



Roads Quality Management System Operational Plan

Grimsby Transportation Infrastructure



The Corporation of the Town of Grimsby
Town Hall PO Box 159 160 Livingston Avenue Grimsby, ON L3M 4G3



TOWN OF GRIMSBY
ROADS QUALITY MANAGEMENT SYSTEM OPERATIONAL PLAN
Grimsby Transportation System

TABLE OF CONTENTS

PART 1: RQMS Operational Plan Summary Report

1.0	Quality Management System	2
1.1	Purpose	2
1.2	Scope.....	2
1.3	Definitions	2
1.4	Operational Plan Revisions.....	3
2.0	Quality Management System Policy	4
3.0	Commitment and Endorsement.....	5
4.0	Quality Management System Representative	6
5.0	Document and Records Control	7
5.1	Document Control	7
5.2	Records Control.....	7
6.0	Description of Transportation Infrastructure	9
6.1	General.....	9
6.2	Boundaries and Jurisdiction Interconnections.....	9
6.2.1	Points of Jurisdiction Interconnection with the MTO	9
6.2.2	Points of Jurisdiction Interconnection with Neighbouring Communities	10
6.2.3	Agreements with Neighbouring Road Authorities	10
6.3	Transportation Infrastructure.....	10
6.4	Road Types and Classifications.....	11
6.5	Operational Challenges and Threats	11
6.6	Critical Procedures Related to Operational Challenges	12
7.0	Risk Assessment.....	13
8.0	Risk Assessment Outcomes.....	14
9.0	Organizational Structure, Roles, Responsibilities & Authorities.....	15
9.1	Organizational Chart	15
9.2	RQMS Roles, Responsibilities & Authorities	15
10.0	Competencies	17
10.1	Competencies and Training Overview	17
10.2	RQMS Awareness Training	17
10.3	Training Records.....	17
11.0	Personnel Coverage	18
12.0	Communications	19
13.0	Essential Supplies and Services	20
14.0	Review and Provision of Infrastructure.....	21
15.0	Infrastructure, Maintenance, Rehabilitation and Renewal	22
15.1	Infrastructure Maintenance Programs.....	22
15.2	Infrastructure Rehabilitation & Renewal.....	32
16.0	Patrolling and Monitoring	33
17.0	Equipment Calibration and Maintenance	34
18.0	Emergency Management	35
19.0	Internal Audits	36
20.0	Management Review	37
21.0	Continual Improvement	38



**TOWN OF GRIMSBY
ROADS QUALITY MANAGEMENT SYSTEM OPERATIONAL PLAN
Grimsby Transportation System**

LIST OF FIGURES

Figure 9-1: Town of Grimsby RQMS Organizational Chart	16
Figure 14-1: Transportation Infrastructure Review	21

LIST OF TABLES

Table 6-1: Road Classifications – Town of Grimsby.....	11
Table 15-1: Transportation Infrastructure Maintenance Programs – Year-Round.....	23
Table 15-2: Transportation Infrastructure Maintenance Programs – Winter Months	28

PART 2: RQMS Operational Plan Appendices

- Appendix A: RQMS System-Level Procedures and Supporting Documentation
- Appendix B: Salt Management Plan



**TOWN OF GRIMSBY
ROADS QUALITY MANAGEMENT SYSTEM OPERATIONAL PLAN
Grimsby Transportation System**

PART 1: RQMS Operational Plan Summary Report



1.0 Quality Management System

1.1 Purpose

The purpose of this Operational Plan is to document the Town of Grimsby’s Roads Quality Management System as part of the Town’s efforts to provide and maintain a safe transportation network. This Operational Plan was developed to meet the requirements of the Roads Quality Management Standard. The Roads Quality Management Standard is internal standard based on the Ministry of the Environment’s Drinking Water Quality Management Standard, modified to meet the needs of the Town of Grimsby with respect to the management of its transportation infrastructure.

1.2 Scope

The procedures and processes documented in this Operational Plan are applied to the Grimsby transportation system. The contents of the RQMS Operational Plan include the following:

Part Title	Part
RQMS Operational Plan Summary Report	Main Report
RQMS System-Level Procedures & Supporting Documentation	Appendix A
Salt Management Plan	Appendix B

1.3 Definitions

- Bridge** Box or open type structure, with a span of 3m and greater, and which has less than 600 mm of cover.

- Calibration** A procedure that adjusts or checks the accuracy of an instrument by comparison with a standard or reference.

- Culvert** Box or open type structure, with a span of 3m and greater, and which has more than 600 mm of cover.

- Hard-Copy** Paper copy of a document.

- Operating Authority Personnel** Town of Grimsby Public Works Department employees having responsibilities associated with the Grimsby Transportation Infrastructure. Refer to organizational chart in **Section 9.0 of RQMS Operational Plan Summary Report (PW-RD-TI-OP-001-001)**.



Owner	Legal or beneficial owner of transportation infrastructure. For the Town of Grimsby, the Owner is represented by the Mayor and Council. The Town Manager has been identified as an Owner Representative.
Public	Users of the Town of Grimsby’s transportation infrastructure.
QMS or Roads QMS	A Quality Management System put in place with respect to the operation and maintenance of the Town’s transportation infrastructure in order to meet the Roads Quality Management Standard.
RQMS	This acronym maybe used synonymously to describe both the Roads Quality Management Standard (i.e. the standard rules established by the Town that need to be met) and the Roads Quality Management System (i.e. the quality management system put in place to meet the standard).
Soft-Copy	Electronic copy of a document.
SOG	Standard Operating Guideline
Top Management	Person(s) at the highest level within the Operating Authority that make decisions respecting the Roads QMS and recommend actions to the Owner regarding transportation infrastructure. For the Town of Grimsby, the Director of Public Works has been identified as Top Management.
Town	Town of Grimsby
Transportation Vendor	Supplier or service provider that provides a product or service related to transportation infrastructure.

1.4 Operational Plan Revisions

This Operational Plan is reviewed, revised and approved in accordance with the Town’s document control process referred to in Section 5.0. Changes to the Operational Plan are communicated in accordance with the communications procedure referred to in Section 12.0.



2.0 Quality Management System Policy

The Town of Grimsby's Roads QMS Policy is as follows:

"The Town of Grimsby owns and operates Grimsby's transportation infrastructure. The Town is committed to:

- **S**erving Town residents and visitors by providing and maintaining safe transportation infrastructure;
- **A**lways improving the Roads Quality Management System;
- **F**ollowing and complying with applicable legislation & regulations;
- **E**stablishing and maintaining a Salt Management Plan in accordance with Environment Canada's Code of Practice."

The Roads QMS Policy has been reviewed and approved by the Town of Grimsby's Mayor, Council and Operating Authority Top Management. A resolution was passed by Council endorsing the Roads QMS Policy on October 10th, 2018 as per Report #DPW18-38. A poster of the **RQMS Policy (PW-RD-TI-VIS-001-001)** is posted internally at several Town of Grimsby Operating Authority facilities & locations. The Roads QMS Policy is also communicated to the public through posting on the Town's website.



3.0 Commitment and Endorsement

This Operational Plan has been reviewed and approved by the Town of Grimsby's Mayor, Council and Operating Authority Top Management. A resolution was passed by Council endorsing the Operational Plan and its contents on October 10th, 2018 as per Report #DPW18-38. The signatures below further serve as endorsement of the Operational Plan.

R. Bentley

*Robert Bentley
Mayor, Town of Grimsby
Owner Representative*

R. LeRoux

*Robert LeRoux, P. Eng.
Director of Public Works
Top Management Representative*



4.0 Quality Management System Representative

The EHS Compliance Manager has been appointed as the Quality Management System Representative for the Town of Grimsby's Roads QMS, and has been granted the authority to execute all of the responsibilities associated with this role.

In addition to the other aspects of his role, the EHS Compliance Manager is responsible for:

- Ensuring that processes and procedures required for the Roads QMS are established, implemented and maintained;
- Reporting to Top Management regarding Roads QMS performance and any need for improvement;
- Ensuring that only current versions of documentation required by the Roads QMS are in use at all times;
- Ensuring that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties in the operation of the Town of Grimsby's transportation system; and
- Promoting awareness of the Roads QMS throughout the Operating Authority.



5.0 Document and Records Control

5.1 Document Control

A procedure has been developed that outlines document control processes for the Operating Authority. **RQMS Control of Documents (PW-RD-TI-PRO-002-001 – See Appendix A)** outlines a controlled process for the creation, modification, review, approval, distribution, retrieval and protection of transportation infrastructure-related documentation.

Transportation infrastructure-related documentation is identified using a unique numbering system specified in **RQMS Control of Documents (PW-RD-TI-PRO-002-001)**. The task of creating internal transportation-related documentation is delegated to an appropriately-qualified staff member; delegation of this task is dependent on the staff member's level of expertise in the subject matter to be documented.

When a draft document has been prepared, review and approval of the document is completed as specified in **RQMS Control of Documents (PW-RD-TI-PRO-002-001)**. Document revisions are completed by the Document Author and reviewed by the Author's Supervisor. Final approval of documentation is completed as specified in **RQMS Control of Documents (PW-RD-TI-PRO-002-001)**.

Master copies of documentation are signed by the Document Author and the Final Approver and provided to the EHS Compliance Manager. The EHS Compliance Manager ensures that all hard-copy and soft-copy master documentation is safely stored and protected from damage, deterioration and circulation. As documentation is revised, any old master hard-copies are disposed of and replaced with the new version.

The EHS Compliance Manager creates a read-only version of the document and saves it to the appropriate storage location on the Town's internal server. Electronic copies of master documentation are controlled by the EHS Compliance Manager and are protected from distribution or editing.

The EHS Compliance Manager prints the required number of controlled copies of the document and ensures that they are distributed according to the **RQMS Document Control Matrix (PW-RD-TI-LM-002-001 – See Appendix A)**. Obsolete versions of documentation are marked as "OBSOLETE", removed from circulation, and archived or shredded.

5.2 Records Control



A procedure has been developed that outlines record control processes for the Operating Authority. ***RQMS Control of Records (PW-RD-TI-PRO-003-001 – See Appendix A)*** specifies processes for the collection, identification, storage, maintenance, protection, retention and disposal of RQMS-related records at the Town of Grimsby.

The ***RQMS Record Control Matrix (PW-RD-TI-LM-003-001 – See Appendix A)*** lists transportation infrastructure records managed under this procedure. Each record profile within the Matrix lists the record name, minimum record retention time, record owner (i.e., person responsible for the record), and physical form of storage including the storage location(s). Where required by legislation and/or regulations, transportation infrastructure records are made available for review by customers and/or stakeholders.

Records may be retained beyond their indicated minimum retention time or destroyed of at the discretion of the Director of Public Works.



6.0 Description of Transportation Infrastructure

6.1 General

The Town of Grimsby owns and operates Grimsby's transportation infrastructure. The transportation infrastructure is designed to facilitate the most efficient and convenient movement of people and goods within and through the Town.

For the purposes of the Roads QMS, the Town's transportation infrastructure is understood to include:

- Pavement (including curbs)
- Bridges
- Culverts
- Sidewalks (including curb depressions and pedestrian crosswalks)
- Shoulders
- Medians
- Roadway lighting
- Road signs, flashing devices, and pavement markings
- Storm water drainage
- Boulevards, trees, and appurtenances
- Protective barriers

The Town may assume maintenance responsibilities for selected pieces of infrastructure outside of their jurisdiction, including assets owned by Niagara Region or the Ministry of Transportation. Conversely, there are selected pieces of infrastructure owned by the Town and maintained by Niagara Region. Wherever possible, the terms of these arrangements are documented in formal agreements or directives (see **Section 6.2.3**).

Other associated infrastructure, including off-street pathways and traffic control signal systems/subsystems, are owned and/or maintained by other Town of Grimsby departments or other municipalities and thus are considered to be outside of the scope of the RQMS.

6.2 Boundaries and Jurisdiction Interconnections

The Town's transportation infrastructure is bounded by Lake Ontario to the north, the Township of West Lincoln to the south, the Town of Lincoln to the east and the City of Hamilton to the west. The ***Grimsby Road Authority Map (PW-RD-TI-VIS-001-001)*** identifies roadways within Town limits and indicates their ownership.

6.2.1 *Points of Jurisdiction Interconnection with the MTO*

The Queen Elizabeth Way (QEW) runs through the Town of Grimsby and has three interchanges within Town limits: a partial cloverleaf interchange at Bartlett Avenue, a modified diamond interchange at Christie Street/Maple Avenue/Ontario Street, and a partial cloverleaf interchange at Casablanca Boulevard. The QEW, including bridge structures, on-ramps, off-ramps and the modified diamond interchange, fall under the jurisdiction of the MTO.



Christie Street, Bartlett Avenue and Casablanca Boulevard are owned by Niagara Region. The Town of Grimsby owns Maple Avenue and Ontario Street. The Region and the Town hold responsibility for the arterial connector roads as noted, but are not responsible for the Provincially-owned infrastructure at each interchange.

6.2.2 *Points of Jurisdiction Interconnection with Neighbouring Communities*

There are numerous jurisdiction interconnections both within and at the limits of the Town. In addition to the jurisdiction interconnections with MTO noted above, interconnection points exist with Niagara Region, the City of Hamilton, the Township of West Lincoln, and the Town of Lincoln. Road ownership and transfer points are identified in ***Grimsby Road Authority Map (PW-RD-TI-VIS-001-001)***.

6.2.3 *Agreements with Neighbouring Road Authorities*

As noted above, the Town may assume maintenance responsibilities for selected pieces of infrastructure belonging to neighbouring road authorities. The Town has also outsourced maintenance of selected Town assets to neighbouring road authorities. The following agreements or directives govern these relationships:

- ***MTO Memorandum: Roadway Lighting on Municipal Crossroads (October 24, 2003)***
- ***MTO Directive B-101: Highway Maintenance Carried Over or Under the King's Highway (May 11, 1988)***
- ***Agreement between the Town of Grimsby and the Regional Municipality of Niagara regarding the operation and maintenance of traffic control signals (July, 27, 2005)***
- Easement and maintenance agreements with CN Rail (various).

6.3 Transportation Infrastructure

The Town's transportation infrastructure includes approximately 171 centreline kilometres of pavement. Approximately 68% of the pavement is surfaced in high-class bituminous, with the balance (approximately 32%) in low-class bituminous. In addition to pavement, the Town's transportation infrastructure includes 94 km of sidewalks, 6 bridges, and 13 culverts exceeding a 3 metre span. The Town maintains a Geographic Information System (GIS) that provides an up-to-date map of transportation infrastructure along with detailed asset and infrastructure data. The GIS is maintained by Engineering Division staff and aids in planning and scheduling infrastructure maintenance and rehabilitation activities.



6.4 Road Types and Classifications

The Town’s transportation infrastructure is comprised of Class 3, 4 and 5 roads, all of which can be classified as arterial, collector or local roads. The Town does not have jurisdiction over Class 1 and 2 roads, but the Town’s infrastructure includes linkages to roads of these classes. Any Class 1 or 2 roads within the Town or at the limits of the Town are owned and maintained either by MTO or Niagara Region. Class 3, 4 and 5 roads within the Town are identified on **Road Class Map - Class 3 (PW-RD-TI-VIS-011-002)**, **Road Class Map - Class 4 (PW-RD-TI-VIS-011-003)** and **Road Class Map - Class 5 (PW-RD-TI-VIS-011-004)** respectively.

Roads are classified in accordance with the requirements of *Minimum Maintenance Standards for Municipal Highways* (O. Reg. 239/02 as amended). The Regulation specifies patrolling frequencies and maintenance requirements for each road classification, and provides a foundation for the Town’s road maintenance program. (Additional detail is provided in **Section 15.0** of this Operational Plan.)

Road classifications within the Town’s transportation system are outlined in **Table 6-1**.

Table 6-1: Road Classifications – Town of Grimsby

Road Classification	Length of Roadway within Town (approximate km)
Class 1	None
Class 2	None
Class 3	20 km
Class 4	47 km
Class 5	104 km
TOTAL	171 km

6.5 Operational Challenges and Threats

Operational challenges at the Town of Grimsby are typical of those in Ontario municipalities. The Town can be subjected to ice storms and heavy snowfall during winter months, and has developed **Transportation Infrastructure Winter Control Manual (PW-RD-TI-MAN-011-001)** that outline requirements for winter maintenance before, during and following storm events.

Portions of the Town are situated along the base of the Niagara Escarpment, and some of the roads within this area have extremely steep grades that can pose additional hazards in snowy, icy or wet conditions. Additionally, the presence of the Escarpment frequently creates two different climates within the Town: “above” and “below” the Escarpment. The Town has strategically designed its representative routes for road patrolling activities so that road conditions can be monitored above the Escarpment, below the Escarpment, and along the elevation.



The steep grades along the Escarpment can also pose braking hazards, particularly for heavy trucks. The Town has installed additional signage to alert drivers to the presence of steep grades and the associated hazards. Environmental Assessment (EA) processes are ongoing at the Regional level regarding the implementation of designated routes for heavy trucks.

6.6 Critical Procedures Related to Operational Challenges

The Town's Department of Public Works works diligently to ensure that the safety of transportation infrastructure is maintained, and has developed this Roads QMS and associated procedures, SOGs, and other documentation to support its activities. Transportation infrastructure maintenance and monitoring procedures are written in accordance with the requirements of O. Reg. 239/02. Of particular interest is the ***Transportation Infrastructure Winter Control Manual (PW-RD-TI-MAN-011-001)*** (see **Section 6.5**). The Town also executes year-round Road Patrols to ensure that transportation infrastructure continues to be fit for use and to identify and resolve operational issues as quickly as possible.



7.0 Risk Assessment

Not applicable



8.0 Risk Assessment Outcomes

Not applicable.



9.0 Organizational Structure, Roles, Responsibilities & Authorities

9.1 Organizational Chart

Figure 9-1 (following page) shows the Roads QMS Organizational Chart for the Town of Grimsby's transportation infrastructure.

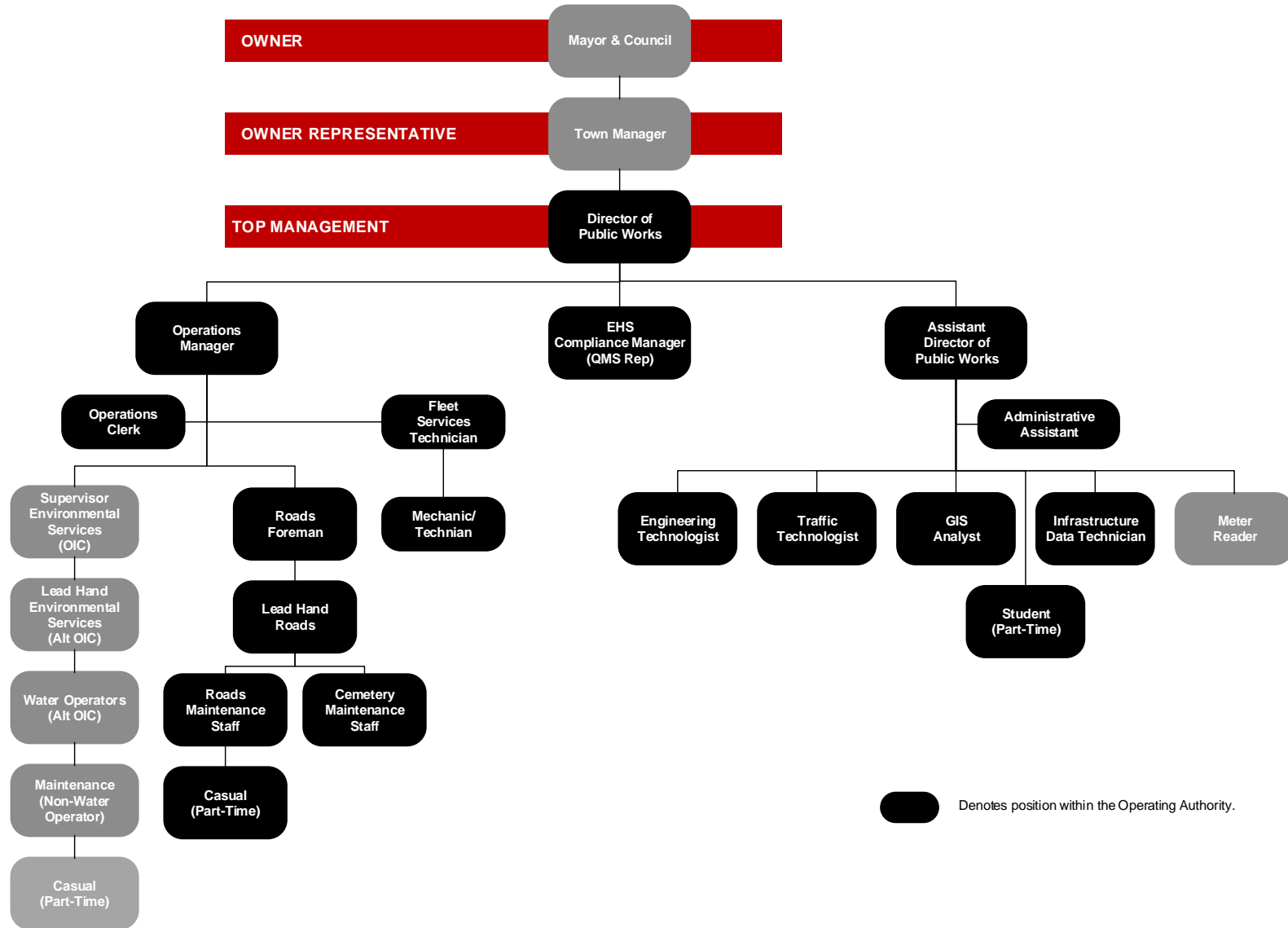
The Roads QMS Organizational Chart is reviewed on an annual basis, and may be reviewed more frequently if significant organizational changes occur within the Operating Authority.

9.2 RQMS Roles, Responsibilities & Authorities

The ***RQMS Roles and Responsibilities Matrix (PW-RD-TI-LM-005-001*** – See Appendix A) defines the roles, responsibilities and authorities of staff within the Town of Grimsby's Operating Authority and includes both general roles as well as RQMS-specific responsibilities for each role. The Matrix is reviewed periodically as per the ***RQMS Document Control Matrix (PW-RD-TI-LM-002-001)*** or as significant organizational changes occur within the Operating Authority. The EHS Compliance Manager, along with relevant Managers and Supervisors, are responsible for ensuring that staff remains aware of their respective roles, responsibilities and authorities.



Figure 9-1: Town of Grimsby RQMS Organizational Chart





10.0 Competencies

10.1 Competencies and Training Overview

The **RQMS Competencies Matrix (PW-RD-TI-LM-006-001 – See Appendix A)** outlines the competencies for Grimsby's transportation infrastructure Operating Authority personnel. The matrix describes only transportation infrastructure related competencies and is not considered to be inclusive of non-transportation related competencies; job descriptions are to be observed as the primary source of inclusive summaries for the listed positions.

A procedure has been developed to outline training requirements for Grimsby transportation infrastructure Operating Authority personnel to ensure competencies are maintained. The procedure **RQMS Operating Authority Personnel Training (PW-RD-TI-PRO-006-001 – See Appendix A)** applies to the Operating Authority of the Town's transportation infrastructure.

10.2 RQMS Awareness Training

The EHS Compliance Manager is responsible for coordinating RQMS awareness training for all staff within the Operating Authority as described in **RQMS Operating Authority Personnel Training (PW-RD-TI-PRO-006-001)**.

10.3 Training Records

Public Works Administrative Staff (i.e. Operations Clerk and Public Works Administrative Assistant) are responsible for maintaining relevant training records for Operating Authority, and use the Town's INFO:HR database for this purpose.



11.0 Personnel Coverage

A procedure has been developed to document the processes used by the Town of Grimsby to ensure that adequate staffing & personnel coverage is maintained in order to effectively operate and manage the Town’s transportation infrastructure. **RQMS Personnel Coverage (PW-RD-TI-PRO-007-001 – See Appendix A)** details coverage measures to be followed during regular business hours as well as evenings, weekends and holidays.

The Operating Authority operates one day shift only. Normal day shift hours of operation are as follows:

- Roads Division staff: Monday to Friday, 7:00am – 4:30 pm
Every second Monday, 7:00am – 3:30pm (half-staff)
- Town Hall staff: Monday to Friday, 8:30am – 4:30 pm
- Operations Clerk 8:00am – 4:00pm

During winter months (from October 1 to April 30) off-shift hours (including evenings, weekends and holidays), one Roads Division staff member is assigned “on-call” responsibilities. On-call assignment is rotated on a weekly basis.

On-call services are provided by Environmental Services staff during summer months (from May 1 to September 30). The On-Call person contacts the Roads Foreman or Roads Lead Hand regarding phone calls received related to transportation infrastructure concerns.

Call-in processes for additional staff are detailed in **RQMS Personnel Coverage (PW-RD-TI-PRO-007-001)**.

As Town staff are not unionized, no strike plan has been developed.



12.0 Communications

A procedure, ***RQMS Communications (PW-RD-TI-PRO-008-001 – See Appendix A)***, has been developed to outline the processes and methods used by the Top Management of Grimsby's transportation infrastructure Operating Authority in communicating with the Mayor and Council, Operating Authority staff, Vendors, and the public on matters relating to the Town's transportation infrastructure.

Roads QMS Awareness Training is used as a tool to communicate fundamentals of the Roads QMS to Operating Authority staff, and can be presented to other parties, including Vendors, as required.

Top Management communicates the Roads QMS to the Owner through presentations at Council Meetings and/or Public Works Committee meetings, reports to Council or to the Public Works Committee, and informal day-to-day communications. Top Management communicates with Operating Authority staff in the operation and maintenance of the Town's transportation infrastructure through verbal communication, formal and informal written communication, provision of procedures, Roads QMS Awareness Training, meetings, and internal audit results.

Top Management and the Operating Authority communicate with the public about the Roads QMS via the Town of Grimsby's website and Facebook page, availability of information at Town offices, media releases, water billing inserts and road signage. This Operational Plan is available for public viewing as outlined in the ***RQMS Record Control Matrix (PW-RD-TI-LM-003-001)***. The public can communicate with the Town of Grimsby via the Town Hall or Operations Centre during regular business hours, or via the Town's Call Centre dispatch service outside of business hours.



13.0 Essential Supplies and Services

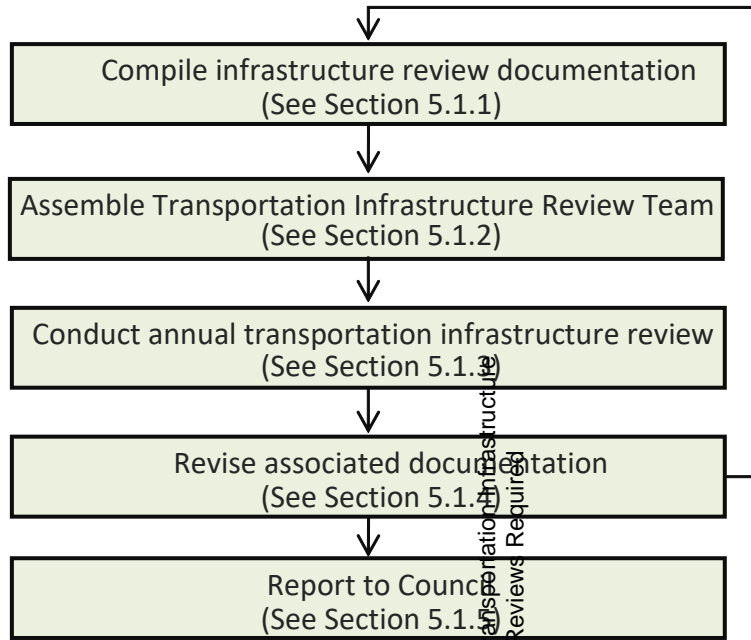
Not Applicable



14.0 Review and Provision of Infrastructure

The **RQMS Review and Provision of Infrastructure** procedure (**PW-RD-TI-PRO-010-001** – See Appendix A) has been developed to outline the process followed for reviewing the adequacy of the transportation infrastructure. The transportation infrastructure review process is as follows:

Figure 14-1: Transportation Infrastructure Review



Members of the Infrastructure Review Team are identified in **RQMS Review and Provision of Infrastructure (PW-RD-TI-PRO-010-001)**. The Transportation Infrastructure Review Team meets on an annual basis to review the previous year’s operational history and proposed infrastructure rehabilitation plans for the subsequent year.

Selected documentation and records are compiled to be used as inputs to the Transportation Infrastructure Review. These documents and records provide valuable information about the operational performance and maintenance histories of transportation infrastructure, and are used to assess and prioritize transportation infrastructure-related capital projects, including provision, rehabilitation and renewal initiatives.

The outcome of the annual meeting includes a Transportation Infrastructure Review Report for Council. The Transportation Infrastructure Review Report describes the conclusions of the infrastructure review and outlines recommendations regarding proposed transportation infrastructure renewal projects for the subsequent year.



15.0 Infrastructure, Maintenance, Rehabilitation and Renewal

Several maintenance activities have been established to protect the quality, integrity and safety of the transportation infrastructure.

15.1 Infrastructure Maintenance Programs

The following tables identify maintenance programs that have been established in respect of the Town's transportation infrastructure:

- **Table 15-1: Transportation Infrastructure Maintenance Programs – Year-Round**
- **Table 15-2: Transportation Infrastructure Maintenance Programs – Winter Months**

Transportation infrastructure maintenance programs are completed according to the Levels of Service (LOS) outlined in **Table 15-1**. Where applicable, levels of service are based on the minimum maintenance standards specified in O.Reg. 239/02, as amended. Deficiencies are corrected based on O.Reg. 239/02 requirements.

The Operations Manager develops the majority of transportation infrastructure maintenance programs and holds responsibility for the oversight and implementation of these programs. These maintenance activities are completed by Roads Division staff.

The Assistant Director of Public Works develops selected maintenance programs relating to transportation infrastructure and holds responsibility for the oversight and implementation of the selected programs. These maintenance activities are completed by Engineering Division staff.

Maintenance activities are further documented in SOGs and include descriptions of required activities and specific task instructions.

A review of the Town's infrastructure maintenance programs is completed on an annual basis in conjunction with the Roads QMS Infrastructure Review (see **Section 14.0**). The Infrastructure Review includes an examination of maintenance and rehabilitation activities completed for the various infrastructure components during the previous year. Results from the previous year are compared against the level of service and performance objectives specified in **Table 15-1**. These comparisons provide a general indication of the effectiveness of the Town's infrastructure maintenance programs.

The Operating Authority provides the Mayor and Council with an overview of transportation infrastructure maintenance activities as part of the annual Roads QMS Management Review process (see **Section 20.0**). Maintenance, rehabilitation, and renewal programs are included as an input to the Management Review, and review results are summarized in a Report to Council.



Table 15-1: Transportation Infrastructure Maintenance Programs – Year-Round

Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Pavement Surface	<ul style="list-style-type: none"> Pothole repair. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Crack repair. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Debris removal. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Remove as soon as practicable upon becoming aware as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Pavement sweeping. 	<ul style="list-style-type: none"> Annually in the spring or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Outlook Tasks. AA Tracking.
	<ul style="list-style-type: none"> Surface discontinuity repair. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Outlook Tasks. AA Tracking.
Pavement Markings	<ul style="list-style-type: none"> Pavement marking repainting. 	<ul style="list-style-type: none"> Annually or as required. 	<ul style="list-style-type: none"> Ontario Traffic Manual Book 11 Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Outlook Tasks. Contracted maintenance service records.
Shoulders	<ul style="list-style-type: none"> Shoulder drop-off re-grading. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
	<ul style="list-style-type: none"> Pothole repair. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Pavement Maintenance (PW-RD-TI-SOG-011-010) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
Bridges/Culverts (Structural) ¹	<ul style="list-style-type: none"> Bridge deck spall repairs. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Bridge & Culvert Inspection & Maintenance (PW-RD-TI-SOG-012-011) 	<ul style="list-style-type: none"> Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Bridge deck surface discontinuity repairs. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Bridge & Culvert Inspection & Maintenance (PW-RD-TI-SOG-012-011) 	<ul style="list-style-type: none"> Repair or replace as soon as practicable upon becoming aware as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Structural repairs. 	<ul style="list-style-type: none"> As identified during biennial inspections. 	<ul style="list-style-type: none"> Ontario Structure Inspection Manual (OSIM) Bridge & Culvert Inspection & Maintenance (PW-RD-TI-SOG-012-011) 	<ul style="list-style-type: none"> Meet identified repair timeline as per biennial inspection report. 	<ul style="list-style-type: none"> Biannual inspection report (repairs marked on report). Contracted maintenance service records. Outlook Tasks.
Cross Culverts (Non-Structural)	<ul style="list-style-type: none"> Cross culvert repair or replacement. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records. Mr. Compliance. Outlook Tasks.
Driveway Culverts (Non-Structural)	<ul style="list-style-type: none"> Driveway culvert repair or replacement. 	<ul style="list-style-type: none"> As required. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records. Mr. Compliance. Outlook Tasks.

¹ Meeting the definition of a 'Bridge' or a 'Culvert' as described in the Ministry of Transportation's Ontario Structure Inspection Manual (OSIM).



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Medians	<ul style="list-style-type: none"> Plant and landscaping maintenance. 	<i>Maintenance completed by Parks and Facilities</i>			<ul style="list-style-type: none"> Daily time sheets (P & F).
	<ul style="list-style-type: none"> Grass cutting. 	<ul style="list-style-type: none"> Weekly in spring, summer, fall or as required based on growth. 	<ul style="list-style-type: none"> Median & Boulevard Maintenance (PW-RD-TI-SOG-011-011) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Daily time sheets.
Boulevards	<ul style="list-style-type: none"> Tree branch maintenance over roads 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> Median & Boulevard Maintenance (PW-RD-TI-SOG-011-011) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records. Mr. Compliance. Outlook Tasks. Daily time sheets.
	<ul style="list-style-type: none"> Tree branch maintenance over sidewalks. 	<ul style="list-style-type: none"> As identified during annual fall inspection or as required. 	<ul style="list-style-type: none"> Median & Boulevard Maintenance (PW-RD-TI-SOG-011-011) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records. Mr. Compliance. Outlook Tasks.
	<ul style="list-style-type: none"> Tree removals. 	<ul style="list-style-type: none"> As identified during tree condition assessments or as required. 	<ul style="list-style-type: none"> Median & Boulevard Maintenance (PW-RD-TI-SOG-011-011) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records. Outlook Tasks.
Road Signs (Section 11) ²	<ul style="list-style-type: none"> Sign repair or replacement. 	<ul style="list-style-type: none"> As identified during road patrols, annual reflectivity inspector or as required. 	<ul style="list-style-type: none"> MMS Regulation Sign Inspection & Maintenance (PW-RD-TI-SOG-012-003) 	<ul style="list-style-type: none"> Repair or replace as soon as practicable upon becoming aware as per MMS Regulation. 	<ul style="list-style-type: none"> Mr. Compliance. Outlook Tasks. Retro-reflectivity report (repairs marked on report).

² Per Section 11 of MMS Regulation, includes: checkerboard, curve, do not enter, one-way, school zone, stop, traffic signal ahead, wrong way, yield & related.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Road Signs (Section 12) ³	<ul style="list-style-type: none"> • Sign repair or replacement. 	<ul style="list-style-type: none"> • As identified during road patrols, annual reflectivity inspector or as required. 	<ul style="list-style-type: none"> • MMS Regulation • Sign Inspection & Maintenance (PW-RD-TI-SOG-012-003) 	<ul style="list-style-type: none"> • Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> • Mr. Compliance. • Outlook Tasks. • Retro-reflectivity report (repairs marked on report).
Protective Barriers	<ul style="list-style-type: none"> • Protective barrier repairs. 	<ul style="list-style-type: none"> • As identified during road patrols, NRP accident reports or as required. 	<ul style="list-style-type: none"> • MTO Roadside Safety Manual • Ontario Provincial Standards • Median & Boulevard Maintenance (PW-RD-TI-SOG-011-011) 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • Contracted maintenance service records. • Outlook Tasks.
Street Light Luminaires	<ul style="list-style-type: none"> • Luminaire repair. 	<ul style="list-style-type: none"> • As identified during annual inspections⁴ or as required. 	<ul style="list-style-type: none"> • MMS Regulation • Street Light Maintenance (PW-ENG-TI-SOG-011-001) • Street Light Inspection (PW-ENG-TI-SOG-012-001) 	<ul style="list-style-type: none"> • Meet minimum repair times as per MMS Regulation. 	<ul style="list-style-type: none"> • Street Light Maintenance Report (PW-ENG-TI-FRM-012-002) • Mr. Compliance. • Outlook Tasks.
Flashing Devices	<ul style="list-style-type: none"> • Flashing devices repair. 	<i>Maintenance completed by Region of Niagara</i>			<ul style="list-style-type: none"> • Maintenance invoices from Region of Niagara.
Sidewalks	<ul style="list-style-type: none"> • Surface discontinuity repair. 	<ul style="list-style-type: none"> • As identified during annual sidewalk inspection or as required. 	<ul style="list-style-type: none"> • MMS Regulation • Sidewalk Inspection & Maintenance (PW-ENG-TI-SOG-012-002) 	<ul style="list-style-type: none"> • Meet identified repair timeline as per biannual inspection report. 	<ul style="list-style-type: none"> • Sidewalk Inspection Database (PW-ENG-TI-DBS-012-001) • Contracted maintenance service records. • Outlook Tasks.

³ Per Section 12 of MMS Regulation, includes all regulatory or warning signage not covered under Section 11.

⁴ May include inspections performed by the Town of Grimsby or the Region of Niagara.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Storm Water System	<ul style="list-style-type: none"> Storm sewer inlet/outlet clearing. 	<ul style="list-style-type: none"> As identified during storm event monitoring (pre, post and during events) or as required. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Storm Inlet & Outlet Inspection Checklist (PW-RD-TI-FRM-012-001) Outlook Tasks. Daily time sheets.
	<ul style="list-style-type: none"> Catch basin cleaning. 	<ul style="list-style-type: none"> Annual. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Contracted maintenance service records.
	<ul style="list-style-type: none"> Ditch grading. 	<ul style="list-style-type: none"> As required. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Outlook Tasks. Daily time sheets.
	<ul style="list-style-type: none"> Ditch/roadside mowing. 	<ul style="list-style-type: none"> 3 times per year or as required. 	<ul style="list-style-type: none"> Storm Water Inspection & Maintenance (PW-RD-TI-SOG-012-012) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks. Daily time sheets.



Table 15-2: Transportation Infrastructure Maintenance Programs – Winter Months

Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Pavement Surface	<ul style="list-style-type: none"> Road pre-winter route patrol to identify issues (raised MHs, settlements, etc). 	<ul style="list-style-type: none"> Annually prior to winter season. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
	<ul style="list-style-type: none"> Snow ploughing at all locations. 	<ul style="list-style-type: none"> As identified through winter weather monitoring and road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Winter Weather Monitoring & Patrols (PW-RD-TI-SOG-012-002) Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> Meet minimum response times as per MMS Regulation. 	<ul style="list-style-type: none"> Weather monitoring results. AA Tracking.
	<ul style="list-style-type: none"> Ice treatment at all locations. 	<ul style="list-style-type: none"> As identified through winter weather monitoring and road patrols or as required. 	<ul style="list-style-type: none"> MMS Regulation Winter Weather Monitoring & Patrols (PW-RD-TI-SOG-012-002) Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> Meet minimum response times as per MMS Regulation. 	<ul style="list-style-type: none"> Weather monitoring results. AA Tracking.
	<ul style="list-style-type: none"> Ice treatment at escarpment accesses. 	<ul style="list-style-type: none"> Ice treatment twice daily or anti-icing max. 68 hours apart from Nov. 1 - Mar. 31. 	<ul style="list-style-type: none"> MMS Regulation Winter Weather Monitoring & Patrols (PW-RD-TI-SOG-012-002) Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> Meet response times identified in Winter Storm Response SOG. 	<ul style="list-style-type: none"> Weather monitoring results. AA Tracking.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
	<ul style="list-style-type: none"> Snow cleanup of areas where trucks have difficulty clearing (cul-de-sacs, road elbows, etc.). 	<ul style="list-style-type: none"> As required during normal snow ploughing response or following the end of a snow event. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
Boulevards	<ul style="list-style-type: none"> Snow fence installation. 	<ul style="list-style-type: none"> Installed from Nov. 30 - Apr. 30. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Outlook Tasks.
	<ul style="list-style-type: none"> Snow removal downtown (overburden). 	<ul style="list-style-type: none"> Where average height of overburden exceeds 0.5m high. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
	<ul style="list-style-type: none"> Snow removal at all locations (overburden). 	<ul style="list-style-type: none"> As required and as resources allow for. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
Sidewalks	<ul style="list-style-type: none"> Sidewalk lot pre-winter route patrol to identify issues (tree branches, etc.). 	<ul style="list-style-type: none"> Annually prior to winter season. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
	<ul style="list-style-type: none"> Snow ploughing at all locations. 	<ul style="list-style-type: none"> As identified through winter weather monitoring and road patrols or as required. 	<ul style="list-style-type: none"> Winter Weather Monitoring & Patrols (PW-RD-TI-SOG-012-002) Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Weather monitoring results. AA Tracking.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
	<ul style="list-style-type: none"> Ice treatment at all locations. 	<ul style="list-style-type: none"> As identified through winter weather monitoring and road patrols or as required. 	<ul style="list-style-type: none"> Winter Weather Monitoring & Patrols (PW-RD-TI-SOG-012-002) Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Weather monitoring results. AA Tracking.
Sidewalks	<ul style="list-style-type: none"> Sidewalk cleanup (ploughing and ice treatment) at areas where sidewalk ploughs have difficulty accessing (narrow sidewalks, downtown core, etc.). 	<ul style="list-style-type: none"> As required during normal sidewalk ploughing or ice treatment. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Daily time sheets.
	<ul style="list-style-type: none"> Sidewalk cleanup (ploughing and ice treatment) downtown. 	<ul style="list-style-type: none"> As required to maintain 1m wide pedestrian pathway parallel to road with bare surface. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Daily time sheets.
	<ul style="list-style-type: none"> Sidewalk cleanup (shoveling) downtown. 	<ul style="list-style-type: none"> As required to maintain connections from the road to the pedestrian pathway between parking stalls⁵. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Daily time sheets.

⁵ Only applies when the buildup of snow between road and pedestrian pathway accumulates to 200 - 300mm high.



Infrastructure Component	Level of Service			Performance Indicator	Tracking Method
	Maintenance Activities	Frequency	Applicable Guidelines		
Storm Water System	<ul style="list-style-type: none"> Ditches cleared to reduce excessive ponding. 	<ul style="list-style-type: none"> As identified during road patrols or as required. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
Parking Lots and Laneways	<ul style="list-style-type: none"> Parking lot pre-winter route patrol to identify issues (settlements, etc.). 	<ul style="list-style-type: none"> Annually prior to winter season. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.
	<ul style="list-style-type: none"> Snow ploughing and ice treatment by Parks and Facilities. 	<i>Maintenance completed by Parks and Facilities</i>			<ul style="list-style-type: none"> Daily time sheets (P & F).
	<ul style="list-style-type: none"> Snow ploughing and ice treatment by Roads. 	<ul style="list-style-type: none"> As required during normal snow ploughing or ice treatment response or following completion of all other locations for cemetery laneways. 	<ul style="list-style-type: none"> Winter Storm Response (PW-RD-TI-SOG-011-001) 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> AA Tracking. Outlook Tasks.



15.2 Infrastructure Rehabilitation & Renewal

The Operating Authority may choose to undertake rehabilitation activities if they are expected to extend the useful life of the infrastructure at reasonable cost. Alternatively, renewal activities may be implemented. A cost-benefit evaluation may be used as a basis for determining whether rehabilitation is favoured over renewal of the infrastructure in question.

- Major rehabilitation and renewal needs are formally identified during the annual Roads QMS Infrastructure Review (see ***RQMS Review & Provision of Infrastructure, PW-RDS-TI-PRO-010-001***). Associated activities are planned, managed, and funded under the Town's capital budgeting program.
- Minor rehabilitation or renewal is typically completed on an as-needed basis. A summary of these activities is presented for discussion during the annual Roads QMS Infrastructure Review. The summary of activities is examined to identify any potential trends that would indicate a need for development of a larger rehabilitation and/or renewal program.



16.0 Patrolling and Monitoring

RQMS Patrolling and Monitoring (PW-ES-WD-PRO-012-001) – See Appendix A) describes the process for monitoring the condition, safety and quality of roadways, sidewalks, and other selected infrastructure within the Town’s jurisdiction and to ensure compliance with O.Reg. 239/02.

The Roads Operating Authority monitors the condition, safety and quality of its transportation infrastructure through the completion of regular patrolling and monitoring programs. Patrolling and monitoring programs for the Town’s transportation infrastructure are developed in accordance with the requirements of O.Reg. 239/02. Patrolling and monitoring requirements for the Town’s transportation infrastructure are identified in ***RQMS Patrolling and Monitoring (PW-ES-WD-PRO-012-001)***.

Additional monitoring of Town roadways and supporting structures is completed during winter months in accordance with O.Reg 239/02. Winter weather and road conditions are closely monitored to predict and plan for expected winter weather events.

Records of patrolling and monitoring activities are maintained as per the ***RQMS Record Control Matrix (PW-RD-TI-LM-003-001)***.



17.0 Equipment Calibration and Maintenance

RQMS Equipment Calibration and Maintenance (PW-RD-TI-PRO-013-001 – See *Appendix A*) outlines requirements for the calibration and verification of measurement and recording equipment used in the maintenance of the Town’s transportation infrastructure.

Measurement, monitoring and recording equipment owned by the Town of Grimsby and used in the maintenance of the Town’s transportation infrastructure are subject to periodic calibration by Operating Authority staff or the manufacturer. The ***RQMS Equipment Calibration and Maintenance (PW-RD-TI-PRO-013-001)*** procedure lists the measurement and recording equipment used by the Operating Authority and the associated calibration requirements and maintenance for each piece of equipment.

Measurement, monitoring and recording equipment used by the Operating Authority include:

- Thermometers (in vehicle)
- Electronic Spreader Controls
- Global Positioning System (GPS) Units (in vehicles)

For each equipment type, the ***RQMS Equipment Calibration and Maintenance (PW-RD-TI-PRO-013-001)*** procedure provides information including manufacturer name, equipment model type and serial number, calibration frequency, and any associated calibration SOGs.



18.0 Emergency Management

Not applicable.



19.0 Internal Audits

A procedure has been created to describe the Roads QMS Internal Auditing Program & associated processes. The purpose of the Internal Audit Program is to evaluate the Town of Grimsby's conformance with the Roads Quality Management Standard. The procedure ***RQMS Internal Auditing (PW-RD-TI-PRO-015-001 – See Appendix A)*** documents required activities & processes relating to the planning, execution and documentation of RQMS Internal Audits, including recording of non-conformances and reporting of results to Top Management and the Owner.

Roads QMS Internal Auditors are appointed to the Internal Audit Team by Top Management, and must achieve and maintain defined competency requirements including the following:

- Internal Auditors must possess an understanding of both the requirements and the intent of the Roads Quality Management Standard;
- Internal Auditors must be competent (i.e., must receive Internal Auditor Training);
- Internal Auditors should have a good knowledge of the Town's transportation infrastructure;
- Internal Auditors must be familiar with the Public Works Department's Roads QMS auditing procedures and protocols.

The Lead Auditor and EHS Compliance Manager work together to plan and execute the annual Roads QMS Internal Audit with the assistance of the Internal Audit Team. The role of Lead Auditor can be fulfilled by the EHS Compliance Manager if desired. Internal Auditors must remain objective and impartial throughout the audit process, and cannot audit their own work or work areas.

Audit conclusions may identify actual or potential non-conformances in current operations or processes, indicating the need for corrective action or preventive action, respectively. Auditors may also suggest potential improvement initiatives. Actual and potential non-conformances must be documented and resolved according to the Operating Authority's defined Continual Improvement process (refer to **Section 21.0** of this Operational Plan). Completion and effectiveness of corrective and preventive actions are verified by the Lead Auditor or an Internal Audit Team delegate.

Upon completion of scheduled internal audits, the EHS Compliance Manager (or designate) reviews audit findings and compiles the information for presentation to Top Management as part of the annual Roads QMS Management Review (refer to **Section 20.0** of this Operational Plan). Audit findings must be considered in future relevant audits.

The Town of Grimsby's Roads QMS must be audited in its entirety once every calendar year. All QMS system processes, Standard Operating Guidelines and/or field activities that fall under the scope of the Roads Quality Management Standard may be audited as part of this process.



20.0 Management Review

RQMS Management Review (PW-RD-TI-PRO-016-001 – See Appendix A) has been developed to document the process followed by the Operating Authority and Operating Authority Top Management (Director of Public Works) in planning, executing and documenting Roads QMS Management Reviews, including provision of feedback to the Operating Authority and reporting of review results to the Owner. The Management Review process ensures that all levels of the organizational structure are kept informed and aware of the Roads QMS and performance of the Town's transportation infrastructure.

The Director of Public Works, as Top Management of the Operating Authority, participates in the Management Review. Other management staff, from the Operating Authority, participates in the review as members of the Management Review Team.

The EHS Compliance Manager has a significant role in the Roads QMS Management Review process, compiling all required input data and presenting this information to the Director of Public Works and the Management Review Team. Inputs to Management Review are listed in Section 5.3 of **RQMS Management Review (PW-RD-TI-PRO-016-001)**.

Other Town staff may be invited to assist in presenting information to the Management Review Team, or in reviewing the information presented, where they offer additional expertise or insight regarding the subject matter.

The Director of Public Works and the Management Review Team are responsible for reviewing the input materials presented and generating outputs as specified in Section 5.4 of **RQMS Management Review (PW-RD-TI-PRO-016-001)**.

Management Review meetings can be conducted as one meeting per year or split into several smaller meetings over the course of the year. Either method is acceptable as long as all required review inputs and agenda items are reviewed over the course of the calendar year.

Roads QMS Management Review outputs must be documented and retained as proof of completion, and results of the Management Review must be communicated to the Owner.



21.0 Continual Improvement

RQMS Preventive & Corrective Action (PW-RD-TI-PRO-017-001 – See Appendix A) was developed to document the process followed to ensure effective resolution of Roads Quality Management non-conformances. This process is used to address both potential and actual non-conformances and includes root cause analysis, identification and implementation of preventive or corrective actions, and verification of their effectiveness.

Potential and actual Roads Quality Management non-conformances are identified through several different means, including but not limited to audits, internal and external communication, monitoring and measurement of Roads QMS performance, employee observations/ suggestions, and Roads QMS Management Reviews. The non-conformance is documented on a **RQMS Preventive & Corrective Action Request Form (PW-RD-TI-FRM-017-001)**, and this form is used to document the Root Cause Analysis, the development & implementation of the Preventive or Corrective Action Plan, and follow-up verification activities. Designated Operating Authority Staff may be delegated to implement preventive or corrective actions. The EHS Compliance Manager (or designate) verifies the effectiveness of the preventive or corrective action. The Director of Public Works is responsible for approving and closing Preventive and Corrective Requests, and will only do so once the effectiveness of the implemented solution has been verified by the EHS Compliance Manager.

The EHS Compliance Manager retains completed documentation of Preventive & Corrective Action Requests and generates an annual summary of the status of non-conformances, preventive actions and corrective actions for presentation as an input to Roads QMS Management Reviews.