

TABLE OF CONTENTS

8	Operations and Maintenance	2
8.1	Regular Inspections	2
8.2	Maintenance Activities	2
8.2.1	Sediment Removal	2
8.2.2	Vegetation Control.....	2
8.2.3	Erosion Prevention	2
8.2.4	Culvert Inspection.....	2
8.2.5	Gate Maintenance	2
8.3	Infrastructure Management.....	3
8.3.1	Inventory and Assessment.....	3
8.3.2	Prioritization.....	3
8.3.3	Maintenance Planning	3
8.3.4	Risk Assessment	3
8.3.5	Financial Planning	3
8.4	Infrastructure Operation.....	4

8 OPERATIONS AND MAINTENANCE

A high-level overview of the operation and maintenance (O&M) requirements of a C&D can be found in the C&D Development Guide listed on WSA's website and in Appendix A of this Handbook.

Managing infrastructure requires being attentive to changing conditions, conducting maintenance activities, keeping good records, and planning long-term investments.

8.1 REGULAR INSPECTIONS

Proactive maintenance is crucial in preventing costly repairs and ensuring optimal drainage. Regular inspections should be conducted:

- **Frequency:** At least twice a year, preferably before and after the growing season.
- **Focus:** Check for erosion, sediment buildup, blockages, vegetation growth, culvert condition, and gate functionality.
- **Documentation:** Record findings and maintenance activities for future reference.

8.2 MAINTENANCE ACTIVITIES

Maintenance is required to ensure infrastructure stays in operating condition. Some of the maintenance tasks include:

8.2.1 Sediment Removal

Regular sediment removal is necessary to maintain ditch depth and flow capacity. A trustworthy local contractor with a hoe can be a significant asset here.

8.2.2 Vegetation Control

Manage vegetation growth to prevent blockages and erosion. Consider mowing, herbicide application, or manual removal. Mowing should be done in the fall so that waterways are clear in the spring.

8.2.3 Erosion Prevention

Implement erosion control measures like bank stabilization (e.g., planting vegetation, using riprap, geotextiles, etc.) to protect ditch integrity.

8.2.4 Culvert Inspection

Regularly check for blockages, damage, or undercutting. Clear debris and address structural issues promptly.

8.2.5 Gate Maintenance

Ensure gates operate smoothly and correctly. Lubricate hinges, repair damaged components, and test functionality.

8.3 INFRASTRUCTURE MANAGEMENT

Effective infrastructure management is crucial for ensuring the longevity and performance of your drainage system. You can optimize system efficiency, minimize maintenance costs, and mitigate potential damages by implementing a comprehensive plan for gates, culverts, ditches, and other structures.

Key steps in developing an asset management plan include:

8.3.1 Inventory and Assessment

Create a detailed inventory of all drainage assets, including location, size, material, condition, and age. Regular inspections should be conducted to assess their condition and identify potential issues. SCDA's engineering staff can join you on inspection tours to help identify problems and make proper assessments.

8.3.2 Prioritization

Determine each asset's criticality based on factors such as its impact on water flow, flood risk, environmental implications, and cost. Then, prioritize maintenance and repair work accordingly.

8.3.3 Maintenance Planning

Establish a routine maintenance schedule for each asset, including cleaning, inspections, repairs, and replacements. Utilize historical data to predict maintenance needs and allocate resources effectively.

8.3.4 Risk Assessment

Identify potential risks to the drainage system, such as extreme weather events, erosion, and blockages. Develop mitigation strategies to minimize these risks and protect infrastructure.

8.3.5 Financial Planning

Estimate the costs associated with maintenance, repairs, and replacements. Develop a long-term financial plan to ensure adequate funding for drainage infrastructure. A simple way to analyze costs is to get quotes to replace a structure. Then, divide that cost by the predicted average lifespan of the structure. The result is how much money should be set aside annually for infrastructure renewal. Add up the annual investment amounts to determine how much money should be set aside each year to pay for replacement when the structures fail. The table below illustrates how this can be done quickly. Over time, other columns can be added to this table, such as install date, predicted replacement date, priority rating, etc.

Item	Condition	Remaining Useful Life	Replacement Cost	Average Lifespan	Annual Investment
Ex. Culvert 1	Good	30	\$10,000	50	\$200

For a more comprehensive worksheet, Alberta has developed a guide to asset management for municipalities that would also apply to Conservation and Development Areas. The link to that can be found in Appendix A. SCDA's engineers are available to help with your infrastructure management endeavours. Please don't hesitate to contact us if you need support.

8.4 INFRASTRUCTURE OPERATION

Once the proposed works are approved, WSA will outline standards with which the project must comply to operate correctly. These conditions will be specified in the project's Approval to Operate (ATO). Additionally, if your project requires an Aquatic Habitat Protection Permit (AHPP), it must be obtained before carrying out any work. AHPP permits may take up to 12 weeks, so plan accordingly to avoid project delays. SCDA's engineers are available to assist with any questions or permit applications. Please don't hesitate to contact us if you need support.