

Asset Management

Tool, Tips and Resources



Municipal Asset Management Program



This initiative is delivered through the Municipal Asset Management Program, which is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

FCM Survey



<https://www.surveymonkey.com/r/AIMNETABACT4>

Partner Organization: AIM Network

Who We Are

- A not-for-profit Asset Management Community of Practice
- A network of individuals committed to asset management planning for long-term sustainability of services
- Our mandate: supporting municipal asset management in Atlantic Canada



Presenter

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AIM Network Executive Director



Asset Management: Top to Bottom

Introduction to AM Processes

Asset Management Process

- Policy
- Strategic Roadmap
- Inventory (mapping for linear assets)
- Inventory (fleet and facilities)
- Asset Valuation
- Risk Assessment (including climate vulnerability)
- Level of Service Assessment
- Financial Assessment (financial projections and budgeting)
- Capital Project Program
- Capital Finance Plan

NLL Asset Management Toolkit

Asset Management Policy

SUSTAINABLE SERVICE DELIVERY

- Defines the scope, purpose, participants and guiding principles of an organization
 - Level of Service Based
 - Big Picture View
 - Sustainable and Resilient
 - Financially Sound
 - Continuous Improvement
-
- How is it reported? By whom? To whom?

Asset Management Self Assessment Tool

Core Asset Data Potable Water Supply (PWS) and Distribution Network

Eg. Water mains, hydrants, valves, connections, etc.

Governance Information

| | LEVEL 1 | LEVEL 2 |
|-------------------------|---|--|
| ASSET MANAGEMENT POLICY | Policies are not yet in place related to sustainable service delivery. | Some policies related to sustainable service delivery are in place, but there are significant gaps or policies are not actionable. |
| | C | |
| Comments | | |
| STRATEGY | A strategy has not yet been put in place for integrating asset management planning in our municipality and we do not have a roadmap to lead us. | A shortterm workplan or roadmap for integrating asset management planning is in place, but not an organization-wide strategy. There are significant gaps in providing direction for sustainable service delivery and the linkage of plans and initiatives. |
| | C | D |
| Comments | | |
| DECISION MAKING | Decisions are based on a short term frame or reactive in nature and often in isolation of appropriate information. | Decision making is based on a long term frame, but are informed only by incomplete or anecdotal information. |
| | C | D |
| Comments | | |

| | | | | |
|------------------------------|--|---|--|---|
| AMP - ASSET REPLACEMENT PLAN | No Infrastructure Replacement Plan exists to show the theoretical timing for infrastructure replacement. | Parts of a Replacement Plan exist (e.g. for a duration of <20 years, etc.) but it is not consolidated into any organizational long term view. | A Replacement Plan has been developed, but it is either <20 years in scope or does not include all components. | A long term plan (75+ yr) is in place that illustrates the timing of expenditure to replace all key components of the water distribution network, the current infrastructure deficit, and the average annual sustainable funding level. |
| | C | | D | |
| Comments | | | | |
| | 2022-2023 | | 2023-2024 | |
| | Complete asset inventory in GIS and NL reporting tool | | Identify strategy to manage aging infrastructure with limited funding | |
| | Develop 5 year capital projection plan and identify gaps based on risk assessment | | Consider the impact of water supply from Appleton | |
| | Complete level of service assessment | | | |

delivery goals, the approach to achieving them, and identifies how organizational plans or initiatives fit together to inform decision making and achieving the goals. The strategy is not being widely implemented.

service delivery goals, the approach to achieving them, and identifies how organizational plans fit together to inform decision making and achieving the goals. The strategy is being implemented.

Asset Management Roadmap

- Where are we in our asset management capacity now?
- People, Governance, Finance and Asset Data and Information
- Where do we want to get to with our asset management capacity?
- Identify gaps
- Identify activities to fill those gaps
- Create a two-year roadmap to continuously improve AM planning

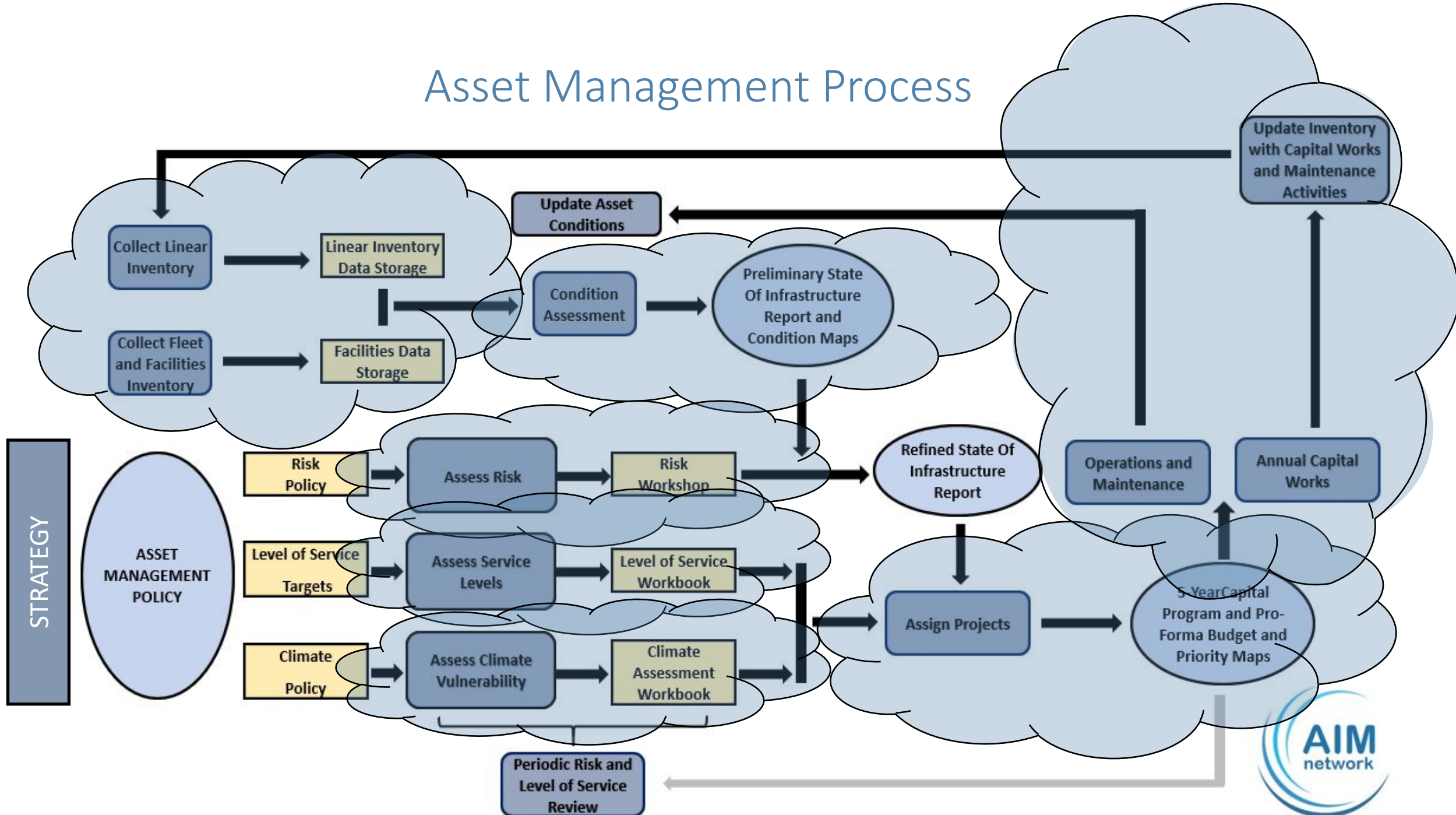


Asset Management Roadmap - Sorted By Year

This Asset Management Roadmap/Workplan has resulted from an assessment of our municipality's capacity to integrate asset management planning activities. The assessment was undertaken on January 6, 2023. Staff members participated in the assessment and developing the resulting workplan. The activities and priorities identified in the plan are circulated for review by council as needed determined by the Town Clerk / Manager.

| By Year | Category | Activity |
|-----------|--|---|
| 2022-2023 | Core Asset Data Facilities: Building Architectural and Structural | Complete building data collection in NL data collection tool |
| 2022-2023 | Core Asset Data Facilities: Building Architectural and Structural | Incorporate buildings in 5-year capital plan |
| 2022-2023 | Core Asset Data Facilities: Electrical and SCADA | Complete building data collection in NL data collection tool |
| 2022-2023 | Core Asset Data Facilities: Electrical and SCADA | Incorporate buildings in 5-year capital plan |
| 2022-2023 | Core Asset Data Facilities: Mechanical, Plumbing and HVAC | Complete building data collection in NL data collection tool |
| 2022-2023 | Core Asset Data Facilities: Mechanical, Plumbing and HVAC | Incorporate buildings in 5-year capital plan |
| 2022-2023 | Core Asset Data: Storm-Water Collection Network | Complete asset inventory in GIS and NL reporting tool |
| 2022-2023 | Core Asset Data: Storm-Water Collection Network | Complete level of service assessment |
| 2022-2023 | Core Asset Data: Transportation System | Complete asset inventory in GIS and NL reporting tool |
| 2022-2023 | Core Asset Data: Transportation System | Complete level of service assessment |
| 2022-2023 | Core Asset Data: Wastewater Collection: Sanitary or Combined Network | Complete asset inventory in GIS and NL reporting tool |
| 2022-2023 | Core Asset Data: Wastewater Collection: Sanitary or Combined Network | Develop 5 year capital projection plan and identify gaps based on risk assessment |
| 2022-2023 | Core Asset Data: Wastewater Collection: Sanitary or Combined Network | Complete level of service assessment |
| 2022-2023 | Finance | Develop a 5 year capital program |
| 2022-2023 | Governance Information | Adopt asset management policy |
| 2022-2023 | Governance Information | Develop roadmap |

Asset Management Process



Geographic Information Systems

Mapping Your Way to Success

GIS - Geographic Information Systems

- QGIS – free, open-source GIS software: www.qgis.org
- Contains maps of infrastructure locations and asset information
- Mapping for easy visual interpretation of data
- Integrates with planning and forecasting tool

Project Edit View Layer Settings Plugins Vector Raster Database Web Mesh Processing Help

Layers

- ☒ **Town of Oxford-Boundary**
- ☐ Infrastructure
- ☒ **Condition Ranking**
 - ☐ WWC Points
 - ☐ WWC Lines
 - ☐ SWC Points
 - ☐ SWC Lines
 - ☐ PWS Points
 - ☒ Unknown
 - ☒ Rare
 - ☒ Unlikely
 - ☒ Possible
 - ☒ Likely
 - ☒ Almost Certain
- ☒ **PWS Lines**
 - ☒ Unknown
 - ☒ Rare
 - ☒ Unlikely
 - ☒ Possible
 - ☒ Likely
 - ☒ Almost Certain
- ☐ TRN
- ☐ Consequence of Failure Ranking
- ☐ Priority Ranking
- ☒ **OpenStreetMap**
- ☐ Google Hybrid
- ☐ Bing Maps

Identify Results

| Feature | Value |
|------------------|---------------------|
| PWS Lines | |
| Proj_Name | Euraka Street |
| (Derived) | |
| (Actions) | |
| mun_id | OX |
| featcode | DIMN |
| northing | NULL |
| easting | NULL |
| elevation | NULL |
| condition | 5 |
| material | CI |
| install_yr | 1930 |
| locdesc | Euraka Street |
| diameter | 100.00000000000000 |
| width | NULL |
| comments | NULL |
| length | 187.898035043626237 |
| status | Active |
| gis_link | OX-PWS-L052 |
| shape_leng | NULL |
| dpof | 5 |
| dcof | 1 |
| social | NULL |
| economic | NULL |
| legal | NULL |
| environmen | NULL |
| technical | NULL |
| rpf | NULL |
| refined pr | NULL |
| rcof | NULL |
| refined co | NULL |
| risk manag | NULL |

Mode: Current Layer

View: Tree

Facilities Data Entry

Easy access to vertical assets

Facilities Data Collection

Fleet

| | | | |
|----------|-----|---------------------------|----------------|
| Fleet | FLT | Facility Condition Index: | 2.32 |
| Vehicles | VE | Total Estimated Cost: | \$1,767,500.00 |



Delete this sheet

Data Entry Table

| Component Name | Type | Description | Lookup | Quantity | Unit | Rate | Replacement Cost | Life Expectancy (Yrs.) | Life Expectancy Replacement / Renovation |
|----------------|------|-------------------------------------|--------|----------|------|------|------------------|------------------------|--|
| Tractor | | 1993 Massey Ferguson 1180 MF 1180-4 | | | | | \$ 50,000 | 25 | 25 |
| Backhoe | | 1993 Amerequip 80A backhoe | | | | | \$ 15,000 | 25 | 25 |
| Truck | | 2022 Ford F-250 superduty | | | | | \$ 60,000 | 15 | 15 |
| Trailer | | 2004 LWL low tilt trailer | | | | | \$ 5,000 | 20 | 20 |
| Tractor | | 2005 Kubota B7800 HSD | | | | | \$ 50,000 | 25 | 25 |
| Aerator | | 2010 Befco aerator | | | | | \$ 6,000 | 15 | 15 |
| Lawn mower | | 2011 Toro G-3 | | | | | \$ 8,000 | 15 | 15 |
| Lawn mower | | 2013 Toro 3000 | | | | | \$ 16,000 | 15 | 15 |
| Power Rake | | 2014 woods power rake | | | | | \$ 20,000 | 15 | 15 |
| Lawn mower | | 2015 Toro 3000 | | | | | \$ 16,000 | 15 | 15 |
| Sprayer | | 1998 Hardi sprayer | | | | | \$ 5,000 | 15 | 15 |
| Lawn mower | | 2017 toro 3000- | | | | | \$ 18,000 | 15 | 15 |
| Lawn mower | | 2011 Toro z-500 | | | | | \$ 5,000 | 15 | 15 |
| Plow | | 2021 Myers plow | | | | | \$ 6,000 | 25 | 25 |
| Truck | | 2014 F-150 king cab 2wd | | | | | \$ 80,000 | 15 | 15 |
| Trailer | | 2019 NNTRA Utility Trailer | | | | | \$ 4,000 | 20 | 20 |

Managing Your Inventory

The Capital Inventory Planning Tool

Capital Inventory Tool

Inventory and Reporting Tool

This tool is a data storage and reporting tool that has been developed to help municipalities make informed asset management decisions and communicate those decisions to staff, municipal councils and local residents

What do you want to do today?

| I want to... | User Guide Reference | I want to... | User Guide Reference |
|----------------------|--|------------------------|---|
| View My Inventory | View my data in the inventory spreadsheet. Data is locked for editing. Remember, you can change the columns that you see using the button that says "Change My Column View" button. Section 2 | Edit Asset Risk Values | Assign projects to assets to group them into combined capital cost items. Note that this is convenient to do in GIS! Section 4 |
| Edit My Inventory | View my data, but unlock the spreadsheet first so I can edit the information. Section 2.2 | Export Data or Reports | Export Preliminary State of Infrastructure Reports Export Refined State of Infrastructure Reports Export Data to Excel, CSV or GIS Section 2.6 |
| Import Data | Import data from GIS, an external spreadsheet or the fleet and facilities tool Section 2.4 | Assign Projects | Assign projects to assets to group them into combined capital cost items. Note that this is convenient to do in GIS! Section 5 |
| Run Calculations | Run calculations to generate Preliminary State of Infrastructure Reports, Refined State of Infrastructure Reports and Pro-Forma Budgets. Section 2.5 | View My Budget | View my pro-forma budget for 5-year capital planning. Section 6 |
| View My Risk Profile | Edit my risk profile and view view my risk based projections. If you want to change your risk profile, you have to Toggle Edit Mode to unlock the sheets Section 4 | | |

ADMINISTRATIVE CONTROLS

Change Column

Clear Inventory

UNLOCK: Toggle Edit Mode

Validate Inventory

Edit Financial Parameters

Edit My Background Data

Preliminary State of Infrastructure Report

2. Water Supply

a) Summary of Inventory, Costs, and Condition

The following table summarizes the water network data that has been captured and reported on.

| | |
|----------|---------------------------------|
| 95,267 m | Total length of water pipe |
| 147 | Number of hydrants |
| 722 | Number of valves |
| 7 | Number of other assets captured |

The following table shows estimated value and annual reserves required for different water network asset groups.

| Asset Sub-Class | Cost (\$) | Cost (%) | Annual Reserve (\$) | Annual Reserve (%) |
|-----------------|------------|----------|---------------------|--------------------|
| Pipes | \$ 53.0 M | 71% | \$ 796.6 K | 69% |
| Pumping Station | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Valves | \$ 1.7 M | 2% | \$ 21.6 K | 2% |
| Hydrants | \$ 651.0 K | 1% | \$ 8.1 K | 1% |
| Water Treatment | \$ 19.2 M | 26% | \$ 320.3 K | 28% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Grand Total | \$ 74.6 M | 100% | \$ 1.1 M | 100% |

These tables summarize the average condition of different wastewater network asset groups.

| Average Condition | |
|----------------------|-----|
| Manholes | 2.5 |
| Pipes | 2.6 |
| Pumping Stations | 2.7 |
| Valves | 2.7 |
| Wastewater Treatment | 0.1 |
| Other | 1.1 |

| Condition | |
|-----------|-------------|
| Rating | Description |
| 1 | Very Good |
| 2 | Good |
| 3 | Fair |
| 4 | Poor |
| 5 | Very Poor |

Preliminary State of Infrastructure Report

1. SUMMARY OF ALL ASSET CLASSES

a) Estimated Replacement Costs and Annual Reserve

This table shows the total estimated replacement costs and annual reserves required of your asset classes.

| Asset Class/Sub-Class | Cost (\$) | Cost (%) | Annual Reserve (\$) | Annual Reserve (%) |
|-----------------------|------------------|------------|---------------------|--------------------|
| Water Supply | \$ 74.6 M | 34% | \$ 1.1 M | 11% |
| Pipes | \$ 53.0 M | 24% | \$ 796.6 K | 8% |
| Pumping Station | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Valves | \$ 1.7 M | 1% | \$ 21.6 K | 0% |
| Hydrants | \$ 651.0 K | 0% | \$ 8.1 K | 0% |
| Water Treatment | \$ 19.2 M | 9% | \$ 320.3 K | 3% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Transportation | \$ 55.9 M | 26% | \$ 7.8 M | 76% |
| Roads | \$ 35.2 M | 16% | \$ 7.4 M | 72% |
| Sidewalks and Trails | \$ 2.0 M | 1% | \$ 62.7 K | 1% |
| Bridges | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Signs and Signals | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Barriers and Fences | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Lights | \$ 18.7 M | 9% | \$ 312.1 K | 3% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Waste Water | \$ 84.3 M | 39% | \$ 1.3 M | 12% |
| Pipes | \$ 46.9 M | 22% | \$ 660.0 K | 6% |
| Pumping Station | \$ 5.2 M | 2% | \$ 104.2 K | 1% |
| Manholes | \$ 8.9 M | 4% | \$ 111.7 K | 1% |
| Valves | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Wastewater Treatment | \$ 23.3 M | 11% | \$ 387.5 K | 4% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Storm Water | \$ 2.1 M | 1% | \$ 27.5 K | 0% |
| Pipes | \$ 2.1 M | 1% | \$ 27.5 K | 0% |
| Pumping Station | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Manholes | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Catch Basins | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Facilities | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Outdoor Parks and Rec | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Indoor Parks and Rec | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Municipal Offices | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Public Works | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Firehall | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Fleet | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Vehicles | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Other | \$ 0.0 K | 0% | \$ 0.0 K | 0% |
| Grand Total | \$ 216.8 M | 100% | \$ 10.2 M | 100% |

Risk Assessment

How Much is Too Much?

Understanding Risk

*Risk cannot be eliminated,
only managed to an acceptable level*



Quantifying Risk

- Probability of Failure (PoF)
- Consequence of Failure (CoF)
- Risk = $\begin{bmatrix} \text{PoF} \\ \text{CoF} \end{bmatrix}$



How Bad is “Bad”?

Consequence of Failure Assessment Matrix

| RISK LEVEL | RANK | SOCIAL / CULTURAL / POLITICAL | ECONOMIC | LEGAL | SAFETY | ENVIRONMENTAL |
|---------------|------|--|---|--|--|---|
| INSIGNIFICANT | 1 | Public will not notice. No impact to cultural resources or groups. No impact to relations with other levels of government. | Costs are minor and expected within ongoing operational budget. | No regulatory or legal impacts. | No risk to safety above baseline conditions. | No impact to the environment. |
| MINOR | 2 | Minor public notice, public contacts staff only - single point of contact. Municipality can alert the public prior to social media activity. No impact to cultural resources or cultural groups. No impact to relations with other levels of government. | Unexpected operational cost can be accommodated by redistribution of yearly budget. Grant can offset the unexpected cost. | Failure may result in small claims. | Risk of “near miss” incidents, low risk of injury. | Short term effects to the environment requiring one time remediation of mitigation to restore the system to its original state. Notification to NSE. |
| MODERATE | 3 | Moderate public notice - multiple single points of contact, elected officials are contacted. Social media has a presence in terms of pictures or video. Coverage in local news, requires official municipal response. Impact to cultural groups limited. | Unexpected operational cost requires cancellation of minor planned activities accommodate. No long term financial impacts. Minor impact to tourism. Grant cannot offset unexpected cost. | Failure may result in litigation and informal inquiry. | More unlikely than likely to cause short or long term injury, no risk of loss of life. | Short term effects to the environment requiring temporary remediation or mitigation which restore the system to its original state. Submit plans for approval to NSE. |
| MAJOR | 4 | Potential for injury. Mayor / CAO is notified. Public notice is widespread, large volume of multiple contacts. Social media has a strong awareness in terms of pictures or video. Coverage in local news, requires official municipal response. Interruption of service greater than 1 day. Coverage in provincial news. Impact to cultural groups widespread. | Unexpected operational cost requires cancellation of major planned activities to accommodate. Long term financing required to accommodate. Loss of commercial or tourism service greater than 5 days. | Failure may result in class action litigation and formal inquiry. | More likely than not to cause short or long term injury, low potential for loss of life. | Long term effects to the environment requiring sustained remediation or mitigation. System may not ultimately reach its original state. NSE issues a directive to the Town. |
| CATASTROPHIC | 5 | Potential for loss of life. Interruption to critical services for greater than 1 day. Coverage on The National. | Property damage that the Town is liable for. Loss commercial or tourism service greater than a season. Financing requirements may render the municipality insolvent. | Failure results in contravention of laws, significant litigation, court action and multiple litigations. | More likely than not to cause short or long term injury, potential for loss of life. | Permanent or long term environmental effects that cannot be remediated or mitigated. Failure to comply results in legal action. |

Risk and Climate Demonstration

CLIMATE CHANGE ADAPTATION WORKBOOK

This workbook provides climate data relevant to our municipality and an assessment of potential impacts to infrastructure on a level of service basis. It identifies how different service areas may be affected by predicted climate change effects and what adaptation activities may be required to protect services from those impacts. Each adaptation activity is assessed against the "do nothing" option to aid in capital planning activities through the lens of climate change by following this flow chart:

➤ Identification

1. Refer to your Level of Service Workbook for service areas and supporting assets
2. Gather regional and local climate change information
3. Identify climate change impacted service areas
4. Identify risks to levels of service from climate change impacts

➤ Assessment

7. Determine how level of service will change under a changing climate
8. Enter a specific service disruption from climate change

➤ Strategies

9. Identify strategies to close service gaps from climate change
10. Assign order of magnitude costs to the adaptation activities
11. Assign order of magnitude costs to the "do nothing" option
12. Enter costs into the "Loss Avoided Analysis"

➤ Management

13. Select actions with positive "Loss Avoided" percentages
14. Prioritize from highest "Loss Avoided" percentage to lowest
15. Integrate actions into Asset Management Planning
16. Monitor progress and explore opportunities for continuous improvement

| | Consequence | | | | |
|-------------|-------------|----|----|----|----|
| Probability | 1 | 2 | 3 | 4 | 5 |
| 1 | 1 | 3 | 6 | 10 | 15 |
| 2 | 2 | 5 | 9 | 14 | 19 |
| 3 | 4 | 8 | 13 | 18 | 22 |
| 4 | 7 | 12 | 17 | 21 | 24 |
| 5 | 11 | 16 | 20 | 23 | 25 |

| | Risk Tolerance | |
|------------|----------------|------|
| Risk Class | Low | High |
| Lowest | 1 | 6 |
| Low | 7 | 15 |
| Medium | 16 | 19 |
| High | 20 | 22 |
| Extreme | 23 | 25 |

Level of Service Assessment

The Heartbeat of Asset Management

What Are Levels of Service?

LOS are *specific parameters* that describe the *extent and quality of services* that the municipality provides to users.



Cadillac?

or



Volkswagen?

Level of Service Toolkit

| Service Characteristic | Indicator | Customer Levels of Service | | | | | # | Current Level of Service |
|------------------------|-----------|----------------------------|---|---|------|--|---|--------------------------|
| | | Low | | | High | | | |
| | | 1 | 2 | 3 | 4 | | | |

General Transportation

| | | | | | | | |
|---------|---|--|---|--|--|---|---|
| Quality | Active transportation systems are accessible year-round | No winter maintenance is performed on active transportation systems. | Some winter maintenance is performed on active transportation systems to ensure recreational functions on major routes. | Complete winter maintenance is performed on active transportation systems for transportation functions and some winter maintenance on recreational routes. | Winter maintenance is performed on active transportation is performed to ensure transportation route is reasonably accessible year round to the same priority as roadways. | 2 | Some winter maintenance is performed on active transportation systems to ensure recreational functions on major routes. |
|---------|---|--|---|--|--|---|---|

| | | Technical Levels of Service | | Operational Levels of Service | | Performance Measures | Source Document |
|---|-------------------------|-----------------------------|----------|-------------------------------|----------|----------------------|-----------------|
| # | Target Level of Service | Definition | Comments | Definition | Comments | | |

| | | | | | | | |
|---|--|--|--|--|--|---------------------|---------------|
| 3 | Complete winter maintenance is performed on active transportation systems for transportation functions and some winter maintenance on recreational routes. | <p>Paved Trail:</p> <p>plowing and sanding completed within 3-4 hours of the end of a snow event (>5cm) or start of day</p> <p>Plowing / sanding required if drifting accumulates over 5 cm or ...icing...?</p> <p>Trails are closed when ice accumulation is: a) over majority of the trail, b) the full trail width, c) a thickness that cannot be sanded</p> | Other trails are not as much of a public focus for maintenance so TLoS is not defined for now. | <p>New truck plow with sand spreader</p> <p>Additional staff person b/c existing staff is at capacity with s/w plowing</p> <p>Internal processes to notify public with website and social media, post signage at accessess</p> | | Customer Complaints | Reception Log |
|---|--|--|--|--|--|---------------------|---------------|

Level of Service Tool

| Performance Gap | Describe Performance Gap to be Addressed | Sustainability Gap | Describe Sustainability Gap to be Addressed | Option(s) to Address Gaps | | | Preferred Option |
|---|--|--------------------------------------|---|---|---|---|---|
| | | | | A | B | C | |
| Yes | 2 kilometers of paved trail (QR Trail) does not have adequate winter maintenance and the public is requesting it | No | | Maintain level of service as is and do nothing. | Purchase a new truck, spreader and add a new hire | Contract out the service | Run a pilot project to contract out the service |
| | | | | | | | |
| Preferred Option | Considerations to Develop Life Cycle Cost | Preferred Option Lifecycle Cost (\$) | | | Timeframe | Notes | |
| | | Capital Expense | Yearly Cost (Capital plus O&M) | Decommissioning Cost (+\$) or Salvage Value (-\$) | | | |
| | | \$0 | \$770,000 | \$0 | | | |
| Run a pilot project to contract out the service | Quote from supplier | | \$20,000 | \$0 | 1 year | Current year costs were approx. \$10K, expect greater costs in future because of the mild winter, set annual estimate at \$20K. To provide service inhouse requires purchase of approx. \$85K new truck, new \$20K sand spreader and additional staff, current staff is at capacity with sidewalks. | |

Level of Service Toolkit

Documented Level of Service Report

MyTown

February 28, 2019

This report provides a summary of staff and asset management committee estimates of the current community levels of service, target levels of service that the Community is mandated or is expected to provide, actions required to bring current levels of service in line with the target levels of service. MyTown has the following goals and commitments in service delivery:

- Comply with all legislative requirements.
- Provide capacity, quality, and reliability expected by Council and residents.
- Ensure the safety of services and infrastructure.
- Consider sustainability and long-term benefits to future generations.

We deliver a wide range of community services including: **drinking water, wastewater, urban stormwater (drainage), solid waste, transportation, recreation and culture, protective, general government and energy.** The infrastructure we own, operate and maintain is used to support the delivery of these services.

In assessing the community levels of service, the team has assessed whether there are service performance gaps in relation to indicators common to each service: regulatory requirements, capacity / availability of the service, safety, quality, reliability and environmental impacts. Sustainability gaps have also been assessed, where "Sustainability" means "Is the service adequate to sustain the current level of service for the near, mid, and long term growth forecasts?"

If there is no line item for one of the service performance in report below, that indicates that it is functioning at the committed level of service, and no action plan is required to address a level of service gap. If a gap, either performance or sustainability, has been identified, it is displayed below along with a preferred option to adjust the current level of service to the target level of service.

Cost estimates below should be considered **Order of Magnitude** cost estimates, and are intended to compare options. They should not be interpreted as engineering estimates or firm budget number for capital planning.

| Service Characteristic | Indicator | Performance Gap | Describe Performance Gap to be Addressed | Sustainability Gap | Describe Sustainability Gap to be Addressed | Preferred Option | Lifecycle Costs | Timeframe | Notes |
|--------------------------------|---|-----------------|---|--------------------|---|---|---|-----------|--|
| Potable Water | | | | | | | | | |
| Regulatory | Drinking water quality complies with statutory requirements | No | | Yes | Potential Staffing succession planning issue | Internal Training | The Capital Expense is \$0.00 The Yearly Cost is \$20,000.00 The Decommissioning Cost is \$0.00 | 5 years | Short term option to contract in event of sudden staffing change |
| Capacity / Availability | Available water supply is sufficient for customers' needs | No | | Yes | Climate Change | Reduce Water Loss | The Capital Expense is \$100,000.00 The Yearly Cost is \$50,000.00 The Decommissioning Cost is \$0.00 | 5 years | |
| Safety | Water supply is sufficient for firefighting purposes | Yes | No defined hydrant maintenance plan | Yes | Additional workload will require additional staff | Set an achievable maintenance frequency | The Capital Expense is Unknown The Yearly Cost is Unknown The Decommissioning Cost is Unknown | 2 Years | Maintenance and capital costs would be ongoing |
| Quality | Water service pressure is adequate at customer connections | Yes | Encourage or subsidize household Pressure reducing valves or jack pumps in affected areas | No | | Educate Home Owners | The Capital Expense is \$10,000.00 The Yearly Cost is \$5,000.00 The Decommissioning Cost is \$0.00 | Annual | |
| Quality | Water quality is aesthetically pleasing | Yes | Calcium and coloration issues in Bridgetown and Cornwallis respectively | No | | Educate home owners | The Capital Expense is \$0.00 The Yearly Cost is \$500.00 The Decommissioning Cost is \$0.00 | Annual | |
| Reliability | Water quality notices are infrequent and short in duration | Yes | We experience boil orders due to transmission line breaks | No | | Replace failing infrastructure | The Capital Expense is \$0.00 The Yearly Cost is \$500.00 The Decommissioning Cost is \$0.00 | 20 Years | Major replacements timed to coincide with road recapitalization |
| Wastewater | | | | | | | | | |
| Regulatory | Discharges comply with statutory requirements | No | | Yes | Potential Staffing succession planning issue | Internal Training | The Capital Expense is Unknown The Yearly Cost is Unknown The Decommissioning Cost is Unknown | 5 years | Short term option to contract in event of sudden staffing change |
| Capacity / Availability | Treatment capacity is adequate for peak flow | Yes | Need to reduce system infiltration | No | | Reduce infiltration by replacing lines identified as having high infiltration. To be done concurrently with co-located services | The Capital Expense is Unknown The Yearly Cost is Unknown The Decommissioning Cost is Unknown | 5 years | |



Financial Projections and Capital Planning

Bringing it to the finish line

Risk Assessment

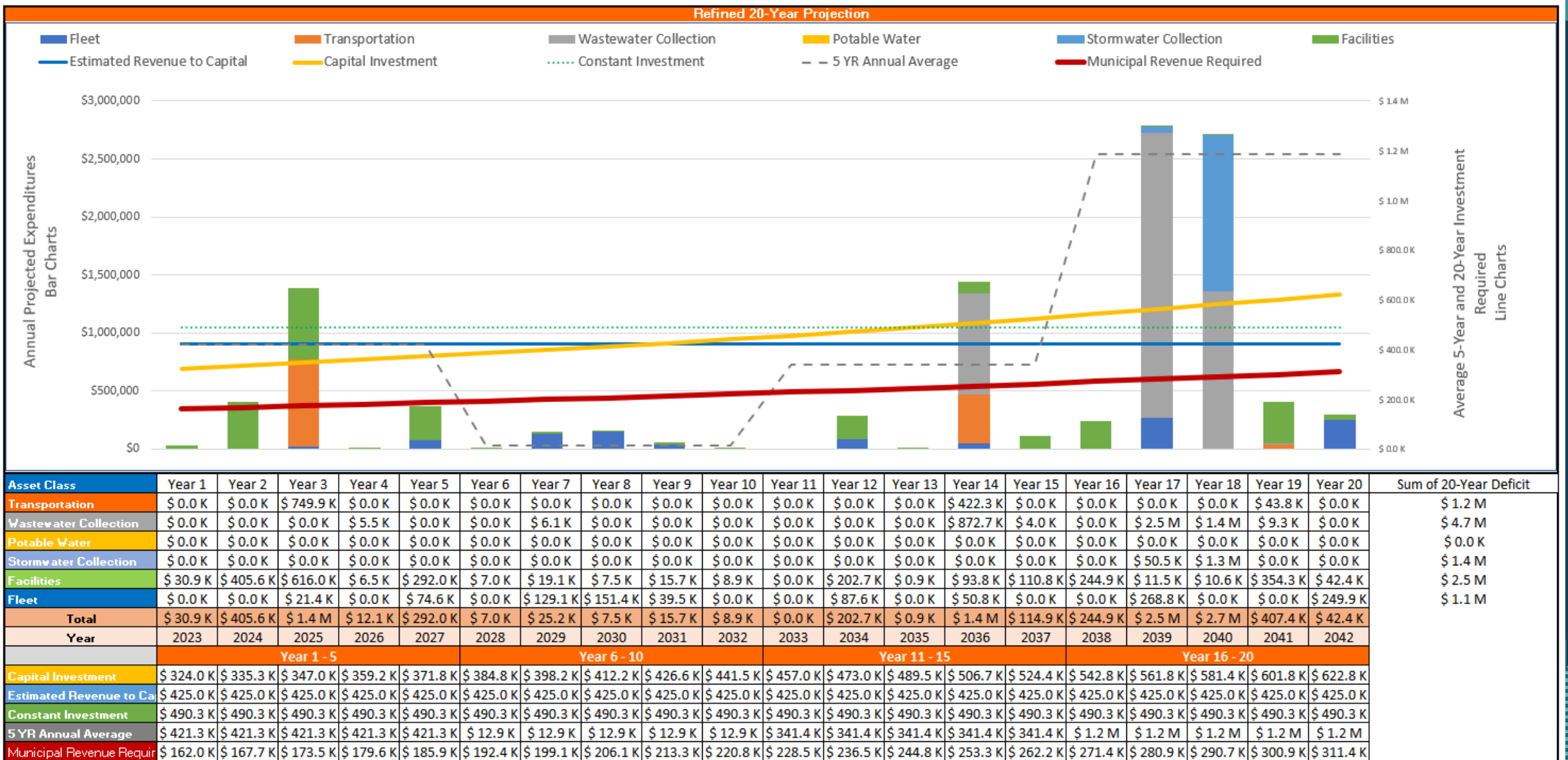
| Probability | Consequence | | | | |
|-------------|-------------|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 |
| 1 | 1 | 3 | 6 | 10 | 15 |
| 2 | 2 | 5 | 9 | 14 | 19 |
| 3 | 4 | 8 | 13 | 18 | 22 |
| 4 | 7 | 12 | 17 | 21 | 24 |
| 5 | 11 | 16 | 20 | 23 | 25 |

| Risk Class | Risk Tolerance | |
|------------|----------------|------|
| | Low | High |
| Lowest | 1 | 6 |
| Low | 7 | 15 |
| Medium | 16 | 19 |
| High | 20 | 22 |
| Extreme | 23 | 25 |

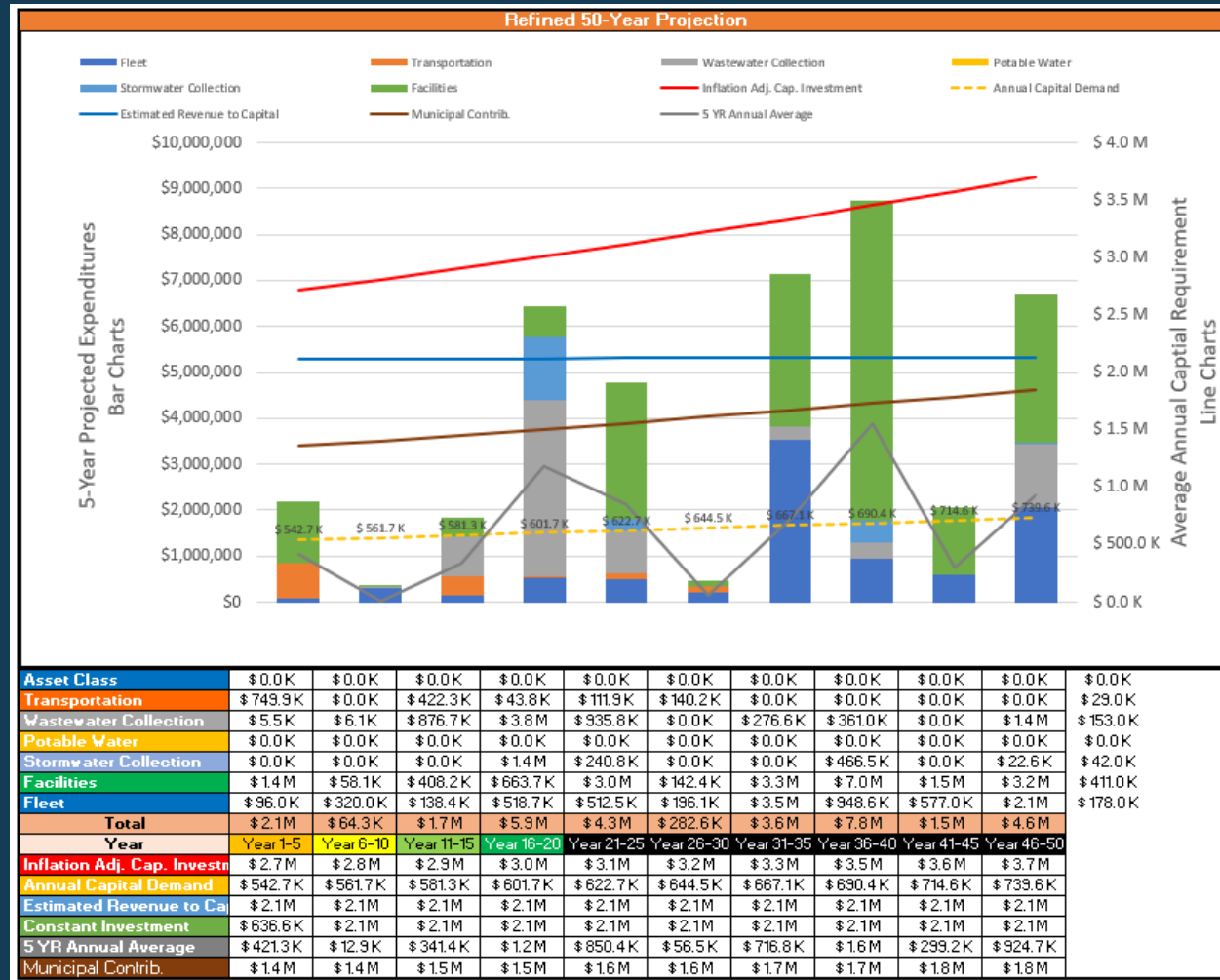
Projections

- Extreme Risk = Immediate
- Condition 6 = Five Year Plan
 - Risk = Extreme, year 1
 - Risk = High, year 2
 - Risk = Medium, year 3
 - Risk = Low, year 4
 - Risk = Very Low, year 5
- High Risk
 - Set in year 1 to 5 based on useful life
- Other
 - Worst Risk = Extreme, 60% of useful life
 - Worst Risk = High, 75% of useful life
 - Worst Risk = Medium, 90% of useful life
 - Worst Risk = Low, 100% of useful life
 - Worst Risk = Very Low, 120% of useful life

20-Year Projections



50-Year Projections



5-Year Budgets

| Sum of Asset Renewal Cost | Column Labels | | | | | |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|
| Row Labels | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 | Grand Total |
| (blank) | \$70,000.00 | \$60,000.00 | | | | \$130,000.00 |
| Admin Capital Commissioning | \$25,000.00 | | | | | \$25,000.00 |
| Public Works 3/4 Ton Pickup | | \$60,000.00 | | | | \$60,000.00 |
| Bylaw Inspection 1/2 ton Pickup | \$45,000.00 | | | | | \$45,000.00 |
| Transportation | | | \$700,000.00 | \$107,620.70 | | \$807,620.70 |
| Jordan River Bridge | | | \$700,000.00 | | | \$700,000.00 |
| Jordan River Trail | | | | \$50,702.70 | | \$50,702.70 |
| Roseway River Trail | | | | \$22,818.02 | | \$22,818.02 |
| Tom Tigney Trail | | | | \$34,099.99 | | \$34,099.99 |
| Waste Water | | \$60,069.40 | | | | \$60,069.40 |
| Sandy Point Road WWC | | \$60,069.40 | | | | \$60,069.40 |
| Facilities | \$369,500.00 | \$45,000.00 | \$20,000.00 | \$95,000.00 | \$395,000.00 | \$924,500.00 |
| Jordan River Trail Change | \$42,000.00 | | | | | \$42,000.00 |
| RMRF Barriers | | | | \$75,000.00 | \$75,000.00 | \$150,000.00 |
| Wastewater Lagoon | | | | | \$300,000.00 | \$300,000.00 |
| Welkum Park Upgrades | \$257,500.00 | | | | | \$257,500.00 |
| WGH Baseball Field Phase 1 | \$25,000.00 | | | | | \$25,000.00 |
| WGH Baseball Field Phase 2 | | \$25,000.00 | | | | \$25,000.00 |
| Woodland Trail Upgrades | \$20,000.00 | \$20,000.00 | \$20,000.00 | \$20,000.00 | \$20,000.00 | \$100,000.00 |
| Sandy Point WWC Design Only | \$25,000.00 | | | | | \$25,000.00 |
| Fleet | \$20,000.00 | | | | | \$20,000.00 |
| ATV | \$20,000.00 | | | | | \$20,000.00 |
| Grand Total | \$459,500.00 | \$165,069.40 | \$720,000.00 | \$202,620.70 | \$395,000.00 | \$1,942,190.10 |

Capital Financing Plans

What is a realistic plan?

- How much do we spend each year?
- What funding is available to supplement this investment?
- What is my debt strategy, considering debt servicing and balloon payments?
- Where are there gaps in our spending?
- How will we address them? Lower level of service and increased risk? Increased revenue?
- We can't just ignore it!

Helpful Tips

- Take it easy: *Make small but consistent steps forward*
- Think big: *Establish processes with larger issues and add to them as you go*
- Keep focused: *The goal is sustainable services. Set priorities and stay focused on them.*
- Be efficient: *Use the 80/20 principle with applies consistent, repeatable and documented processes.*
- Learn from others: *Reach out to other municipalities and your network.*

Additional Resources

AIM Network Support

- **Touchpoint Newsletter:** *Subscribe on the website at www.aimnetwork.ca*
- **Online Training Workshops:** www.aimnetwork.ca/video-series-summary
- **Contact us at:** info@aimnetwork.ca

Federation of Canadian Municipalities

- **FCM Resource Library:** <https://fcm.ca/en/resources/mamp/asset-management-resources>

Natural Asset Management

- **Municipal Natural Assets Initiative:** www.mnai.ca

Canadian Network of Asset Managers

- **CNAM:** www.cnam.ca

Questions and Follow Up



FCM Survey



<https://www.surveymonkey.com/r/AIMNETABACT4>

Partner Organization: AIM Network