

**The Corporation of the Town of Pelham  
Drinking Water Distribution System**

# **Quality Management System**

## **Operational Plan**



Town of Pelham  
20 Pelham Town Square  
P. O. Box 400  
Fonthill, Ontario  
L0S 1E0

Revision #13    25 March 2021

This Operational Plan (OP) contains information associated with the management and operation of the Town of Pelham’s municipal drinking water distribution systems. The plan is limited to the management and operation of the Town’s own water distribution system and does not include any process or procedures relating to private property, or to water treatment process, facilities or transmission/trunk mains owned and operated by the Regional Municipality of Niagara.

This OP has been developed in accordance with applicable provincial legislation relating to the Safe Drinking Water Act.

**References**

Director’s Directions: Minimum Requirements for Operational Plans, July 2007, as amended

Drinking-Water Systems; Ontario Regulation 170/03, as amended

Drinking Water Quality Management Standard Final – Version 2.0 February 2017; Ministry of Environment, as amended

Potential Hazardous Events for Municipal Residential Drinking Water Systems to Consider in the DWQMS Risk Assessment, February 2017

Safe Drinking-Water Act; R.S.O. 2002, as amended

**Revision Table**

<b>Revision Number</b>	<b>Date</b>	<b>Nature of Revisions</b>	<b>By</b>
0-4	2009 through December 2013	--	-
5	February 2016	Re-working of entire document to update to new processes, legislative changes and updates to staffing and operational effectiveness.	-
6	May 24, 2017	<ul style="list-style-type: none"> <li>• Updated references to procedures (PRO vs. PROC found within elements 12, 13, 16, 18) in response to Internal Audit finding 2016-IA-02</li> <li>• Revised Elements 2, 8, 14, 19 to remove duplicated/ unnecessary verbiage.</li> <li>• Revised layout of the Operational Plan (removed columns).</li> <li>• Updated the organizational chart to clarify the Operating Authority in response to findings (DWQMS)-05 and 2016-IA-11.</li> <li>• Updated the title of the “Lead Hand” to “Supervisor of Water &amp; Wastewater</li> </ul>	-

		<ul style="list-style-type: none"> <li>• Clarified the QMS Representative's responsibilities associated with Management Review, in response to external audit finding, as identified within QMS PROC 020 Management Review</li> <li>• General text editing throughout Operational Plan</li> </ul>	
7	18 January 2018	<ul style="list-style-type: none"> <li>• Updated Element 6 in response to 2017-IA-02 and staff observation regarding description of the source water treatment process; updated length of watermain as per conversation with R.C; Flow schematic updated to identify booster station and isolation valves</li> <li>• Clarified Section 10 as part of response to 2017-IA-04 OFI</li> <li>• Revision table updated to meet the requirements of QMS PROC 005</li> </ul>	A.C
8	6 April 2018	<ul style="list-style-type: none"> <li>• Updated Element 15 to include details of booster station maintenance agreement with Region of Niagara (addresses 2017-IA-05 and 2017 Infrastructure Review action item)</li> <li>• Updated Element 6 reference to MOU with Region of Niagara, as it was endorsed in April 2017.</li> <li>• Removed references to Appendix A and B, as all procedures and lists are referenced within the Operational Plan.</li> <li>• Updated the page numbering to match all other procedures and SOPs (i.e., x of x format).</li> </ul>	A.C
9	9 October 2018	<ul style="list-style-type: none"> <li>• Included reference to DWQMS V. 2.0, 2017 and Ministry Risk Assessment Hazards document.</li> <li>• Clarified QMS Policy locations (Element 2), commitment and endorsement requirements (Element 3), how disinfection residuals are maintained (Element 6), authorities of the MPW (Element 9, and process for tracking competencies (Element 10).</li> <li>• Element 21 updated to document process for managing best management practices, corrective and preventive actions.</li> </ul>	R.C
10	28 February 2019	<ul style="list-style-type: none"> <li>• Update to Element 3 to include Top Management Endorsement within the Operational Plan.</li> </ul>	R.C.

		<ul style="list-style-type: none"> <li>Updated CAO authorities and included responsibility and authority of the Senior Management Team (SMT)</li> </ul>	
11	23 January 2020	Revised: <ul style="list-style-type: none"> <li>Element 2 QMS policy electronic location</li> <li>Element 3 to document the process for ensuring OA awareness and tracking of QMS applicable legislative and regulatory requirements (in response to internal audit 2018-OFI-18).</li> <li>Element 6 clarification of Public Works as OA</li> <li>Removal of records and emergency plan bylaw references (also in appropriate QMS PROC)</li> <li>General editing throughout</li> </ul>	R.C.
12	9 February 2021	<ul style="list-style-type: none"> <li>Attributed Element 9 Engineering Group watermain commissioning responsibilities to Water Operator and MPW as a result of the 2020 Annual Calibration.</li> <li>Included Appendices A and B to support Elements 3 and 4, respectively.</li> <li>Revised reference from QMS PROC 026 to QMS FORM 005 replacement</li> </ul>	R.C.
13	25 March 2021	<ul style="list-style-type: none"> <li>Updated Appendix A to reflect most recent endorsement (22-Mar-2021)</li> <li>Updated reference to Emergency Procedure / Form – Adverse Water Quality (QMS FORM 017)</li> </ul>	R.C.

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**Element 1, Quality Management System**

The *Safe Drinking Water Act (2002)* specifies the requirements for a Municipal Drinking Water Licensing Program, including requirements for the acquisition of a license to manage and operate a drinking water system. The development, implementation and accreditation of a Quality Management System (QMS), and the documentation of a corresponding Operational Plan, are key components of this licensing program.

The QMS OP is based on the DWQMS and documents the Town's QMS. Accreditation of the QMS by a third-party Accreditation Body is a requirement of the licensing program; within these accreditation audits, the Accreditation Body seeks to assess the Town's level of conformance with the requirements of the DWQMS.

The Town of Pelham's Quality Management System Operational Plan has been written in accordance with the requirements of the Drinking Water Quality Management Standard Version 2.0, February 2017.

This OP describes a summary of mechanisms in place to support the requirements of the DWQMS, and is supported by several procedures, documents, lists and forms, which are referenced within this OP.

**Element 2, Quality Management System Policy**

The Pelham Distribution System QMS Policy has been documented in S801-01.

The QMS Policy is posted at the Town of Pelham Operations Centre and is also available for viewing at the Town of Pelham Municipal Offices.

The Policy is also communicated to the public through a posting on the Town's [website](#), and is available upon request.

**Element 3, Commitment and Endorsement**

The Operational Plan shall be re-endorsed by the Town of Pelham Owner (Mayor & Council) via resolution to coincide with each new Council term (refer to Appendix A for the most recent endorsement); a copy of the Council resolution shall be kept together with the Operational Plan hardcopy at Town Hall. Throughout each Council's term, Council shall also be kept informed of updates and the core processes in place in the Town's QMS through the Town's infrastructure review and long-term planning process, Management Review, and annual regulatory reporting. Operating Authority (OA) Top Management endorsement can be found directly below. Minor updates to the Operational Plan do not require Owner re-endorsement. Significant changes to Pelham Distribution System (e.g., addition of disinfection equipment, change in Ownership of the Pressure Boosting Station) resulting in changes to the Operational Plan will be endorsed by the Owner.

  
\_\_\_\_\_  
Jason Marr, Director of Public Works      Date      FEB. 9/2021

  
\_\_\_\_\_  
Ryan Cook, Manager of Public Works      Date      Feb. 9/2021

The OA ensures awareness of all applicable legislative and regulatory requirements as a result of:

- Ministry inspections and other communication such as emails, memos, etc.
- Area Municipal QMS/Compliance Working Group (i.e., Regional QMS Representative quarterly meetings),
- Association (e.g., Ontario Municipal Water Association [OMWA] / Municipal Water and Wastewater Regulatory Committee [MWWRC]) communication including conferences and training, etc.

Relevant changes are discussed during Management Review and communicated via the Annual Report. Tracking of actions related to new and proposed legislation is done via Corrective Action QMS LIST 0006.

**Element 4, Quality Management System Representative**

The Manager of Public Works has been appointed as the QMS Representative for the Town of Pelham's QMS, and through the endorsement of this Operational Plan, has been authorized to carry out all the responsibilities associated with this role.

In addition to the other aspects and duties of his role, the QMS Representative is responsible for all items described under Element 9.

Refer to Appendix B for the Appointment Memo.

### **Element 5, Document and Records Control**

The Document and Records Control Procedure 'QMS PROC 005' has been developed to outline processes for control of documentation and records within the scope of the QMS. This procedure describes how documents are kept current and how documents and records are kept legible and identifiable, retrieved, stored, protected, retained and disposed of.

### **Element 6, Drinking Water System**

#### **Ownership**

The Pelham Distribution System is owned by the Corporation of the Town of Pelham.

#### **Operating Authority**

The Pelham Distribution System is operated by staff employed by the Corporation of the Town of Pelham's Public Works Department.

#### **System Description**

The Pelham Distribution System is a Class 2 water distribution subsystem. The system consists of approximately 84.5 km of watermain varying in size from 50mm to 400mm diameter providing water to approximately 12,000 residents within the general urban area.

The service area is approximately 14 km<sup>2</sup> and includes the Villages of Fonthill, Ridgeville and Fenwick. Drawing WTM-01, General Plan, maintained by the Engineering group, illustrates the extent and features of the distribution system and the limits of the service area.

The Pelham Distribution System receives treated drinking water from the Welland Water Treatment Plant (WTP) located on Cross Street in the City of Welland. The treatment plant is owned and operated by the Regional Municipality of Niagara. The plant receives its raw water from the Welland Recreational Canal. Treated water is transmitted to the Town by way of a 750mm diameter watermain to the Shoalts Drive Reservoir. The reservoir, which includes chlorination, is also Regionally-owned and operated. Water enters the Pelham Distribution System at the reservoir outlet. A memorandum of understanding for the supply of drinking water between the Regional Municipality of Niagara and the Town of Pelham was endorsed in April 2016 by the Director, Water and Wastewater Services (Regional Municipality of Niagara), and the Director of Public Works (Town of Pelham).

A short leg of watermain owned and operated by the City of Welland is geographically in road owned and operated by the Town of Pelham. The watermain and its appurtenances are not under ownership or authority of the Town of Pelham. Services from that main are billed from the City of Welland.

### System Components

The distribution system has been continuously expanded to allow for urban development and additions to the service areas. The system consists of the following components (also shown on System General Plan) – numbers are approximate:

- (1) Watermain (approximately 84.5 km)
- (2) Fire hydrants = 506
- (3) Valves = 591
- (4) Service connections = 4728
- (5) Pressure reducing valves = 8 (operated by the Region of Niagara)
- (6) Pressure boosting station = 1 (serving Chestnut Ridge area; owned by the Town of Pelham, maintenance and operation has been contracted to the Region of Niagara)

### System Pressure

The system operating pressure varies greatly throughout the service area due to the topography, and static pressure ranges from approximately 40 psi to 100 psi.

### Water Source

The Pelham Distribution System receives all its water from the Welland WTP located on Cross Street in the City of Welland which is owned and operated by the Regional Municipality of Niagara. As such, The Pelham Distribution System relies upon the water originating from the Welland WTP by the Regional Municipality of Niagara to ensure the provision of safe drinking water. Primary disinfection is achieved by way of chlorination and ultraviolet light as enhancement, which renders any remaining potentially pathogenic organisms harmless. Secondary disinfection by way of chlorination at the Shoalts Drive Reservoir occurs prior to water being distributed to the Pelham Distribution System. The Town of Pelham maintains disinfection residuals through the flushing program; see QMS PROC 016 Sampling, Testing and Monitoring Procedure for details.

Treated water from the plant is transported by way of a 750mm diameter watermain to the Shoalts Drive Reservoir in Fontheil. The reservoir directs water to the Pelham Distribution System by way of 2 connections:

- (1) a 300mm diameter watermain to the Pelham Elevated Tank (owned and operated by the Regional Municipality of Niagara) at #177 Highway #20 West and
- (2) a 400mm direct connection to the Pelham Distribution System at Woodstream Boulevard.

The system relies on the ability of both the Welland WTP to supply water to the Shoalts Drive Reservoir and the reservoir to supply water to the Pelham Distribution System.

### Common Event Driven Fluctuations and Resulting Operational Challenges

There are no common event-driven fluctuations or resulting operational challenges or threats concerning the water source.

### Connected Systems

The Pelham Distribution System is also connected to the Welland Distribution System which is owned and operated by the City of Welland. There are 3 connections between the 2 systems however these connections are controlled by valves which have been set in their off positions since 1970. These connections are historical in nature as the supply source of water to the new urban areas developing in south and west Fonthill in the 1950s when this area was serviced by the Welland Water Works Commission. At that time, it was considered a single system.

### Process Flow Chart

The following figures show the process flow chart for the Town of Pelham water distribution system, along with a general schematic of the system.

Figure 1 General schematic for the Town of Pelham water distribution system

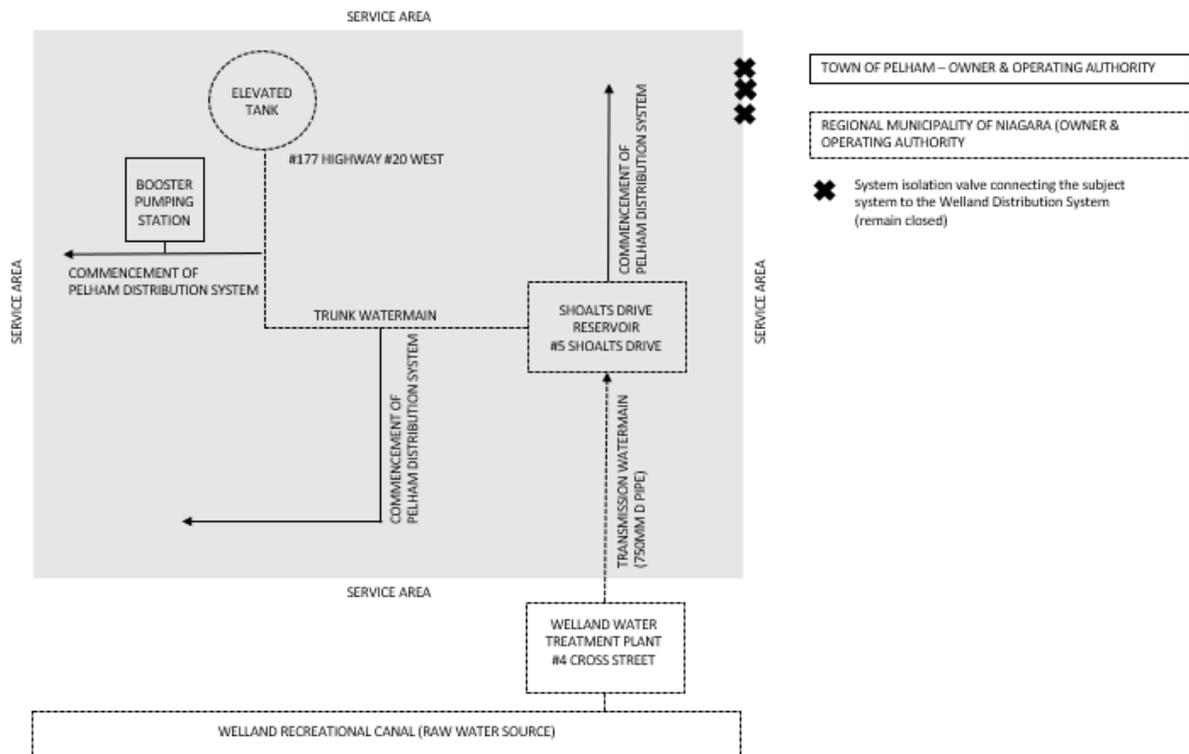
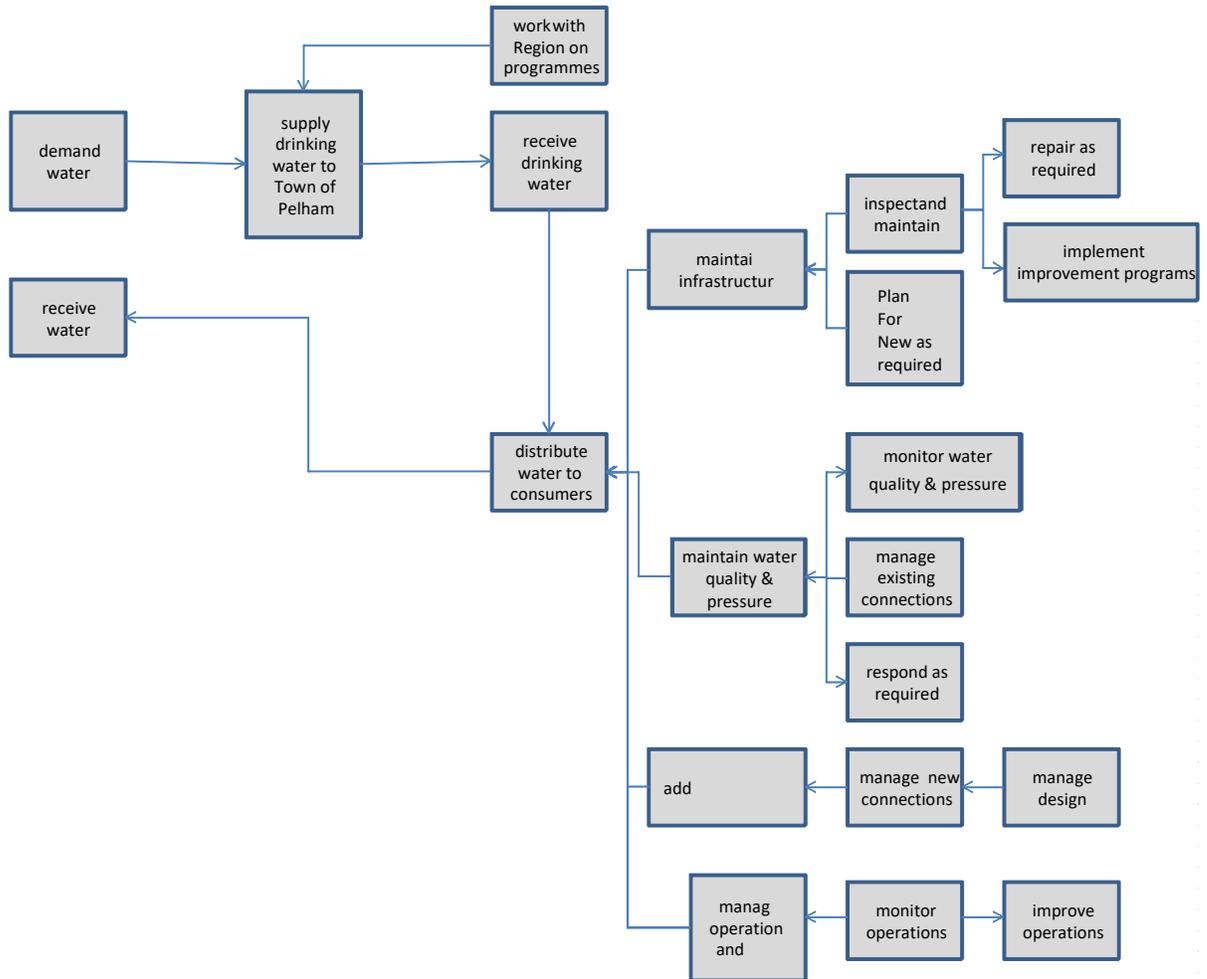


Figure 2 Process Flow Chart for the Town of Pelham water distribution system



**Element 7, Risk Assessment**

The Town has developed a Risk Assessment Procedure 'QMS PROC 007' that outlines the process followed by the OA in completing risk assessments of the drinking water system.

**Element 8, Risk Assessment Outcomes**

Risk Assessment Outcomes are detailed within the Risk Assessment Outcomes List QMS LIST 001. Within the results table, Critical Control Points are identified along with their corresponding Critical Control Limits and procedures.

Procedures for monitoring, reporting, recording deviation and response are in place for many hazards identified, to respond to occurrences.

**Element 9, Organizational Structure, Roles, Responsibilities and Authorities**

Roles, responsibilities and authorities of the Owner, OA personnel, and personnel providing support services to the QMS (i.e., Engineering Group and Administrative Assistant) are shown in the tables below, and within Figure 3. Organizational charts for the Corporation in general are maintained through the Human Resources Department.

**Mayor and Council (Owner)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Endorse Town's QMS.</li> <li>• Approve operational and capital budgets.</li> <li>• Ensure provision of safe drinking water, compliance with applicable legislation and regulations and continual improvement of the QMS.</li> </ul>	<ul style="list-style-type: none"> <li>• To act on behalf of the Corporation of the Town of Pelham to ensure the continual supply of safe drinking water.</li> <li>• To allocate necessary resources to ensure provision of safe drinking water, compliance with applicable legislation and regulations and continual improvement of the QMS.</li> </ul>

**Chief Administrative Officer (CAO)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Oversight of Top Management to ensure the provision of safe drinking water, compliance with applicable legislation and the continual improvement of the QMS.</li> <li>• Review of operational and capital budgets relating to the distribution system.</li> <li>• Liaise between Top Management and the Owner.</li> </ul>	<ul style="list-style-type: none"> <li>• Final approval of proposed budgets from Director of Public Works to be considered by Council.</li> <li>• May delegate responsibilities as required.</li> </ul>

**Senior Management Team (SMT; members include CAO, Fire Chief, Town Clerk, Director of Public Works, Director of Corporate Services, Director of Recreation, Culture and Wellness, Director of Community Planning and Development)**

Responsibilities	Authorities
<ul style="list-style-type: none"> <li>• Review of operational and capital budgets relating to the distribution system</li> </ul>	<ul style="list-style-type: none"> <li>• Review and approval of proposed budgets from DPW to be approved by CAO</li> </ul>

**Director of Public Works (DPW) - (Top Management)**

Responsibilities	Authorities
<ul style="list-style-type: none"> <li>• SMT Member</li> <li>• Oversight of water distribution systems and QMS.</li> <li>• Determine departmental priorities based on findings of infrastructure review.</li> <li>• Participate in Management Reviews.</li> <li>• Report and make recommendations to Council with respect to the distribution systems and QMS.</li> <li>• Prepare operational and capital budgets and provide resources necessary to operate and maintain drinking water.</li> <li>• Ensure conformance with applicable legislation and regulations.</li> </ul>	<ul style="list-style-type: none"> <li>• Make financial and administrative recommendations to Mayor and Council, through the SMT and CAO.</li> <li>• Allocate provided resources.</li> <li>• Hire personnel with approval from Chief Administrative Officer (CAO) and assistance from the Director of Human Resources.</li> <li>• Approve changes to the QMS.</li> <li>• Create and edit QMS documents.</li> <li>• May delegate responsibilities as required.</li> </ul>

**Manager of Public Works (MPW) - (Top Management)**

Responsibilities	Authorities
<ul style="list-style-type: none"> <li>• Oversee water division operations and expenditures.</li> <li>• Approve commissioning of new distribution system infrastructure.</li> <li>• Oversee water main commissioning process to ensure conformance to Town's Operations Quality Standards.</li> <li>• Report issues to the DPW as necessary.</li> <li>• Ensure compliance with applicable legislation and regulations and conformance to QMS.</li> <li>• Participate in infrastructure and Management Reviews.</li> <li>• Overall Responsible Operator (ORO)</li> </ul>	<ul style="list-style-type: none"> <li>• Manage Supervisor of Water &amp; Wastewater and Water Operators.</li> <li>• Make recommendations for improvement of operational programs, capital projects and QMS.</li> <li>• Approve commissioning of new infrastructure.</li> <li>• Approve changes to the QMS.</li> <li>• Create and edit QMS documents.</li> <li>• May delegate responsibilities as required.</li> </ul>

**Supervisor of Water & Wastewater (SWW)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Direct daily operations related to water and oversee activities ensuring conformance with applicable policies, procedures and current regulatory requirements.</li> <li>• Respond to after-hours emergencies when on-call.</li> <li>• Participate in infrastructure review.</li> <li>• Operator In Charge (OIC) as designated, alternate ORO.</li> </ul>	<ul style="list-style-type: none"> <li>• Schedule and direct daily operation and maintenance activities.</li> <li>• Make recommendations for improvement of operational effectiveness and efficiency.</li> <li>• May delegate responsibilities as required.</li> </ul>

**QMS Representative**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Administer the QMS by ensuring that processes and procedures needed for the QMS are established and maintained.</li> <li>• Report to Top Management on the performance of the QMS and any need for improvement.</li> <li>• Ensure that current versions of documents required by the QMS are being used at all times.</li> <li>• Ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the system.</li> <li>• Promote awareness of the QMS throughout the Town.</li> <li>• Organize and convene Management Review.</li> </ul>	<ul style="list-style-type: none"> <li>• Make recommendations with respect to improvement of the QMS.</li> <li>• Create and edit QMS documents.</li> <li>• May delegate responsibilities as required.</li> </ul>

**Water Operator**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Perform duties in accordance with QMS policies and procedures and in accordance with current regulatory requirements.</li> <li>• Perform routine distribution system water quality sampling and field testing.</li> <li>• Complete repairs to the water distribution systems.</li> <li>• Oversee work undertaken on the active distribution systems by external contractors.</li> </ul>	<ul style="list-style-type: none"> <li>• Operate and maintain the distribution system infrastructure.</li> </ul>

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Complete appropriate logs and records.</li> <li>• OIC as designated, alternate ORO</li> <li>• Confirm water main commissioning process to ensure conformance to Town's Operations Quality Standards.</li> </ul>	

**Engineering Group (considered a support service to the Operating Authority)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Update and maintain Town Municipal Design Standards for distribution system.</li> <li>• Update and maintain master servicing plans for the water distribution system.</li> <li>• Provide project management services in regard to water distribution system infrastructure works.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommend changes to Design Standards to Top Management.</li> <li>• Make amendments to water servicing plans for water distributions systems as required.</li> <li>• Update distribution system infrastructure databases.</li> </ul>

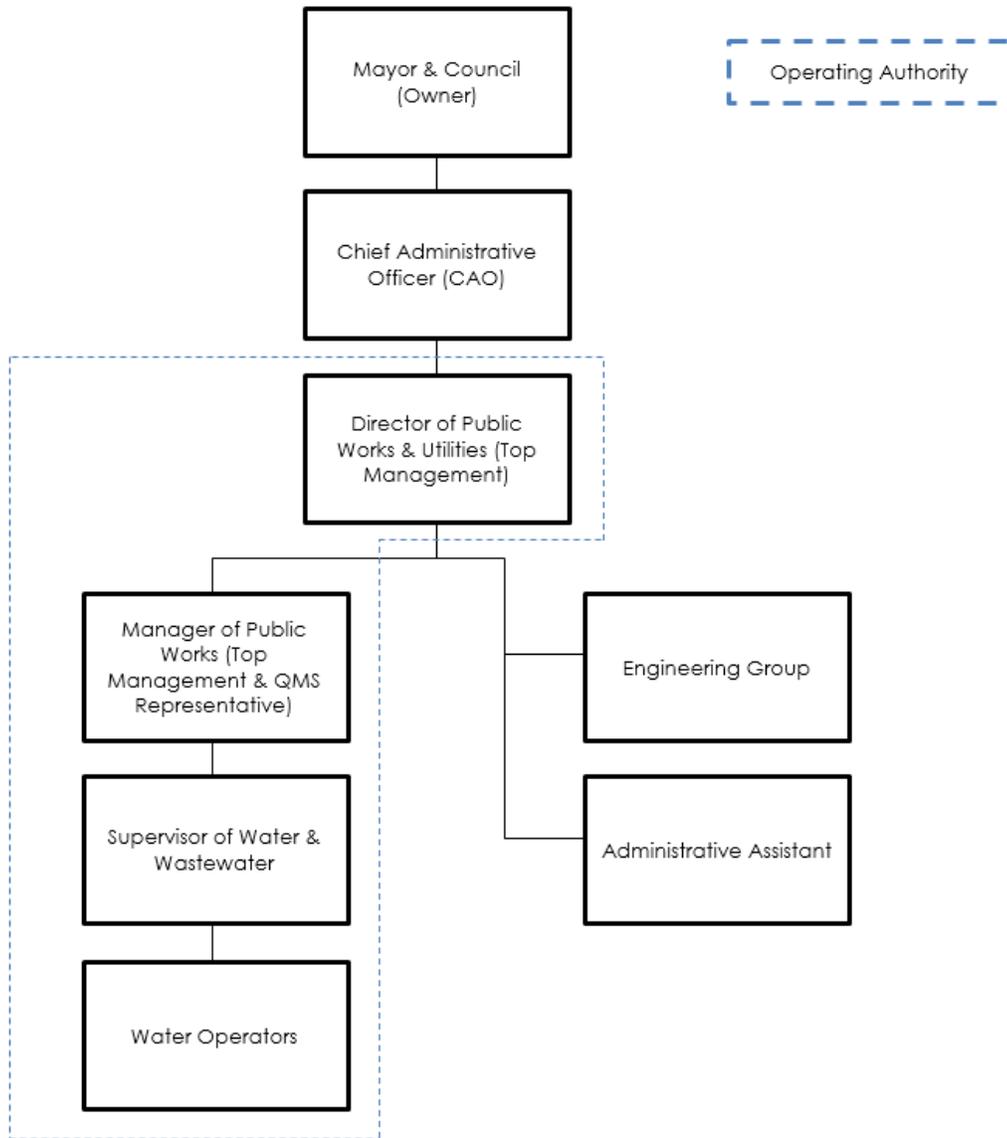
**QMS Auditor (internal or external) (not on Figure)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Perform internal audits as prescribed.</li> <li>• Notify Town staff of non-conformances as required.</li> </ul>	<ul style="list-style-type: none"> <li>• Review the QMS and report on non-conformances and opportunities for improvement in the QMS.</li> </ul>

**Public Works Administrative Assistant (considered a support service to the Operating Authority)**

<b>Responsibilities</b>	<b>Authorities</b>
<ul style="list-style-type: none"> <li>• Assist in ensuring that current versions of documents required by the QMS are being used at all times.</li> <li>• Maintain and track records of competencies of personnel with duties directly affecting drinking water.</li> </ul>	<ul style="list-style-type: none"> <li>• Release information and communication as required.</li> </ul>

Figure 3 – Organizational reporting structure for water system relevant personnel.



**Element 10, Staff Competencies**

Competencies for operational personnel whose duties directly affect drinking water quality are described below.

Role	Required Competencies
Director Public Works	<ul style="list-style-type: none"> <li>• Licensed Professional Engineer or Graduation from a recognized College or Technical Institute with an Advanced Diploma in Civil Engineering Technology.</li> <li>• Certification by Professional Engineers Ontario.</li> <li>• Minimum ten (10) years work related experience.</li> <li>• Valid Class “G” drivers licence.</li> <li>• Thorough understanding of DWQMS and QMS</li> </ul>
Manager of Public Works	<ul style="list-style-type: none"> <li>• Licensed Professional Engineer or Graduation from a recognized College, Technical Institute or University, with an Advanced Diploma in Civil Engineering Technology or equivalent.</li> <li>• Minimum seven (7) years work related experience.</li> <li>• Valid Class “G” drivers licence.</li> <li>• Class II Water Distribution System certification.</li> <li>• Understanding of DWQMS and QMS</li> </ul>
Supervisor Water & Wastewater	<ul style="list-style-type: none"> <li>• Class II Water Distribution System certification.</li> <li>• Minimum four (4) years operations experience.</li> <li>• Confined space entry training.</li> <li>• Valid Class “G” drivers licence.</li> </ul>
Water Operators	<ul style="list-style-type: none"> <li>• Class II Water Distribution System certification (or plans to work towards this certification).</li> <li>• Confined space entry training.</li> <li>• Valid Class “G” drivers licence.</li> </ul>

Required competencies for operational personnel are fulfilled by the following:

- Candidates applying for positions within the OA are interviewed and assessed based on technical knowledge and personnel skills relevant to that specific position. Reference checks are completed prior to hiring all new personnel.
- Records of competencies of personnel with duties directly affecting drinking water shall be maintained by the Public Works Administrative Assistant or designate
- QMS awareness training is provided to new operations personnel whose duties may directly affect drinking water. The OP is reviewed with the new personnel and his/her leader, or the QMS Representative, or the Director of Public Works & Utilities. This training covers the relevance of duties and how they affect drinking water quality. Records of awareness training

shall be recorded using 'QMS FORM 016 On-the-Job Training Report'. Relevance of staff duties that can affect safe drinking water is communicated during the review of the OP, in this section and in roles and responsibilities.

- Regular training is provided to all operations personnel whose duties may directly affect drinking water, to ensure core competencies are maintained and that as a minimum, the training requirements of applicable regulations are satisfied. Types of training include off-site training by technical experts or trained professionals and on-the-job orientation and training by experienced staff. The Administrative Assistant of Public Works or designate tracks all certification and all certification-related training information for operations personnel and, together with the MPW, facilitates the licensing process. External training is tracked in individual excel Training Files on the Public Works Drive. All hardcopy external training certificates are maintained in operator-specific training file folders. All on-the-job training conducted for Public Works personnel (e.g., DWQMS Awareness, on-the-job SOP training, emergency response review sessions) is documented using 'QMS FORM 016 On-the-Job Training Report' with copies maintained in the Tice Road filing cabinet and tracked in the excel Training Files.

#### **Element 11, Personnel Coverage**

'QMS PROC 011' Personnel Coverage Procedure and 'QMS SOP 004' Overtime Call-In Procedure (step 7.) have been developed describing how the Town ensures sufficient personnel are available for duties that directly affect drinking water.

#### **Element 12, Communications**

The QMS for the Pelham Distribution System requires that OA Top Management communicate relevant aspects of the QMS to various parties. This is outlined in the Communication Procedure 'QMS PROC 021'.

#### **Element 13, Essential Supplies and Services**

The Essential Supplies and Services Procedure 'QMS PROC 013' describes the procedure in place for ensuring the procurement and quality of essential supplies and services.

#### **Element 14, Review and Provision of Infrastructure**

A process for the annual review of the adequacy of infrastructure necessary to operate and maintain the drinking water system has been outlined in procedure 'QMS PROC 014' Review of Provision of Infrastructure.

### **Element 15, Infrastructure Maintenance, Rehabilitation and Renewal**

The Town of Pelham's Public Works Department has established several infrastructure maintenance, rehabilitation and renewal programs to protect the integrity of its drinking-water system infrastructure and the quality of its drinking-water.

Key infrastructure items may include main, valves and valve chambers, hydrants, pressure reducing valves (PRVs), check valves, the booster station, Town-owned backflow devices, tools, software and other infrastructure.

#### **Infrastructure Rehabilitation and Renewal Programs**

The Town maintains a long-term forecast of major infrastructure maintenance, rehabilitation and renewal activities in the form of a 20-Year Capital Forecast to ensure that aging infrastructure (e.g., watermain or appurtenances) is replaced. The plan, along with other infrastructure review items, is reviewed once every calendar year during the Infrastructure Review (see QMS PROC 014 Review of Provision of Infrastructure). Top Management makes any recommendations for altering the forecast to the Owner during the Infrastructure Review and budget process. Alterations to the forecast may require Owner approval. The forecast may require periodic adjustment to account for unforeseen infrastructure failures. Decisions about rehabilitation versus renewal are steered by the DPW, with input from the MPW and relevant staff.

#### **Infrastructure Maintenance**

Maintenance of infrastructure related to drinking water is planned, carried out, documented and reviewed through the Work Order System, applicable forms, and excel logs, in combination with scheduled items through Microsoft Outlook for the MPW and SWW.

Planned maintenance is scheduled by the SWW using the work order system or assigned work logged through excel logs, and work is assigned to the Operators accordingly, at the start of each workday, where Operators generally review work assignments with the SWW. The MPW discusses any concerns directly with the SWW and the Operators when required. The process for handling this work and these field records is described in the Control of Documents and Records Procedure.

As identified in Element 6, operation and maintenance of the pressure boosting station, serving the Chestnut Ridge area, has been contracted to the Region of Niagara. Details of the agreement, including scheduled maintenance requirements (i.e., inspection and response to needed maintenance) have been detailed within the Maintenance Agreement, dated April 2010, Article 4, Section 4.2. The completion of maintenance activities is communicated to the MPW by the Region of Niagara's Water and Wastewater Services Division.

Unplanned maintenance is responded to under supervision of the SWW and recorded and reviewed in the same manner as planned maintenance. Observed need for infrastructure rehabilitation or renewal is discussed directly, and response and revisions are made accordingly.

Maintenance programs are communicated to the Owner through the budgeting process, the annual Ministry report review and other means, as described in 'QMS PROC 021 - Communications Procedure'.

The effectiveness of the maintenance program is monitored by the Director of Public Works & Utilities and the MPW, through preparation of the annual Council report and Ministry reports. The MPW also reviews general work orders and data results, Pre-Start Reviews (PSRs) and sampling data, as an indication of general effectiveness of the maintenance program.

### **Element 16, Sampling, Testing and Monitoring**

Various sampling, testing and monitoring methods are used to monitor water quality and control drinking water processes to ensure compliance with applicable regulations and a continual supply of safe drinking water. The Sampling Testing and Monitoring Procedure QMS PROC 016 describes these programs, and points to specific sampling and testing SOPs for more detail.

### **Element 17, Measurement & Recording Equipment Calibration & Maintenance**

Processes for ensuring the continued calibration and maintenance of measurement and recording equipment used in the operation of the Pelham Distribution System have been documented within 'QMS PROC 017 – Measurement and Recording Equipment Calibration and Maintenance'.

### **Element 18, Emergency Management**

The DWQMS requires a procedure to maintain a state of emergency preparedness. The procedure is to include potential emergencies or service interruptions, emergency response and recovery processes, training and testing requirements for emergency response, responsibilities of the Owner and OA during emergencies, references to municipal emergency planning, an emergency communication protocol and a current emergency contact list.

The Emergency Management Procedure QMS PROC 018 details potential emergency situations, response procedures, procedure training and testing requirements, responsibilities during emergency situations, contact protocol, communications and an emergency contact list.

Emergency response procedures have been developed to reflect the needs of the Pelham Distribution System. These procedures are included in the Operations Manual for the system:

- Emergency Procedure / Form – Drinking Water Advisory (QMS FORM 005)
- Emergency Procedure – Watermain Break (QMS PROC 025)
- Emergency Procedure / Form – Adverse Water Quality (QMS FORM 017)

The plan includes provisions for the extraordinary arrangements and measures that may have to be taken to protect the health, safety, welfare, environment and economic health of the residents, businesses and visitors of the Town of Pelham when faced with an emergency. It is

understood that the OA will refer to this Corporate Emergency Response Plan in situations where the magnitude of an emergency exceeds the OA's capabilities for response.

Included in the emergency management element is the Emergency Response Procedures Manual for water and wastewater systems compiled by the Regional Municipality of Niagara. The manual lists potential emergencies, responses and contact personnel.

### **Element 19, Internal Audits**

'QMS PROC 019' documents the Town of Pelham's QMS Internal Auditing Program and associated processes including those relating to the planning, execution and documentation of QMS Internal Audits, recording of non-conformances, and reporting of results to Top Management and the Owner.

### **Element 20, Management Review**

'QMS PROC 020 – Management Review' documents the processes for planning, completing and documenting an annual Management Review that evaluates the continuing suitability, adequacy and effectiveness of the QMS.

### **Element 21, Continual Improvement**

The Town of Pelham as owner and operator of its water systems has established a QMS to meet the requirements of the Drinking Water Quality Management Standard Version 2.0 February 2017. The Town is committed to maintaining and continually improving upon its QMS. The MPW or designate is responsible for monitoring the status of Best Management Practices, corrective and preventive actions

#### **Best Management Practices**

Best Management Practices (BMPs) are to be reviewed and considered at least once every 36 months as part of the Management Review process, as per 'QMS PROC 020 – Management Review'. BMPs that are to be reviewed and considered may include, but are not limited to, those published by the Provincial Government and available via [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater), current drinking water industry or association-wide best practices, suggestions included within inspection reports, external or internal audits, staff suggestions, engineering or contractor-identified suggestions, etc. All identified BMPs are to be documented using QMS LIST 006. Reasoning for not implementing a BMP is to be documented within the Corrective Action List QMS LIST 006.

#### **Corrective Actions**

Corrective Actions are initiated through the identification of QMS nonconformances which may be identified in a variety of way including, but not limited to, internal/external DWQMS audits, Ministry inspections, operational checks, complaints, emergency situations, etc.

All nonconformances are to be documented by the MPW or designate using the Corrective Action List QMS LIST 006. The MPW or designate is responsible for investigating, identifying and documenting the root cause and actions that will be taken to correct and prevent re-occurrence (i.e., corrective actions), including responsibilities and targeted timelines within the Corrective Action List QMS LIST 006. The MPW or designate is responsible for verifying corrective actions have been implemented. The effectiveness of corrective actions at correcting and preventing re-occurrence will be confirmed and details (e.g., records reviewed) documented within the Corrective Action List QMS LIST 006.

The MPW may utilize Town staff to implement corrective actions, to communicate actions and changes and to update QMS documents as required.

### **Preventive Actions**

Preventive actions, actions taken to prevent a potential nonconformance from occurring, may be identified in a variety of ways. For example, in its budgetary planning process, the DPW reviews operational and capital budgetary needs, based partly on potential concerns such as infrastructure, operations, equipment, resources or water quality. Programs implemented as a result of these reviews may involve preventive actions (i.e., action items from infrastructure or Management Review). Preventive actions may also be identified through staff suggestions, internal/external DWQMS audit results (i.e., 'opportunities for improvement'), Ministry inspection suggestions, risk assessments outcomes, emergency training outcomes, etc.

All identified potential non-conformities/preventive actions are documented within the Corrective Action List QMS LIST 006. Top Management, or designate, is responsible for reviewing and determining whether preventive actions will be implemented. The outcome of the review, including actions, responsibility, and targeted timelines, is to be documented within the Corrective Action List QMS LIST 006. The MPW or designate is responsible for reviewing the actions taken, confirming they have been implemented and verifying they have been effective in preventing the occurrence of a non-conformity.

### Appendix A – Council Endorsement

March 22, 2021

C-05/2021

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**REGULAR COUNCIL**

# L. Haan	2	# B. Hildebrandt	—
# W. Olson	1	# M. Stewart	—
# M. Junkin		# R. Kore	—
		# J. Wink	—

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**Agenda Number:** 10.2.6  
**Title:** S801-01 DWQMS Policy Update and Operational Plan Endorsement , 2021-0051-Public Works  
**Date:** Monday, March 22, 2021

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**BE IT RESOLVED THAT Council receive Report #2021-0051, Drinking Water Quality Plan;**  
**AND THAT Council re-endorse the Quality Management System Operational Plan;**  
**AND THAT Council approve the revised Quality Management System Policy S801-01.**

Recorded Vote Requested By:

	Yea	Nay
L. Haan	✓	
B. Hildebrandt	✓	
R. Kore	✓	
W. Olson	✓	
M. Stewart	✓	
J. Wink	✓	
M. Junkin	✓	

HW

**MAYOR**  
 Referred       Lost       Carried   
 To: \_\_\_\_\_      Direction       Amended

**Declaration of Pecuniary Interest:**

Disclosed his/her/their interest(s), vacated his/her/their seat(s), abstained from discussion and did not vote.

## Appendix B – QMS Representative Appointment



### Memorandum

#### Public Works Department - Engineering

DATE: December 15, 2015  
TO: Ryan Cook, Manager of Public Works  
FROM: Andrea Clemencio, Director of Public Works & Utilities  
RE: QMS Representative

This is to confirm that Ryan Cook, the Manager of Public Works, has been appointed by Top Management as the QMS Representative, and is authorized to fulfil these duties as detailed in the Operational Plan.

