

**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 #18 February 2024

This Operational Plan (OP) contains information associated with and limited to the management and operation of the Town of Pelham's municipal drinking 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 \(R.S.O. 2002\)](#) and associated [Drinking-Water Systems Ontario Regulation 170/03](#).

Revision Table

Revision Number	Date	Nature of Revisions	By
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"> • Updated references to procedures (PRO vs. PROC found within elements 12, 13, 16, 18) in response to Internal Audit finding 2016-IA-02 • Revised Elements 2, 8, 14, 19 to remove duplicated/ unnecessary verbiage. • Revised layout of the Operational Plan (removed columns). • Updated the organizational chart to clarify the Operating Authority in response to findings (DWQMS)-05 and 2016-IA-11. • Updated the title of the "Lead Hand" to "Supervisor of Water & Wastewater" • Clarified the QMS Representative's responsibilities associated with Management Review, in response to external audit finding, as identified within QMS PROC 020 Management Review • General text editing throughout Operational Plan 	-
7	18 January 2018	<ul style="list-style-type: none"> • 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 • Clarified Section 10 as part of response to 2017-IA-04 OFI • Revision table updated to meet the requirements of QMS PROC 005 	A.C
8	6 April 2018	<ul style="list-style-type: none"> • Updated Element 15 to include details of booster station maintenance agreement with Region of Niagara 	A.C

		<p>(addresses 2017-IA-05 and 2017 Infrastructure Review action item)</p> <ul style="list-style-type: none"> • Updated Element 6 reference to MOU with Region of Niagara, as it was endorsed in April 2017. • Removed references to Appendix A and B, as all procedures and lists are referenced within the Operational Plan. • Updated the page numbering to match all other procedures and SOPs (i.e., x of x format). 	
9	9 October 2018	<ul style="list-style-type: none"> • Included reference to DWQMS V. 2.0, 2017 and Ministry Risk Assessment Hazards document. • 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). • Element 21 updated to document process for managing best management practices, corrective and preventive actions. 	R.C
10	28 February 2019	<ul style="list-style-type: none"> • Update to Element 3 to include Top Management Endorsement within the Operational Plan. • Updated CAO authorities and included responsibility and authority of the Senior Management Team (SMT) 	R.C.
11	23 January 2020	<p>Revised:</p> <ul style="list-style-type: none"> • Element 2 QMS policy electronic location • 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). • Element 6 clarification of Public Works as OA • Removal of records and emergency plan bylaw references (also in appropriate QMS PROC) • General editing throughout 	R.C.
12	9 February 2021	<ul style="list-style-type: none"> • Attributed Element 9 Engineering Group watermain commissioning responsibilities to Water Operator and MPW as a result of the 2020 Annual Calibration. • Included Appendices A and B to support Elements 3 and 4, respectively. • Revised reference from QMS PROC 026 to QMS FORM 005 replacement 	R.C.
13	25 March 2021	<ul style="list-style-type: none"> • Updated Appendix A to reflect most recent endorsement (22-Mar-2021) • Updated reference to Emergency Procedure / Form – Adverse Water Quality (QMS FORM 017) 	R.C.
14	23 February 2022	<ul style="list-style-type: none"> • Streamlined OP (e.g., eliminated duplication, such as the References section, and pointed to applicable procedures throughout) • Added regulatory hyperlinks to Element 1 and deleted same reference above, Element 3 regulatory 	R.C.

		<p>requirements MPW identification responsibility, and associated communication of changes</p> <ul style="list-style-type: none"> • Updated: <ul style="list-style-type: none"> - Element 6 in line with annual Engineering inventory and metering program updates to address 2021-OFI-18 - Element 11 to reflect deletion of QMS SOP 004 Overtime Call-In - Element 15 to reflect maintenance SOPs, associated frequencies and 'Infrastructure Maintenance' Annual Works Plan 	
15	31 January 2023	<ul style="list-style-type: none"> • Added 'Water/Wastewater Operator Licence Renewal and Upgrade Application Process' in Element 10 to address 2023-OFI-28 and PRV (along with location clarification) maintenance frequency to address 2020-AI-01. • Removed reference to pressure meters in Element 15 to address 2022-OFI-25 and Element 6 system components (now just referencing Annual Report) to eliminate duplication. 	J.M. / R.C.
16	7 March 2023	<p>Revised:</p> <ul style="list-style-type: none"> • Appendix A to include 2023 Council Endorsement • Reference to Drawing G-01, General Plan and associated location 	R.C.
17	17 October 2023	<p>Revised Section 15 to reference NEW QMS SOP 022</p>	R.C.
18	1 February 2024	<p>Revised Section 10 to reflect timeframe for Operator Certification submission as per 2023-OFI-35</p>	D.V.

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Element 1, Quality Management System

The Safe Drinking-Water Act 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 OP](#), are key components of this licensing program.

The OP is based on the [Drinking Water Quality Management Standard \(DWQMS\) Final – Version 2.0 February 2017](#) 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.

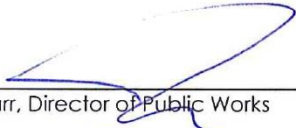

This OP describes a summary of mechanisms in place to support the requirements of the DWQMS, and is supported by several procedures, documents, lists, and forms, which are referenced.

Element 2, Quality Management System Policy

The Pelham Distribution System (PDS) QMS Policy has been documented in S801-01 and is communicated as per QMS PROC 021.

Element 3, Commitment and Endorsement

The OP 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 OP 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 OP do not require Owner re-endorsement. Significant PDS changes (e.g., addition of disinfection equipment, change in Ownership of the Pressure Boosting Station) resulting in changes to the OP 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, via the Manager of Public Works (MPW), ensures awareness of all applicable legislative and regulatory requirements that may include:

- 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, Annual Calibrations, or other Operator training, and communicated via the Annual Report. Tracking of actions related to new and proposed legislation is done via Corrective and Preventive Action QMS LIST 0006.

Element 4, Quality Management System Representative

The MPW has been appointed as the QMS Representative for the Town of Pelham's QMS, and through the endorsement of this OP, 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

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 PDS is owned by the Corporation of the Town of Pelham.

Operating Authority

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

System Description

The PDS is a Class 2 water distribution subsystem with watermain providing water to approximately 13,300 residents within the general urban area.

The service area is approximately 14 km² and includes the Villages of Fonthill, Ridgeville and Fenwick. Drawing G-01, General Plan, maintained by the Engineering group at M:\PUBLIC WORKS & UTILITIES DEPARTMENT\X Engineering & Survey Data\Overall Infrastructure Dwgs, illustrates the extent and features of the distribution system and the limits of the service area.

The PDS 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 PDS 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 (DPW, 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 the General Plan) with numbers based on Engineering annual inventory and metering program updates, also reflected in the Annual Report:

- (1) Watermain (approximately 86 km, varying in size from 50mm to 400mm diameter)
- (2) Fire hydrants
- (3) Valves
- (4) Service connections
- (5) Pressure Reducing Valves (PRVs)
- (6) Pressure boosting station (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 PDS 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, PDS 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 PDS. The Town of Pelham maintains disinfection residuals through the flushing program; see QMS PROC 016 Sampling, Testing and Monitoring for details.

Treated water from the plant is transported by way of a 750mm diameter watermain to the Shoalts Drive Reservoir in Fonthill. The reservoir directs water to the PDS 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 PDS 400mm direct connection 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 PDS.

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 PDS 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 Fonhill 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

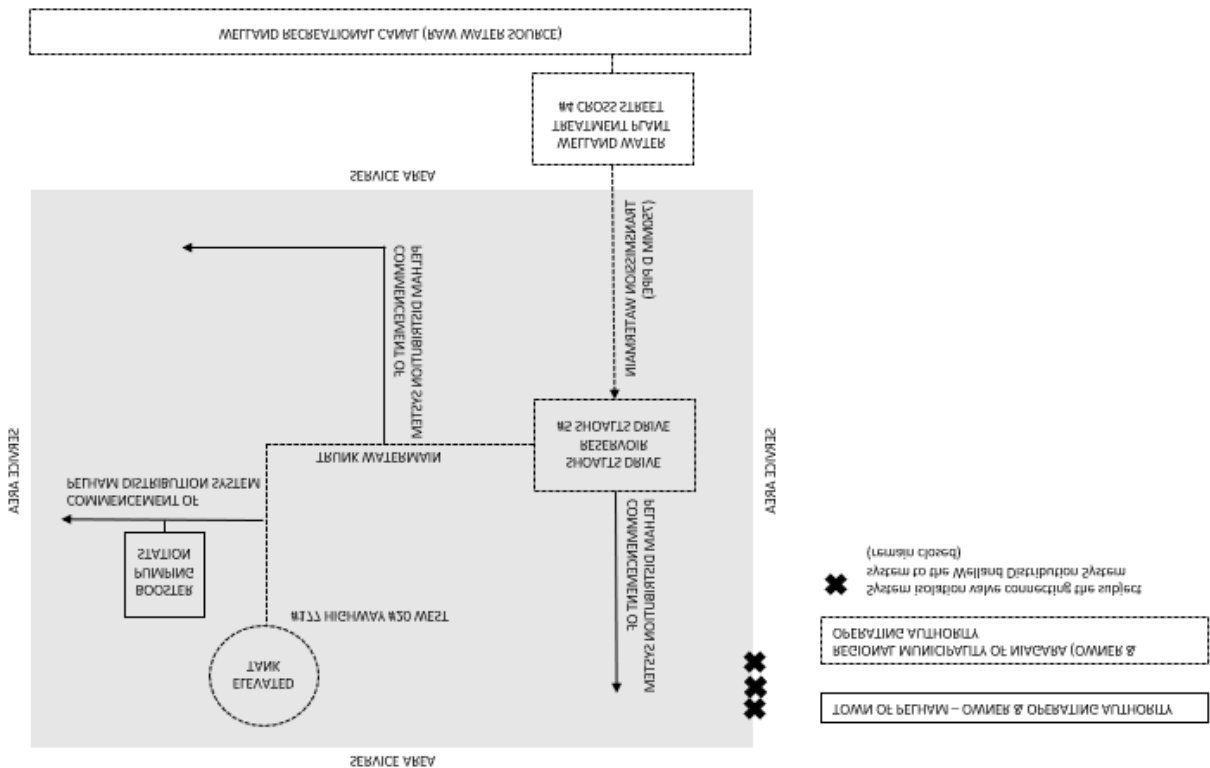
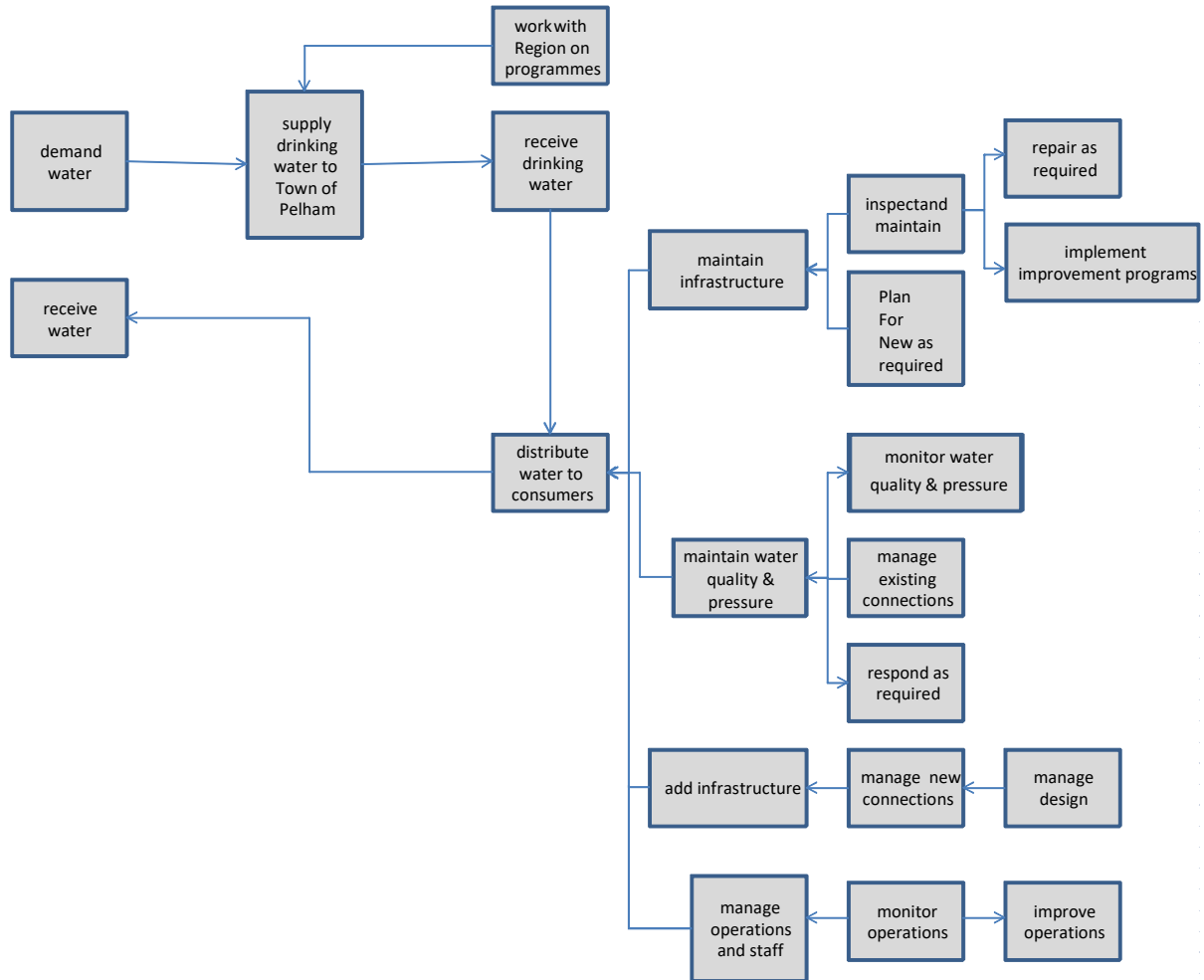


Figure 2 Process Flow Chart for the Town of Pelham water distribution system



Element 7, Risk Assessment

The Town has developed 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 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)

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

Chief Administrative Officer (CAO)

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

Senior Management Team

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

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

DPW (Top Management)

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

MPW (Top Management)

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

SWW

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

QMS Representative

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

Water Operator

Responsibilities	Authorities
<ul style="list-style-type: none"> • Confirm water main commissioning process to ensure conformance to Town's Operations Quality Standards. • Complete: <ul style="list-style-type: none"> - appropriate logs and records. - repairs to the water distribution systems. • Oversee work undertaken on the active distribution systems by external contractors. • OIC as designated, alternate ORO • Perform: <ul style="list-style-type: none"> - duties in accordance with QMS policies and procedures and in accordance with current regulatory requirements. - routine distribution system water quality sampling and field testing. 	<ul style="list-style-type: none"> • Operate and maintain the distribution system infrastructure.

Public Works Administrative Assistant (considered an OA support service)

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

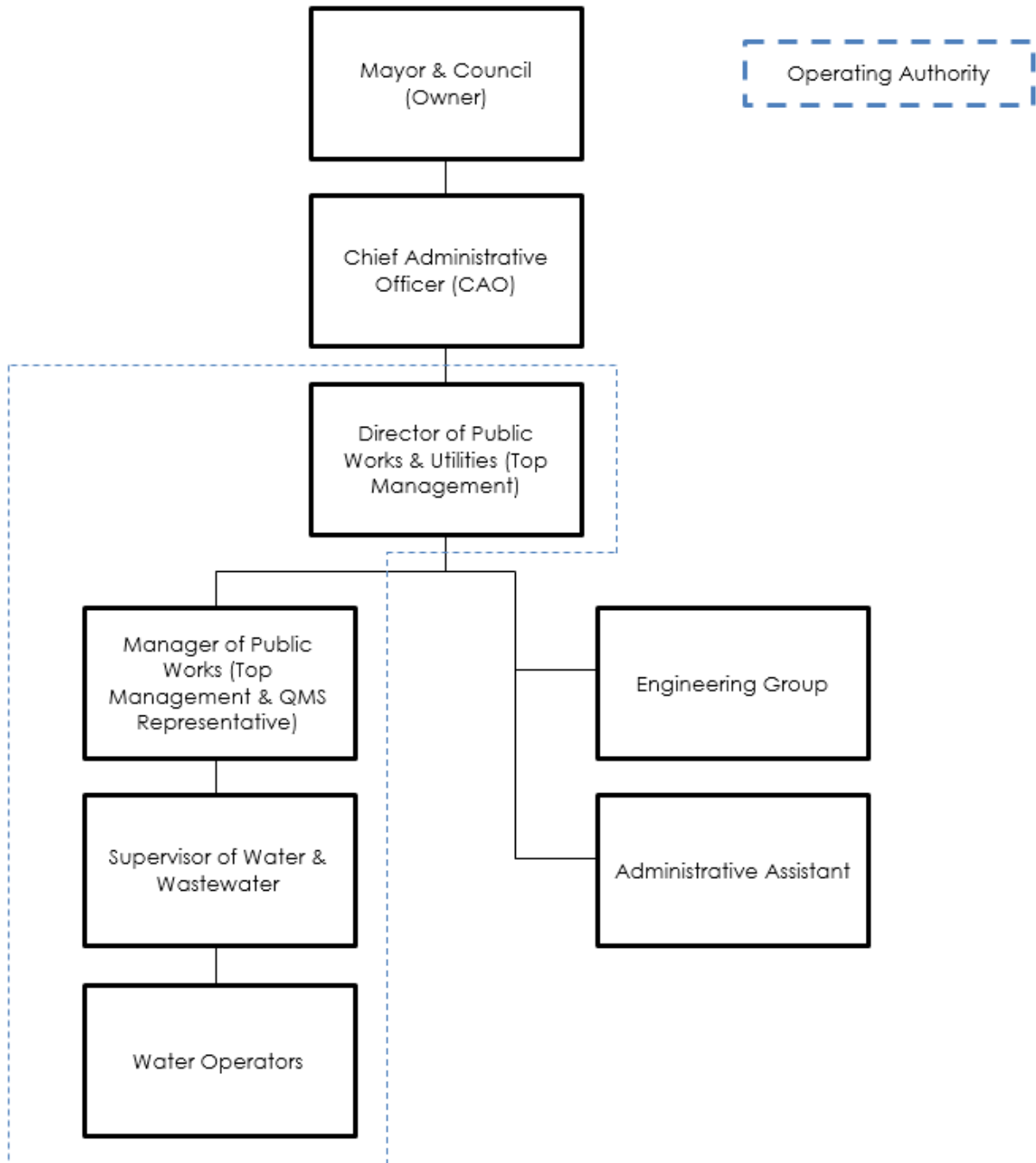
Engineering Group (considered an OA support service)

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

QMS Auditor (internal or external – not on Figure)

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

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. **All must possess a Valid Class “G” driver’s licence.**

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

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.
- **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 DPW. This training covers the relevance of duties and how they affect drinking water quality. 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 by technical experts or trained professionals and on-the-job orientation by experienced staff. The SWW or designate tracks all certification and all certification-related training information for operations personnel and, together with the MPW, facilitates the licensing process.
- **Records of competencies** of personnel with duties directly affecting drinking water shall be maintained by the Public Works Administrative Assistant or designate. 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, including external training certificates, maintained in the Tice

Road filing cabinet in Operator-specific training file folders, and tracked, along with external training, in the excel Operator Training Summaries, as per QMS PROC 005.

- **Water/Wastewater Operator Licence Renewal and Upgrade Application 3-step Process** ensures accuracy prior to being sent to the Ontario Water Wastewater Certification Office (OWWCO) for approval **no earlier than 2 months** and **no later than 1 month** prior to certificate expiry to not affect future certificate expiry:
 - 1) All applications shall be completed by the Public Works Administrative Assistant and reviewed by the Operator applying for renewal of licence upgrade prior to being forwarded to the SWW.
 - 2) The SWW will confirm the accuracy of information provided on the license application before forwarding the application to the MPW.
 - 3) The MPW (ORO) will review for final approval and submittal to OWWCO.

Element 11, Personnel Coverage

QMS PROC 011 Personnel Coverage has been developed to describe how the Town ensures sufficient personnel are available for duties that directly affect drinking water.

Element 12, Communications

The PDS QMS requires that OA Top Management communicate relevant aspects of the QMS to various parties, outlined in QMS PROC 021.

Element 13, Essential Supplies and Services

QMS PROC 013 Essential Supplies and Services 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 QMS PROC 014.

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 are detailed below.

Equipment	Activity Frequency		Procedure
Blow Offs	Internal	Semi-Annually <i>(Spring and Fall)</i>	QMS FORM 001 Dead End Blow-Off Flushing
Hydrants		Annually	<i>As per most recent</i>
Valves and chambers		Annually <i>(all once every 4 years)</i>	<i>General Plan locations and numbers</i>
Watermain		Monthly Pressure Testing	
Pressure Boosting Station	As determined by Region of Niagara		Region of Niagara Maintenance Agreement, dated April 2010, Article 4, Section 4.2
PRV	Annual Internal and 5 Year External		QMS SOP 022 PRV Maintenance
Backflow Tester Kit	Annual calibration <i>(external)</i>		Refer to QMS PROC 017 Measurement and Recording Equipment Calibration and Maintenance
Colorimeters	Annual calibration <i>(external)</i>		
	Pocket Monthly maintenance and verification <i>(internal)</i>		
pH meter	Annual calibration if in use >1yr <i>(external)</i>		
	Prior to use		

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., watermains 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). 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 related to drinking water is planned, carried out, documented, and reviewed through the manual Work Order System, applicable forms, and excel logs, in combination with scheduled items in Annual Works Plan by 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 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 (e.g., QMS SOP 017 Curb Box Repair, 018 Scheduled Water Interruption and 020 Frozen Service Response). Observed need for infrastructure rehabilitation or renewal is discussed directly, and response and revisions are made accordingly.

Records are managed as per QMS PROC 005. 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.

The **effectiveness** of the maintenance program is monitored by the DPW and the MPW, through preparation of the annual Council 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. 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 PDS operation have been documented within QMS PROC 017.

Element 18, Emergency Management

The DWQMS requires a procedure to maintain a state of emergency preparedness that 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.

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 processes have been developed to reflect PDS needs. These are included in the Operations Manual for the system:

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

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 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 is committed to maintaining and continually improving upon its QMS. The MPW or designate is responsible for monitoring the status of Best Management Practices (BMPs), corrective, and preventive actions, including their documentation within QMS LIST 006.

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. BMPs may include, but are not limited to, those published by the Provincial Government and available via 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, including reasoning for not implementing, are to be documented.

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.

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. 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.

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 assessment and emergency training outcomes, etc.

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. 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

C-04/2023 February 21, 2023
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REGULAR COUNCIL

# B. Eckhardt	# B. Hildebrandt	# K. Ker	
# S. Niznik	# W. Olson	# J. Wink	2
# M. Junkin			i

Town of Pelham Regular Council Meeting

Agenda Number: 8.

Title: Consent Agenda Items to be Considered in Block

Date: Tuesday, February 21, 2023

BE IT RESOLVED THAT the Consent Agenda items as listed on the February 21, 2023 Council Agenda be received and the recommendations contained therein be approved:

8.3.3 2022 Pelham Water Distribution System Report, 2023-0041-Public Works

BE IT RESOLVED THAT Council receive Report #2023-0041 Pelham Water Distribution System Summary Report, for information;

AND THAT Council endorse the Quality Management System Operational Plan.

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.

