CATALIS™

TOWN OF FORT MACLEOD

Asset Management Plan

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SUMMARY

This Asset Management Plan intends to advise the Town of Fort Macleod toward achieving its municipal objectives through asset management.

The methodology of this plan is based on best practices available to the Town, from sources such as MuniSight Ltd., the Federation of Canadian Municipalities (FCM), and interviews with select municipal staff. Infrastructure was sorted into various asset classes and evaluated against asset registry, condition, level of service, and risk considerations. Inventory lists were generated based on the data from the Town of Fort Macleod's MuniSight Webmap software and through interviews of municipal staff.

Although this plan was developed to be as robust as possible, it was limited by a series of assumptions. With historical figures being used to predict future behavior, any major changes to economic, social, political, or environmental considerations will impact the validity of this report.

This report concludes that the Town of Fort Macleod is in the early stages of establishing an effective Asset Management Program. Fort Macleod has developed a basic asset inventory of most of its important assets. However, more information is required to determine the overall condition, level of service, replacement cost, and risk of the asset network. Currently, there is insufficient information to make conclusions about the overall state of infrastructure assets. Developing a robust asset management process can take place in stages, over many years, and the Town has made significant progress in developing this asset management program. It is recommended the Town continue to develop asset management capabilities in their people, processes, and data systems. Several key recommendations are highlighted in this report to help the Town focus on the actions with the highest positive potential impact.

INTRODUCTION

INTENT

The Asset Management Plan intends to provide a 10,000 ft view of the life cycle activities that a municipality must execute to achieve the desired level of service goals as detailed in their Asset Management Strategy. The Asset Management Plan should provide information on what assets a municipality possesses, their condition, current-day replacement cost, and impact if failed.

An Asset Management Plan plays a specific role in a municipality's practice of asset management, and is therefore organized in a fashion that answers five questions:

1. Asset Inventory - What are the assets, and where are they?
2. State of Infrastructure - What condition are the assets in?
3. Level of Service - What level of service do the assets deliver? Is there any level of service deficiencies?
4. Risk - What is the impact of these assets failing?
5. Financial – How much would the assets cost to replace?

STRATEGIC ALIGNMENT

This Asset Management Plan utilizes information from the following documents:

- Asset Management Policy
- Asset Management Strategy
- Interviews with select municipal staff

METHODOLOGY

INTRODUCTION TO ASSET CLASSES

To simplify and summarize the results of data in Webmap, asset classes are used to group and aggregate asset information. In this report, the following asset classes are presented:

Road Network	-	Paved roads, gravel roads, street signs, bridges, etc.
Culverts	-	Culverts, etc.
Water Network	-	Valves, waterlines, hydrants, etc.
Sanitary Sewer Network	-	Valves, sanitary lines, manholes, etc.
Storm Sewer Network	-	Culverts, storm lines, inlets, etc.
Buildings	-	Offices, public works shops, etc.
Fleet and Equipment	-	Vehicles, tractors, trailers, etc.
Parks & Recreation	-	Trails, Arenas, parks, etc.
Airport Asset Network	-	Airport assets, etc.
Signage Asset Network	-	Signs, etc.

ASSET INVENTORY

A first step in gaining perspective on a municipality's asset management information is to understand what assets it owns and where those assets are located. A list of assets that a municipality maintains is typically referred to as an Asset Inventory (or Asset Register/Registry). Once the Asset Inventory is completed, the common practice is to locate them in the field using surveyors and then to reference the location of the listed assets in a GIS system.

Aside from identifying and locating assets, it is important to collect specific attribute information such as defining characteristics (material of construction, date of construction, etc.) which can be used to infer remaining useful life and replacement costs.

STATE OF INFRASTRUCTURE

As assets are utilized and exposed to the environmental elements, they deteriorate over time and need to be replaced. If an asset's condition deteriorates enough, it will eventually be unable to provide its intended service (i.e., a washed-out road). For this reason, it is important to identify assets that are progressing towards failure, so they can be proactively replaced or maintained. Monitoring asset condition in a pro-active manner can lead to lower overall lifecycle costs as asset repairs can take place before further deterioration increases the overall cost. Asset repairs are often less disruptive to ratepayers and are less costly to undertake, than a total replacement of a failed asset. Figure 1 is an example of a typical asset deterioration curve and associated incremental maintenance/replacement costs. Maintaining a database with current asset conditions contributes to lower overall capital costs and asset downtime.

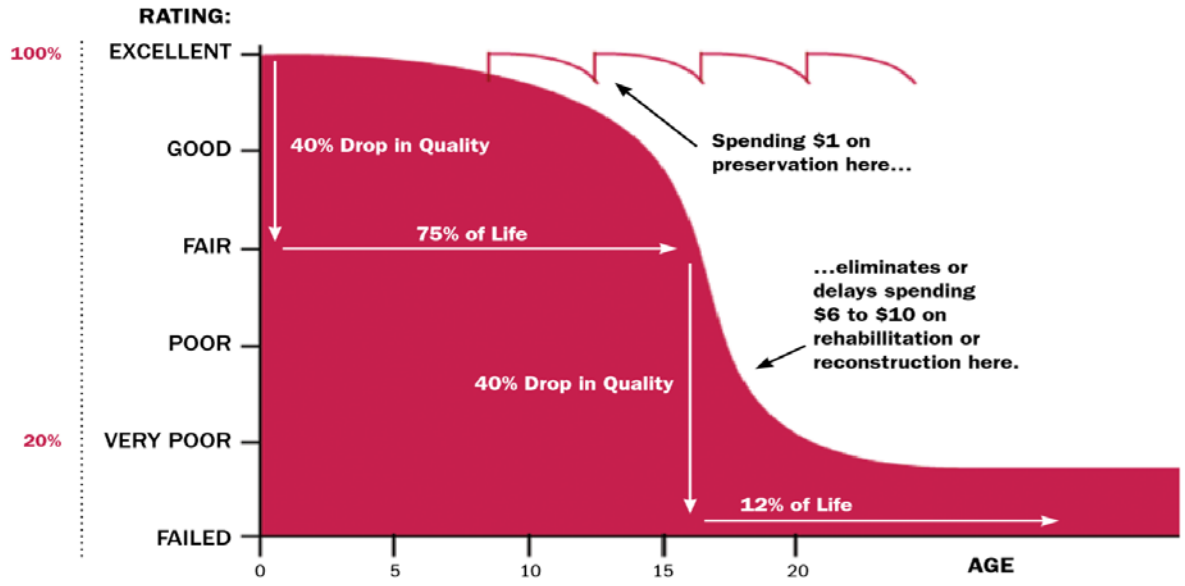

Figure 1: Example of Deterioration Curve From 2019 Canadian Infrastructure Report Card (ACEC, CCA, CPRA, CPWA, CSCE, CUTA, CNAM, FCM, 2019)

An asset Risk Assessment should be completed for any critical assets, assets that have failed or are close to failure. These Risk Assessments aim to measure the impact of asset failure, relative to the likelihood of the asset failing.

LEVEL OF SERVICE

Assessing an asset's Level of Service (LOS) is a critical component of a sound Asset Management Plan, and is one of the three cornerstones of an Asset Management Plan, along with relative Condition Assessments, and asset Risk Assessments.

The goal of the LOS Assessment should be for a municipality to identify if an asset is delivering on its intended benefit. A good assessment of an asset's Level of Service lets a municipality know if an asset needs to be upgraded or modified, based on what the asset's users are expecting from the asset.

Understanding service means having a clear and consistent understanding of:

1. The types of services you provide.
2. The groups of residents, businesses, and institutions that you provide services to.
3. The level of service being delivered currently (your performance); and
4. The level of service you're aiming to provide (your target).

An asset's LOS is a measurement of its ability to deliver the desired benefits to the users of the asset. For example, a properly designed road must be able to transport enough vehicles to prevent traffic and inconvenience to stakeholders, while also being in good enough condition to provide a comfortable ride. There are three main types of Level of Service:

- Technical - requirements dictated by the technical design requirements of the asset
- Legislated - requirements dictated by various levels of government (i.e., Federal/ State/ Provincial/ Municipal)
- Customer - requirements dictated by the stakeholder utilizing the asset

A proper LOS assessment will incorporate criteria from each of the three categories to ensure that an asset is meeting service performance.

A level of service deficiency is identified when the desired level of service does not match the actual level of service being produced by the asset. Part of Asset Management Planning is identifying these deficient assets so that they can be considered for an upgrade, repair, or replacement.

To ensure proper LOS assessments, it is important to consider the following:

- Be consistent within asset type - make sure that each asset, within a specific type, is judged against the same LOS criteria
- Keep it simple - Make a LOS assessment fit for purpose, and do not over complicate it with a vague, or large, set of criteria
- Keep your customer in mind - Understanding the end customer who receives service from an asset is important when deciding which criteria to use when evaluating the Level of Service.

RISK

An asset Risk Assessment helps municipal administrators understand if a failed asset possesses the potential to impact the municipality negatively. Once the risks are known, a municipality can decide whether to invest in mitigating them.

Risk assessments are an assessment of potential events that could result in consequences associated with an asset. The risk score is a function of a consequence's impact and likelihood:

- Impact - what is the magnitude of a consequence's influence?
- Likelihood - what is the probability that this consequence will occur?

An assessment of asset risk depends on:

- Properly evaluating the potential events associated with an asset - what events could create unintended consequences? (e.g., an improperly maintained gravel road)
- Properly evaluating the potential consequences associated with an event - what consequences could arise because of events? (e.g., vehicle damage due to improperly maintained gravel roads)
- Properly assessing the impact and likelihood of a potential consequence.

A commonly used model to evaluate the different considerations of risk consequences is in the form of the PEARS model:

- People - what is the potential for a consequence to harm people?
- Environment - could this negatively impact the environment?
- Assets - what is the potential for municipal assets to be damaged?
- Reputation - what effect could this consequence have on our municipality's reputation at the local, provincial/state, and national level?
- Service - could this consequence negatively affect an assets' ability to deliver on the designed service?

When evaluating a potential consequence, it is important to consider whether the consequence could affect people, the environment, other assets, the municipality's reputation, or the asset's ability to deliver service.

FINANCIAL

Replacement cost is used to represent the current-day value of a particular asset and is a representation of the full costs to replace the asset. This includes engineering, planning, materials, labor, administration costs, etc. Although it is a rough estimate of the true cost of replacing the asset, it is a good proxy to utilize when considering financial implications between asset investment options.

For asset management planning, actual cost figures can be used, or costing algorithms can be developed and applied to an asset class to represent replacement value. Note that financial figures in an Asset Management Plan should not be used for operational budgeting purposes, as they are often too abstract.

LIMITATIONS AND ASSUMPTIONS

Although comprehensive, this Asset Management Plan does have limitations that must be highlighted, namely:

FUTURE PREDICTIONS ARE BASED ON HISTORICAL INFORMATION

A fundamental assumption in this report is that the past is the best predictor of the future. The report uses historical information, such as replacement costs, to predict the future costs considering inflationary effects. Major economic, social, political, or environmental changes will degrade the relevance of historical information in predicting the future, thus rendering the findings of this report less accurate.

A VIEW OF A POINT IN TIME

This report represents a snapshot in time. It is representative of the current state-of-affairs at the time of writing and will become dated with changes to municipal priorities and asset characteristics.

CAPITAL EXPENDITURES

The Asset Management Plan only considers capital expenditures (CAPEX) when evaluating financial implications and does not consider operational expenses.

DATA COMPLETENESS AND QUALITY

The Town of Fort Macleod maintains an asset management software system to house most of its municipal asset information. The completeness and quality of the data were evaluated as part of this Asset Management Plan, where:

- Complete dataset: a dataset that includes 100% of the physical assets in the Town's jurisdiction.
- Quality dataset: a dataset that is error-free and contains all the necessary information.

Town of Fort Macleod		Road Network	Water Network	Sanitary Network	Storm Network	Fleet and Equipment	Buildings	Parks & Recreation	Airport & Signage
Asset Inventory	Complete	C	B	B	B	E	C	C	B
	Quality	C	C	C	C	E	D	D	C
Asset Condition	Complete	E	E	E	E	E	E	E	E
	Quality	E	E	E	E	E	E	E	E
Level of Service	Complete	E	E	E	E	E	E	E	E
	Quality	E	E	E	E	E	E	E	E
Asset Risk	Complete	E	E	E	E	E	E	E	E
	Quality	E	E	E	E	E	E	E	E
Replacement Cost	Complete	E	E	E	E	E	E	E	E
	Quality	E	E	E	E	E	E	E	E

Table 1: Overall Data Quality and Completeness Chart

Striving for an A-grade in each category is a very long-term goal. Collecting asset information is a continuous process that involves time, money, and planning. A municipality will never have a fully complete inventory of its assets, due to the practical complexity of reaching such a goal. It is reasonable to expect that municipalities should focus on building accurate and complete inventories for their most valuable and critical assets first, followed by less important asset categories. In practice, this means prioritizing different classes of assets. For example, a municipality may decide that understanding road asset information is more important than water hydrant asset information, which would prompt them to focus on building a complete road network asset inventory before even beginning to build an inventory of hydrant information.

The Town of Fort Macleod is not able to perform in-depth analysis on asset management infrastructure investment decisions with its current asset information. This report recommends that the Town of Fort Macleod focus on collecting missing asset information and data on the condition, level of service, risk, and replacement cost. A breakdown of the data collected can be found in the Asset Category Summary section below.

ASSET CATEGORY SUMMARY

Roads

The Town of Fort Macleod owns and manages a road network for the transportation of people and goods throughout the Town. The table below is a summary of the road network inventory that is stored within the Webmap software:

Asset Name	(Units)	Count
Dirt	(km)	1.8
Gravel	(km)	19.4
Paved	(km)	41.5
Total	(km)	62.7

Table 2: Road Network Inventory

Fort Macleod has successfully centralized a significant level of road asset data including street type, name, class, ownership, and surface type. It is recommended that the Town define the level of service required for their road network and start to collect the condition for these road assets. The table below is a breakdown of data completeness for the road network assets. Determining the install date, expected useful life, and estimated replacement cost would be required to build an asset replacement forecast.

Asset Name	Attribute	Data Completeness
Roads	Road Class	100%
	Road Width	0%
	Install Date	0%
	Expected Useful Life	0%

Table 3: Road Network Data Completeness

Refer to the “Introduction to Asset Management” (Association of Manitoba Municipalities, 2018) for templates and suggestions for completing the necessary assessments. If the Town has engineering firms periodically complete inspections on their road infrastructure, it is recommended that this data be standardized and stored within a centralized database for future asset management planning purposes.

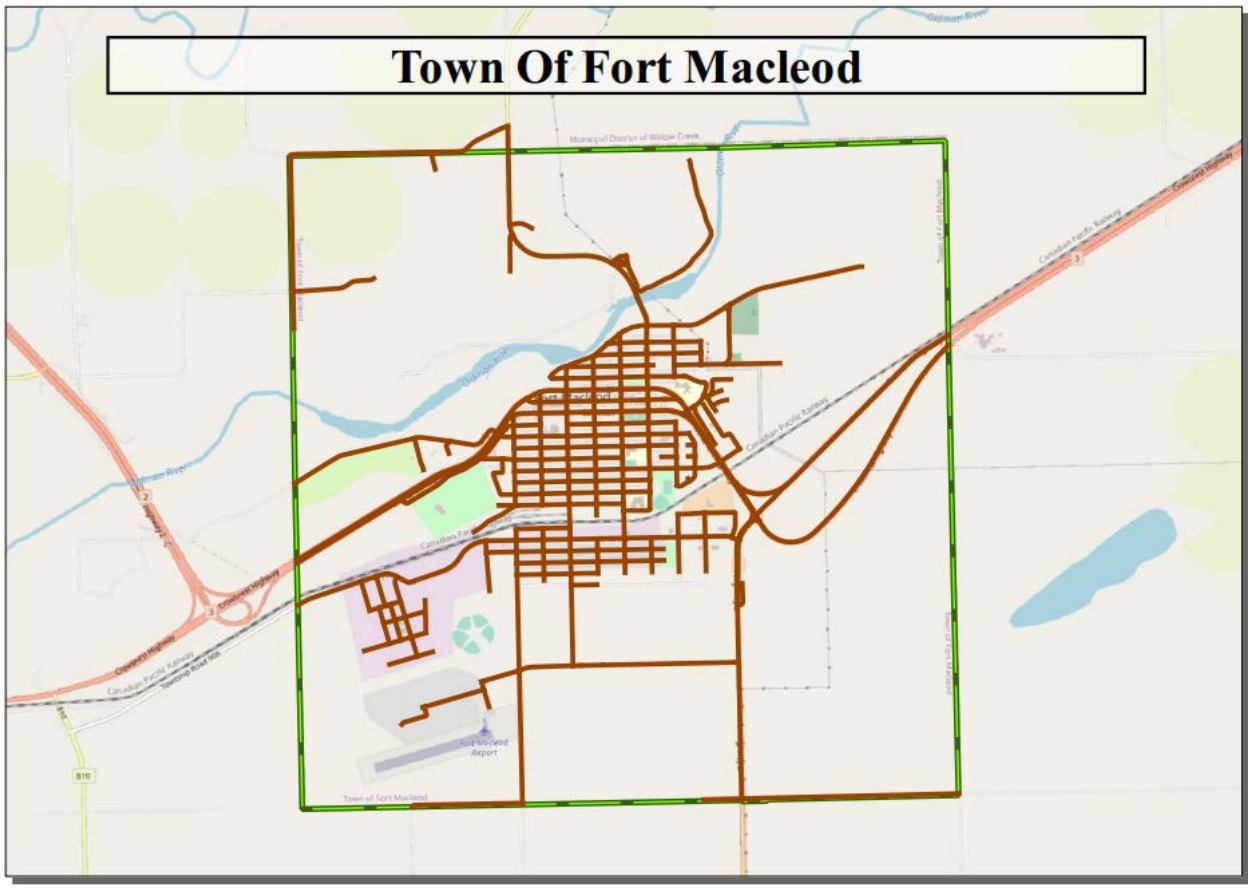

Figure 2: Road Inventory From GIS Database

The above figure shows a visual of all the roads in the Road Inventory for the Town of Fort Macleod. It shows within municipal lines, the roads maintained by and kept track of by the Town. Eventually, with enough information, the visual quality can be increased by showing conditional differences as well as replacement costs on the same visual.

Water Network

The Town of Fort Macleod owns and maintains a water network to provide potable water to residents. The table below is a summary of the Town's water network data stored within MuniSight's Webmap software:

Asset Name	(Units)	Count	Expected Useful Life (years)	Install Date	Replacement Cost
Water Main	(km)	51.5	-	-	-
Water Hydrant	(#)	209	-	-	-
Water Manhole	(#)	0	-	-	-
Water Pump	(#)	1	-	-	-
Water Reservoir	(#)	0	-	-	-
Water Service Connection	(#)	0	-	-	-
Water Source	(#)	0	-	-	-
Water Structure	(#)	1	-	-	-
Water Valve	(#)	587	-	-	-

Table 4: Water Network Inventory

The inclusion of the water mains is a significant first step in data collection, it is recommended that a phased approach be developed to centralize the remaining data. It is also suggested that the Town determines the install date, expected useful life, and replacement cost for these assets to develop an asset replacement forecast. This information, along with assessing the condition, levels of service, and asset risk of these assets are the next steps in asset management. The table below is a summary of the data quality metrics of the Town's current water network infrastructure.

Asset Name	Attribute	Data Completeness
Water Main	Material	86.1%
	Diameter	86.1%
	Length	100%
	Install Date	0%
	Expected Useful Life	0%
Water Fitting	Install Date	0%
	Expected Useful Life	0%
Water Hydrant	Install Date	0%
	Expected Useful Life	0%
Water Manhole	Install Date	0%
	Expected Useful Life	0%
Water Pump	Install Date	0%
	Expected Useful Life	0%
Water Reservoir	Install Date	0%
	Expected Useful Life	0%
Water Service Connection	Install Date	0%
	Expected Useful Life	0%
Water Source	Install Date	0%
	Expected Useful Life	0%
Water Structure	Install Date	0%
	Expected Useful Life	0%
Water Valve	Install Date	0%
	Expected Useful Life	0%

Table 5: Water Network Data Completeness

The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information. If the Town has engineering firms periodically complete inspections on their water network infrastructure, it is recommended that this data be standardized and stored within a centralized database for future asset management planning purposes.

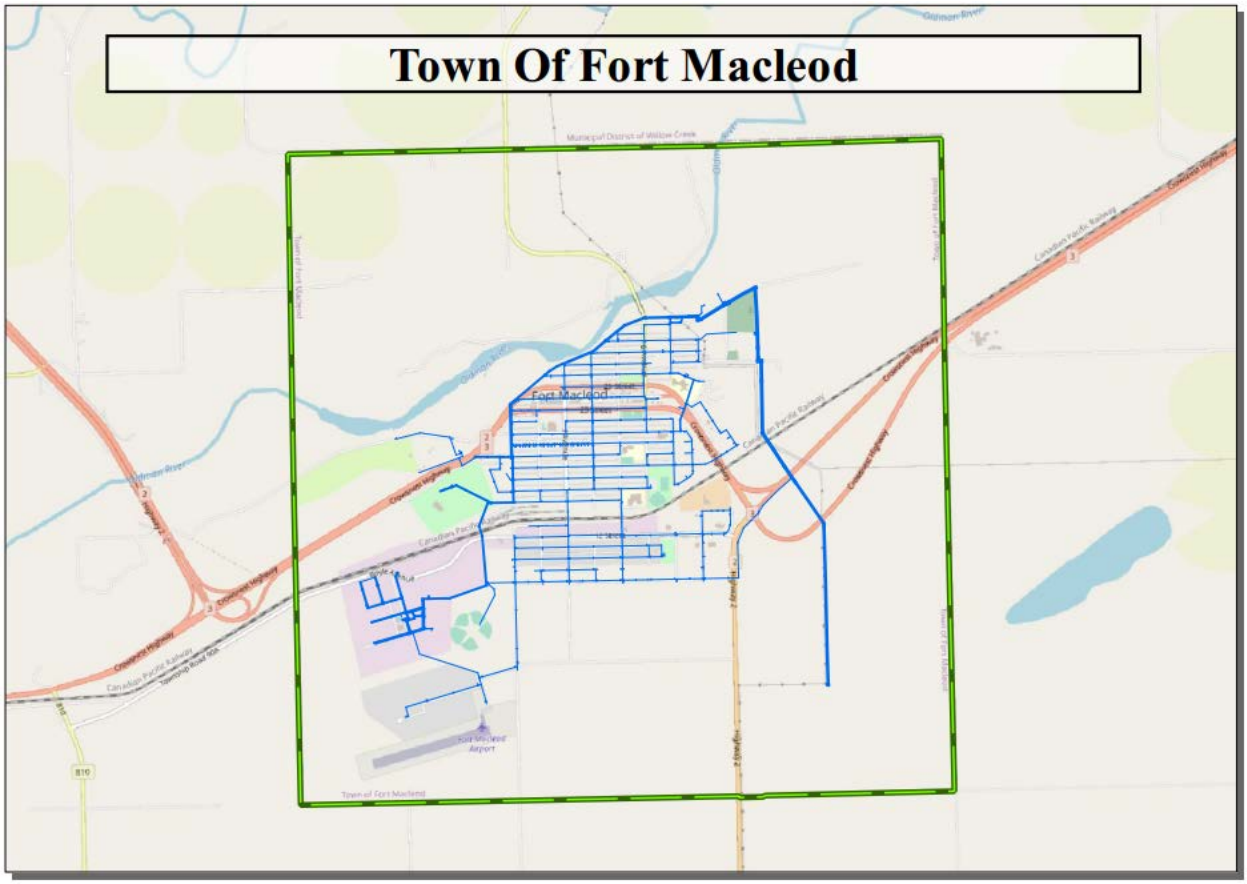

Figure 3: Water Main Inventory From GIS Database

The above figure shows a visual of all the water mains in the Water Mains Inventory for the Town of Fort Macleod. It shows within municipal lines, the water mains maintained by and kept track of by the Town. Eventually, with enough information, the visual quality can be increased by showing conditional differences as well as replacement costs on the same visual.

Sanitary Sewer Network

The Town of Fort Macleod owns and operates a sanitary sewer collection system to provide wastewater removal in the Town. The table below is a high-level summary of this sanitary network within MuniSight's Webmap software:

Asset Name	(Units)	Count	Install Date	Expected Useful Life (years)	Replacement Cost
Sanitary Sewer Main	(km)	42.4	-	-	-
Sanitary Cleanout	(#)	0	-	-	-
Sanitary Detention	(#)	0	-	-	-
Sanitary Discharge	(#)	0	-	-	-
Sanitary Inlet	(#)	0	-	-	-
Sanitary Manhole	(#)	438	-	-	-
Sanitary Pump	(#)	0	-	-	-
Sanitary Structure	(#)	2	-	-	-
Sanitary Tap	(#)	0	-	-	-
Sanitary Valve	(#)	0	-	-	-

Table 6: Sanitary Network Inventory

The sanitary sewer network contains information on sanitary sewer mains, manholes, sewer pumps and structures. It is recommended that more information be collected to build a basic asset inventory. Install dates, replacement costs, and expected useful life can be used to develop an asset replacement forecast. Relevant data quality metrics for this asset category have been broken down in the table below.

Asset Name	Attribute	Data Completeness
Sanitary Main	Material	78.7%
	Diameter	85.4%
	Length	100%
	Install Date	0%
	Expected Useful Life	0%
Sanitary Cleanout	Install Date	0%
	Expected Useful Life	0%
Sanitary Detention	Install Date	0%
	Expected Useful Life	0%
Sanitary Discharge	Install Date	0%
	Expected Useful Life	0%
Sanitary Inlet	Install Date	0%
	Expected Useful Life	0%
Sanitary Manhole	Install Date	0%
	Expected Useful Life	0%
Sanitary Pump	Install Date	0%
	Expected Useful Life	0%
Sanitary Structure	Install Date	0%
	Expected Useful Life	0%
Sanitary Tap	Install Date	0%
	Expected Useful Life	0%
Sanitary Valve	Install Date	0%
	Expected Useful Life	0%

Table 7: Sanitary Network Data Completeness

Based on the information currently entered in Webmap, the Town does not have data on levels of service, asset condition, or asset risk to proceed forward with a further analysis of information. If the municipality has engineering firms periodically complete inspections on their sanitary sewer network infrastructure, it is recommended that this data be standardized and stored within a centralized database for future asset management planning purposes.

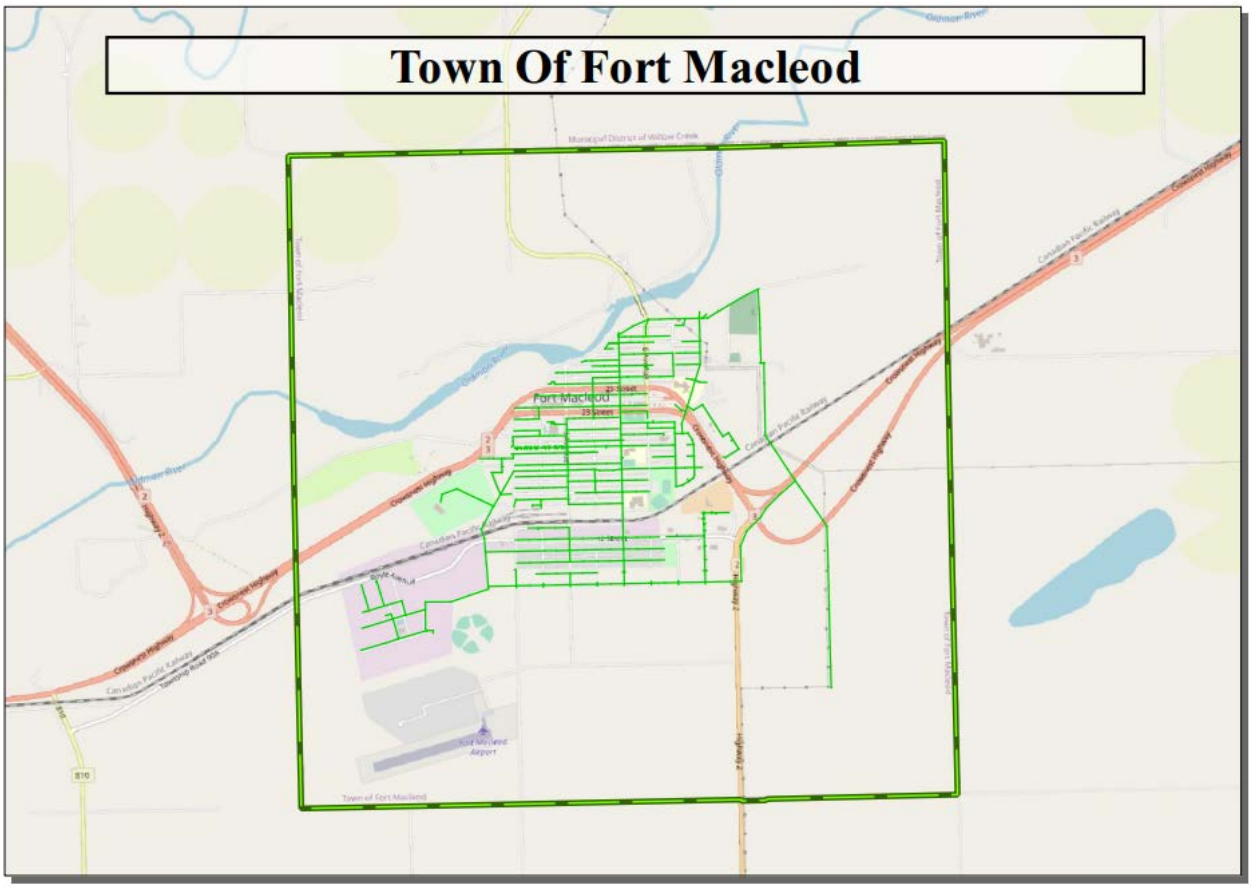

Figure 4: Sanitary Main Inventory From GIS Database

The above figure shows a visual of all the sanitary water mains in the Sanitary Water Mains Inventory for the Town of Fort Macleod. It shows within municipal lines, the sanitary water mains maintained by and kept track of by the Town. Eventually, with enough information, the visual quality can be increased by showing conditional differences as well as replacement costs on the same visual.

Storm Sewer Network

The Town of Fort Macleod owns and manages a storm sewer system to drain surface-water and prevent flooding. The table below is a high-level summary of this sanitary network within MuniSight's Webmap software:

Asset Name	(Units)	Count	Install Date	Expected Useful Life (years)	Replacement Cost
Storm Sewer Main	(km)	12.1	-	-	-
Storm Sewer Cleanout	(#)	0	-	-	-
Storm Sewer Culvert	(#)	0	-	-	-
Storm Sewer Discharge	(#)	4	-	-	-
Storm Sewer Inlet	(#)	306	-	-	-
Storm Sewer Manhole	(#)	144	-	-	-
Storm Sewer Pond	(#)	0	-	-	-
Storm Sewer Valve	(#)	0	-	-	-

Table 8: Storm Sewer Network Inventory

The storm sewer network contains information on storm sewer mains, manholes, fittings, inlets, etc. It is recommended that more information be collected to build a basic asset inventory. Install dates, replacement costs, and expected useful life can be used to develop an asset replacement forecast. Relevant data quality metrics for this asset category have been broken down in the table below.

Asset Name	Attribute	Data Completeness
Storm Sewer Main	Material	100%
	Diameter	100%
	Length	100%
	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Cleanout	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Culvert	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Discharge	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Inlet	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Manhole	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Pond	Install Date	0%
	Expected Useful Life	0%
Storm Sewer Valve	Install Date	0%
	Expected Useful Life	0%

Table 9: Storm Sewer Inventory Completeness

It is recommended that more information be collected and/or consolidated to build a basic asset inventory. The Town should focus on collecting basic information on every asset in the inventory, starting with basic information such as location, material, size, and install date. Following the collection of this basic information it is recommended that condition, levels of service, replacement cost, and asset risk be collected to proceed forward with meaningful analysis of information. Refer to the “Introduction to Asset Management” (Association of Manitoba Municipalities, 2018) for templates and suggestions for completing these assessments.

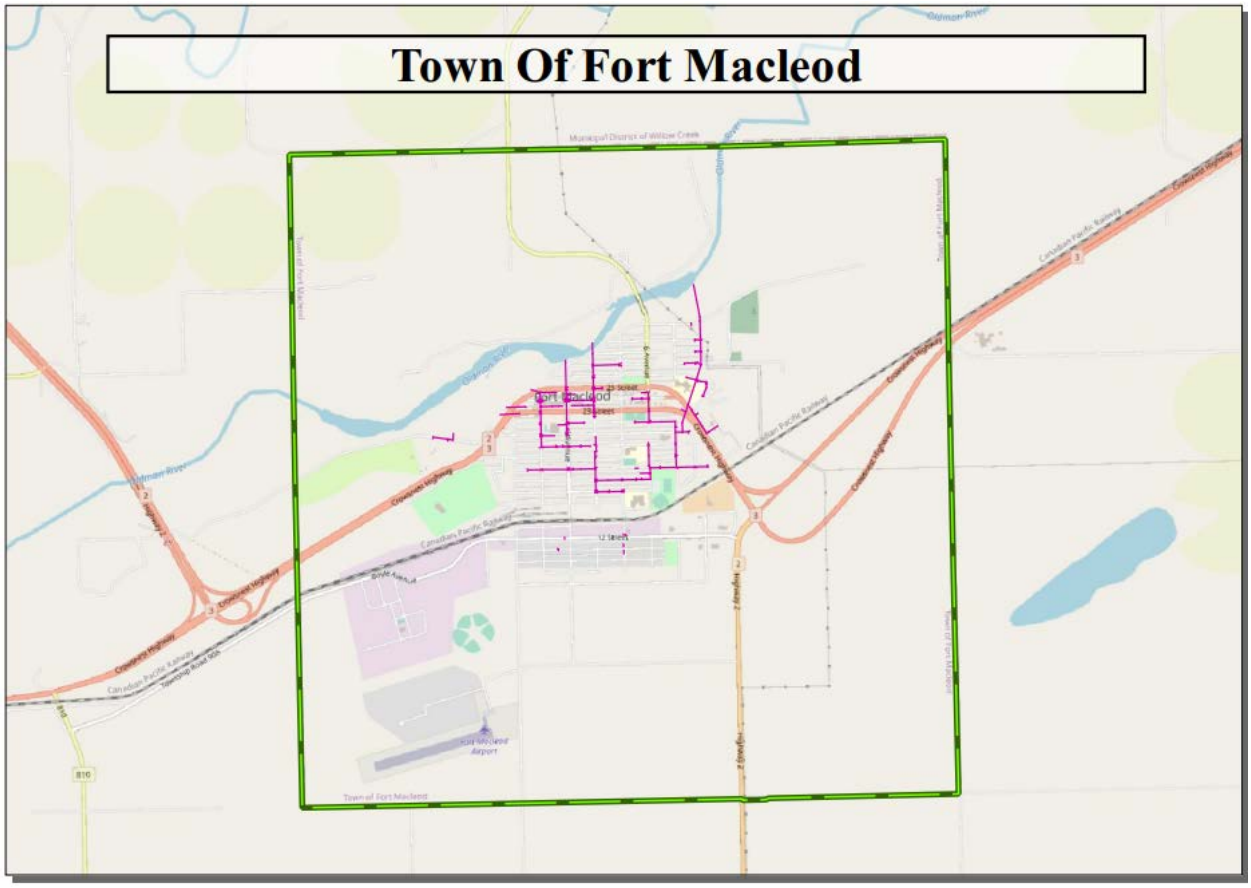

Figure 5: Storm Main Inventory From GIS Database

The above figure shows a visual of all the storm water mains in the Storm Water Mains Inventory for the Town of Fort Macleod. It shows within municipal lines, the storm water mains maintained by and kept track of by the Town. Eventually, with enough information, the visual quality can be increased by showing conditional differences as well as replacement costs on the same visual.

Fleet & Equipment

The Town of Fort Macleod owns and maintains a fleet of vehicles, equipment, and machinery for various purposes throughout the municipality. Currently no fleet or equipment data is stored in MuniSight's Webmap.

It is recommended that Fort Macleod collect and centralize further relevant information on these assets including purchase year, expected useful life, and replacement cost. This information can be used to develop an asset replacement forecast for the fleet equipment. Other useful information includes asset condition, level of service, and risk. The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information.

Parks and Recreation

The Town of Fort Macleod owns and maintains parks and recreation infrastructure to deliver services to stakeholders. The table below is a summary of parks and recreation data within MuniSight's Webmap software:

Asset Name	Install Date	Expected Useful Life	Replacement Cost
Centennial Park/Spray Park	-	-	-
Centennial Park	-	-	-
Lions Little League Ball Park	-	-	-
Lioness Park	-	-	-
South East Park	-	-	-
River Valley Wilderness Park	-	-	-
Fort Macleod Sports Fields	-	-	-
Fort Macleod & District Sports Centre	-	-	-

Table 10: Parks and Recreation Asset Network Inventory

It is recommended that Fort Macleod collect and centralize further relevant information on these assets including install date, expected useful life, and replacement cost. Other useful information includes asset condition, level of service, and risk. The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information.

Buildings

The Town of Fort Macleod owns and maintains municipal buildings to deliver services to stakeholders. The table below is a summary of buildings data within MuniSight's Webmap software:

Asset Name	Install Date	Expected Useful Life	Replacement Cost
Fort Macleod Town Office	-	-	-
Fire Hall House	-	-	-
Fire Hall Warehouse	-	-	-
Recreation Centre	-	-	-
Curling Rink	-	-	-
Pool	-	-	-
Centennial Park Bathroom	-	-	-
Fort Macleod RCMP Library	-	-	-
Community Hall	-	-	-
Scout Hall	-	-	-
Empress Theater & ADJ Office	-	-	-
Fort Macleod Public Works	-	-	-
Airport Recreational Hall	-	-	-
Westwind's Wshr/Pumph/Pivot	-	-	-
Park Staff Shop	-	-	-

Table 11: Building Inventory

It is recommended that Fort Macleod collect and centralize further relevant information on these assets including install date, expected useful life, and replacement cost. Other useful information includes asset condition, level of service, and risk. The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information.

Signage

The Town of Fort Macleod owns and maintains a sign network throughout the Town. The table below is a summary of the sign network within the Webmap software:

Asset Name	(Units)	Count
Signs	(#)	661

Table 12: Parks and Recreation Asset Network Inventory

Fort Macleod has successfully centralized a significant level of sign asset data including sign code, description, and shape. It is recommended that the Town define the level of service required for their sign network and start to collect the condition for these road assets. The table below is a breakdown of data completeness for the road network assets. Determining the install date, expected useful life, and estimated replacement cost would be required to build an asset replacement forecast.

Asset Name	Attribute	Data Completeness
Signs	Sign Code	100%
	Sign Description	100%
	Shape	28.6%
	Install Date	0%
	Expected Useful Life	0%

Table 13: Sign Inventory Completeness

It is recommended that Fort Macleod collect and centralize further relevant information on these assets including install date, expected useful life, and replacement cost. Other useful information includes asset condition, level of service, and risk. The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information.

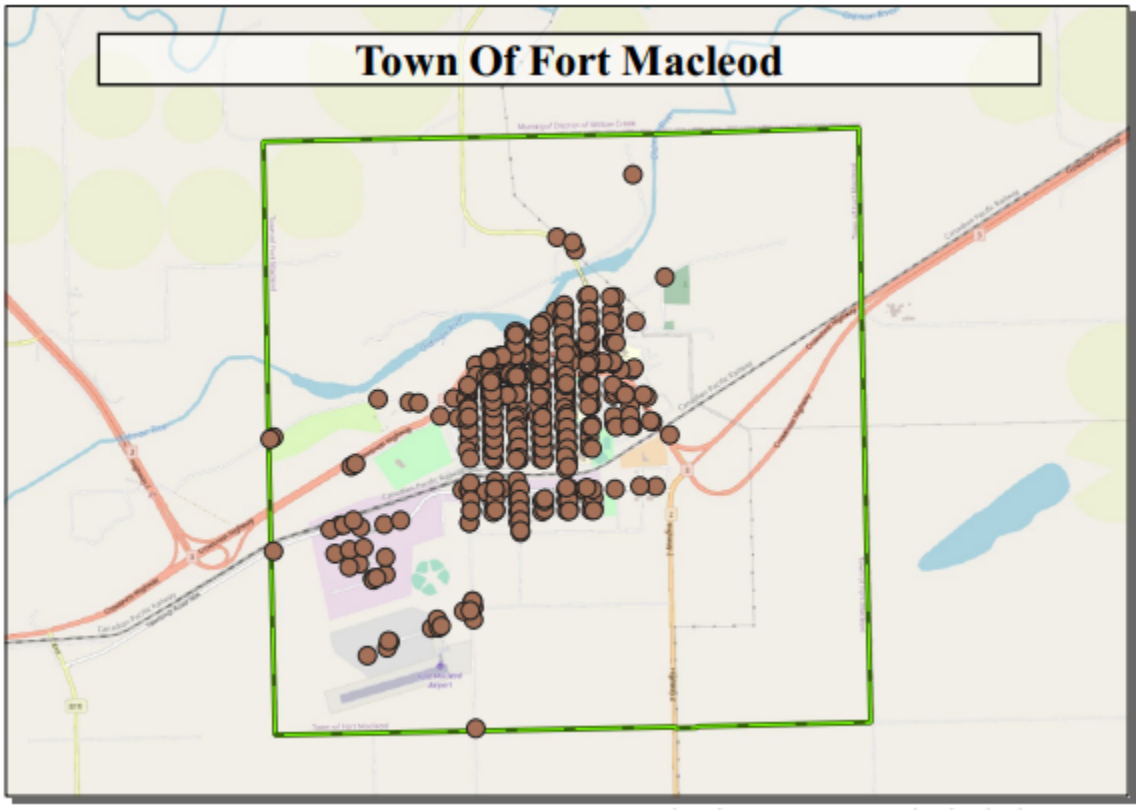

Figure 6: Signage Inventory From GIS Database

The above figure shows a visual of all the sign locations in the Sign Inventory for the Town of Fort Macleod. It shows within municipal lines, the sign locations maintained by and kept track of by the Town. Eventually, with enough information, the visual quality can be increased by showing conditional differences as well as replacement costs on the same visual. The visual was pulled from the Support Structure database, with accordance to multiple signs on the same support structure which corresponds to the totals of 661 signs on 428 support structures.

Culverts

The Town of Fort Macleod owns and maintains a culvert network throughout the municipality. Currently no culvert data is stored in MuniSight's Webmap.

It is recommended that Fort Macleod collect and centralize further relevant information on these assets including purchase year, expected useful life, and replacement cost. This information can be used to develop an asset replacement forecast for the fleet equipment. Other useful information includes asset condition, level of service, and risk. The Town does not have enough data on levels of service, asset condition, or asset risk to proceed forward with meaningful analysis of this information.

CONCLUSION

The Town of Fort Macleod is implementing a proactive Asset Management Program. While still in the early stages this report is a significant first step towards achieving success with asset management.

Using a GIS database, the Town maintains a basic list of asset information for several asset classes. This list includes locations of roads, water infrastructure, sanitary sewers, fleet/equipment, building, and recreational sites. These asset classes typically make up a significant portion of the Town's capital asset expenditures, so the Town has developed a strong foundation for its asset management planning initiatives. Moving forward with asset management should include collecting additional asset information, defining levels of service, building additional asset management procedures, and increasing knowledge within the municipal staff. It is advised to take a gradual approach and address the most critical issues with top priority. Asset Management planning is an evolving process that grows following municipal development.

Recommendations

The following recommendations are provided, based on the findings in this Asset Management Plan:

#	Recommendation	Accountable
1	Utilize Asset Management Documentation – Asset Management Policy, Strategy, & Plan.	Council
2	Adopt Roadmap to layout a long-term plan prioritizing and deploying Asset Management initiatives.	AM Team Council
3	Data Management - Continue to update, consolidate, and collect asset information on the water, wastewater, roads, fleet, building, and recreational asset data. As well as migrating storm sewer network data into Webmap. Developing a basic asset inventory should be a priority.	AM Team
4	Asset Data – Develop a schedule for completing the asset inventory then begin condition assessment collection. Start with a specific asset type that the Town deems most critical. For example, 1. Collect/centralize storm sewer network information (potentially bringing engineering data into the centralized database) 2. Collect further water network condition data (potentially bringing engineering data into the centralized database) 3. Collect further road network condition data (potentially bringing engineering data into the centralized database) 4. Etc.	AM Team PW Staff
5	Levels of Service - Define Levels of Service for each asset type. This will benefit from input from Council and Stakeholders throughout the Town.	AM Team PW Staff
6	Training – Investigate Training options for municipal staff on Asset Management fundamental principles.	AM Team Council

7	Determine installation date, expected useful life, and replacement costs for infrastructure assets to develop an asset replacement forecast.	PW Staff
8	Asset Data – Conduct Levels of Service assessment and Risk assessment, beginning with higher priority assets.	PW Staff AM Team

Table 14: Report Recommendations

REFERENCES

ACEC, CCA, CPRA, CPWA, CSCE, CUTA, CNAM, FCM. (2019). *2019 Canadian Infrastructure Report Card.* Retrieved from Canadian Infrastructure: http://canadianinfrastructure.ca/downloads/canadian-infrastructure-report-card-2019.pdf

Association of Manitoba Municipalities. (2018, March 1). *AMM Document Library.* Retrieved from Assocation of Manitoba Municipalities (AMM): http://www.amm.mb.ca/download/guides/AMM_Asset_Management_Guide.pdf