Town of Tecumseh Distribution System

Drinking Water Quality Management System

Operational Plan

Water Services

Revision Date: February 28, 2023

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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, 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 when 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 Committee shall review the document, make any changes as required, and approve 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 Licence (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 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

Section 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 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 (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

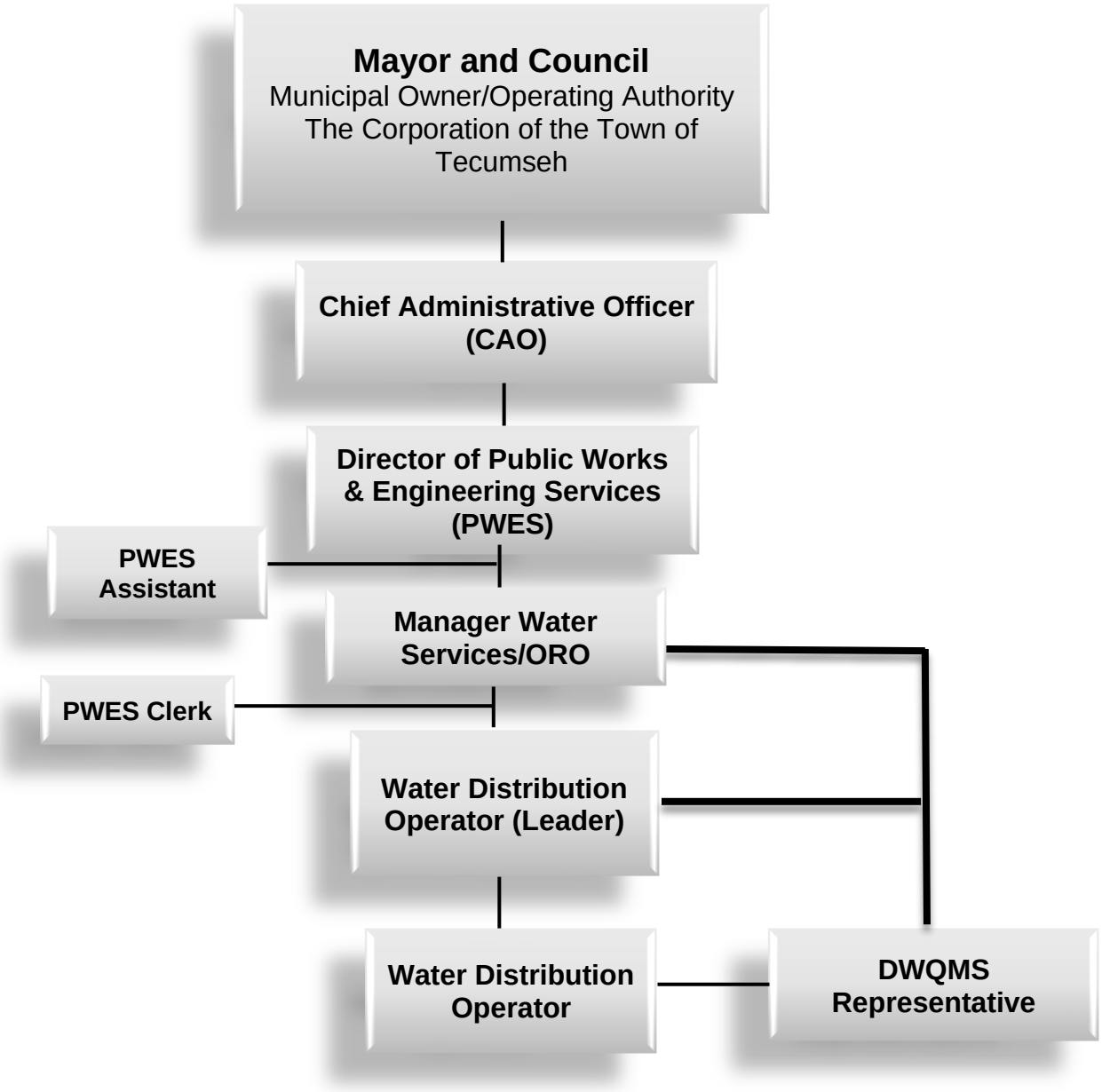
The risk assessment will be facilitated by developing and completing Risk Assessment Worksheets. As the Risk Assessment Team conducts this assessment, it will document the results of each step of the risk assessment procedure. The risk assessment process is an ongoing activity.

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

a) Municipal Owner/Operating Authority (Mayor and Council)

- Responsibilities

In addition to ensuring the provision of a safe and reliable municipal water supply to the serviced areas, The Corporation of the Town of Tecumseh Council is also responsible for:

- Complete legal oversight of The Corporation of The Town of Tecumseh Water Distribution System and the DWQMS,
- Ultimate responsibility for the provision of safe potable drinking water under the Safe Drinking Water Act 2002,
- Ensures compliance with applicable legislation and regulations,
- Participating in Council meetings and Council committee meetings and meetings of other bodies to which they are appointed by the Council,
- Obtaining and giving due consideration to information about the operation or administration of the Municipality from the Chief Administrative Officer, (CAO) and from other appropriate Town staff,
- Evaluating the policies and programs of the Municipality such as bylaw enforcement, taxation, property permits and inspections, planning, public works (roads, water, and sewer), parks and recreation, fire services, police services, and
- Endorsing the DWQMS and providing a representative to participate on the DWQMS Management Review Committee.

- Authorities

On behalf of the electorate of The Corporation of the Town of Tecumseh, and in accordance with the Municipal Act, Council is authorized to:

- Implement Drinking water system and DWQMS improvements or changes,

- Authorize resources to improve or change the drinking water system and DWQMS,
- Approve and review policies for the management and operation of Town assets,
- Review, revise, and approve proposed and existing bylaws, expenditures, user fees, taxation rates,
- Hire, evaluate, discipline, or terminate Town Management Staff and contracted service providers, and
- Provide financial, administrative authority related to the distribution of safe drinking water.

b) Top Management

Top Management Management is comprised of the following: Chief Administrative Officer; Director, Public Works & Engineering Services; and Manager, Water Services/Overall Responsible Operator (ORO) or designate.

i. Chief Administrative Officer (CAO)

- Responsibilities

As the senior Town staff member reporting to Council, the Chief Administrative Officer (CAO) responsibilities include:

- Oversight of the operation and management of all Town departments,
- Ensuring that the policies and direction from Council are effectively communicated to senior department Managers,
- Ensuring that policies and direction from Council is carried out by the appropriate Town departments,
- Direct supervision of senior department Directors and Managers, and
- Endorsing the ongoing development of the DWQMS and participating on the DWQMS Management Review Committee.

- Authorities

Authorities of the CAO include:

- Communicate information from senior Managers directly to Council,
- Request expenditure approval from Council and implement approved expenditures,
- To convey and mandate council policy and direction to the department senior Managers,
- To hire, evaluate, discipline, or terminate utility management staff, and
- Staffing (within the guidelines of The Corporation of the Town of Tecumseh and any collective agreements).

ii. Director Public Works & Engineering Services

- Responsibilities

Reporting to the Chief Administrative Officer (CAO), the responsibilities of the Director of Public Works and Engineering Services responsibilities include:

- Ensuring the safe, reliable, and compliant management and operation of all of the Towns physical infrastructure as well as Water Distribution System,
- Direct supervision of Engineering Services and Public Works department supervisors and administrative staff,
- Coordinating budget preparation,
- Preparation and presentation of Public Works and Engineering Services Department Reports to Council,
- Administration of the Collective Bargaining Agreement for department personnel,
- Ensuring adequate and competent staffing,
- Ensuring appropriate staff training,

- Investigating and responding to public complaints and inquiries, and
- Participate and represent the Municipal Owner/Operating Authority (Mayor and Council) on the DWQMS Committee.

- Authorities

The Director of Public Works and Engineering Services is authorized to:

- Evaluate and prioritize long-term department needs,
- Prepare, review, and approve design specifications,
- Select contractors, and equipment,
- Develop and implement departmental administrative and technical policy,
- Recruit, hire, evaluate, discipline, or terminate Public Works and Engineering Services staff in accordance with Town policies,
- Within the scope of the Public Works and Engineering Services , communicate directly with regulatory agencies and the public on behalf of the Town Municipal Owner/Operating Authority,
- When necessary, will appoint a temporary Overall Responsible Operator (ORO) position, in absence of the designated ORO.

iii. Manager Water Services/Overall Responsible Operator (ORO)

- Responsibilities

Reporting to the Director of Public Works and Engineering Services, the responsibilities include:

- Ensuring the efficient, safe and compliant operation of the Towns Water Distribution System,
- Providing supervision, technical direction and training to water distribution staff,
- Maintaining provincial operator certification,

- Assisting the Director of Public Works and Engineering Services with the water distribution budget preparation and long-term planning,
- Communicating with regulatory authorities to ensure compliance with applicable legislation,
- Preparing and presenting Municipal distribution information to Council, Town staff, Managers and the Public, and
- Serving as an alternate DWQMS Representative and participating on the DWQMS Committee and Management Review Committee.

- Authorities

The Manager, Water Services /ORO, Water System is authorized to:

- Act and 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 and Engineering Services for a designated ORO in the event he/she is not available and cannot be contacted,
- Develop, approve and implement operations, maintenance and safety policies and procedures related to water distribution,
- Supervise and inspect the work of contractors,
- Evaluate and prioritize the long-term rehabilitation and upgrade to the Town's infrastructure(s),
- Participate in hiring, evaluation and discipline of unionized and non-unionized staff in accordance with Town Policies,
- Communicate with Regulatory Agencies,
- Order/purchase necessary supplies and services, and
- Apply various Town By-laws.

c) DWQMS Representative

- Responsibilities

Reporting to the Manager, Water Services/ORO or designate, the responsibilities include:

- Promotes awareness of the DWQMS,
- Reports DWQMS results to staff,
- Ensures DWQMS documentation is prepared and maintained, as needed,
- Provides all staff with technical and administrative consultation related to DWQMS document preparation and implementation, as needed,
- Reviews and may approve DWQMS documentation,
- Implements and oversees document control procedure,
- Coordinates internal auditing acts as the external audit liaison,
- Communicates DWQMS information to staff and facilitates training when needed,
- May report DWQMS results to Municipal Owner/Operating Authority and Top Management, and any needs for improvement, and
- Assist Municipal Owner/Operating Authority and Top Management, that personnel who directly impact drinking water for The Corporation of the Town of Tecumseh are aware of all applicable legislative and regulatory requirements that pertain to their duties in reference to the DWQMS.

- Authorities

The DWQMS Representative is authorized to:

- The overall managing role, responsible for overseeing the development and implementation of the DWQMS.

d) Designated DWQMS Representative Alternate

- Performs all roles of Designated DWQMS Representative.

e) Water Distribution Operator (Leader)

- Responsibilities

Reporting to the Manager, Water Services/ORO or designate, the responsibilities include:

- Oversees day-to-day activities relating to maintenance of the water distribution system,
- Communicates and liaises with the Manager, Water Services/ORO or designate, Water Distribution Operators and Clerical Staff,
- Works with the Manager, Water Services/ORO or designate in completing the Water Distribution Operators' performance assessments,
- Assists with developing procedures and processes for assuring water quality, and
- Has input into the development of procedures and processes for assuring water quality.

- Authorities

The Water Distribution Operator (Leader) is authorized to:

- Directs Operators in day-to-day operations of water distribution system,
- Orders day-to-day supplies as needed,
- Respond to public complaints as relayed from Manager, Water Services/ORO or designate, Clerical Staff and/or after-hours answering service.

f) Water Distribution Operator

- Responsibilities

Reporting to the Manager, Water Services/Overall Responsible Operator/ORO and the Water Distribution Operator (Leader), the responsibilities include:

- Performs weekly testing of drinking water,

- Performs regular maintenance of the water distribution system,
- Reports any incidents of non-compliance, and
- Responds to repairs.

- Authorities

The Water Distribution Operator is authorized to:

- Monitor process and equipment of day-to-day operations of the water distribution system,
- Respond to public complaints as relayed from Manager, Water Services/ORO or designate, Clerical Staff, Water Distribution Operator Leader and/or after-hours answering service.

g) Clerical Staff

The Clerical staff refer to the Public Works and Engineering Services Assistant and Public Works and Engineering Services Clerk.

- Responsibilities

Reporting to the Director of Public Works and Engineering Services and the Manager, Water Services/ORO or designate, the responsibilities include:

- Communicates/liaises with the following: Director, Public Works & Engineering Services; Manager, Water Services/ORO or designate; Water Distribution Operator (Leader); and Water Distribution Operators,
- Responds to and documents public inquiries. Example- drinking water quality inquiries, broken watermain, hydrant hit by car etc.,
- Inputs lab results,
- Prepares reports as required by regulations and circulates to management,
- Assists with DWQMS documentation and record control, and

- Assists with communication during emergency situations.

- Authorities

The Clerical staff is authorized to:

- Update and implement document changes as directed by applicable administration identified in the Water Services Organizational Chart.

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.

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 128/04 and O. Reg 129/04 – “Emergency Situations” 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 portable chlorine analyzers and flow meters 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 Management Review 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 Management Review Committee.

20.1 Review Participants

Management Reviews shall be conducted during a meeting of the Management Review 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 management Review 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 Management Review Committee shall review and discuss all information presented.

The 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.
- Management reviews.
- Staff suggestions.
- Consumer calls.
- Other means (e.g. near-misses, other utilities' experiences, etc.).

Using the Request for New or changed DWQMS Document form included in Appendix 7, the DWQMS Representative tracks and measures 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 an effective 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 28, 2023

Report Number: PWES-2023-18

Subject: Drinking Water Quality Management System Operational Plan

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Recommendations

It is recommended:

That Report PWES-2023-18 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 28, 2023.

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 can be effected by staff suggestions, changes in administrative or work processes, internal audits, external audits, MECP inspections and regulatory updates.

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 were due in part to the following:

1. Legislative and Regulatory Changes

   The Operational Plan was updated to include reference to O.Reg. 128/04: Certification of Drinking Water System Operators and Water Quality Analysts, and O.Reg. 129/04: Licensing of Sewage Works Operators, for personnel coverage during emergency situations where staff may not be available to work.

   In April 2022, the MECP also updated the municipal risk assessments for drinking water systems to explicitly consider cybersecurity threats. This update effected a change to Element 7 of the Operational Plan.

2. Risk Assessment Review

   A Risk Assessment Review was conducted in accordance with Element 7 of the Operational Plan which subsequently resulted in an update to the Hazard Analysis and Critical Control Point Worksheets to include Cyber Security as a potential hazard to the Town's drinking water system.

3. Audit and Inspection Reports

   Audits and inspections are conducted on the Town's Drinking Water Distribution System to ensure the DWQMS conforms to the requirements of the Operational Plan and to determine compliance with requirements under the Safe Drinking Water Act, 2002 and associated regulations. An audit of the Town's DWQMS identified an opportunity for improvement by including additional processes to manage the potential for personnel shortages during emergency situations. The Operational Plan was updated accordingly.

4. Management Review Committee recommendations.

   The Management Review Committee reviews recommended changes to the Operational Plan and ensures and evaluates the continuing suitability, adequacy and effectiveness of the DWQMS. These recommended changes are implemented in the updated Operational Plan.

The Management Review Committee approved the suggested updates to the Operational Plan at their meeting held October 24, 2022. The minutes recorded at said Management Review Committee meeting are provided in Attachment 1.

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
General	Operational Plan	Spelling and grammar revisions.	Throughout
General	Operational Plan	Position title of "Water Operator" was amended to "Water Distribution Operator".	Throughout

Element No.	Title	Revision	Page No. in Operational Plan
General	Operational Plan	Included "or designate" following "Manager Water Services/ORO."	Throughout
6	Drinking Water System	Amended Appendix 2.1: Data in the table updated to current values.	62
7 & 8	Risk Assessment	Amended Appendix 3.8: MECP's "Potential Hazardous Events for Municipal Drinking Water Systems" updated to current version.	73
7 & 8	Risk Assessment	Amended Appendix 4.1: Addition of new Worksheet No. 19 – Cyber Security.	99
11	Personnel Coverage	Addition of statement referring to amended O.Reg. 128/04 and 129/04 "Emergency Situations."	36

The above-noted changes were implemented in the updated Operational Plan, dated February 28, 2023, which is appended to this report as Attachment 2.

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

Communications

Not applicable ☐

Website ☒ Social Media ☐ News Release ☐ Local Newspaper ☐

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

Prepared by:

Cheryl Curran, BES
Project Technician

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	Management Review Committee Meeting Minutes dated October 24, 2022
2	Town of Tecumseh Distribution System Drinking Water Quality Management System Operational Plan, Revision Date: February 28, 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	-	108.9	18,406.7	112.2	784	-	3.4	-	**19,415.2**
Concrete	-	-	-	-	-	-	2,525.5	-	**2,525.5**
Ductile Iron	-	-	10,040.6	6,510.5	1,062	1,659.7	2,428.9	500.2	**22,201.9**
PolyVinylChloride (PVC)	510.8	1822.1	58,613.6	68,388.0	15,172.3	19,377.4	8,519.6	3,734	**176,137.2**
Polyethylene	7.7	-	60.2	-	-	-	-	145.6	**213.5**
Copper	6.7	-	-	-	-	-	-	-	**6.7**
Total	**523.8**	**1898.7**	**87,000.6**	**74,926.4**	**17,014.2**	**21,037.1**	**13,477.4**	**4,379.8**	**220,500**

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:

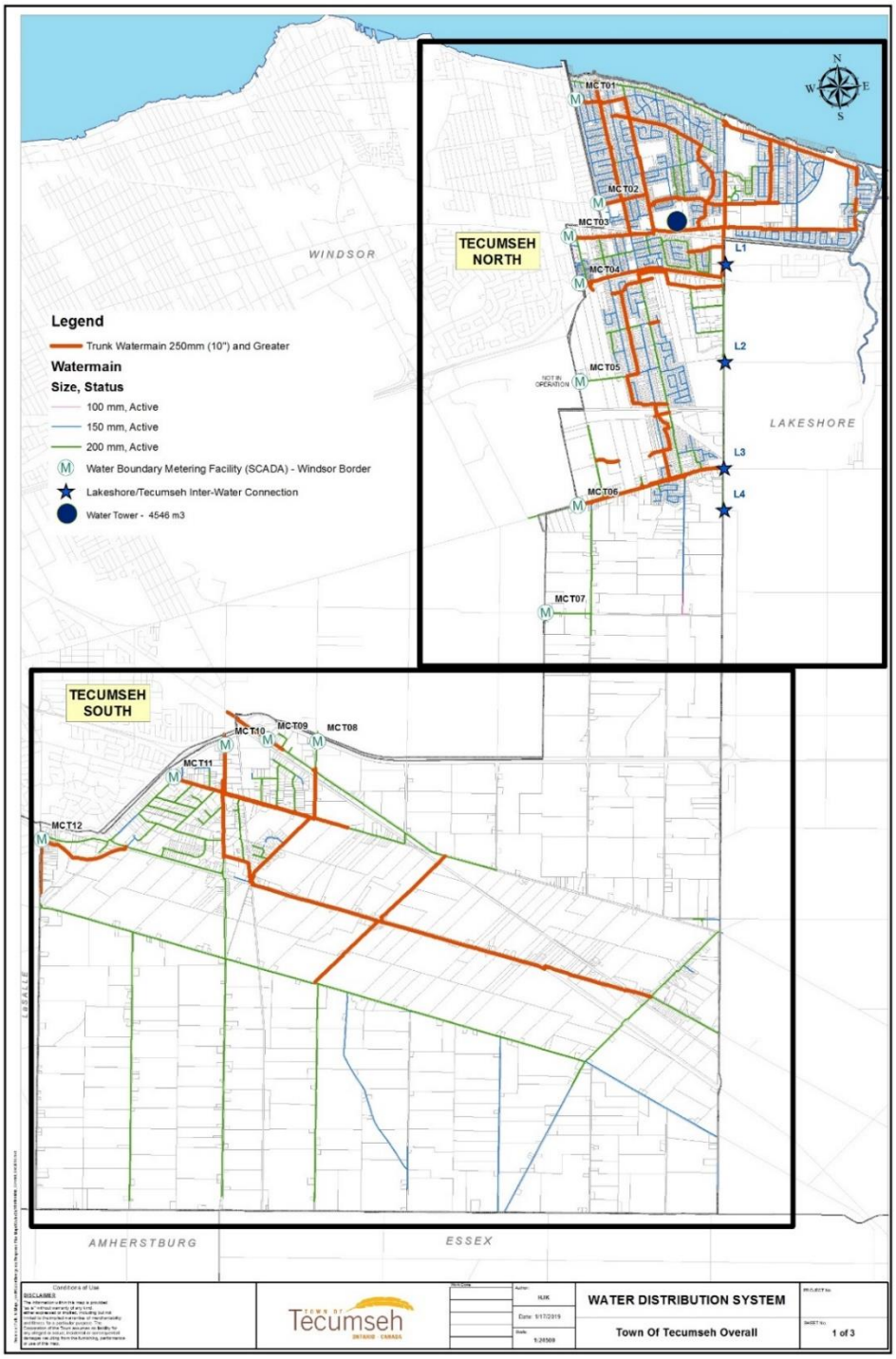
- 200 mm diameter feedermain on Baseline Road
- 200 mm diameter feedermain on 8th Concession Road
- 600 mm diameter feedermain on County Road 46
- 300 mm diameter feedermain on Walker Road
- 300 mm diameter feedermain on North Talbot Road

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

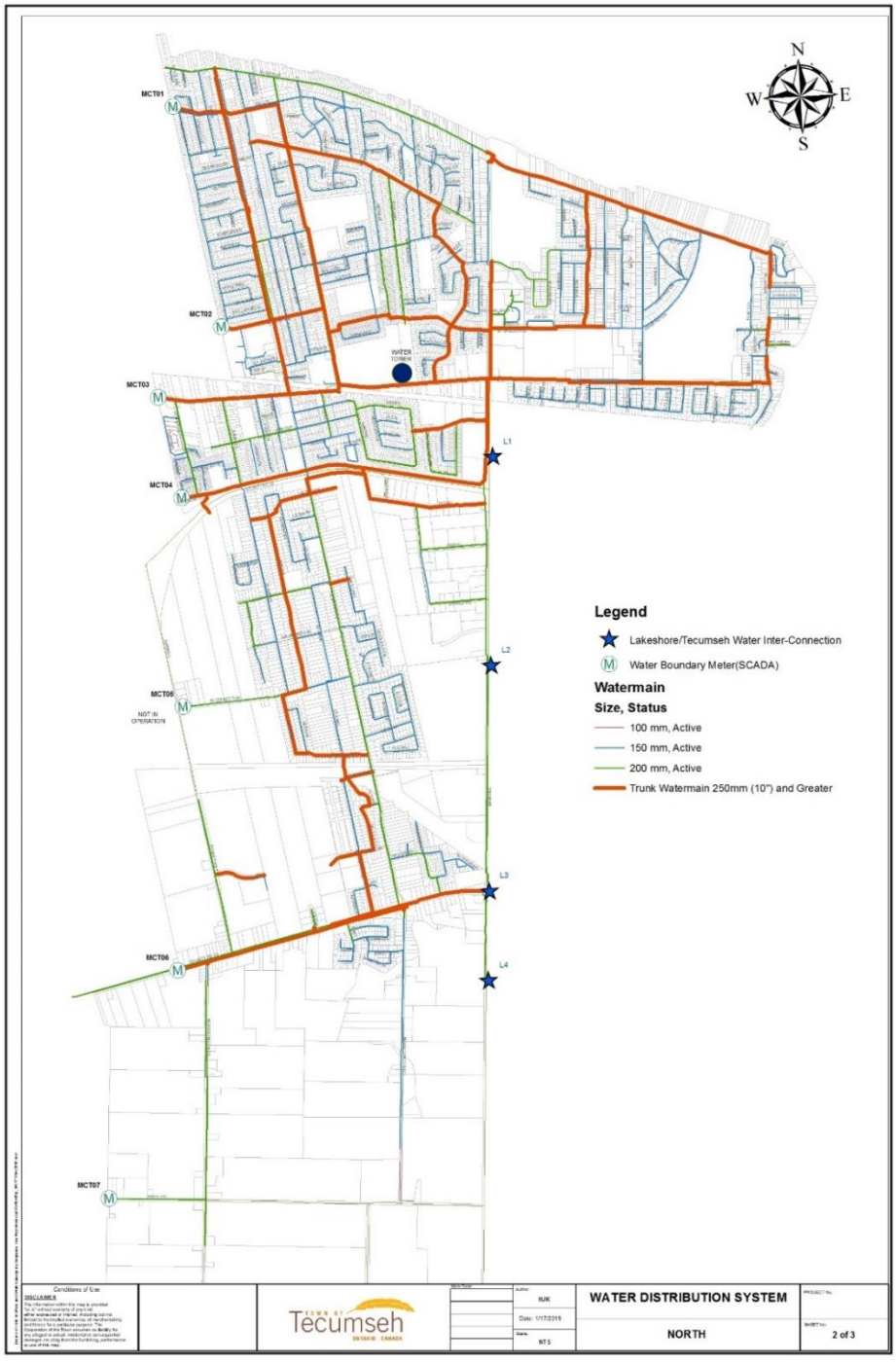
2.3 **Town of Tecumseh Water Distribution System, Overall Service Area**

a) Map 1: Overall Service Area



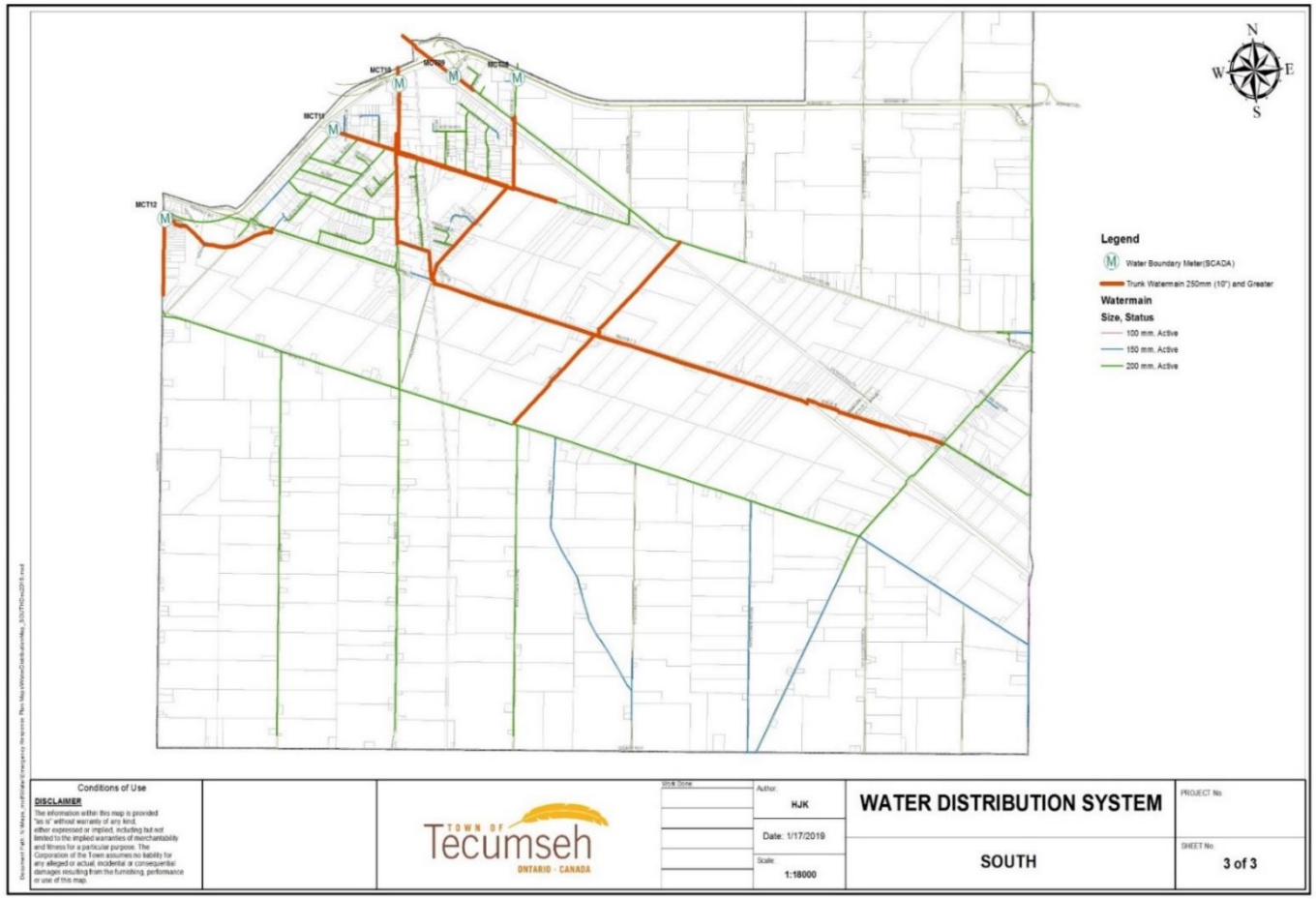
2.4 **Town of Tecumseh Water Distribution System, North Service Area**

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

3.1 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.

3.2 **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.

3.3 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.

3.4 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

3.5 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

3.6 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

3.7 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

3.8 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.

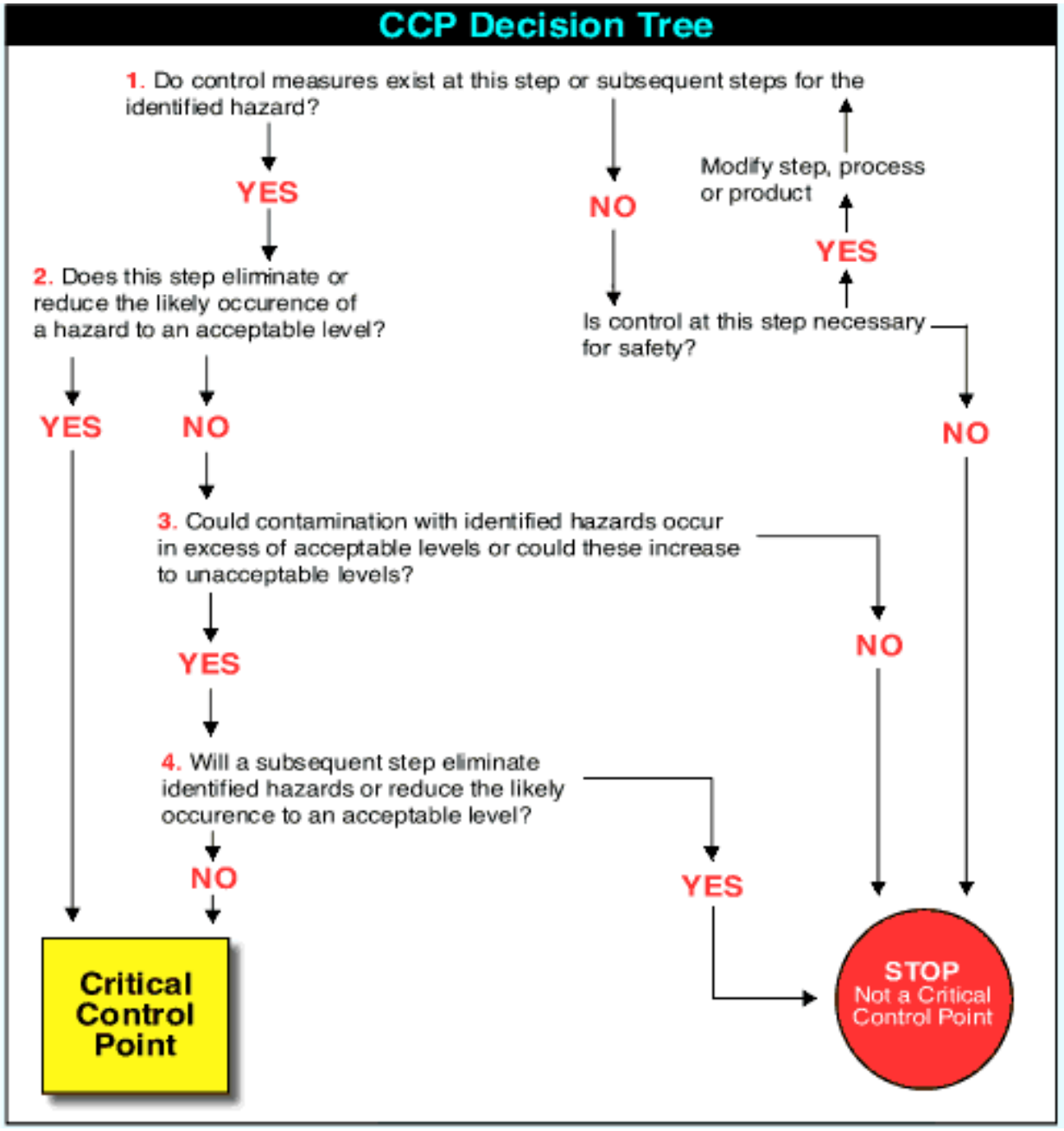
Treatment Systems - all municipal residential drinking water systems that include equipment used to provide primary and/or secondary disinfection of the drinking water, including those with groundwater and/or surface water sources unless otherwise noted.

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 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: • No 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 keyed • 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: *Taking Tower Offline* • 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: *Taking Tower Offline*			
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 • Add 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: *Taking Tower Offline* • 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 • Add secure entry at Water Tower through pass card and keyed • 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: *Taking Tower Offline* • 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: • No 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 • 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: • No 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: • Maintain fire protection • No access to water from the distribution system if pipes are frozen • 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 Services* and SOP-025: *Frozen 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: • None			
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: *Taking Tower Offline.* • 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 2017-63, 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 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 3303 Walker Rd. Windsor, ON N8W 3R9 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	Information 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	Information 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 & Engineering Services 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:	January 26, 2023
Report Number:	PWES-2023-01
Subject:	2023-2027 Public Works & Engineering Services Five-year Capital Works Plan

Recommendations

It is recommended:

That the Public Works & Engineering Services (PWES) Capital projects for 2023, as summarized in Attachment 1 to Report PWES-2023-01, 2023-2027 Public Works & Engineering Services Five-Year Capital Works Plan, **be approved**;

And that the 2023 PWES Capital projects be funded through the following reserves and reserve funds as set out in Report PWES-2023-01:

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

2021-2022 Council Report Template R2022-06-08

And that the Public Works & Engineering Services Capital Works Plan for 2023-2027, as outlined in Attachment 2 to Report PWES-2023-01, **be approved**.

Executive Summary

The Public Works & Engineering Services (PWES) Department is recommending approval of the 2023 PWES Capital Works Projects and funding allocations for 2023 as well as approval of the capital works plan for 2023-2027.

The total number of 2023 projects for PWES is 24, representing $38.6M in budget allocation, $21.3M previously allocated and $17.3M requested allocation for 2023. Most of these projects are on-going and approximately 7 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 2023 consist of the following:

- Detailed design of the Tecumseh Secondary Plan Area Northwest water and wastewater infrastructure;
- Finalization of various studies such as the Shoreline Management Plan, the Stormwater Rates Study, and the Sanitary Sewer Model Update;
- Continuation of detailed design and construction for the Scully, St. Marks and PJ Cecile Storm Pump Stations under the Disaster Mitigation and Adaptation Fund program;
- Construction of the Lesperance Road/VIA Crossing Improvement Project;
- Construction of watermain and sanitary sewer infrastructure related to the County of Essex County Road 42 Improvements Project;

Details and in-progress updates for the 2023-2027 projects are provided within the following sections of this report.

Background

Approval of 2023 PWES Capital Works Projects and the full 2023-2027 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 is the first to specifically tie in the capital priorities related to Council's growth-related direction.

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

At the May 5th 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 current annual PWES capital program.

In general, many of the projects listed in this report for 2023 are ongoing projects that require works to continue into 2023. 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 2023 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 2024-2027. Section D rounds out the report with municipal drain projects.

Comments

Detailed information is provided for all 2023 projects, both those previously approved and those newly proposed to commence in 2023. 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 2023, as well as future and total costs. Attachment 2 provides the entire proposed Capital Works Plan for 2023-2027. Attachment 3 illustrates the geographic location of the 2023 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; "EA" means Environmental Assessment; "FSR" means Functional Servicing Report; "ERCA" means Essex Region Conservation Authority and "Ha" means hectares.

Section A: Projects Requiring Funding Allocations in 2023

A1. Annual Tar & Chip, Asphalting and Crack Sealing

Work	**Requested for 2023**	Location of Work	Extent
Asphalting	**$650,000**	Mayrand Crescent Shawnee Road Lacasse Park – Parking Lot	Full Extent Maisonneuve to Intersection Full Extent Full Extent
Crack Sealing	**$300,000**	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 $300,000 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 $950,000.

- **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 2023**	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 is for needs 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 to address these needs 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. 2023 Sidewalk Repair Projects

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$0	**$400,000**	$0	$400,000

The 2023 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.

Additional funding is being requested in 2023 for the replacement of the existing brick pavers on Tecumseh Road from the City of Windsor limit to VIA Rail (just west of Lacasse Boulevard).

Funding for the 2023 sidewalk repair project is to be provided from the Sidewalk Lifecycle Reserve in the amount of $400,000.

A4. Lesperance Road Multi-Use Trail – CR22 to CR42

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$137,500	**$2,661,250**	$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 which is expected to be completed in 2023. It is planned to tender the project in Fall 2023 for construction to proceed in 2024.

The 2023 funding request for this project is to be provided from the Infrastructure Reserve in the amount of $2,661,250.

- **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.

A5. Snake Lane Road Culverts (with Spans <3.0m) – Culverts No. 42, 53 & 54

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$192,500	**$1,941,940**	$0	$2,134,440

The 2016 Culvert Needs Study (Structures with Spans < 3.0m) identified the following Culverts for rehabilitation or replacement within a 1 to 5-year time frame:

- Culvert No. 42 – South Talbot Road Drain at Snake Lane Road (Est. cost $650,440)
- Culvert No. 53 – 9th Line Drain at Snake Lane Road (Est. cost $742,000)
- Culvert No. 54 – Webster Drain at Snake Lane Road (Est. cost $742,000)

In December 2020, Council approved the recommendations of Report PWES-2020-33 that authorized Administration to proceed with the 2021 capital works projects, which included moving forward with the design for Culverts No. 42, 53 & 54. Dillon Consulting Ltd. was retained and detailed design for these Culverts commenced in 2021 and it is anticipated the design will be completed in early 2023. Administration is recommending construction commence in 2023.

Additional funding for this project is to be provided from the Bridges Lifecycle Reserve in the amount of $1,941,940.

➢ **Reference Reports:**

- Report PWES No. 39/16, "2016 Culvert Needs Study (Structures with Spans < 3.0m)", November 8, 2016; Motion RCM-384/16.
- 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.

A6. County Road 46 Municipal Class Environmental Assessment

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$0	**$70,000**	$0	$70,000

The County of Essex is looking to proceed with a Municipal Class Environmental Assessment (Class EA) for County Road 46 from the City of Windsor limits to County Road 19 commencing as early as 2023. 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.

Town Administration is recommending to partner with the County of Essex on the Class EA, with an expanded scope to include the 8th & 9th Concession Roads (from County Road 46 to City of Windsor limits). This will ensure the integration between the County Road 46 Class EA and the Sandwich South Master Servicing Plan currently being undertaken by the City of Windsor.

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

- Road Lifecycle Reserve in the amount of $70,000

A7. 12th Concession Watermain Replacement

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$247,900	**$32,100**	$0	$280,000

In December 2020, Council approved the recommendations of Report PWES-2020-33 that authorized Administration to proceed with various watermain replacement projects That included:

- 12th Concession Road Watermain (two sections South of CR42)
  - Once section of watermain will be included within the County's CR42 & CR43 Improvement Project phase 1, which is slated for construction in 2023.
  - One section of watermain will be tendered as a stand-alone project, with construction to commence in 2023.
- CR43 Watermain (CR42 northerly)
  - To be included in the County's CR42 & CR 43 Improvement Project Phase 2, slated for construction in 2024.
- Tecumseh Road Watermain (Brighton Road to Pike Creek)
  - Construction completed in 2022.

Dillon Consulting Ltd. was retained for engineering services for all the above watermain replacement projects. The above project budget has been revised to include the one watermain section in 12th Concession Road located approximately 450m south of CR42.

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

- Watermain Reserve Fund in the amount of $32,100

- **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.

A8. County Road 19 Improvements – County Road 22 to Jamsyl Drive

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$758,000	**$264,000**	$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 2020, Council approved the recommendations of Report PWES-2020-13 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 400mm dia. trunk watermain on CR19 was be incorporated as part of the County's Improvement Project to CR19. Detailed design has been ongoing since 2020, with construction anticipated to commence in late 2023/early 2024.

The watermain budgetary estimate has been updated to reflect the current market conditions from recent tenders.

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

- Watermain Reserve Fund in the amount of $264,000

➢ **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.

A9. County Road 46, Webster and Laval Sanitary Sewer Extension

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$445,250	**$6,303,550**	$0	$6,748,000
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.

Detailed design, consultation with utility companies and preparation of final easement documentation continued in 2022. In addition, geotechnical investigations related to new regulations from the Ontario Ministry of Environment, Conservation and Parks for excess soil generated from construction projects commenced in late 2021. Detailed design will be completed in early 2023 with the preparation of tender documents, completion of the excess soil investigations and obtaining approvals. It is planned to tender the project in Fall of 2023 for construction to proceed in 2024.

The project cost of $6,748,800 includes $2,203,500 for road reconstruction, $734,400 for storm sewers, $2,101,300 sanitary sewers and $1,709,600 for watermains.

Estimated recoveries from landowners for the sanitary sewers would be approximately $1,767,000 and will be refined once the By-Law for the 8th Concession Road sanitary service area is in place.

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

- Road Lifecycle Reserve in the amount of $2,082,750
- Wastewater Sewers Reserve Fund in the amount of $1,934,600
- Storm Sewer Lifecycle Reserve in the amount of $657,000
- Watermain Reserve Fund in the amount of $1,629,20

➢ **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.

A10. Del Duca Drive Sanitary Sewer Extension

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$524,350	**$4,880,350**	$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.

The Oldcastle Stormwater Master Plan was being completed concurrently with the design for the Del Duca 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 anticipated recommendations of the Oldcastle Stormwater Master Plan. Based on this coordination, it was determined that a previously identified sanitary easement needs to be modified to accommodate a future storm sewer. Continued discussions will take place with property owners and it is anticipated the necessary easements will be obtained by mid-2023.

It is anticipated that completion of the detailed design, easement acquisition, geotechnical investigations related to new regulations from the Ontario Ministry of Environment, Conservation and Parks for excess soil generated from construction projects, utility relocations, preparation of tender documents and obtaining required approvals will occur in early 2023. It is planned to tender the project in Fall 2023 for construction to proceed in 2024.

The project cost 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 and will be refined once the By-Law for the 8th Concession Road sanitary service area is completed.

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

- Road Lifecycle Reserve in the amount of $2,036,450
- Wastewater Sewers Reserve Fund in the amount of $1,108,200
- Storm Sewer Lifecycle Reserves in the amount of $1,708,350
- Watermain Reserve Fund in the amount of $27,350

- **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.

A11. 2023 Sanitary Pump Station Improvements

Previously Approved	**Requested for 2022**	Future Costs	Total Project Costs
$0	**$130,000**	$0	$130,000

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 2023, 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 $30,000)
  - Purchase of a spare pump (emergency rentals are not available anymore)
- Lakewood Sanitary Pump Station (Estimated Cost $70,000)
  - Purchase of a spare pump (emergency rentals are not available anymore)
- Gauthier Sanitary Pump Station (Estimated Cost $30,000)
  - Screw inspection
  - Upper and lower bearing 30HP pump

Funding for this project is to be provided from the Wastewater Facilities Reserve Fund in the amount of $130,000.

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

A12. Ministry of Environment, Conservation and Parks – Consolidated Linear Infrastructure

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$0	**$50,000**	$0	$50,000

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.

In addition, the ECAs will outline the Town's requirements for establishing Operational & Maintenance (O&M) Manuals for all of the CLI infrastructure, criteria for an erosion control plan (ECP) and monitoring plans, as well as reporting timelines for all inspection, operational and maintenance activities.

In reviewing the draft CLI ECA for the Town, Administration is recommending allocating a $50,000 allowance to retain consulting services as needed to assist in the creation of the required O&M Manual, Standard Operating Procedures, ECPs, Monitoring Plans and reporting documentation.

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

- Storm Sewer Lifecycle Reserve in the amount of $25,000
- Wastewater Facilities Reserve Fund in the amount of $25,000

A13. Scully & St. Mark's Storm Pump Station & Riverside Drive Storm Sewers

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$17,050,000	**$6,285,000**	$0	$23,335,000
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.

The project cost estimates have been updated to be more in line with recent market conditions and inflation. The Scully-St. Marks Pump Stations and Riverside Drive estimate was increased to $23,335,000 from $17.05M, which is broken down as $20,600,000 for storm sewers and pumping stations, $635,000 for sanitary sewers and $2,100,000 for road reconstruction. Discussions have been ongoing with DMAF staff on whether the grant funding allocation of $10.7M will be increased, and the response to date has been to wait to see how the tendering costs are submitted.

Throughout 2022 the Town's Consultant, Dillon Consulting Ltd., has continued with the engineering designs for the pump station and sewer improvements, which are nearing the 100% completion stage.

In August 2022, Wood Canada Limited was retained to perform ancillary consulting services, which included:

- Excess soils regulations and geotechnical services
- Shoreline protection wall design
- Stage 1 & 2 Archeological Assessment and Indigenous Consultation

It is planned to complete all design components of this project by Q1 2023 with tendering anticipated in Q1 2023.

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

- Storm Sewer Lifecycle Reserve in the amount of $5,493,000
- Wastewater Sewers Reserve Fund in the amount of $220,000
- Road Lifecycle Reserve in the amount of $572,000

➢ **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-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

A14. P.J. Cecile (Kensington) Storm Pump Station

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$2,000,000	**$9,639,800**	$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 A13 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.

The project cost estimates have been updated to be more in line with recent market conditions and inflation. The Scully-St. Marks Pump Stations and Riverside Drive estimate 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. Discussions have been ongoing with DMAF staff on whether the grant funding allocation of $10.7M will be increased, and the response to date has been to wait to see how the tendering costs are submitted.

A Request for Proposals for Engineering Consulting Services for the detailed design, contract administration and Inspection has been issued and Administration will be bringing forward a separate report for awarding those services.

Additional funding is to be provided from the following:

- Storm Sewer Lifecycle Reserve in the amount of $9,367,500
- Road Lifecycle Reserve in the amount of $272,300

➢ **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.

A15. Public Works & Transportation North Building Improvements

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$0	**$66,000**	$534,000	$600,000

The original Public Works & Transportation north building is an older structure that has had two major expansions to it over the years. The first being an expansion to the east for a forebay and storage pre-1987, and the second being an expansion to the west that included four (4) forebays in 2001/2002. There have been no significant improvements to the kitchen, washroom, change room and employees work space in the last 20 years.

Improvements to the Public Works & Transportation north building are required to meet obligations under the Occupational Health & Safety Act, which include the recommendations of:

- A second washroom facility that will be accessible for staff and outside contractors (i.e. Essex Power) without having to walk through the employee change room.
- A new mud room and laundry facility.

- A relocated storage room.
- An improved change room to include a new staff washroom w/ shower and private change areas.
- An improved kitchen, lunch area, work stations with computers and printer, a file area for drawings, first aid and eye wash station and a whiteboard/projector area for staff training and educational webinars.
- New HVAC system

The project budget is estimated to be $600,000, with $52,000 for design, $428,000 for construction and $120,000 for Contingency.

It is anticipated that design would commence in 2023 and the recommended improvements would take place in 2024.

Funding for the initial phase of this project is to be provided from:

- Road Lifecycle Reserve in the amount of $22,000
- Wastewater Sewers Reserve Fund in the amount of $22,000
- Storm Sewer Lifecycle Reserve in the amount of $22,000

A16. 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 2023**	Future Costs	Total Project Costs
$0	**$4,700,000**	$0	$4,700,000
Grant (applied): 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 will make 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 under the Capital Stream of the ATF will be funded up to 60% with no maximum amount payable.

A formal announcement for funding has not yet been made, however, Administration has included this project within the 2023-2027 Five Year Capital Works Plan in the event the Town is successful in its application.

Should the Multi-Use Recreational Trails project proceed, Administration also recommends that Lesperance Road from McNorton Street to First Street be rehabilitated (milling and paving, catch basin and manhole repairs and new pavement markings for the continuation of the on-street bike lanes).

If the application to the Active Transportation Fund is successful, Administration will report back to Council for approval to enter into an agreement with the Government of Canada. Works would not commence on this project until confirmation that the grant is in place.

The estimated project cost is $4,700,000, with $4,360,000 for the Multi-Use Recreational Trails and $340,000 for the rehabilitation of Lesperance Road from McNorton Street to First Street. The ATF grant would cover up to 60% of the $4,360,000, totaling $2,616,000.

Funding is to be provided from the following:

- Infrastructure Reserve in the amount of $4,360,000
- Road Lifecycle Reserve in the amount of $340,000

➢ **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.

Section B: Carry Over Projects from 2022 Not Requiring Additional Funding in 2023

B1. Lesperance/VIA Rail Improvements

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$4,271,200	**$0**	$0	$4,271,200
Grant (confirmed): Rail Safety Improvement Program - $1,232,400			

On March 19, 2021, the Town received confirmation that the Tecumseh Road VIA Crossing Improvements project had been selected for 2021-2022 Rail Safety Improvement Funding. Subsequently, Dillon Consulting Ltd. was retained to undertake

the detailed design for the project due to their past involvement in the crossing investigations and on-going work with the related Tecumseh CIP/Streetscape project.

On June 28, 2022, the members of Council rejected the single tender received due to it being significantly over budget. The project was re-tendered in November 2022 and subsequently the second tender was awarded to Rudak Excavating Inc. at the December 13, 2022 meeting of Council. It is anticipated that construction will commence in the Spring 2023.

The Town was successful in receiving funding through the Rail Safety Improvement Program (RSIP) for 80% of eligible costs up to a maximum of $1,027,000. Subsequent discussions with RSIP Staff have resulted in additional funding (up to 20% of the original grant) being available, which would total $205,400.

Additional details and project scope can be found within the reference reports listed below.

- **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-2020-24, "Rail Safety Improvement Program – Infrastructure, Technology and Research Funding (RSIP-ITR) 2021/2022 Intake VIA Crossing at Lesperance Road (Chatham Mile 99.31)", July 28, 2020; Motion RCM-236/20
  - Report PWES-2021-32, "Rail Safety Improvement Program, 2021/2022 Intake Agreement for Rail Grade Crossing Improvements VIA Rail at Lesperance Road (Chatham Mile 99.31)", July 13, 2021; Motion RCM-229/21
  - Report PWES-2022-32, "Lesperance Road VIA Rail Crossing Improvements – Tender Results", June 28 2022; Motion RCM-198/22
  - Report PWES-2022-44, "Lesperance Road VIA Rail Crossing Improvements – Tender Award and VIA Rail Agreements", December 13, 2022; Motion RCM-345/22)

B2. County Road 42 and County Road 43 Improvements – Phase 1

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$6,476,000	**$0**	$0	$6,476,000

Improvements to CR42 (City of Windsor to CR19) and CR43 (south of CR42 to CP Rail) were identified as part of the County's 25-year capacity program. Over the last few years, work on the project has progressed as the County retained an engineering consultant for the detailed design, acquired the required property and advanced utility relocations along CR42.

Based on these proposed road improvements, Tecumseh Administration identified improvements to existing or new municipal services (watermains and sanitary sewers) that were required. In December 2018, Council approved the recommendations of Report PWES-2018-08 that included the undertaking of advanced engineering design for these municipal services as part of the County's improvement project.

At the January 25, 2022 Regular Meeting of Council the members approved the recommendations (Motion: RCM-23/22) of Report PWES-2022-03, titled 'Approval of 2022 Public Works & Engineering Services Capital Works Projects' that authorized Administration to proceed with the identified 2022 capital works projects including the construction of water mains and sanitary sewers as part of the CR42 and CR43 improvement project.

At the September 7, 2022 Regular Meeting of County Council, the members adopted the County Administration Report on the CR42 and CR43 Phase 1 project. The report highlighted the County's procurement efforts that included and advertised tender and limited tender. The County retained a contractor and construction commenced in Q4 2022. Phase 1 works consists of the installation of underground infrastructure on CR42 from CR19 to CR43. Construction of Phase 1 is anticipated to be completed in December 2023.

- **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-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 CAO-2020-06, "Boundary Adjustment Agreement and the County Road 43 Class Environmental Assessment Study", August 11, 2020; Motion RCM-245/20.
  - Report PWES-2022-03, "Approval of 2022 Public Works & Engineering Services, 2022 Capital Works Projects", January 25, 2022; Motion RCM-23/22.

B3. North Tecumseh Water Distribution Model

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$70,000	**$0**	$0	$70,000

In March 2020, Council approved the recommendations of Report PWES-2020-15 which adopted the Tecumseh 2018 Water and Wastewater Master Plan Update.

The Town of Tecumseh receives its potable water supply from the ENWIN Utilities Water System. In 2019, the ENWIN Utilities Water System Master Plan was completed which incorporated information from the Tecumseh 2018 Water and Wastewater Master Plan Update.

As a result of the Master Plan recommendations, discussions have occurred between Town Administration and ENWIN to optimize the water system needs. ENWIN currently has a functional water model which accurately depicts the City of Windsor and Town of LaSalle's water distribution systems. ENWIN's model includes a high-level layout of the Tecumseh water distribution system, however, to optimize the system requirements a more detailed model of the Tecumseh water system is required.

In 2021, ENWIN, through coordination with the Town, expanded their water model to include a detailed assessment of the Town's South water distribution system to more accurately represent the system and use the model to determine the best location for an elevated water storage facility within the ENWIN-Tecumseh system. The detailed water model also allows Tecumseh to assess existing water flows and pressures within the south Tecumseh system and develop strategies to improve water supply in identified areas of concern.

A similar water model update is to be completed on the Town's North water distribution system. This model will provide insight into the existing characteristics of the water distribution system, assist with the design of future watermain replacement projects and assess available capacity to accommodate infill and redevelopment within the Town.

Funding for this project will be from the Watermain Reserve Fund in the amount of $70,000.

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

B4. Sanitary Sewer Model Update and Flow Monitoring

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$345,000	**$0**	$0	$345,000

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 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 were received. Accordingly, the flow monitoring was extended into Fall 2021 which captured the significant rainfall event of July 16, 2021.

The final report for this project is expected in early 2023. The updated model will provide insight into the existing flow characteristics of the sanitary sewer system and on available sanitary sewer capacity to accommodate infill development within the Town.

Funding for this project was previously provided from the Wastewater Sewers Reserve Fund in the amount of $345,000.

➢ **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.

B5. 8th Concession Sanitary Sewer By-Law

Previously Approved	**Requested for 2023**	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. 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 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 Main and Lateral Charges in accordance with Part XII of the Municipal Act 2001; and that the "North Talbot Road Sanitary Sewer Outlet Main and Lateral Charges By-Law" be considered.

Similar to the cost recovery process for the North Talbot Road Sanitary Sewer Outlet Area, it was intended that the cost of the sanitary sewer collection system for the 8th Concession Road Sanitary Sewer Outlet Area would be assessed against the benefitting lands within that area in accordance with Part XII of the Municipal Act.

In February 2018, Council approved the recommendations of Report PWES-2018-01 which included the cost of the sanitary sewer collection system for the "8th Concession Road Sanitary Sewer Outlet" area be assessed against the benefitting lands within that area based on Main and Lateral Charges in accordance with Part XII of the Municipal Act; and that a by-law that outlines the charges be considered.

In 2022 Watson & Associates was retained to assist the Town with the preparation of a Part XII By-Law to recover costs for the sanitary sewer collection system servicing

the 8th Concession Sanitary Sewer Area from the benefitting lands. It is anticipated the a report and by-law would be brought to Council by mid-2023.

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.

B6. County Road 42 and County Road 43 Improvements – Phase 2

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$378,800	**$0**	$681,200	$1,060,000

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 watermains on CR43 and Banwell Road. These locations consist of:

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

Connection of these existing watermains will add resiliency to the water supply for the Tecumseh Vista School, improve water quality and reduce the required number of auto flushers.

Based on the County of Essex revised phasing plan for their CR 42/43 improvements, it is anticipated that the design of the CR43/Banwell watermain will be coordinated with the County's project and that construction would commence in 2024/2025.

Funding for this project was previously provided from the Watermain Reserve Fund in the amount of $378,800.

➢ **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.

B7. Hwy 3/CR34 Water Valve Replacement

Previously Approved	**Requested for 2023**	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 project consists of the replacement of water valves on the existing 300mm diameter watermain located on Highway No.3 (Oldcastle Road to CR34) and on CR34 (Highway No.3 to Malden Road). Blackrock Consulting Ltd. was retained to prepare tender documents and to assist with tendering and contract administration. Draft tender documents were prepared in 2021 along with preliminary discussions with approval agencies, it is anticipated construction will commence in 2023.

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.

B8. Sylvestre Drive Sanitary Sewer Extension

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$285,000	**$0**	$2,211,900	$2,496,900
Estimated Landowner Recoveries (Sanitary Sewers): $1,324,400			

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. The installation of the sanitary sewers to service the properties identified within the study area is in keeping with Town's Water & Wastewater Master Plan, the Provincial Policy Statement, the County of Essex Official Plan, and the Town's Official Plan to provide full municipal services to those properties within designated Settlement Areas.

It was originally planned to obtain required approvals, prepare tender documents, obtain easements and undertake utility relocations in 2020 with construction tentatively planned to proceed in 2021. The County of Essex recently advised that future improvements to CR19 may commence in the next 5 to 10 years. The CR19 improvements will require the County to obtain a right of way widening over the area where the sanitary sewer easement is required. To obtain construction efficiencies and potentially avoid the need for the Town to obtain easements, it is beneficial to plan for this sanitary sewer construction when the CR19 improvements are completed. Accordingly, the potential construction of this project has tentatively been moved to beyond 2025. This schedule will be further updated in future Five Year Capital Works Plans as the County's schedule for the CR19 improvements is refined.

The project cost of $2,496,900 includes $1,114,000 for road works, $1,324,400 for sanitary sewers and $58,500 for storm sewers.

Estimated recoveries from landowners for the sanitary sewers would be approximately $1,324,400, with assessments to be calculated by Administration and invoiced back to the landowners by means of a Part XII by-law (Municipal Act, s.391).

In January 2022, Council authorized Administration to hold a Public Information Centre to communicate estimated changes to the property owners and to report back to Council with a summary of the comments for consideration in preparing the cost recovery by-law. A virtual PIC was held between March 24 and April 22, 2022. The results of the PIC and a final by-law will be brought forward to Council in a separate report for the consideration in early 2023.

Funding for this project was previously provided from the following:

- Road Lifecycle Reserve in the amount of $94,000
- Wastewater Sewers Reserve Fund in the amount of $186,800
- Storm Sewer Lifecycle Reserves in the amount of $4,200

- **Reference Reports:**

  - Report PWES No. 57/17, "2018-2022 Public Works & Environmental Services Capital Works Plan", December 12, 2017; Motion RCM-441/17.

  - Report PWES-2019-31, "Sylvestre Drive Sanitary Sewer Extension, Municipal Class Environmental Assessment, Schedule B – Filing the Notice of Study Completion", July 23, 2019; Motion RCM-232/19.

- Report PWES-2019-51, "Sylvestre Drive Sanitary Sewer Extension, Municipal Class Environmental Assessment, Schedule B – Study Completion and Final Adoption", December 10, 2019; Motion RCM-403/19.
- 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.

B9. Shoreline Management Plan

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$350,000	**$0**	$0	$350,000

In June 2018, Report PWES-2018-17 outlined the need for a Shoreline Management Plan as one of the recommended flood mitigation strategies. This Plan was subsequently incorporated within the 2020 5-year PWES Capital Works Plan. Thereafter, Zuzek Inc. was retained to complete the study.

The Shoreline Management Plan commenced in 2020 with public information centres held on October 29, 2020, April 20, 2021 and August 18, 2021. The Shoreline Management Plan generally includes the following components:

- Re-assessment of the 1:100-year Lake St. Clair flood elevations.
- A detailed shoreline property inventory including topographic information for each shoreline property within the Town of Tecumseh.
- Determination of vulnerable flood locations along the shoreline.
- Determination of extent of inland flooding based on lake water conveyance through vulnerable areas.
- Assessment of potential impacts of climate change.
- Assessment of lake flooding plus rain generated runoff (Integration with Dillon 2D Storm Drainage Master Plan model).
- Damage value estimates for public and private properties.
- High level conceptual mitigation measures that could be considered in the next phases of the study.

The study is expected to be finalized and reported to Council in early 2023. It is intended that the final report to Council will include a presentation by the study consultant.

Funding for this project was previously provided from the Storm Sewer Lifecycle Reserve in the amount of $350,000.

➢ **Reference Reports:**

- Report PWES-2018-17, "Flood Mitigation Strategy", June 26, 2018; Motion RCM-194/18.
- 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, 2022 Capital Works Projects", January 25, 2022; Motion RCM-23/22.

B10. Stormwater Rate Study

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$45,000	**$0**	$0	$45,000

In December 2019, Council authorized Administration to undertake a Stormwater Rate Study, the study was 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, which is nearing completion.

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.

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

Previously Approved	**Requested for 2023**	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.

During 2020, the Town acquired property for the MRSPA stormwater management facility. In addition, prior to completing the detailed design for the MRSPA stormwater facility, the previous 2015 Environmental Study Report and FSR must be updated to reflect the current storm design criteria as provided in the Windsor/Essex Region Stormwater Management Standards Manual (December 2018). This is anticipated to be completed in early 2023.

Options for cost recovery are currently being considered by Administration, and a future report will be brought forward to Council regarding cost recovery recommendations for this project.

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.

B12. Tecumseh Hamlet Environmental Assessment & Functional Servicing Report

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$805,000	**$0**	$0	$805,000

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 will incorporate the strategic priorities of growth and economic development as outlined within the May 5, 2022 SCM Presentation.

It is anticipated that the Tecumseh Hamlet Secondary Plan, along with the Class EA and Functional Servicing Report will be completed by early/mid 2023.

Funding for this project was previously provided from the following:

- Road Lifecycle Reserve in the amount of $98,000
- Watermain Reserve Fund in the amount of $98,000
- Wastewater Sewers Reserve Fund in the amount of $113,000
- Storm Sewer Lifecycle Reserve in the amount of $496,000

➢ **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.

B13. Centennial Drive & Woodridge Drive Watermain Replacement Project

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$3,500,000	**$0**	$0	$3,500,000
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. was retained in September 2022 to undertake detailed design, contract administration and inspection for the project. Detailed design will be undertaken in 2022 and 2023, with construction tentatively scheduled for 2025.

With the ICIP Green Stream II 2021 Intake funding allocations of $2,566,550, the Town's anticipated costs are $933,450 of the total $3.5M project cost.

Funding for this project was previously provided from the following:

- Watermain Reserve Fund in the amount of $3,500,000

➢ **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.

B14. Tecumseh Secondary Plan Area – Northwest Water & Wastewater Infrastructure Projects

Previously Approved	**Requested for 2023**	Future Costs	Total Project Costs
$1,020,000	**$0**	$12,941,300	$13,961,300

In June 2022, Council approved the recommendations of Report PWES-2022-27 that authorized Administration to add the Tecumseh Secondary Plan Area – 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).

It is anticipated that detailed engineering design will commence once the Tecumseh Hamlet Secondary Plan is completed in early 2023.

Funding for this project was previously provided from the following:

- Watermain Reserve Fund in the amount of $300,000
- Wastewater Sewer Reserve Fund in the amount of $720,000

➢ **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-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.

Section C: 2024-2027 Capital Projects

This section provides highlights of projects proposed for 2024-2027. 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.

➢ **2024: Roads Needs Study ($85,000)**

The Town utilizes a Road Needs Studies on a five-year basis to help prioritize road projects and gauge the Town's effectiveness in the replacement and rehabilitation strategies to date. The last Roads Needs Study was completed in 2019.

- **2024 & 2026: Bridge & Culvert Needs Study (Spans > 3m) ($45,000 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.

- **2024/2026: Tecumseh Hamlet Secondary Plan Area – Northwest Stormwater Management Ponds, Gouin & Lachance ($5,330,000)**

  The northwest area of the Tecumseh Hamlet was identified as a high priority for development to proceed at the May 5, 2022 Capital Priorities Presentation to Council. The design of the trunk sanitary and watermains was approved in late 2022. This project has been identified should the Town need to assist the development community in the design, construction and financing of the regional stormwater management ponds. These costs would also be recoverable from the development community.

- **2024-2028: County Road 19 Improvements ($4,225,000)**

  The County of Essex will commence the first phase of construction in 2023/2024 on CR19 from CR22 to south of Jamsyl Drive. The timing of construction and costs allocated to the Town for the subsequent phases are as follows:
  - 2026: Phase 2 Jamsyl to CP Rail – watermains ($2,730,000)
  - 2027: Phase 3 CP Rail Grade Separation – watermains ($520,000)
  - 2028: Phase 4 CP Rail to CR42 – watermains ($975,000)

- **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.

- **2025-2027: County Road 42 & County Road 43 Improvements ($882,000)**

  The County of Essex has commenced the first phase of construction in 2022 and it is anticipated to be completed Q4 2023. The timing of construction and costs to the Town for the subsequent phases are estimated as follows:
  - 2026: Phase 3 (CR42) – roads, sidewalks, bike lanes ($247,000)
  - 2027: Phase 4 (CR42) – sidewalks, bike lanes ($635,000)

- **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: Town Property Shoreline Protection Condition Assessment ($50,000)**

  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.

- **2026/2027: 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.

- **2027: Manning Road Improvements, Phase 3 ($8,369,980)**

  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+: Ure Street Sanitary Sewer Extension ($1,982,000)**

  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.

- **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.

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 54 active drainage projects that the Town is undertaking. These works include new municipal drains (4), maintenance of existing drains (16), drain improvements requiring an engineer's report (30) and apportionment agreements (4) 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 capital expenditures proposed for 2023 total just over $38.8M in addition to unfinished works carried forward from 2022, with a preliminary estimate of an additional $59.0M projected for future years.

Projects proposed are consistent with Council's adopted five-year strategic capital plan with the exception of some new projects added and the acceleration of some projects, totalling $17.9M over the five-year period.

New projects added include: A15 Public Works & Transportation North Building Improvements ($600,000), A16 Multi-Use Recreational Trails: Lesperance Road ($4,700,000), future phases of CR19 Improvements ($3,250,000) and future phases of CR42 & CR43 Improvement Project ($882,000).

Accelerated projects include: A10 Del Duca Drive Sanitary Sewer Extension ($5,404,700).

In addition, many project cost estimates have been increased to reflect recent inflationary pressures. Over the five-year period, inflationary costs totalling close to

$14M have been incorporated within the 2023-2027 Public Works & Engineering Services Five-Year Capital Works Plan.

Combined, estimated capital expenditure costs for the five-year period have increased by roughly $32M as compared to the projections made in May 2022 when Council adopted the five-year strategic capital plan.

Offsetting some of this increase, the province announced OCIF allocations for 2023 including $1.2M greater allocation for the Town than planned, 2021 Town Operating surpluses transferred to the Town's Infrastructure Reserve of $810,000, confirmed increase to RSIP grant of $205,000 and potential ATF grant funding of $2,616,000.

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

Generally speaking, 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 estimated at $15M (PWES-2021-03) over the course of a few years commencing in 2023.

Although three of the Town's capital funding reserve/reserve fund categories are either in, or soon-to-be in a deficit position, the Town's overall capital funding reserve/reserve funds are relatively healthy.

The recent volatility in construction costs, capacity constraints in the construction sector and unpredictability with supply chains may make for challenging times ahead. 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 capital projects occur in upcoming 2023 project tenders, alterations to capital plans may need to be considered.

Projected Lifecycle Reserve and Reserve Fund balances for 2023 are provided in Attachment 4.

Link to Strategic Priorities

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

Communications

Not applicable ☒

Website ☐ Social Media ☐ News Release ☐ Local Newspaper ☐

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

Prepared by:

Dana Reid
Public Works & Engineering Services Assistant

Reviewed by:

Tom Kitsos, CPA, CMA, BComm
Director Community Safety & Fire Chief

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 2023 Budget Allocations
2	2023-2027 PWES Five Year Capital Works Plan
3	Location Map of 2023 Projects
4	Lifecycle Reserve Summaries

Attachment 1
2023-2027 PWES Five Year Capital Works Plan

	Previously Approved	Requested for 2023	Future Costs	Total Costs
Sidewalk Projects				
1. Sidewalk Repair Program - Various Locations	$ -	**$ 400,000**	$ -	$ 400,000
Sub-Total	$ -	**$ 400,000**	$ -	$ 400,000
Grants:	$ -	**$ -**	$ -	$ -
Recoveries:	$ -	**$ -**	$ -	$ -
Sidewalk Lifecycle Reserve:	$ -	**$ 400,000**	$ -	$ 400,000
New Infrastructure				
1. Lesperance Road Trail (CR22 to CR42)	$ 137,500	**$ 2,661,250**	$ -	$ 2,798,750
2. Multi-Use Trails: Lesperance & Little River	$ -	**$ 4,360,000**	$ -	$ 4,360,000
Sub-Total:	$ 137,500	**$ 7,021,250**	$ -	$ 7,158,750
Grants:	$ -	**$ -**	$ 466,707	$ 466,707
Recoveries:	$ -	**$ -**	$ -	$ -
Infrastructure Reserve:	$ 137,500	**$ 7,021,250**	-$ 466,707	$ 6,692,043
Road Projects				
1. Road Paving - Asphalting	$ -	**$ 650,000**	$ -	$ 650,000
2. Road Paving - Crack Sealing	$ -	**$ 300,000**	$ -	$ 300,000
3. Public Works North Building Improvements	$ -	**$ 22,000**	$ 178,000	$ 200,000
4. Lesperance Rd Rehabilitation (McNorton to First)	$ -	**$ 340,000**	$ -	$ 340,000
5. Tecumseh Hamlet SPA EA FSR	$ 98,000	**$ -**	$ -	$ 98,000
6. Lesperance/VIA Rail Improvements	$ 3,746,000	**$ -**	$ -	$ 3,746,000
7. Sylvestre Drive Sanitary Sewer Extension	$ 94,000	**$ -**	$ 1,020,000	$ 1,114,000
8. Scully & St. Mark'sStorm PS/Riverside Drive	$ 1,528,000	**$ 572,000**	$ -	$ 2,100,000
9. Cty Rd 46/Webster/Laval Sanitary Sewer Extension	$ 120,750	**$ 2,082,750**		$ 2,203,500
# Del Duca Drive Sanitary Sewer	$ 117,450	**$ 2,036,450**	$ -	$ 2,153,900
# Annual Project Contingency	$ -	**$ 250,000**	$ -	$ 250,000
# County Road 46 Municipal Class EA	$ -	**$ 70,000**	$ -	$ 70,000
# PJ Cecile Storm Pump Station	$ 56,500	**$ 272,300**		$ 328,800
Sub-Total	$ 5,760,700	**$ 6,595,500**	$ 1,198,000	$ 13,554,200
Grants:	$ -	**$ -**		$ -
Recoveries:	$ -	**$ -**		$ -
Road Lifecycle Reserve:	$ 5,760,700	**$ 6,595,500**	$ 1,198,000	$ 13,554,200
Bridge Projects				
1. Culvert #42 - Snake Lane Road	$ 62,300	**$ 588,140**	$ -	$ 650,440
2. Culvert #53 - Snake Lane Road	$ 65,100	**$ 611,800**	$ -	$ 676,900
3. Culvert #54 - Snake Lane Road	$ 65,100	**$ 611,800**	$ -	$ 676,900
Sub-Total:	$ 192,500	**$ 1,811,740**	$ -	$ 2,004,240
Grants:	$ -	**$ -**	$ -	$ -
Recoveries:	$ -	**$ -**	$ -	$ -
Bridges Lifecycle Reserve:	$ 192,500	**$ 1,811,740**	$ -	$ 2,004,240

	Previously Approved	Requested for 2023	Future Costs	Total Costs
Water Projects				
1. Hwy3-CR34 Water Valve Replacement	$ 456,300	**$ -**	$ -	$ 456,300
2. Lesperance/VIA Rail Improvements	$ 79,100	**$ -**	$ -	$ 79,100
3. Tecumseh Hamlet SPA EA FSR	$ 98,000	**$ -**	$ -	$ 98,000
4. Cty Rd 46/Webster Laval Sanitary Sewer Exten.	$ 80,400	**$ 1,629,200**	$ -	$ 1,709,600
5. Del Duca Drive Sanitary Sewer	$ 8,550	**$ 27,350**	$ -	$ 35,900
6. CR42/43 Improvements Phase 1	$ 3,359,000	**$ -**	$ -	$ 3,359,000
7. TSPA Northwest W & WW Infrastructure (W-1)	$ 300,000	**$ -**	$ 3,773,400	$ 4,073,400
8. CR19 Improvements (CR22 to Jamsyl) (W-2B)	$ 758,000	**$ 264,000**	$ -	$ 1,022,000
9. 12th Concession Watermain Replacement	$ 247,900	**$ 32,100**	$ -	$ 280,000
# Centennial & Woodridge Watermain Replacements	$ 3,500,000	**$ -**	$ -	$ 3,500,000
# North Tecumseh Water Distribution Model	$ 70,000	**$ -**	$ -	$ 70,000
Sub-Total:	$ 8,957,250	**$ 1,952,650**	$ 3,773,400	$ 14,683,300
Grants:	$ -		$ 2,566,550	$ 2,566,550
Recoveries:	$ -	**$ -**	$ -	$ -
Watermain Reserve Fund:	$ 8,957,250	**$ 1,952,650**	$ 1,206,850	$ 12,116,750

TOWN OF TECUMSEH
2023 - 2027 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2023	2024	2025	2026	2027
Roads									
Paving	$ 5,750,000	$ -	$ -	$ 5,750,000	$ 950,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
Traffic Signal Controller Upgrade (w/ County) **CFWD**	$ 150,000	$ -	$ -	$ 150,000	$ 125,000				
Lesperance Road Rehabilitation (McNorton to First)	$ 290,000	$ 25,000	$ 25,000	$ 340,000	$ 20,000		$ 320,000		
Public Works North Building Improvements	$ 142,500	$ 17,500	$ 40,000	$ 200,000	$ 22,000	$ 178,000			
CR42/CR43 Phase 3 **CFWD**	$ 50,000	$ 10,000	$ 10,000	$ 70,000			$ 47,550		
Tecumseh Hamlet SPA EA FSR **CFWD**	$ -	$ 98,000	$ -	$ 98,000	$ 30,000				
Lesperance/VIA Rail Improvements **CFWD**	$ 1,456,800	$ 318,700	$ 73,800	$ 1,849,300	$ 1,850,000				
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	
Roads Needs Study	$ -	$ 85,000	$ -	$ 85,000		$ 85,000			
Scully & St Mark's Storm PS/Riverside Drive **CFWD+**	$ 1,600,000	$ 250,000	$ 250,000	$ 2,100,000	$ 100,000		$ 1,900,000		
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,870,000	$ 245,000	$ 88,500	$ 2,203,500	$ 10,000	$ 2,072,750			
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 1,900,000	$ 194,200	$ 59,700	$ 2,153,900	$ 30,000	$ 2,006,450			
Ure Street Sanitary Sewer (LRPCP)	$ 640,680	$ 115,320	$ 76,920	$ 833,000					$ 58,000
PJ Cecile Storm PS **CFWD+**	$ 234,000	$ 70,800	$ 24,000	$ 328,800	$ 60,000	$ 40,000			$ 228,800
County Road 46 Municipal Class EA	$ -	$ 70,000	$ -	$ 70,000	$ 70,000				
Annual Project Contingency	$ -	$ -	$ 1,250,000	$ 1,250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
	$ 21,843,560	$ 2,571,020	$ 2,228,720	$ 26,643,380	$ 3,517,000	$ 5,832,200	$ 3,717,550	$ 2,470,000	$ 9,459,180
Sidewalks/Pathways									
Sidewalk Repair Program	$ 676,000	$ -	$ -	$ 676,000	$ 400,000	$ 69,000	$ 69,000	$ 69,000	$ 69,000
AODA Sidewalk Ramp Repair	$ 100,000	$ -	$ -	$ 100,000					$ 100,000
Lesperance Road Trail (CR22 to CR42) **CFWD**	$ 2,400,000	$ 177,500	$ 221,250	$ 2,798,750	$ 50,000	$ 2,611,250			
Lesperance Road Trail (Riverside to First) & Little River	$ 3,625,000	$ 435,000	$ 300,000	$ 4,360,000	$ 225,000	$ 50,000	$ 4,085,000		
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 Rd Pathway Extension & Traffic Calming	$ 240,000	$ 36,000	$ 36,000	$ 312,000			$ 50,000	$ 262,000	
	$ 7,896,000	$ 704,750	$ 635,500	$ 9,236,250	$ 675,000	$ 2,730,250	$ 4,264,000	$ 850,500	$ 579,000
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									
Bridge & Culvert Condition Assessment (<3m Span)	$ -	$ 80,000	$ -	$ 80,000			$ 80,000		
Bridge & Culvert Needs Study (>3m Span)	$ -	$ 90,000	$ -	$ 90,000		$ 45,000		$ 45,000	
Culvert #42: Snake Lane Road **CFWD**	$ 499,440	$ 79,000	$ 72,000	$ 650,440	$ 588,140				
Culvert #53: Snake Lane Road **CFWD**	$ 591,000	$ 79,000	$ 72,000	$ 742,000	$ 676,900				
Culvert #54: Snake Lane Road **CFWD**	$ 591,000	$ 79,000	$ 72,000	$ 742,000	$ 676,900				
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		
	$ 1,931,440	$ 417,000	$ 226,000	$ 2,574,440	$ 1,941,940	$ 45,000	$ 350,000	$ 45,000	$ -

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TOWN OF TECUMSEH
2023 - 2027 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2023	2024	2025	2026	2027
Watermains									
Hwy3-CR34 Water Valve Replacement **CFWD**	$ 370,700	$ 30,000	$ 55,600	$ 456,300	$ 431,000				
Tecumseh Hamlet SPA EA FSR **CFWD**	$ -	$ 98,000	$ -	$ 98,000	$ 30,000				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,500,000	$ 154,000	$ 55,600	$ 1,709,600	$ 50,000	$ 1,579,200			
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 30,480	$ 4,100	$ 1,300	$ 35,900		$ 27,350			
CR42/43 Phase 1 (Water) **CFWD**	$ 2,895,000	$ 264,000	$ 200,000	$ 3,359,000	$ 3,227,000				
CR42/43 Phase 2 (Water) **CFWD**	$ 820,000	$ 120,000	$ 120,000	$ 1,060,000		$ 1,010,000			
TSPA Northwest W & WW Infrastructure (W-1) **CFWD**	$ 3,102,000	$ 536,700	$ 434,700	$ 4,073,400	$ 300,000	$ 2,830,050	$ 943,350		
CR19 Improvements Ph1: CR22 to Jamsyl (W-2B) **CFWD**	$ 846,000	$ 88,000	$ 88,000	$ 1,022,000	$ 50,000	$ 922,000			
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	
North Tecumseh Water Distribution Model	$ -	$ 70,000	$ -	$ 70,000	$ 70,000				
12th Concession Watermain Replacement **CFWD**	$ 218,000	$ 31,000	$ 31,000	$ 280,000	$ 255,000				
Centennial & Woodridge Watermain Replacements	$ 2,700,000	$ 400,000	$ 400,000	$ 3,500,000	$ 200,000		$ 3,300,000		
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ 100,000			$ 100,000		
	$ 15,732,180	$ 2,383,300	$ 1,873,700	$ 19,989,200	$ 4,613,000	$ 6,548,600	$ 4,388,350	$ 2,610,000	$ 475,000
Wastewater Projects									
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ 940,000	$ 290,400	$ 94,000	$ 1,324,400				$ 1,137,600	
Sylvestre Drive Sanitary PS - 2023 Improvements	$ 30,000	$ -	$ -	$ 30,000	$ 30,000				
Lakewood Sanitary PS - 2023 Improvements	$ 70,000	$ -	$ -	$ 70,000	$ 70,000				
Gauthier Sanitary PS - 2023 Improvements	$ 30,000	$ -	$ -	$ 30,000	$ 30,000				
Public Works North Building Improvements	$ 142,500	$ 17,500	$ 40,000	$ 200,000	$ 22,000	$ 178,000			
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 30,000	$ -	$ -	$ 30,000	$ 30,000				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 1,870,000	$ 170,000	$ 61,300	$ 2,101,300	$ 25,000	$ 1,909,600			
Scully & St Mark's Storm PS/Riverside Drive **CFWD+**	$ 485,000	$ 75,000	$ 75,000	$ 635,000	$ 20,000		$ 555,000		
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 1,100,000	$ 165,700	$ 51,000	$ 1,316,700	$ 60,000	$ 1,048,200			
Sanitary Sewer Model Update **CFWD+**	$ -	$ 345,000	$ -	$ 345,000					
CR42/43 Phase 1 (Wastewater) **CFWD**	$ 2,671,000	$ 246,000	$ 200,000	$ 3,117,000	$ 2,994,000				
Ure Street Sanitary Sewer (LRPCP)	$ 489,000	$ 88,080	$ 58,680	$ 636,000					$ 44,000
TSPA Northwest W & WW Infrastructure (WW-1 & WW-2)	$ 7,513,000	$ 1,338,700	$ 1,036,200	$ 9,887,900	$ 720,000	$ 6,875,925	$ 2,291,975		
MRSPA WW Infrastructure (WW-12 & WW-13)	$ 2,300,000	$ 345,000	$ 345,000	$ 2,990,000				$ 350,000	
8th Concession Sanitary Sewer By-Law	$ -	$ 45,000	$ -	$ 45,000	$ 45,000				
MECP Consolidated Linear Infrastructure ECA	$ -	$ 25,000	$ -	$ 25,000	$ 25,000				
Water/Wastewater Master Plan Update	$ -	$ 100,000	$ -	$ 100,000			$ 100,000		
	$ 17,670,500	$ 3,251,380	$ 1,961,180	$ 22,883,300	$ 4,071,000	$ 10,011,725	$ 2,946,975	$ 1,487,600	$ 44,000

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TOWN OF TECUMSEH
2023 - 2027 Public Works & Engineering Services Capital Works Plan

Note: Depicting Timing of Expenditures, not Budget Allocations

Infrastructure	Construction	Engineering	Contingency	Total	2023	2024	2025	2026	2027
Storm Sewers									
Manning Road Reconstruction - Phase 3 **CFWD**	$ 266,800	$ 42,000	$ 13,300	$ 322,100					$ 319,600
Public Works North Building Improvements	$ 142,500	$ 17,500	$ 40,000	$ 200,000	$ 22,000	$ 178,000			
Lesperance/VIA Rail Improvements **CFWD+**	$ 224,400	$ 47,300	$ 11,200	$ 282,900	$ 120,400				
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	$ -	$ 496,000	$ 50,000				
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 650,000	$ 62,000	$ 22,400	$ 734,400	$ 10,000	$ 647,000			
Scully & St Mark's Storm PS/Riverside Drive **CFWD+**	$ 16,500,000	$ 2,500,000	$ 1,600,000	$ 20,600,000	$ 7,000,000	$ 10,000,000	$ 2,600,000		
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 1,700,000	$ 151,600	$ 46,600	$ 1,898,200	$ 40,000	$ 1,668,350			
Shoreline Management Plan **CFWD**	$ -	$ 350,000	$ -	$ 350,000	$ 10,000				
Stormwater Rate Study	$ -	$ 45,000	$ -	$ 45,000	$ 5,000				
P.J. Cecile Storm PS *** CFWD+**	$ 8,079,600	$ 1,615,800	$ 1,615,800	$ 11,311,000	$ 1,600,000	$ 1,100,000	$ 3,700,000	$ 3,200,000	$ 1,711,000
Ure Street Sanitary Sewer (LRPCP)	$ 394,560	$ 71,040	$ 47,400	$ 513,000					$ 36,000
Breakwall Condition Assessment	$ -	$ 70,000	$ -	$ 70,000				$ 70,000	
MECP Consolidated Linear Infrastructure ECA	$ -	$ 25,000	$ -	$ 25,000	$ 25,000				
TSPA Northwest SWM Ponds (Gouin & Lachance)	$ 4,100,000	$ 615,000	$ 615,000	$ 5,330,000		$ 400,000		$ 4,930,000	
MRSPA SWM Infrastructure **CFWD**	$ 9,775,000	$ 1,660,000	$ 1,300,000	$ 12,735,000	$ 50,000		$ 500,000		$ 6,000,000
Tecumseh Storm Drainage Master Plan Update	$ -	$ 200,000	$ -	$ 200,000				$ 200,000	
	$ 41,876,360	$ 11,978,240	$ 5,316,700	$ 59,171,100	$ 8,932,400	$ 13,993,350	$ 6,800,000	$ 10,454,300	$ 10,066,600
TOTAL	**$ 107,260,040**	**$ 21,305,690**	**$ 12,241,800**	**$ 140,807,670**	**$ 23,750,340**	**$ 39,161,125**	**$ 22,466,875**	**$ 18,002,400**	**$ 20,848,780**

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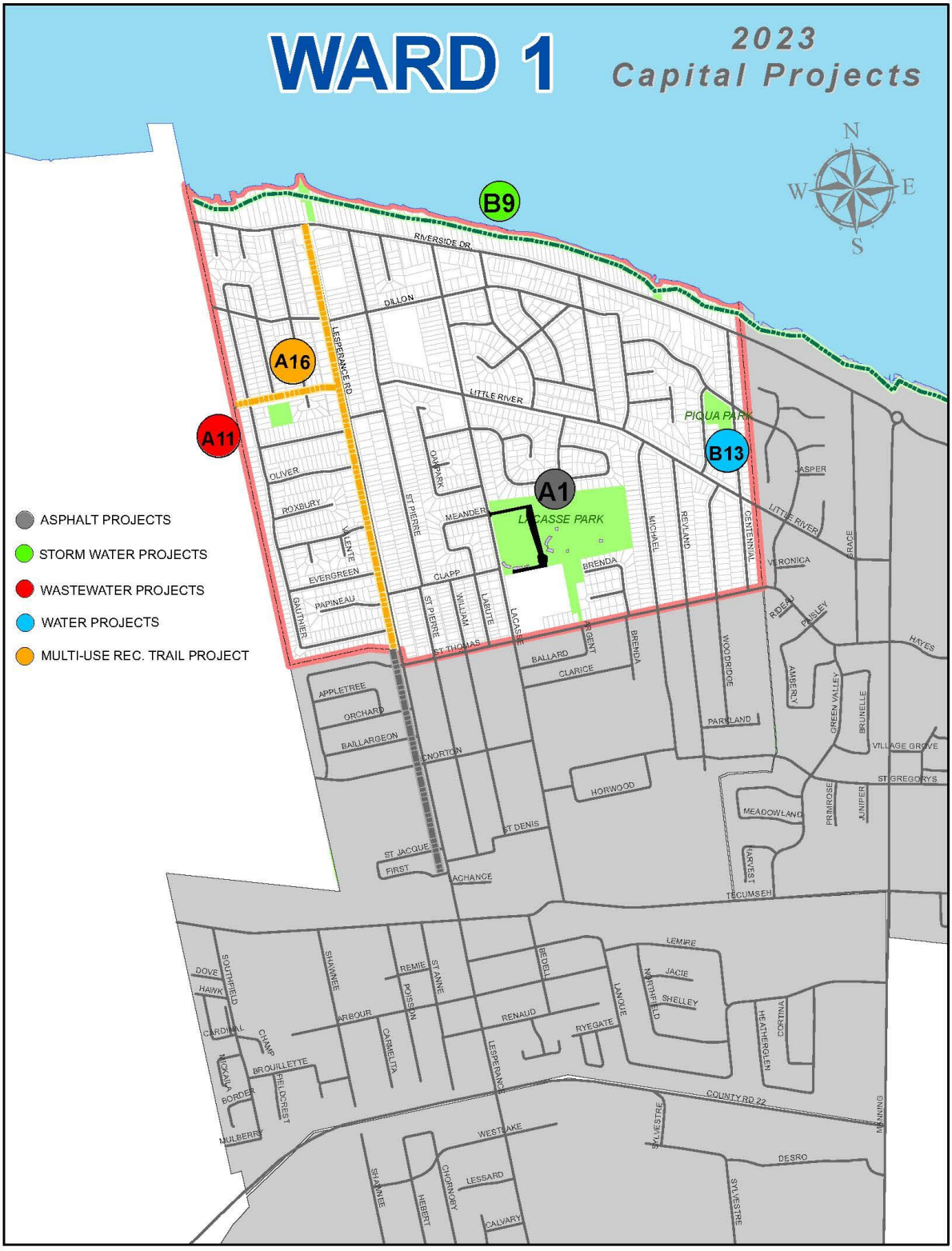

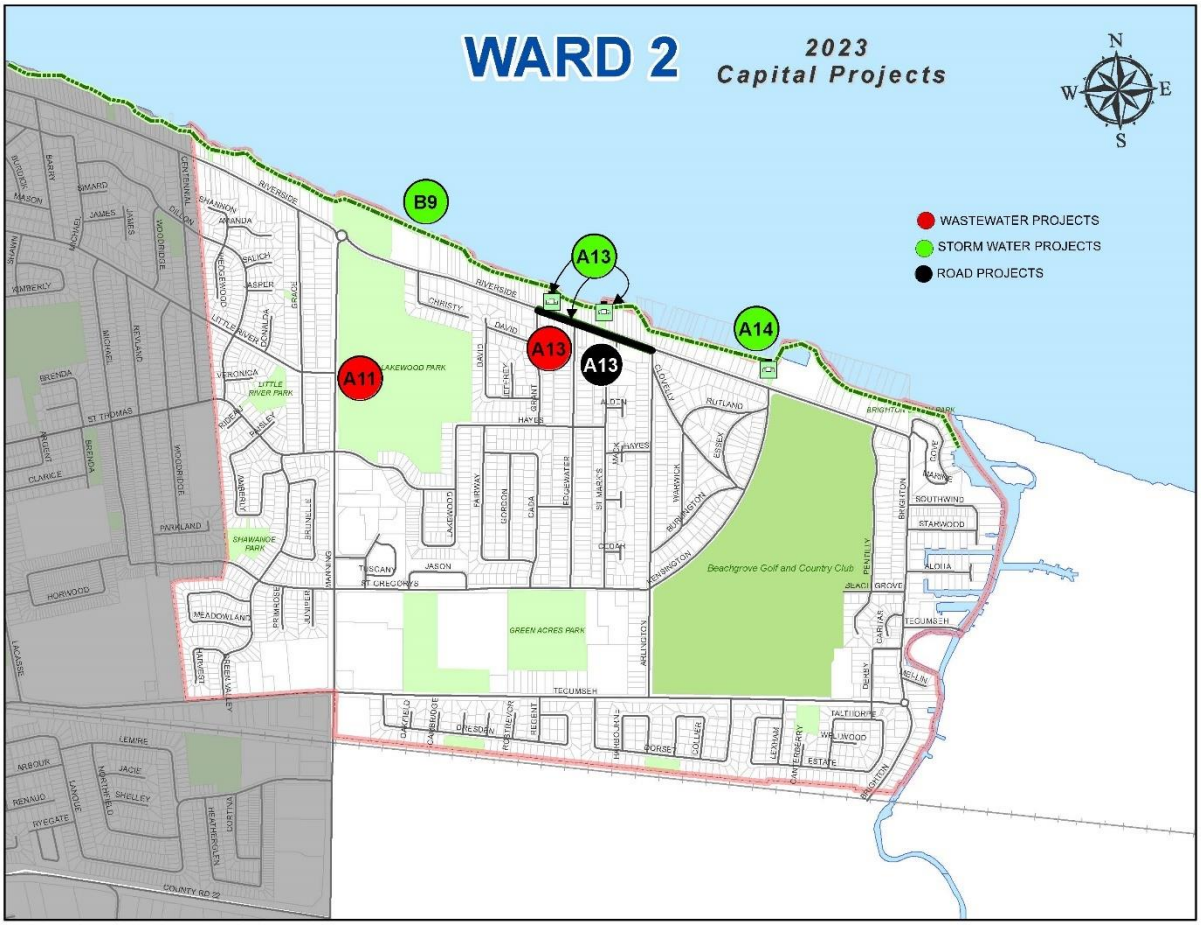

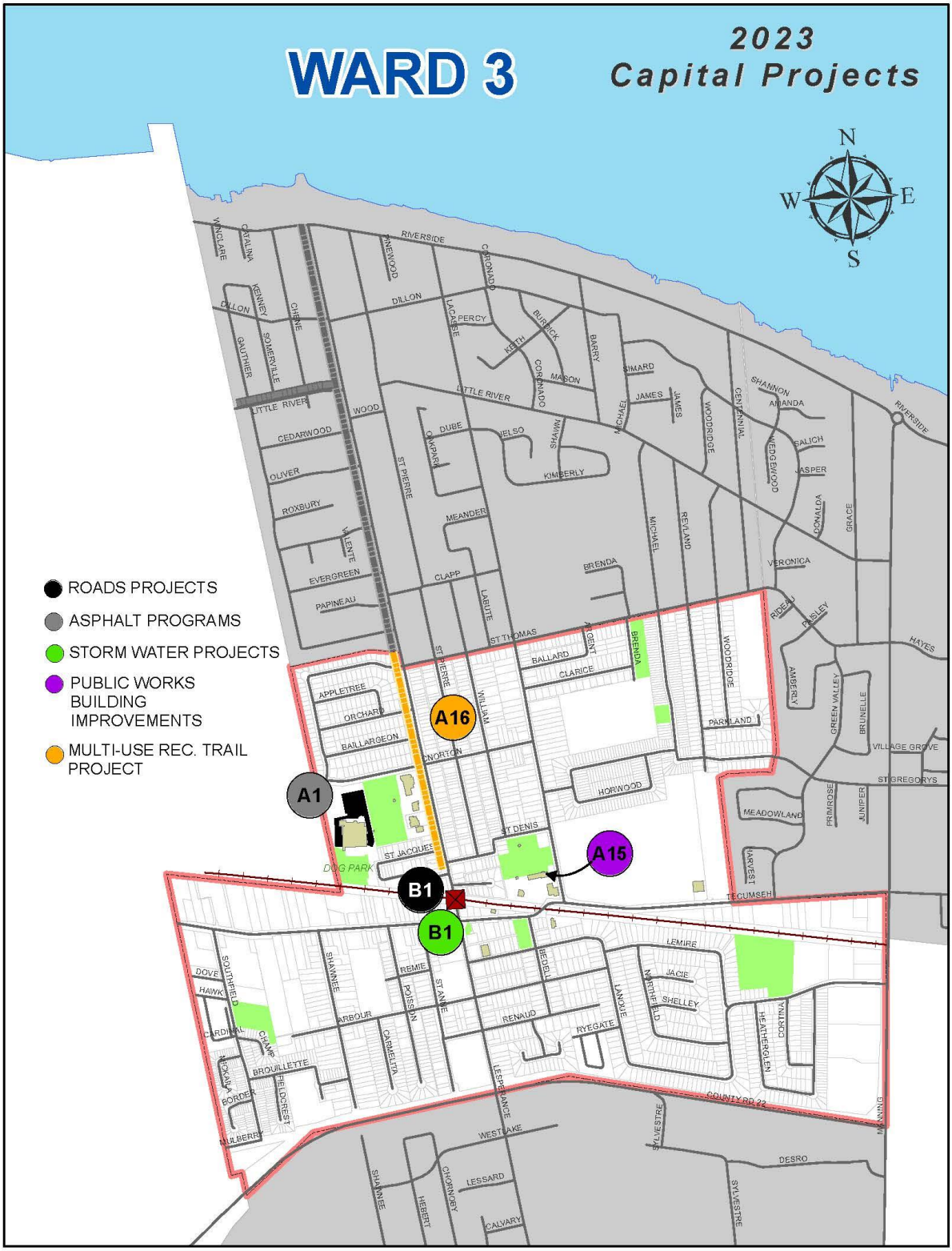

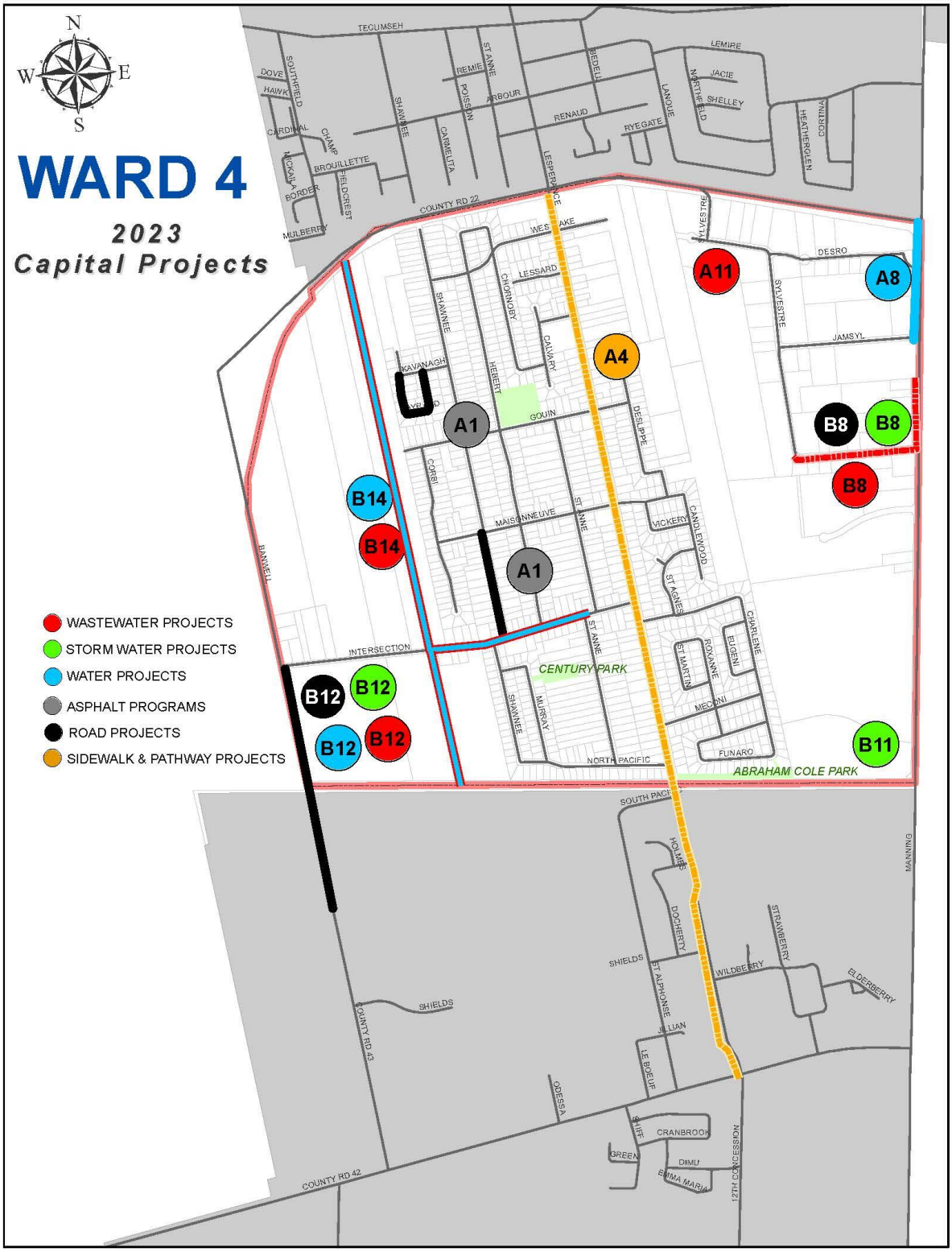

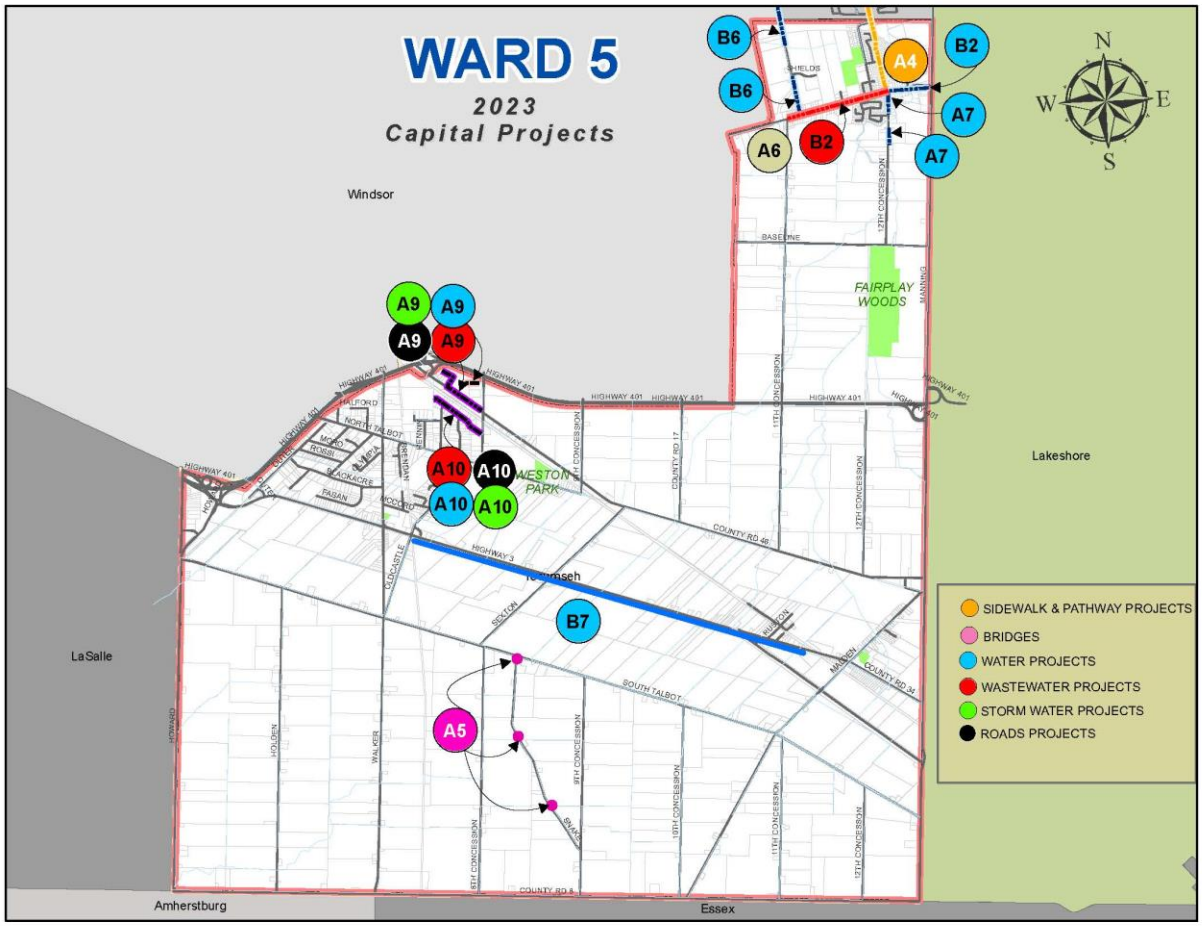

2023 Roads Lifecycle Reserve Projection

LC Road (1500)	2023	2024	2025	2026	2027
Reserve Balance Start of Year (estimated)	$ 10,877,000	$ 9,810,400	$ 9,006,300	$ 10,043,850	$ 11,511,950
Budget Allocation	$ 4,160,000	$ 4,160,000	$ 4,160,000	$ 4,160,000	$ 4,160,000
Funds Available	**$ 15,037,000**	**$ 13,970,400**	**$ 13,166,300**	**$ 14,203,850**	**$ 15,671,950**
Committed					
Project Engineer % share	$ 32,300	$ 32,900	$ 33,600	$ 34,300	$ 35,000
Capital Projects Manager % share	$ 34,100	$ 34,800	$ 35,500	$ 36,200	$ 36,900
ICS GIS Tech % share	$ 29,600	$ 30,200	$ 30,800	$ 31,400	$ 32,000
Traffic Signal Controller Upgrade (w/ County) **CFWD**	$ 125,000	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 130,000	$ -	$ -	$ -	$ -
Tecumseh Road Storm Sewer and Road Improvements	$ -	$ -	$ -	$ -	$ -
Lesperance/VIA Rail Improvements **CFWD**	$ 4,000,000	$ -	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive **CFWD**	$ 100,000	$ -	$ 1,328,000	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 50,000	$ -	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 125,000	$ -	$ -	$ -	$ -
PJ Cecile Storm PS **CFWD**	$ 56,500	$ -	$ -	$ -	$ -
Balance Committed	**$ 4,682,500**	**$ 97,900**	**$ 1,427,900**	**$ 101,900**	**$ 103,900**
Balance Uncommitted	**$ 10,354,500**	**$ 13,872,500**	**$ 11,738,400**	**$ 14,101,950**	**$ 15,568,050**
Proposed					
AVL System for vehicles (operating budget one-time item)	$ 10,000	$ -	$ -	$ -	$ -
Road Paving - Asphalting (Note 1)	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000	$ 1,200,000
Lesperance Road Rehabilitation (McNorton to First)	$ 20,000	$ -	$ 320,000	$ -	$ -
Public Works North Building Improvements	$ 66,000	$ 534,000	$ -	$ -	$ -
CR42/CR43 Phase 3 (Bike Lanes)	$ -	$ -	$ 47,550	$ -	$ -
Manning Road Reconstruction - Phase 3	$ -	$ -	$ -	$ -	$ 7,722,380
Sylvestre Drive Sanitary Sewer Extension	$ -	$ -	$ -	$ 1,020,000	$ -
Roads Needs Study	$ -	$ 85,000	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive (add'l funding)	$ -	$ -	$ 572,000	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP)	$ 10,000	$ 2,072,750	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP)	$ 30,000	$ 2,006,450	$ -	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 58,000
PJ Cecile Storm PS (add'l funding)	$ 3,500	$ 40,000	$ -	$ -	$ 228,800
County Road 46 Municipal Class EA	$ 70,000	$ -	$ -	$ -	$ -
Annual Project Contingency	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
Lesperance Rd Trail (Riverside to First and Little River)	$ 225,000	$ 50,000	$ 65,000	$ -	$ -
CR42/CR43 Phase 3 (Bike Lanes)	$ -	$ -	$ -	$ 120,000	$ -
CR42/CR43 Phase 4 (Bike Lanes)	$ -	$ -	$ -	$ -	$ 225,000
Balance Proposed	**$ 1,884,500**	**$ 6,238,200**	**$ 2,454,550**	**$ 2,590,000**	**$ 9,684,180**
Non Lifecycle Funding					
Storm Sewer Lifecycle Reserve re: PW North Building	$ 22,000	$ 178,000	$ -	$ -	$ -
Wastewater Sewers Reserve Fund re: PW North Building	$ 22,000	$ 178,000	$ -	$ -	$ -
RSIP Grant	$ 1,232,400	$ -	$ -	$ -	$ -
DMAF Grant	$ 64,000	$ 16,000	$ 760,000	$ -	$ 91,500
CCBF Grant	$ -	$ 1,000,000	$ -	$ -	$ 2,000,000
CWATS	$ -	$ -	$ -	$ -	$ 525,000
County Connecting Link Agreement	$ -	$ -	$ -	$ -	$ 1,295,000
Total Non-Lifecycle Funding	**$ 1,340,400**	**$ 1,372,000**	**$ 760,000**	**$ -**	**$ 3,911,500**
Balance Available	**$ 9,810,400**	**$ 9,006,300**	**$ 10,043,850**	**$ 11,511,950**	**$ 9,795,370**

Notes:

1) General allowance for asphalting

2023 Bridges Lifecycle Reserve Projection

LC Bridges (1660)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 1,128,500	$ 821,560	$ 1,211,560	$ 1,296,560	$ 1,686,560
Budget Allocation	$ 435,000	$ 435,000	$ 435,000	$ 435,000	$ 435,000
Funds Available	**$ 1,563,500**	**$ 1,256,560**	**$ 1,646,560**	**$ 1,731,560**	**$ 2,121,560**
Committed					
	$ -	$ -	$ -	$ -	$ -
Balance Committed	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 1,563,500**	**$ 1,256,560**	**$ 1,646,560**	**$ 1,731,560**	**$ 2,121,560**
Proposed					
Bridge & Culvert Condition Assessment (<3m Span)	$ -	$ -	$ 80,000	$ -	$ -
Bridge/Culvert Needs Study (>3m)	$ -	$ 45,000	$ -	$ 45,000	$ -
Culvert #42: Snake Lane Road	$ 588,140	$ -	$ -	$ -	$ -
Culvert #53: Snake Lane Road	$ 676,900	$ -	$ -	$ -	$ -
Culvert #54: Snake Lane Road	$ 676,900	$ -	$ -	$ -	$ -
Roadside Safety Improvements - Bridge #1010	$ -	$ -	$ 70,000	$ -	$ -
Lakewood Park Pedestrian Bridge	$ -	$ -	$ 200,000	$ -	$ -
Balance Proposed	**$ 1,941,940**	**$ 45,000**	**$ 350,000**	**$ 45,000**	**$ -**
Non Lifecycle Funding					
CCBF Grant	$ 1,200,000	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ 1,200,000**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 821,560**	**$ 1,211,560**	**$ 1,296,560**	**$ 1,686,560**	**$ 2,121,560**

2023 Sidewalks Lifecycle Reserve Projection

LC Sidewalk (1550)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 452,000	$ 126,000	$ 597,707	$ 492,707	$ (318,793)
Budget Allocation	$ 74,000	$ 74,000	$ 74,000	$ 74,000	$ 74,000
Funds Available	**$ 526,000**	**$ 200,000**	**$ 671,707**	**$ 566,707**	**$ (244,793)**
Committed					
Lesperance Road Trail (CR22 to CR42) **CFWD**	$ 50,000	$ -	$ -	$ -	$ -
Balance Committed	**$ 50,000**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 476,000**	**$ 200,000**	**$ 671,707**	**$ 566,707**	**$ (244,793)**
Proposed					
Sidewalk Repair Program (Note 1)	$ 400,000	$ 69,000	$ 69,000	$ 69,000	$ 69,000
AODA Sidewalk Ramp Repair	$ -	$ -	$ -	$ -	$ 100,000
Lesperance Road Trail (CR22 to CR42) **CFWD**	$ -	$ 2,611,250	$ -	$ -	$ -
Lesperance Road Trail (Riverside to First) & Little River	$ 225,000	$ 50,000	$ 4,085,000	$ -	$ -
Riverside Drive East Pathway Improvements	$ -	$ -	$ 60,000	$ 427,500	$ -
CR42/CR43 Phase 3 (Sidewalks)	$ -	$ -	$ -	$ 127,000	$ -
CR42/CR43 Phase 4 (Sidewalks)	$ -	$ -	$ -	$ -	$ 410,000
Brighton Rd Pathway Extension & Traffic Calming	$ -	$ -	$ 50,000	$ 262,000	$ -
Balance Proposed	**$ 625,000**	**$ 2,730,250**	**$ 4,264,000**	**$ 885,500**	**$ 579,000**
Non Lifecycle Funding					
Grant funding - ICIP Transit	$ -	$ 466,707	$ -	$ -	$ -
Infrastructure Reserve	$ 275,000	$ 2,661,250	$ 4,085,000	$ -	$ -
Total Non-Lifecycle Funding	**$ 275,000**	**$ 3,127,957**	**$ 4,085,000**	**$ -**	**$ -**
Balance Available	**$ 126,000**	**$ 597,707**	**$ 492,707**	**$ (318,793)**	**$ (823,793)**

Notes:

1) General allowance

2023 Storm Lifecycle Reserve Projection

LC Storm Sewer (1650)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 61,600	$ (7,124,500)	$ (17,373,050)	$ (18,969,450)	$ (25,841,550)
Budget Allocation	$ 1,352,700	$ 1,352,700	$ 1,352,700	$ 1,352,700	$ 1,252,700
Funds Available	**$ 1,414,300**	**$ (5,771,800)**	**$ (16,020,350)**	**$ (17,616,750)**	**$ (24,588,850)**
Committed					
Project Engineer % share	$ 32,300	$ 32,900	$ 33,600	$ 34,300	$ 35,000
Capital Projects Manager % share	$ 34,100	$ 34,800	$ 35,500	$ 36,200	$ 36,900
Manning Road Reconstruction - Phase 3 **CFWD**	$ -	$ -	$ -	$ -	$ 319,600
Lesperance/VIA Rail Improvements **CFWD+**	$ 120,400	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 150,000	$ -	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive **CFWD+**	$ 7,000,000	$ 7,107,000	$ -	$ -	$ -
Shoreline Management Plan **CFWD**	$ 10,000	$ -	$ -	$ -	$ -
Stormwater Rate Study **CFWD**	$ 5,000	$ -	$ -	$ -	$ -
P.J. Cecile Storm PS * **CFWD+**	$ 1,600,000	$ 343,500	$ -	$ -	$ -
MRSPA SWM Infrastructure **CFWD**	$ 1,480,000	$ -	$ -	$ -	$ -
Balance Committed	**$ 10,431,800**	**$ 7,518,200**	**$ 69,100**	**$ 70,500**	**$ 391,500**
Balance Uncommitted	**$ (9,017,500)**	**$ (13,290,000)**	**$ (16,089,450)**	**$ (17,687,250)**	**$ (24,980,350)**
Proposed					
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ -	$ -	$ -	$ 54,300	$ -
Oldcastle Storm Master Plan - Property/Easements	$ -	$ -	$ -	$ 2,000,000	$ 2,000,000
CR46/Webster/Laval Sanitary Sewer(LRPCP) **(Construction)**	$ 10,000	$ 647,000	$ -	$ -	$ -
Scully & St Mark's Storm PS/Riverside Drive (**Add'l Funding**)	$ -	$ 2,893,000	$ 2,600,000	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ 40,000	$ 1,668,350	$ -	$ -	$ -
P.J. Cecile Storm PS * **CFWD+** (Construction)	$ -	$ 756,500	$ 3,700,000	$ 3,200,000	$ 1,711,000
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 36,000
Breakwall Condition Assessment	$ -	$ -	$ -	$ 50,000	$ -
MECP Consolidated Linear Infrastructure ECA	$ 25,000	$ -	$ -	$ -	$ -
TSPA Northwest SWM Ponds (Gouin & Lachance)	$ -	$ 400,000	$ -	$ 4,930,000	$ -
MRSPA SWM Infrastructure **CFWD**	$ 50,000	$ -	$ 500,000	$ -	$ 6,000,000
Tecumseh Storm Drainage Master Plan Update	$ -	$ -	$ -	$ 200,000	$ -
Storm Sewer Lifecycle Reserve re: PW North Building	$ 22,000	$ 178,000	$ -	$ -	$ -
Balance Proposed	**$ 147,000**	**$ 6,542,850**	**$ 6,800,000**	**$ 10,434,300**	**$ 9,747,000**
Non Lifecycle Funding					
DMAF Grant	$ -	$ 1,459,800	$ 2,520,000	$ 1,280,000	$ 684,400
Transfers from Infrastructure Reserve	$ 1,000,000	$ -	$ -	$ -	
Estimated Landowner Recoveries	$ 40,000	$ -	$ 400,000	$ -	$ 4,800,000
OCIF Grant	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Total Non-Lifecycle Funding	**$ 2,040,000**	**$ 2,459,800**	**$ 3,920,000**	**$ 2,280,000**	**$ 6,484,400**
Balance Available	**$ (7,124,500)**	**$ (17,373,050)**	**$ (18,969,450)**	**$ (25,841,550)**	**$ (28,242,950)**

2023 Wastewater Sewers Reserve Fund Projection

RF Wastewater Sewers (2550)	2023	2024	2025	2026	2027
Reserve Balance Start of Year (Estimated)	$ 3,419,800	$ 1,468,724	$ (3,303,401)	$ (3,902,976)	$ (1,736,876)
Estimated Allocation	$ 2,172,900	$ 2,326,500	$ 2,396,300	$ 2,468,200	$ 2,542,200
Estimated Interest	$ 103,000	$ 44,000	$ (99,000)	$ (117,000)	$ (52,000)
Development Charges	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Funds Available	**$ 5,845,700**	**$ 3,989,224**	**$ (856,101)**	**$ (1,401,776)**	**$ 903,324**
Committed					
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 120,000	$ -	$ -	$ -	$ -
Scully & St. Mark's Storm PS/Riverside Drive **CFWD**	$ 20,000	$ -	$ 335,000	$ -	$ -
CR42/43 Phase 1 (Wastewater) **CFWD**	$ 3,069,000	$ -	$ -	$ -	$ -
Ure Street Sanitary Sewer (LRPCP)	$ -	$ -	$ -	$ -	$ 44,000
TSPA Northwest W & WW Infrastructure (WW-1 & WW-2) **CFWD**	$ 720,000	$ -	$ -	$ -	$ -
8th Concession Sanitary Sewer By-Law **CFWD**	$ 45,000	$ -	$ -	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 50,000	$ -	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD**	$ 125,000	$ -	$ -	$ -	$ -
IT GIS Tech % Share	$ 29,624	$ 30,200	$ 30,800	$ 31,400	$ 32,000
Project Engineer % Share	$ 32,266	$ 32,900	$ 33,600	$ 34,300	$ 35,000
Capital Projects Manager	$ 34,086	$ 34,800	$ 35,500	$ 36,200	$ 36,900
Balance Committed	**$ 4,244,976**	**$ 97,900**	**$ 434,900**	**$ 101,900**	**$ 147,900**
Balance Uncommitted	**$ 1,600,724**	**$ 3,891,324**	**$ (1,291,001)**	**$ (1,503,676)**	**$ 755,424**
Proposed					
Sylvestre Drive Sanitary Sewer Extension **CFWD**	$ -	$ -	$ -	$ 1,207,600	$ -
Wastewater Sewers Reserve Fund re: PW North Building	$ 22,000	$ 178,000	$ -	$ -	$ -
CR46/Webster/Laval Sanitary Sewer(LRPCP) - (Construction)	$ 25,000	$ 1,909,600	$ -	$ -	$ -
Scully & St. Mark's Storm PS/Riverside Drive **CFWD (**Add'l Funding**)**	$ -	$ -	$ 220,000	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) - (Construction)	$ 60,000	$ 1,048,200	$ -	$ -	$ -
TSPA Northwest W & WW Infrastructure (WW-1 & WW-2)	$ -	$ 6,875,925	$ 2,291,975	$ -	$ -
MRSPA WW Infrastructure (WW-12 & WW-13)	$ -	$ -	$ -	$ 350,000	$ -
MECP Consolidated Linear Infrastructure ECA	$ 25,000	$ -	$ -	$ -	$ -
Water/Wastewater Master Plan Update	$ -	$ -	$ 100,000	$ -	$ -
Balance Proposed	**$ 132,000**	**$ 10,011,725**	**$ 2,611,975**	**$ 1,557,600**	**$ -**
Non Lifecycle Funding					
Estimated Recoveries from Landowners - Sylvestre Drive	$ -	$ -	$ -	$ 1,324,400	$ -
Estimated Recoveries from Landowners - CR46/Webster/Laval	$ -	$ 1,767,000	$ -	$ -	$ -
Estimated Recoveries from Landowners - Delduca Drive	$ -	$ 1,050,000	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ -**	**$ 2,817,000**	**$ -**	**$ 1,324,400**	**$ -**
Balance Available	**$ 1,468,724**	**$ (3,303,401)**	**$ (3,902,976)**	**$ (1,736,876)**	**$ 755,424**

2023 Wastewater Facilities Reserve Fund Projection

RF Wastewater Facilities (2560)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 3,080,900	$ 3,493,300	$ 4,048,100	$ 4,619,500	$ 5,208,100
Estimated Allocation	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000
Estimated Interest	$ 92,400	$ 104,800	$ 121,400	$ 138,600	$ 156,200
Funds Available	**$ 3,623,300**	**$ 4,048,100**	**$ 4,619,500**	**$ 5,208,100**	**$ 5,814,300**
Committed					
	$ -	$ -	$ -	$ -	$ -
Balance Committed	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 3,623,300**	**$ 4,048,100**	**$ 4,619,500**	**$ 5,208,100**	**$ 5,814,300**
Proposed					
Sylvestre Drive Sanitary PS Improvements	$ 30,000	$ -	$ -	$ -	$ -
Lakewood Sanitary PS Improvements	$ 70,000	$ -	$ -	$ -	$ -
Gauthier Sanitary Pump Station	$ 30,000	$ -	$ -	$ -	$ -
Balance Proposed	**$ 130,000**	**$ -**	**$ -**	**$ -**	**$ -**
Non Lifecycle Funding					
	$ -	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 3,493,300**	**$ 4,048,100**	**$ 4,619,500**	**$ 5,208,100**	**$ 5,814,300**

2023 Watermain Reserve Fund Projection

RF Watermain (2520)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 6,877,800	$ 4,143,769	$ (582,831)	$ (820,691)	$ (1,655,191)
Estimated Allocation	$ 1,672,400	$ 1,746,000	$ 1,798,400	$ 1,852,400	$ 1,908,000
Estimated Interest	$ 206,300	$ 124,300	$ (17,500)	$ (24,600)	$ (49,700)
Development Charges	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Funds Available	**$ 8,806,500**	**$ 6,064,069**	**$ 1,248,069**	**$ 1,057,109**	**$ 253,109**
Committed					
Hwy3-CR34 Water Valve Replacement **CFWD**	$ 431,000	$ -	$ -	$ -	$ -
Tecumseh Hamlet SPA EA FSR **CFWD**	$ 130,000	$ -	$ -	$ -	$ -
CR42/43 Phase 1 (Wastewater) **CFWD**	$ 3,227,000	$ -	$ -	$ -	$ -
CR42/43 Phase 2 (Wastewater) **CFWD**	$ -	$ 328,800	$ -	$ -	$ -
TSPA Northwest W & WW Infrastructure (W-1) **CFWD**	$ 300,000	$ -	$ -	$ -	$ -
CR19 Improvements Ph1: CR22 to Jamsyl (W-2B) **CFWD**	$ 50,000	$ 658,000	$ -	$ -	$ -
North Tecumseh Water Distribution Model	$ 70,000	$ -	$ -	$ -	$ -
12th Concession Watermain Replacement **CFWD**	$ 222,900	$ -	$ -	$ -	$ -
Centennial & Woodbridge Watermain Replacements	$ 200,000	$ -	$ 3,300,000	$ -	$ -
IT GIS Tech % Share	$ 29,624	$ 30,200	$ 30,800	$ 31,400	$ 32,000
Project engineer % Share	$ 32,681	$ 33,300	$ 34,000	$ 34,700	$ 35,400
Capital Projects Manager % Share	$ 34,086	$ 34,800	$ 35,500	$ 36,200	$ 36,900
Balance Committed	**$ 4,727,291**	**$ 1,085,100**	**$ 3,400,300**	**$ 102,300**	**$ 104,300**
Balance Uncommitted	**$ 4,079,209**	**$ 4,978,969**	**$ (2,152,231)**	**$ 954,809**	**$ 148,809**
Proposed					
CR46/Webster/Laval Sanitary Sewer(LRPCP) **CFWD**	$ 50,000	$ 1,579,200	$ -	$ -	$ -
Delduca Drive Sanitary Sewer (LRPCP) **CFWD+**	$ -	$ 27,350	$ -	$ -	$ -
CR42/43 Phase 2 (Wastewater) **CFWD** (Add'l Funding)		$ 681,200			
TSPA Northwest W & WW Infrastructure (W-1) **CFWD**	$ -	$ 2,830,050	$ 943,350	$ -	$ -
CR19 Improvements Ph1: CR22 to Jamsyl (W-2B) **CFWD**	$ -	$ 264,000	$ -	$ -	$ -
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	$ -
12th Concession Watermain Replacement	$ 32,100	$ -	$ -	$ -	$ -
Water/Wastewater Master Plan Update	$ -	$ -	$ 100,000	$ -	$ -
Balance Proposed	**$ 82,100**	**$ 5,561,800**	**$ 1,088,350**	**$ 2,610,000**	**$ 475,000**
Non Lifecycle Funding					
ICIP Green Stream II 2021 Intake funding	$ 146,660	$ -	$ 2,419,890	$ -	$ -
Total Non-Lifecycle Funding	**$ 146,660**	**$ -**	**$ 2,419,890**	**$ -**	**$ -**
Balance Available	**$ 4,143,769**	**$ (582,831)**	**$ (820,691)**	**$ (1,655,191)**	**$ (326,191)**

2023 Water Facilities Reserve Fund Projection

RF Water Facilities (2530)	2023	2024	2025	2026	2027
Reserve Balance Start of Year	$ 7,977,600	$ 8,089,900	$ 7,493,100	$ 7,972,300	$ (215,000)
Estimated Allocation	$ 223,000	$ 247,000	$ 254,400	$ 262,000	$ 269,900
Estimated Interest	$ 239,300	$ 242,700	$ 224,800	$ 239,200	$ (6,500)
Funds Available	**$ 8,439,900**	**$ 8,579,600**	**$ 7,972,300**	**$ 8,473,500**	**$ 48,400**
Committed					
	$ -	$ -	$ -	$ -	$ -
Balance Committed	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Uncommitted	**$ 8,439,900**	**$ 8,579,600**	**$ 7,972,300**	**$ 8,473,500**	**$ 48,400**
Proposed					
Zone 2 Water Booster/Storage Site Select (W-9,10)	$ 350,000	$ -	$ -	$ -	$ -
Zone 2 Booster Station (W-9)	$ -	$ 399,500	$ -	$ 2,925,500	$ -
Zone 2 Water Storage Facility (W-10)	$ -	$ 687,000	$ -	$ 5,763,000	$ -
Balance Proposed	**$ 350,000**	**$ 1,086,500**	**$ -**	**$ 8,688,500**	**$ -**
Non Lifecycle Funding					
	$ -	$ -	$ -	$ -	$ -
Total Non-Lifecycle Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Balance Available	**$ 8,089,900**	**$ 7,493,100**	**$ 7,972,300**	**$ (215,000)**	**$ 48,400**

Appendix 7 Continual Improvement Report

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:

[ ]
[ ]
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[ ]
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[ ]

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

Page **1** of **1**

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	

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