 58,500				$ 54,300	
Oldcastle Storm Master Plan - Property/Easements	$ -	$ 4,000,000	$ -	$ 4,000,000			$ 2,000,000	$ 2,000,000	
Tecumseh Hamlet SPA EA FSR **CFWD+**	$ -	$ 496,000	$ 35,000	$ 531,000	$ 90,500				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 686,900	$ 112,500	$ 43,500	$ 842,900	$ 815,900				
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 16,010,000	$ 1,889,700	$ 1,229,000	$ 19,128,700	$ 14,425,200				
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 1,700,000	$ 151,600	$ 46,600	$ 1,898,200	$ 1,803,900				
Stormwater Rate Study **CFWD**	$ -	$ 45,000	$ -	$ 45,000	$ 9,550				
P.J. Cecile Storm PS * **CFWD**	$ 8,079,600	$ 1,615,800	$ 1,615,800	$ 11,311,000	$ 400,000	$ 7,958,250	$ 2,652,750		
Ure Street Sanitary Sewer (LRPCP)	$ 1,396,000	$ 140,000	$ 70,000	$ 1,606,000			$ 105,000		$ 1,501,000
O'Neil Street Sanitary Sewer (LRPCP)	$ 1,625,000	$ 163,000	$ 81,000	$ 1,869,000			$ 122,000		$ 1,747,000
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ 2,209,000	$ 221,000	$ 110,000	$ 2,540,000					$ 165,500
TSPA NW Infra-Ph3-Intersection Reconstruction **CFWD**	$ 1,789,900	$ 117,000	$ 100,000	$ 2,006,900					
Breakwall Condition Assessment	$ -	$ 70,000	$ -	$ 70,000			$ 70,000		
MECP Consolidated Linear Infrastructure ECA	$ -	$ 25,000	$ -	$ 25,000					
MRSPA SWM Infrastructure **CFWD**	$ 9,775,000	$ 1,660,000	$ 1,300,000	$ 12,735,000	$ 150,000	$ 9,955,000			
Tecumseh Storm Drainage Master Plan Update	$ -	$ 200,000	$ -	$ 200,000			$ 200,000		
	$ 45,145,400	$ 11,583,600	$ 4,837,996	$ 61,566,796	$ 17,732,050	$ 18,908,250	$ 5,549,750	$ 2,373,900	$ 3,413,500
TOTAL	**$ 149,335,880**	**$ 23,655,850**	**$ 13,736,011**	**$ 186,727,541**	**$ 44,755,395**	**$ 42,461,525**	**$ 16,799,725**	**$ 17,389,880**	**$ 14,155,500**

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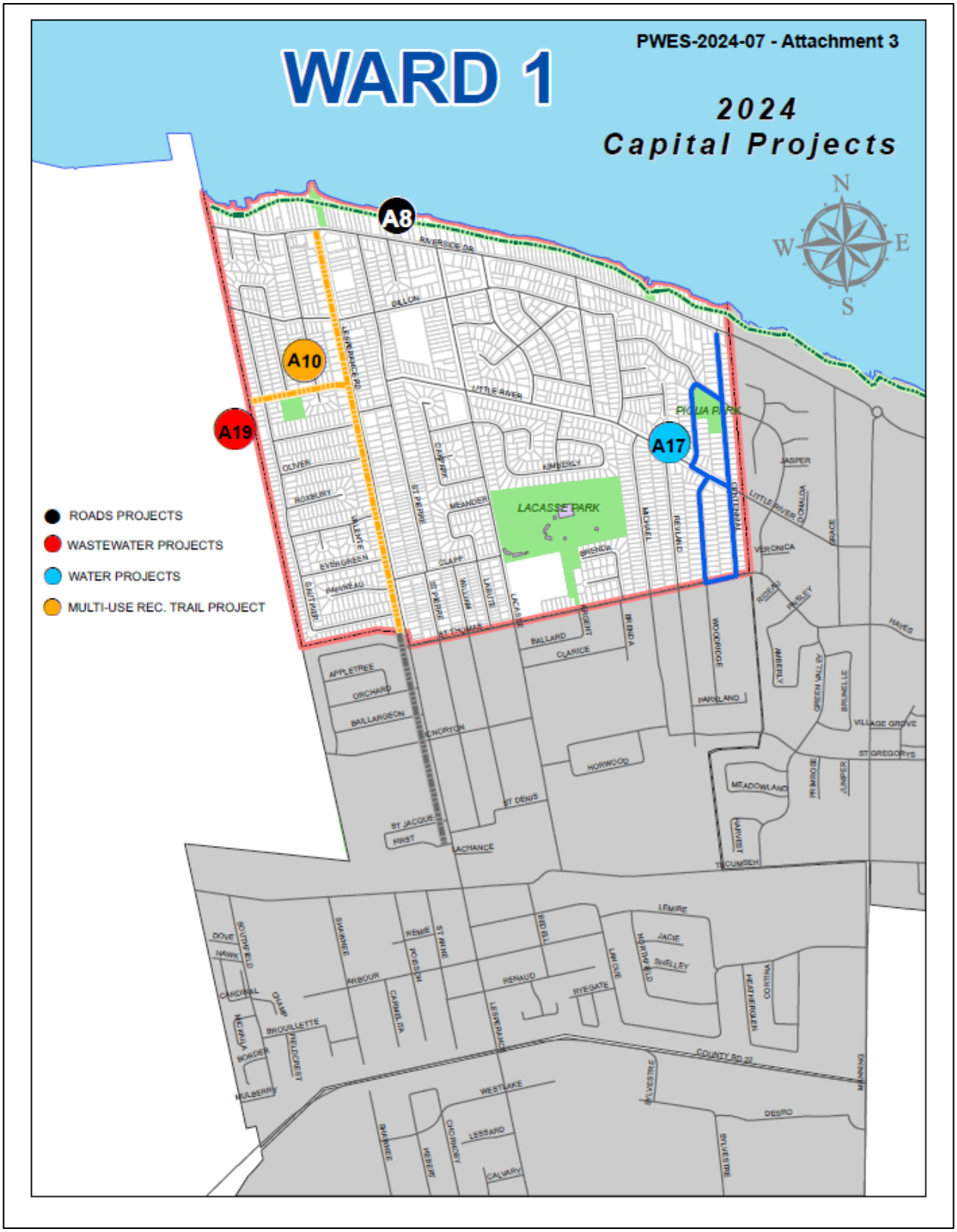

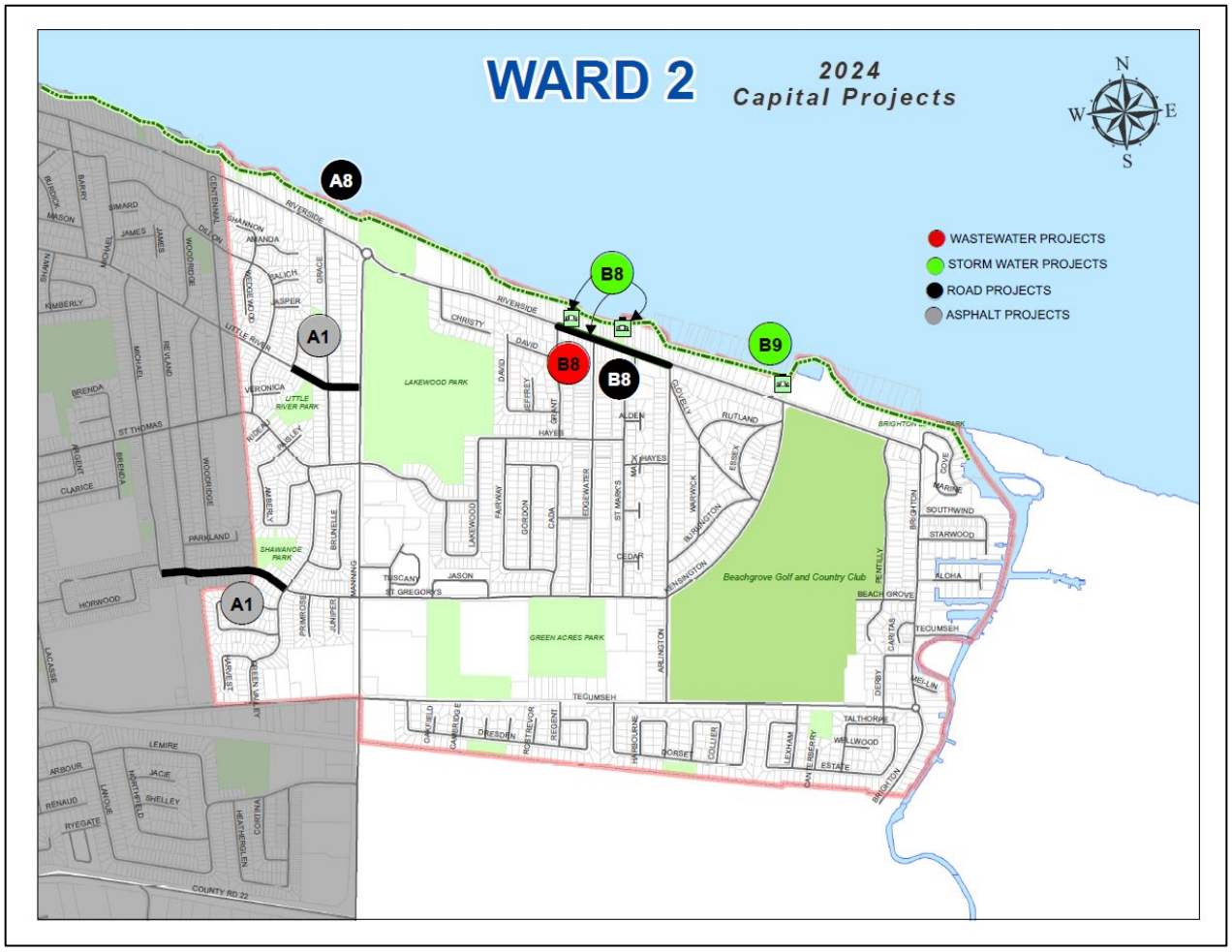

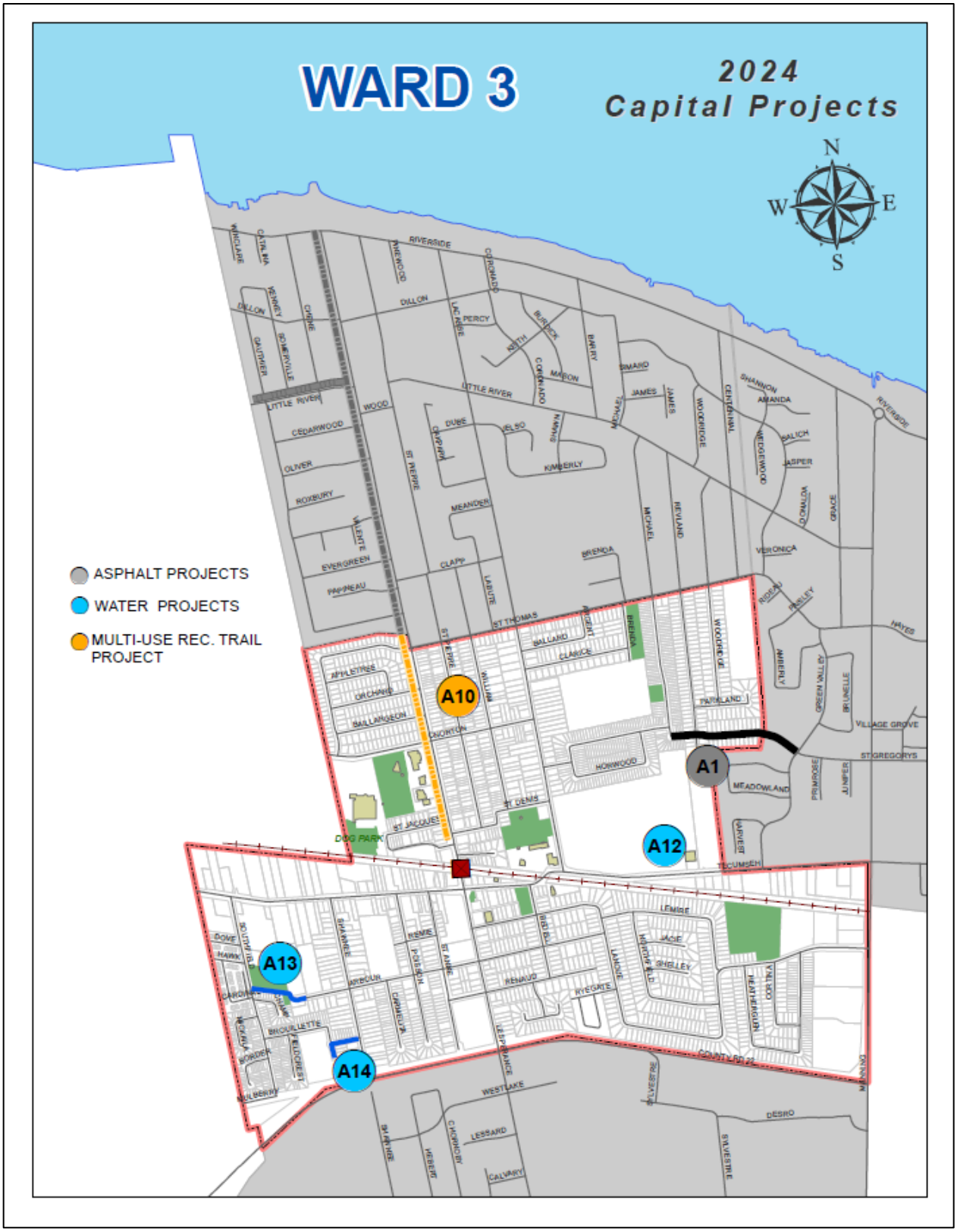

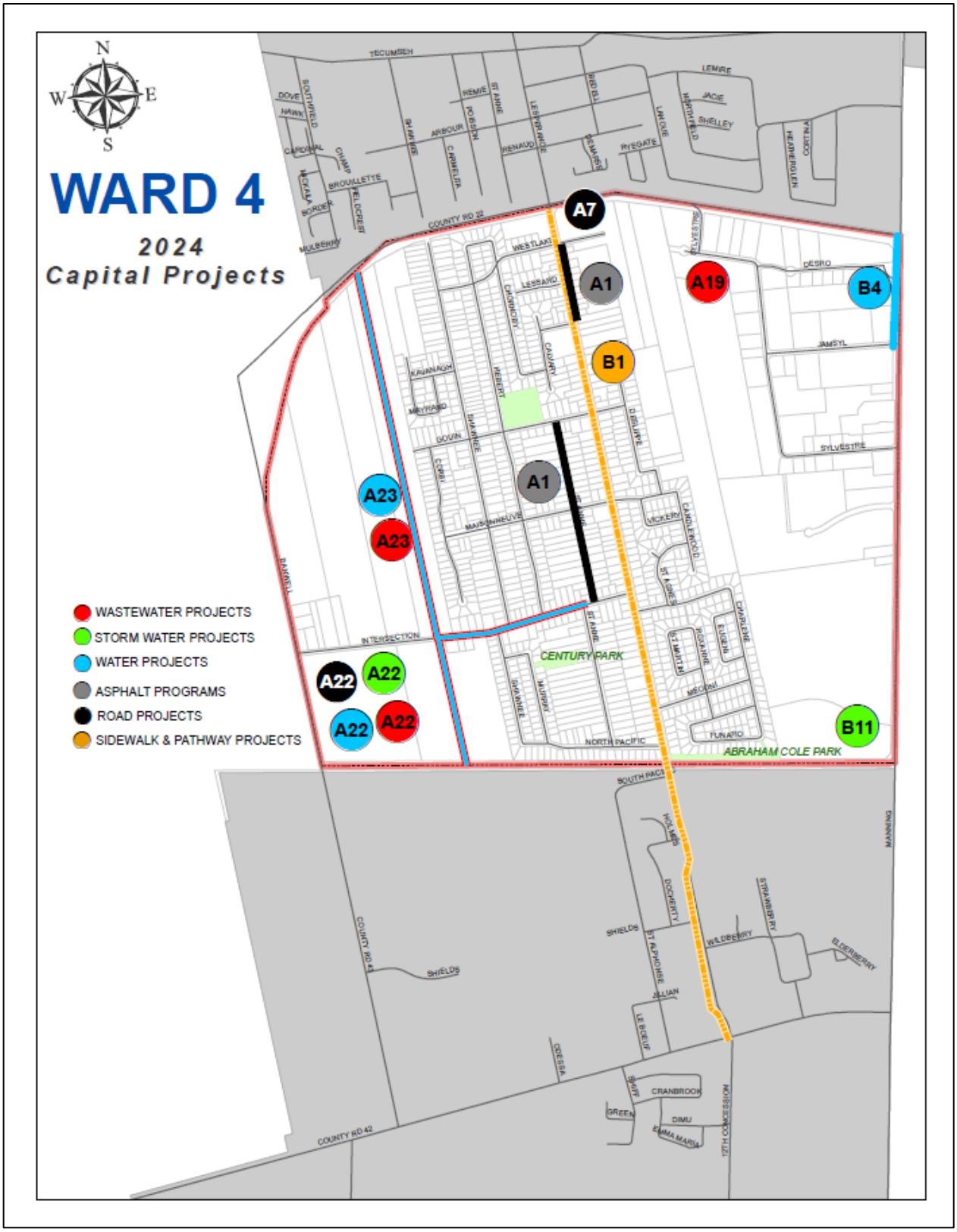

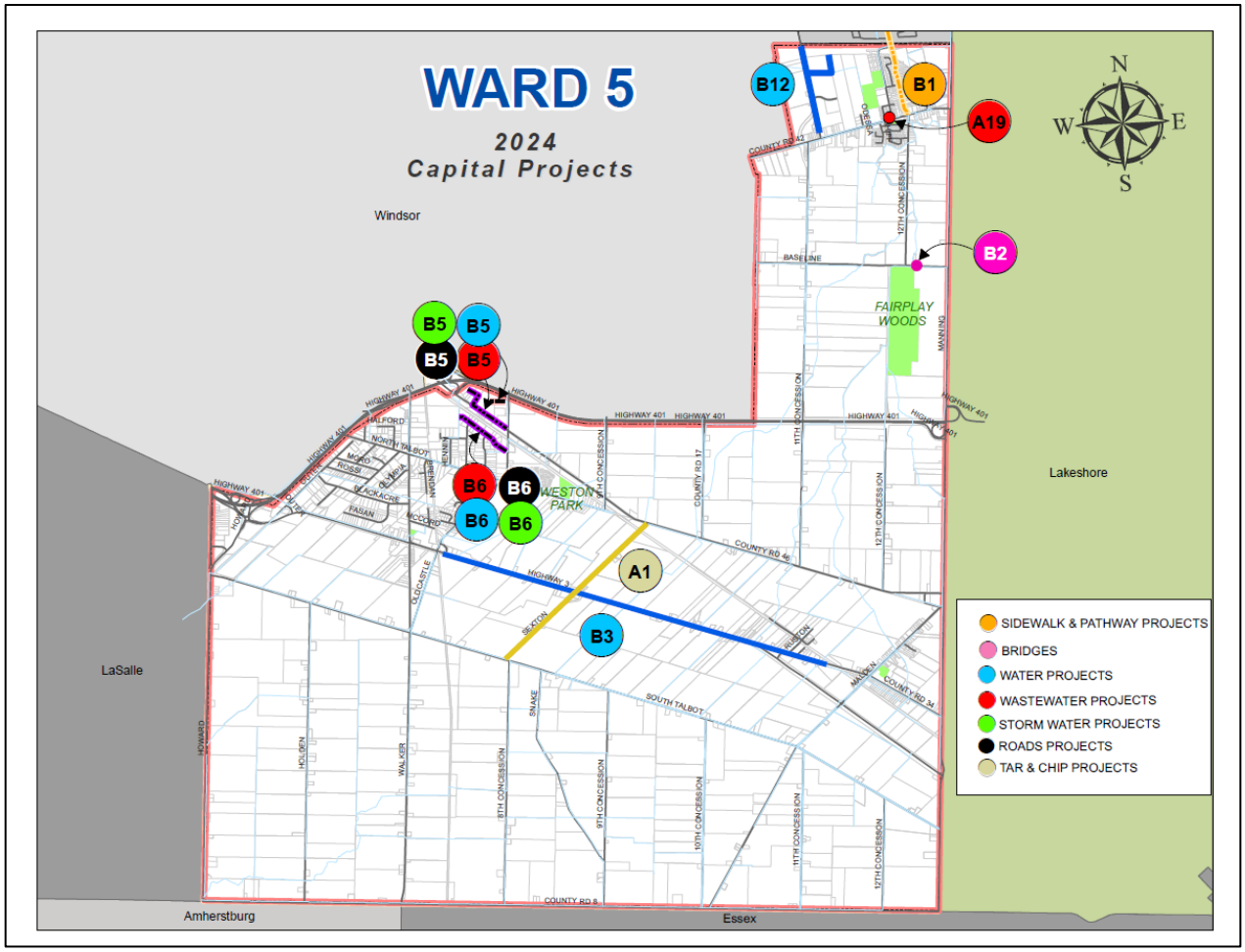

2024 Roads Lifecycle Reserve Projection

LC Road (1500)	2024	2025	2026	2027	2028
Reserve Balance Start of Year (estimated)	$ 11,133,000	$ 7,868,663	$ 9,027,288	$ 10,978,713	$ 8,268,833
Budget Allocation	$ 4,160,000	$ 4,160,000	$ 4,160,000	$ 4,160,000	$ 4,160,000
Funds Available	**$ 15,293,000**	**$ 12,028,663**	**$ 13,187,288**	**$ 15,138,713**	**$ 12,428,833**
Committed					
Project Engineer % share	$ 37,071	$ 37,800	$ 38,600	$ 39,400	$ 40,200
Project Engineer (new) % share	$ 34,713	$ 35,400	$ 36,100	$ 36,800	$ 37,500
Capital Projects Manager % share	$ 37,241	$ 38,000	$ 38,800	$ 39,600	$ 40,400
ICS GIS Tech % share	$ 29,912	$ 30,500	$ 31,100	$ 31,700	$ 32,300
County Road 46 Municipal Class EA **CFWD**	$ 70,000	$ -	$ -	$ -	$ -
Lesperance Road Rehabilitation (McNorton to First) **CFWD**	$ 30,000	$ 310,000			
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 11,000	$ -	$ -	$ -	$ -
Lesperance/VIA Rail Improvements **CFWD**	$ 300,000	$ -	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 2,585,200	$ -	$ -	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,383,200	$ -	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 2,062,700	$ -	$ -	$ -	$ -
PJ Cecile Storm PS **CFWD**	$ 40,000	$ 216,600	$ 72,200	$ -	$ -
Balance Committed	**$ 6,621,037**	**$ 668,300**	**$ 216,800**	**$ 147,500**	**$ 150,400**
Balance Uncommitted	**$ 8,671,963**	**$ 11,360,363**	**$ 12,970,488**	**$ 14,991,213**	**$ 12,278,433**
Proposed					
AVL System for vehicles (operating budget one-time item)	$ -	$ -	$ -	$ -	$ -
Road Paving - Asphalting (Note 1)	$ 1,000,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
Boulevard Street Trees	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 125,000
Lesperance Right Turn Lane at CR22	$ 40,000	$ 360,000	$ -	$ -	$ -
Riverside Drive Streetlight Improvements	$ 250,000	$ -	$ -	$ -	$ -
Traffic Signal Upgrades (motion detection cameras)	$ 100,000	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR (addn'l funding)	$ 5,000	$ -	$ -	$ -	$ -
Lesperance Road Rehabilitation (McNorton to First) (addn'l funding)	$ -	$ 350,000	$ -	$ -	$ -
CR42/CR43 Phase 3 (Bike Lanes)	$ -	$ 23,775	$ 23,775	$ -	$ -
Manning Road Reconstruction - Phase 3	$ -	$ -	$ -	$ 7,722,380	$ -
Sylvestre Drive Sanitary Sewer Extension	$ -	$ -	$ -	$ 1,020,000	$ -
Roads Needs Study	$ 160,000	$ -	$ -	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 142,500	$ -	$ 2,040,500
O'Neil Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 165,500	$ -	$ 2,374,500
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 225,000
County Road 46 Municipal Class EA (add'l funding)	$ 10,000	$ -	$ -	$ -	$ -
Traffic Signal PHM 125's	$ -	$ 65,000	$ -	$ -	$ -
Annual Project Contingency	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
CR42/CR43 Phase 3 (Bike Lanes)	$ -	$ -	$ 85,000	$ -	$ -
CR42/CR43 Phase 4 (Bike Lanes)	$ -	$ -	$ -	$ 225,000	
Balance Proposed	**$ 1,940,000**	**$ 2,373,775**	**$ 1,991,775**	**$ 10,542,380**	**$ 6,215,000**
Non Lifecycle Funding					
RSIP Grant	$ 86,600	$ -	$ -	$ -	$ -
DMAF Grant	$ 1,050,100	$ 40,700	$ -	$ -	$ -
CCBF Grant	$ -	$ -	$ -	$ 2,000,000	$ -
CWATS	$ -	$ -	$ -	$ 525,000	$ -
County Connecting Link Agreement	$ -	$ -	$ -	$ 1,295,000	$ -
Total Non-Lifecycle Funding	**$ 1,136,700**	**$ 40,700**	**$ -**	**$ 3,820,000**	**$ -**
Balance Available	**$ 7,868,663**	**$ 9,027,288**	**$ 10,978,713**	**$ 8,268,833**	**$ 6,063,433**

Notes:

1) General allowance for asphalting

2024 Bridges Lifecycle Reserve Projection

LC Bridges (1660)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ 1,441,000	$ 1,575,045	$ 1,660,045	$ 2,045,045	$ 2,480,045
Budget Allocation	$ 435,000	$ 435,000	$ 435,000	$ 435,000	$ 435,000
Funds Available	**$ 1,876,000**	**$ 2,010,045**	**$ 2,095,045**	**$ 2,480,045**	**$ 2,915,045**
Committed					
Pike Creek Drain at Baseline Road (1005) CFWD	$ 250,000	$ -	$ -	$ -	$ -
Culvert #42: Snake Lane Road CFWD	$ 78,330	$ -	$ -	$ -	$ -
Culvert #53: Snake Lane Road CFWD	$ 60,250	$ -	$ -	$ -	$ -
Culvert #54: Snake Lane Road CFWD	$ 62,375	$ -	$ -	$ -	$ -
Balance Committed	**$ 450,955**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 1,425,045**	**$ 2,010,045**	**$ 2,095,045**	**$ 2,480,045**	**$ 2,915,045**
Proposed					
Bridge & Culvert Condition Assessment (<3m Span)	$ -	$ 80,000	$ -	$ -	$ -
Bridge/Culvert Needs Study (>3m)	$ 50,000	$ -	$ 50,000	$ -	$ 50,000
Roadside Safety Improvements - Bridge #1010	$ -	$ 70,000	$ -	$ -	$ -
Lakewood Park Pedestrian Bridge	$ -	$ 200,000	$ -	$ -	$ -
Balance Proposed	**$ 50,000**	**$ 350,000**	**$ 50,000**	**$ -**	**$ 50,000**
Non Lifecycle Funding					
CCBF Grant	$ 200,000	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ 200,000**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 1,575,045**	**$ 1,660,045**	**$ 2,045,045**	**$ 2,480,045**	**$ 2,865,045**

2024 Sidewalk Lifecycle Reserve Projection

LC Sidewalk (1550)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ 125,500	$ 100,500	$ (93,660)	$ (778,160)	$ (873,160)
Budget Allocation	$ 74,000	$ 74,000	$ 74,000	$ 74,000	$ 74,000
Funds Available	**$ 199,500**	**$ 174,500**	**$ (19,660)**	**$ (704,160)**	**$ (799,160)**
Committed					
Lesperance Road Trail (CR22 to CR42) CFWD	$ 2,662,750	$ -	$ -	$ -	$ -
Lesperance Road Trail (Riverside to First) & Little River CFWD	$ 50,000	$ 4,211,400	$ -	$ -	$ -
Riverside Drive Trail (Lesperance-Manning) CFWD	$ 60,000	$ -	$ -	$ -	$ -
Balance Committed	**$ 2,772,750**	**$ 4,211,400**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ (2,573,250)**	**$ (4,036,900)**	**$ (19,660)**	**$ (704,160)**	**$ (799,160)**
Proposed					
Sidewalk Repair Program (Note 1)	$ 69,000	$ 69,000	$ 69,000	$ 69,000	$ 69,000
AODA Sidewalk Ramp Repair	$ -	$ -	$ -	$ 100,000	$ 100,000
Riverside Drive East Pathway Improvements	$ -	$ 60,000	$ 427,500	$ -	$ -
CR42/CR43 Phase 3 (Sidewalks)	$ -	$ -	$ 92,000	$ -	$ -
CR42/CR43 Phase 4 (Sidewalks)	$ -	$ -	$ -	$ 410,000	$ -
Brighton Rd Pathway Extension & Traffic Calming	$ -	$ 50,000	$ 262,000	$ -	$ -
Balance Proposed	**$ 69,000**	**$ 179,000**	**$ 850,500**	**$ 579,000**	**$ 169,000**
Non Lifecycle Funding					
Grant funding - ICIP Transit	$ 466,707	$ -	$ -	$ -	$ -
Active Transportation Fund (ATF) - $2,616,000	$ 30,000	$ 2,526,840	$ -	$ -	$ -
Infrastructure Reserve	$ 2,246,043	$ 1,595,400	$ 92,000	$ 410,000	$ -
Total Non-Lifecycle Funding	**$ 2,742,750**	**$ 4,122,240**	**$ 92,000**	**$ 410,000**	**$ -**
Balance Available	**$ 100,500**	**$ (93,660)**	**$ (778,160)**	**$ (873,160)**	**$ (968,160)**

Notes:

1) General allowance

2024 Storm Sewer Lifecycle Reserve Projection

LC Storm Sewer (1650)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ (966,062)	$ (8,402,437)	$ (13,088,237)	$ (16,291,487)	$ (16,428,487)
Budget Allocation	$ 1,460,000	$ 1,460,000	$ 1,460,000	$ 1,352,700	$ 1,352,700
Long Term Debt borrowing	$ -	$ -	$ -	$ -	$ -
Funds Available	**$ 493,938**	**$ (6,942,437)**	**$ (11,628,237)**	**$ (14,938,787)**	**$ (15,075,787)**
Committed					
Project Engineer % share	$ 37,071	$ 37,800	$ 38,600	$ 39,400	$ 40,200
Project Engineer % share (new)	$ 34,713	$ 35,400	$ 36,100	$ 36,800	$ 37,500
Capital Projects Manager % share	$ 37,241	$ 38,000	$ 38,800	$ 39,600	$ 40,400
Manning Road Reconstruction - Phase 3 **CFWD**	$ -	$ -	$ -	$ 319,600	$ -
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ -	$ -	$ -	$ 54,300	$ -
Tecumseh Hamlet SPA EA FSR **CFWD+**	$ 55,500	$ -	$ -	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 815,900	$ -	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 14,425,200	$ -	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 1,803,900	$ -	$ -	$ -	$ -
Stormwater Rate Study **CFWD**	$ 9,550	$ -	$ -	$ -	$ -
P.J. Cecile Storm PS * **CFWD**	$ 400,000	$ 7,958,250	$ 2,652,750	$ -	$ -
MRSPA SWM Infrastructure **CFWD**	$ 150,000	$ -	$ -	$ -	$ -
Balance Committed	**$ 17,769,075**	**$ 8,069,450**	**$ 2,766,250**	**$ 489,700**	**$ 118,100**
Balance Uncommitted	**$ (17,275,137)**	**$ (15,011,887)**	**$ (14,394,487)**	**$ (15,428,487)**	**$ (15,193,887)**
Proposed					
Storm Facility Signage (CLI-ECA)	$ 17,000	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **(addn'l funding)**	$ 35,000	$ -	$ -	$ -	$ -
Centennial and Woodbridge Watermain	$ 20,000	$ 995,000	$ -	$ -	$ -
MRSPA SWM Infrastructure **(addn'l funding)**	$ -	$ 9,955,000	$ -	$ -	$ -
Oldcastle Storm Master Plan - Property/Easements	$ -	$ -	$ 2,000,000	$ 2,000,000	$ -
Shoreline Management EA/Implementation Plan	$ -	$ -	$ 400,000	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 105,000	$ -	$ 1,501,000
O'Neil Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 122,000	$ -	$ 1,747,000
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 165,500
Breakwall Condition Assessment	$ -	$ -	$ 70,000	$ -	$ -
Tecumseh Storm Drainage Master Plan Update	$ -	$ -	$ 200,000	$ -	$ -
Debt Repayment	$ -	$ -	$ -	$ -	$ -
Balance Proposed	**$ 72,000**	**$ 10,950,000**	**$ 2,897,000**	**$ 2,000,000**	**$ 3,413,500**
Non Lifecycle Funding					
DMAF Grant	$ 5,930,100	$ 3,183,300	$ -	$ -	$ -
Transfers from Infrastructure Reserve	$ -	$ -	$ -	$ -	$ -
ICIP Green Stream II 2021 Intake funding	$ 14,600	$ 726,350	$ -	$ -	$ -
Estimated Landowner Recoveries	$ -	$ 7,964,000	$ -	$ -	$ -
OCIF Grant	$ 3,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Total Non-Lifecycle Funding	**$ 8,944,700**	**$ 12,873,650**	**$ 1,000,000**	**$ 1,000,000**	**$ 1,000,000**
Balance Available	**$ (8,402,437)**	**$ (13,088,237)**	**$ (16,291,487)**	**$ (16,428,487)**	**$ (17,607,387)**

2024 Wastewater Sewers Reserve Fund Projection

RF Wastewater Sewers (2550)	2024	2025	2026	2027	2028
Reserve Balance Start of Year (Estimated)	$ 1,579,000	$ 1,319,726	$ 1,012,322	$ 3,064,122	$ 6,487,322
Estimated Allocation	$ 1,863,900	$ 1,919,800	$ 1,977,400	$ 2,036,700	$ 2,097,800
Estimated Interest	$ 47,000	$ 40,000	$ 30,000	$ 92,000	$ 195,000
Development Charges	$ 212,000	$ 212,000	$ 401,000	$ 1,442,000	$ 924,000
Funds Available	**$ 3,701,900**	**$ 3,491,526**	**$ 3,420,722**	**$ 6,634,822**	**$ 9,704,122**
Committed					
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 12,600	$ -	$ -	$ -	$ -
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ -	$ -	$ -	$ 1,137,600	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,652,100	$ -	$ -	$ -	$ -
Scully & St. Mark's Storm PS/Riverside Drive **CFWD**	$ 1,152,000	$ -	$ -	$ -	$ -
TSPA NW Infra-Ph1-CR22 to Inter (W-1 & WW-1) **CFWD**	$ 6,041,250	$ 1,343,150	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 967,700	$ -	$ -	$ -	$ -
IT GIS Tech % Share	$ 29,912	$ 30,500	$ 31,100	$ 31,700	$ 32,300
Project Engineer % Share	$ 37,071	$ 37,800	$ 38,600	$ 39,400	$ 40,200
Project Engineer % Share (new)	$ 34,713	$ 35,400	$ 36,100	$ 36,800	$ 37,500
Capital Projects Manager	$ 37,241	$ 38,000	$ 38,800	$ 39,600	$ 40,400
Balance Committed	**$ 9,964,587**	**$ 1,484,850**	**$ 144,600**	**$ 1,285,100**	**$ 150,400**
Balance Uncommitted	**$ (6,262,687)**	**$ 2,006,676**	**$ 3,276,122**	**$ 5,349,722**	**$ 9,553,722**
Proposed					
Wastewater Facility Signage (CLI-ECA)	$ 500	$ -	$ -	$ -	$ -
Little River Pollution Control Plant EA	$ 60,000	$ -	$ -	$ -	$ -
TSPA NW Infra-Ph1-CR22 to Inter (W-1 & WW-1) **(addn'l funding)**	$ -	$ 4,887,200	$ -	$ -	$ -
TSPA NW Infra-Ph2 Intersection (W-1 & WW-2) **(addn'l funding)**	$ -	$ 2,056,700	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **(addn'l funding)**	$ 5,000	$ -	$ -	$ -	$ -
Sanitary Sewer Model Update **(addn'l funding)**	$ 40,000	$ -	$ -	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 98,000	$ -	$ 1,406,000
O'Neil Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 114,000	$ -	$ 1,636,000
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 155,000
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ -	$ -
Balance Proposed	**$ 105,500**	**$ 7,043,900**	**$ 212,000**	**$ -**	**$ 3,197,000**
Non Lifecycle Funding					
DMAF Grant	$ 460,800	$ -	$ -	$ -	$ -
Estimated Recoveries from Landowners - Sylvestre Drive	$ -	$ -	$ -	$ 1,137,600	$ -
Estimated Recoveries from Landowners - CR46/Webster/Laval	$ 1,767,000	$ -	$ -	$ -	$ -
Estimated Recoveries from Landowners - Delduca Drive	$ 1,050,000	$ -	$ -	$ -	$ -
Housing-Enabling Water Systems Fund (HEWSF)	$ 4,410,113	$ 6,049,547	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ 7,687,913**	**$ 6,049,547**	**$ -**	**$ 1,137,600**	**$ -**
Balance Available	**$ 1,319,726**	**$ 1,012,322**	**$ 3,064,122**	**$ 6,487,322**	**$ 6,356,722**

2024 Wastewater Facilities Reserve Fund Projection

RF Wastewater Facilities (2560)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ 3,442,400	$ 3,820,700	$ 3,109,300	$ (4,215,400)	$ (3,931,900)
Estimated Allocation	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000
Estimated Interest	$ 103,300	$ 114,600	$ 93,300	$ (126,500)	$ (118,000)
Funds Available	**$ 3,995,700**	**$ 4,385,300**	**$ 3,652,600**	**$ (3,891,900)**	**$ (3,599,900)**
Committed					
	$ -	$ -	$ -	$ -	$ -
Balance Committed	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 3,995,700**	**$ 4,385,300**	**$ 3,652,600**	**$ (3,891,900)**	**$ (3,599,900)**
Proposed					
Gauthier (Cedarwood) Sanitary PS Replacement	$ -	$ 1,176,000	$ 7,824,000	$ -	$ -
Sylvestre Drive Sanitary PS Improvements	$ 140,000	$ 25,000	$ -	$ 30,000	$ -
Lakewood Sanitary PS Improvements	$ -	$ 20,000	$ 20,000	$ -	$ -
Gauthier Sanitary Pump Station	$ 10,000	$ 55,000	$ 24,000	$ 10,000	$ 385,000
St Alphonse Sanitary PS Improvements	$ 25,000	$ -	$ -	$ -	$ -
Balance Proposed	**$ 175,000**	**$ 1,276,000**	**$ 7,868,000**	**$ 40,000**	**$ 385,000**
Non Lifecycle Funding					
	$ -	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 3,820,700**	**$ 3,109,300**	**$ (4,215,400)**	**$ (3,931,900)**	**$ (3,984,900)**

2024 Watermain Reserve Fund Projection

RF Watermain (2520)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ 4,968,300	$ 2,070,162	$ 1,001,314	$ 2,611,814	$ 2,152,314
Estimated Allocation	$ 1,695,200	$ 1,746,100	$ 1,798,500	$ 1,852,500	$ 1,908,100
Estimated Interest	$ 149,000	$ 62,100	$ 30,000	$ 78,400	$ 64,600
Development Charges	$ 70,000	$ 70,000	$ 132,000	$ 474,000	$ 304,000
Funds Available	**$ 6,882,500**	**$ 3,948,362**	**$ 2,961,814**	**$ 5,016,714**	**$ 4,429,014**
Committed					
Hwy3-CR34 Water Valve Replacement **CFWD**	$ 87,000	$ 87,000	$ 87,000	$ 87,000	$ 87,000
CR43 Trunk Watermain W-4 (CP Rail to County Road 42) **CFWD+**	$ 3,446,000	$ -	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 410,600	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 11,000	$ -	$ -	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 30,800	$ -	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 30,440	$ -	$ -	$ -	$ -
TSPA NW Infra-Ph1-CR22 to Inter (W-1 & WW-1) **CFWD**	$ 665,550	$ 770,050	$ -	$ -	$ -
TSPA NW Infra-Ph2 Intersection (W-1 & WW-2) **CFWD**	$ -	$ 514,200	$ -	$ -	$ -
CR19 Improvements Ph1: CR22 to Jamsyl (W-2B) **CFWD**	$ 70,000	$ 937,200	$ -	$ -	$ -
Centennial & Woodbridge Watermain Replacements **CFWD**	$ 20,000	$ 3,354,000	$ -	$ -	$ -
IT GIS Tech % Share	$ 29,900	$ 30,500	$ 31,100	$ 31,700	$ 32,300
Project engineer % Share (new)	$ 34,700	$ 35,400	$ 36,100	$ 36,800	$ 37,500
Project engineer % Share	$ 37,100	$ 37,800	$ 38,600	$ 39,400	$ 40,200
Capital Projects Manager % Share	$ 37,200	$ 37,900	$ 38,700	$ 39,500	$ 40,300
Balance Committed	**$ 4,910,290**	**$ 5,804,050**	**$ 231,500**	**$ 234,400**	**$ 237,300**
Balance Uncommitted	**$ 1,972,210**	**$ (1,855,689)**	**$ 2,730,314**	**$ 4,782,314**	**$ 4,191,714**
Proposed					
Arbour to Southfield Watermain	$ 260,000	$ -	$ -	$ -	$ -
Fire Hydrant Upgrades	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Watermain Auto Flusher Replacements	$ 45,000	$ 45,000	$ 45,000	$ -	$ -
Brouillette Watermain Replacement	$ 60,000	$ 195,000	$ -	$ -	$ -
Centennial & Woodbridge Watermain Replacements **(addn'l funding)**	$ 47,000	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **(addn'l funding)**	$ 5,000	$ -	$ -	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 4,000	$ -	$ 54,000
O'Neil Street Sanitary Sewer (LRPCP)	$ -	$ -	$ 4,500	$ -	$ 63,500
Moynahan-Henin-Regal Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 26,500
CR19 Improvements Ph2: Jamsyl to CPR (W-2B)	$ -	$ 180,000	$ -	$ 2,550,000	$ -
CR19 Improvements Ph3: @ CPR (W-2B & W-5A)	$ -	$ -	$ 45,000	$ -	$ 475,000
CR19 Improvements Ph4: CPR to CR42 (W-5A)	$ -	$ -	$ -	$ 60,000	$ -
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ -	$ -
Balance Proposed	**$ 437,000**	**$ 540,000**	**$ 118,500**	**$ 2,630,000**	**$ 639,000**
Non Lifecycle Funding					
ICIP Green Stream II 2021 Intake funding	$ 49,100	$ 2,459,500	$ -	$ -	$ -
Housing-Enabling Water Systems Fund (HEWSF)	$ 485,852	$ 937,503	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ 534,952**	**$ 3,397,003**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 2,070,162**	**$ 1,001,314**	**$ 2,611,814**	**$ 2,152,314**	**$ 3,552,714**

2024 Water Facilities Reserve Fund Projection

RF Water Facilities (2530)	2024	2025	2026	2027	2028
Reserve Balance Start of Year	$ 8,562,700	$ 8,872,600	$ 9,226,400	$ 9,593,400	$ 9,974,100
Estimated Allocation	$ 85,000	$ 87,600	$ 90,200	$ 92,900	$ 95,700
Estimated Interest	$ 256,900	$ 266,200	$ 276,800	$ 287,800	$ 299,200
Funds Available	**$ 8,904,600**	**$ 9,226,400**	**$ 9,593,400**	**$ 9,974,100**	**$ 10,369,000**
Committed					
	$ -	$ -	$ -	$ -	$ -
Balance Committed	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 8,904,600**	**$ 9,226,400**	**$ 9,593,400**	**$ 9,974,100**	**$ 10,369,000**
Proposed					
Clean and Inspect Water Tower	$ 32,000	$ -	$ -	$ -	$ -
Balance Proposed	**$ 32,000**	**$ -**	**$ -**	**$ -**	**$ -**
Non Lifecycle Funding					
	$ -	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 8,872,600**	**$ 9,226,400**	**$ 9,593,400**	**$ 9,974,100**	**$ 10,369,000**

Appendix 7 Request for New or changed DWQMS Document Form

TOWN OF Tecumseh ONTARIO · CANADA

WATER SERVICES
REQUEST FOR NEW OR CHANGED DWQMS DOCUMENT
Revision Date: January 17, 2022

PLEASE PRINT ALL INFORMATON

Document Verified by (Initials Only)	

When completed, submit this form to the DWQMS Representative or alternate. Please attach a printed hardcopy with all revisions when requesting changes to an existing DWQMS document.

DWQMS Document Title: [ ]

DWQMS ID: [ ]

Operator Name (print): [ ]

Date of Submission: [ ]

Reason for Request:

- ☐ Enhances process control
- ☐ Supports regulatory requirements
- ☐ Required by the DWQMS
- ☐ Reduce risk
- ☐ Improve operational efficiency

Summary of Reason for Change / Addition:

[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Operator's Name (print)	[ ]		
Operator's Signature		Date:	[ ]

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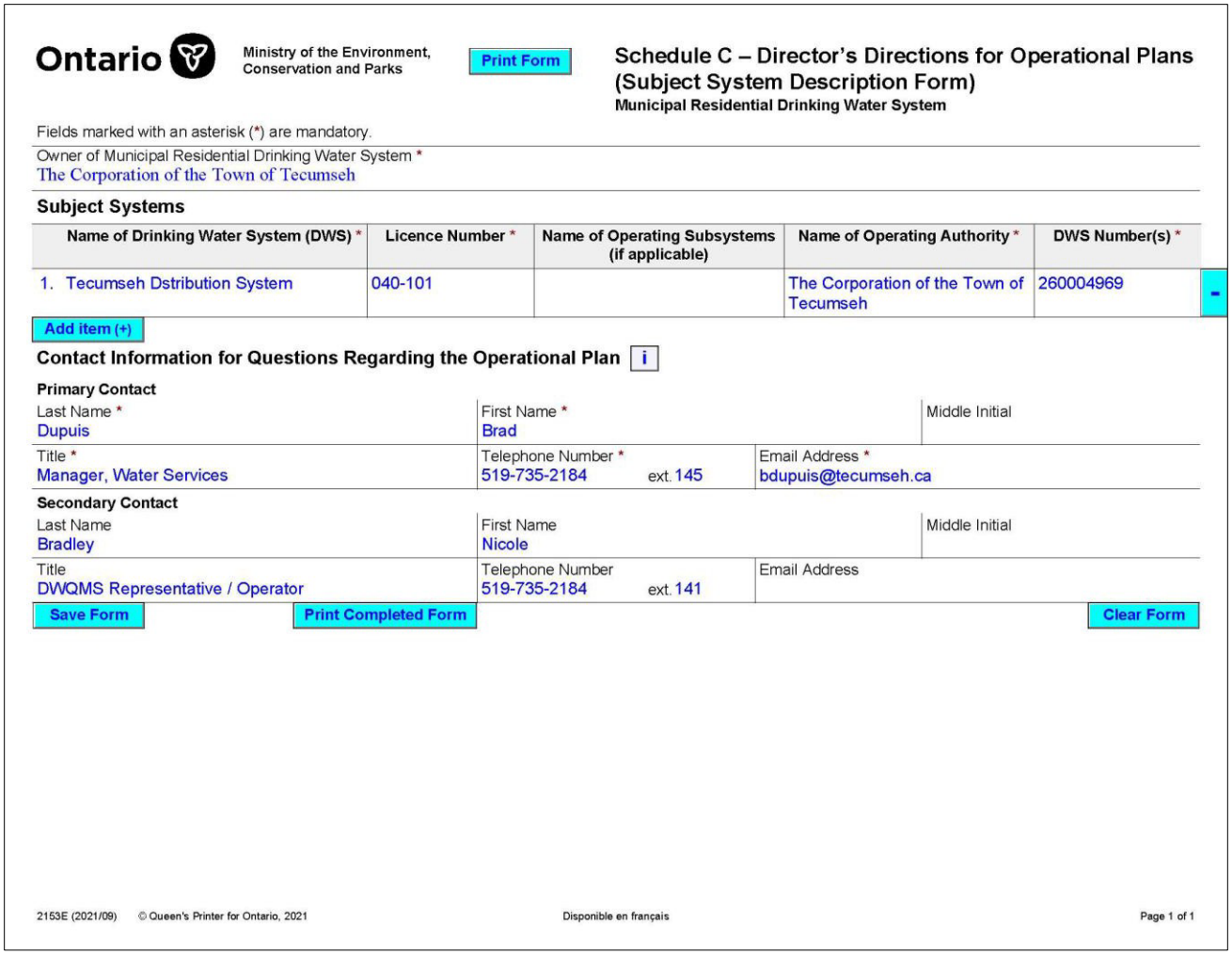
Appendix 8 Schedule C – Director's Direction for Operational Plans



Ontario — Ministry of the Environment, Conservation and Parks

Print Form

Schedule C – Director's Directions for Operational Plans (Subject System Description Form)
Municipal Residential Drinking Water System

Fields marked with an asterisk (*) are mandatory.

Owner of Municipal Residential Drinking Water System *
The Corporation of the Town of Tecumseh

Subject Systems

Name of Drinking Water System (DWS) *	Licence Number *	Name of Operating Subsystems (if applicable)	Name of Operating Authority *	DWS Number(s) *
1. Tecumseh Dstribution System	040-101		The Corporation of the Town of Tecumseh	260004969

Add item (+)

Contact Information for Questions Regarding the Operational Plan i

Primary Contact

Last Name *	First Name *	Middle Initial
Dupuis	Brad	

Title *	Telephone Number *	Email Address *
Manager, Water Services	519-735-2184 ext. 145	bdupuis@tecumseh.ca

Secondary Contact

Last Name	First Name	Middle Initial
Bradley	Nicole	

Title	Telephone Number	Email Address
DWQMS Representative / Operator	519-735-2184 ext. 141	

Save Form | Print Completed Form | Clear Form

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