



# ASSET MANAGEMENT PLAN

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## **1.0 EXECUTIVE SUMMARY**

The purpose of this Asset Management Plan is to assist with prioritizing needs over wants to ensure that infrastructure funding, whether generated through local or senior levels of government, be applied to projects with the higher needs.

As the following Asset Management Plan will outline, the Town's existing infrastructure is aging and deteriorating while demand grows for better infrastructure facilities. This demand is in response to higher standards of safety, accessibility, health, environmental protection, and regulations. The solution to this issue is to examine the way the Town plans, designs and manages infrastructure to meet changing demands. This Asset Management Plan is expected to assist:

- Council in making service level and investment decisions;
- Staff with the planning and management of the assets;
- Taxpayers by sustaining value for the services provided.

The Town is not required to budget for the full replacement value of all these assets simultaneously, as portions of assets only require an initial investment followed by further re-investment to maintain acceptable levels of service.

This plan addresses the replacement and planned expansion priorities of the Town over the next ten years; however, it is imperative that current maintenance activities be continued and expanded. The ability for the Town to leverage its knowledge of infrastructure and by applying the best Asset Management practices at the time will result in very positive improvements in infrastructure.

Although this comprehensive Asset Management Plan has been created, it is expected to be a living document that is updated regularly as priority's shift or as work is completed. In addition, improvements to the methodologies of data collection for developing more accurate inventory information and evaluation will only serve to bolster the content of the plan. An Asset Management Plan that is not adhered to or not updated will quickly become obsolete and be of absolutely no benefit to the Town.

## **2.0 INTRODUCTION**

This Asset Management Plan (AMP) was prepared originally by Tulloch Engineering Inc. (Tulloch) in cooperation with The Town of Thessalon (Town) to meet the requirements of a Municipal Asset

Management Plan as presented by the Ontario Ministry of Infrastructure's "Building Together Guide for Municipal Asset Management Plans" (2012). This plan is updated by Municipal staff continuously.

The intention of the AMP is to provide answers and guidelines to the following questions.

- 1) What do you have and where is it?
- 2) What is it worth? (Current and Estimated Replacement Costs)
- 3) What is its condition and expected remaining service life?
- 4) What is the level of service expectation?
- 5) When do you need to do it?
- 6) How do you ensure long-term affordability?

Asset management planning is meant to aid the Town in making cost effective decisions with regards to operating, maintaining, renewing, replacing and disposing of their infrastructure assets. The decisions and directions laid out in the asset management planning process are intended to ensure that the Town will be capable of providing the levels of service needed to meet their desired plans, goals and objectives. The Town has included all assets in this plan.

Each asset was divided into its respective category-based type and was assessed for current state, financial accounting valuation and replacement cost valuation. The condition of each of the assets was assessed using sound and accepted methods.

This AMP has been developed to cover a ten (10) year window but is intended to be updated on a regular basis as operating conditions and municipal goals change. A key aspect of this plan is the ongoing evaluation of asset performance and value that will be required in future years. The development of this plan involved continued communication between Tulloch and Municipal Staff. The policies and strategies presented are based upon discussions with Municipal Representatives and accepted practices for the management of infrastructure assets.

This AMP is a tool to help ensure that measures are taken to maintain an acceptable performance level quality of life for years to come. The quality and condition of infrastructure assets are of great importance as they help to support economic activity and improve general quality of life. This AMP is not intended to change the Town's existing processes and procedures with regards to their infrastructure assets but rather improve the decision-making process by using long range vision to dictate resource allocation and using performance-based analyses to determine if desired goals and objectives are being met.

The Town's Capital Asset Spreadsheets, presents the inventory, current and projected condition ratings, as well as known or projected replacement/rehabilitation costs on a per asset type basis in a digital format.

This AMP is based on capital improvements and does not account for maintenance activities that are currently undertaken by the Town. The plan is not intended to replace maintenance procedures and any reports prepared or practices undertaken should be continued to be followed.

### 3.0 STATE OF LOCAL INFRASTRUCTURE

Appendix "A" outlines the quantity of assets owned and managed by the Town. In addition, the recommended improvement costs, financial valuation, replacement cost valuation and the recommended annual reserve investment.

#### 3.1 METHOD OF CONDITION EVALUATION

Appraisal of the Town's assets vary in types of condition evaluation's as per the below charts:

- Roads

<u>Condition Rating</u>	<u>System Condition</u>
8 to 10	good structural condition; some local improvement may be needed
5 to 7	average structural condition; continued improvement needed
Less than 5	poor structural condition; substantial improvement needed throughout total road system

- Bridges, Water Treatment & Distribution, Sanitary Sewers & Treatment and Storm Sewers

<u>Rating</u>	<u>Age</u>
Excellent	Less than 5 years old
Good	Between 5 years old and 50% of its life expectancy
Fair	Between 50% and 75% of its life expectancy
Poor	Between 75% and 100% of its life expectancy
Replace	Beyond its life expectancy

- Culverts, Equipment, Vehicles, Buildings, Sidewalks, Hydrants and Streetlights

<u>Rating</u>	Evaluation
5	Very Good
4	Good Condition
3	Moderate Condition
2	Poor Condition
1	Very Poor Condition

The useful life cycle will differ depending on the type of asset s.

### **3.2 INVENTORY**

A summary of the Town's inventory is shown on Appendix "A"

### **3.3 POLICIES**

An Asset Management Policy will be in place by December 31, 2018.

### **4.0 EXPECTED LEVELS OF SERVICE**

Levels of Service are statements of service performance delivery which provide an indication of the minimum acceptable standard for an asset.

Desired levels of service within the Town of Thessalon have been developed through consideration of a number of documents and industry recognized standards to meet generally accepted levels of operation and safety. The target levels of service will be reviewed on a regular basis to determine if they are appropriate, and achievable. Consideration will be given to risk, and cost in the development of target levels of service.

### **4.1 RISK ASSESSMENT**

All assets carry a level of risk for their users. Generally, when conducting risk assessment, two key factors that come into consideration are frequency of use and cost of improvement. Acceptable levels of risk may vary depending on their frequency of use; e.g. If a rarely used asset and a frequently used asset do not meet today's minimum standards, the risk is higher for the frequently used asset and therefore should be prioritized ahead of a rarely used substandard asset.

It is desirable to limit risk by replacing/improving the condition of all assets to meet today's minimum standards however the cost of doing so is not feasible. The Town attempts to achieve a manageable level of risk by completion of condition reviews and prioritizing of replacement/improvement projects.

## **4.2 PERFORMANCE MEASUREMENT**

To optimize this Asset Management Plan and ensure target levels of service are appropriate, performance measures or indicators have been established and will be reviewed on a regular basis. Performance measurement of the assets will provide an indication as to whether the rehabilitation and replacement strategies are effective or whether changes needed to be made.

## **5.0 ASSET MANAGEMENT STRATEGY**

### **5.1 PLANNED ACTIONS & OPTION ANALYSIS**

The asset strategy is the set of planned actions that will enable the assets to provide the desired level of services in a sustainable way. All assets have a limited life expectancy and to some degree the rate of deterioration can be estimated. A decision made at any point in time in the lifecycle of an asset has an effect on the remaining life and may have operational implications and related costs.

Integrated infrastructure planning has been initiated, as reflected in the prioritizing of projects shown in Appendix "B". The condition of the infrastructure beneath and surrounding the road surface (watermain, sewers, storm sewers etc.) will be reviewed to ensure that a road will not be resurfaced, without prior completion of any required improvements to the corresponding subsurface infrastructure.

The following sections summarize the planned actions of the core asset type to maximize lifespan and minimize costs, in a sustainable way.

#### **5.1.1 ROADS**

Roads require regular roadside maintenance activities such as ditching to ensure adequate drainage of the road subgrade. Poor subgrade drainage will lead to premature deterioration of the road base which will directly impact the deterioration of the surface. Minor brushing and culvert cleanout/flushing activities will also be employed on a regular basis to help prolong the lifespan of the assets. The strategy employed in this plan considers the full cost of replacement.

#### **5.1.2 BRIDGES**

As with all assets, bridges require regular maintenance activities such as sweeping and pressure washing to clear winter sand buildup, as well as debris removal to ensure proper flow hydraulics to minimize erosion and scouring potential. The strategy employed in this plan considers the full cost of replacement.

Renewal and rehabilitation activities of the Town's bridges are carried out in accordance with the OSIM Inspections Forms, completed by or under the direction of a Professional Engineer. These activities are typically evaluated by the Professional Engineer at the time to ensure the costs are economical.

The following maintenance practices have been employed on a regular basis to help prolong the lifespan of structure assets.

- Annual spring bridge cleaning (deck, deck drains, curbs, bearings);
- Monthly removal of debris from waterway;
- Removal of corrosion from exposed steel surfaces;
- Priming/painting/coating of steel;

### **5.1.3 WATER DISTRIBUTION & TREATMENT**

Watermains and treatment plant equipment require regular maintenance activities to limit the likelihood of breaks and failures. Rehabilitation options for watermains are limited to relining, however the cost to do so can be quite expensive. On occasion, watermain rehabilitation can be more cost effective than a full replacement however this strategy must be reviewed on a case by case basis. The strategy employed in this plan considers the full cost of replacement. The strategy employed in this plan considers the full cost of replacement.

In addition, the maintenance practices currently undertaken by the Town and OCWA such as flushing of hydrants and operation testing of valves should be continued on a regular basis to help prolong the lifespan of buried assets.

### **5.1.4 SANITARY SEWERS & TREATMENT**

Sanitary sewers require regular maintenance activities such as frequent flushing to ensure unimpeded flows, reducing the likelihood of backups and failures. On occasion, sewer rehabilitation can be more cost effective than a full replacement however this strategy will be reviewed on a case by case basis. The strategy employed in this plan considers the full cost of replacement. The strategy employed in this plan considers the full cost of replacement.

In addition, the following maintenance practices for gravity sewers is being employed on a regular basis to help prolong the lifespan of buried assets.

- flushing of a minimum 1500 metres of gravity sanitary sewer mains and associated maintenance holes;
- camera inspection of a minimum 1500 metres of gravity sanitary sewer mains and associated maintenance holes.

Camera inspection of the gravity sewers will assist in accurately detailing the condition of the asset and subsequent schedule for replacement.



Maintenance and renewal activities for the lagoons include brushing and trimming around the perimeter of the asset to ensure unimpeded operation of the asset. Additionally, dredging of the cells should be completed as the need arises, however the cycle/cost to do so is variable and has not been included in the Plan.

### **5.1.5 STORM SEWERS**

Storm sewers, like sanitary sewers require regular maintenance activities such as frequent flushing to ensure unimpeded flows, reducing the likelihood of backups and failures. Rehabilitation options for storm sewers are limited to relining. On occasion, sewer rehabilitation can be more cost effective than a full replacement however this strategy will be reviewed on a case-by-case basis. The strategy employed in this plan considers the full cost of replacement.

In addition, the following maintenance practices will be employed on a regular basis to help prolong the lifespan of buried asset.

- flushing of a minimum 650 metres of storm sewer mains and leads;
- cleaning of associated storm sewer structures, catch basins, ditch inlets, and manholes;
- camera inspection of minimum 650 metres of storm sewer mains and leads;

Camera inspection of the storm sewers will assist in accurately detailing the condition of the asset and subsequent schedule for replacement.

## **5.2 RISK ASSESSMENT**

All assets carry a level of risk in terms of cost for the Town. The options above were not only evaluated based on the lifecycle costs and benefits, but also on the potential risks. Due to the uncertainty in assigning a reasonable estimate of probability and cost associated with a risk event, a qualitative approach has been applied to the management plan of the assets.

For all of the integrated assets, such as the watermain, sanitary sewer, storm sewer and road surface, no four assets of the same location were expected to reach the end of their service life at the same point in time. Therefore, a qualitative approach was applied to reasonably accept the increased risk of letting the road deteriorate beyond the desired level of service to offset the cost of replacing the road asset a second and third time in conjunction with the subsurface assets.

In addition, the management of the asset improvement scheduling took into consideration the risk associated with volume of use that the assets received. Acceptable levels of risk will vary depending on their frequency of use. e.g.

If a rarely used asset and a frequently used asset do not meet today's minimum standards, the risk is higher for the frequently used asset and therefore should be prioritized ahead of a rarely used substandard asset.

It is desirable to limit risk by replacing/improving the condition of all assets to meet today's minimum standards however the cost of doing so is not feasible. The Town attempts to achieve a manageable level of risk by completion of condition reviews and prioritizing of replacement and improvement projects

### **5.3 PROCUREMENT METHODS**

The Town currently has procurement by-laws in place for use when considering various projects, however it has been determined, when feasible to pool resources with neighboring municipalities. The creation of an amalgamated tender will allow for a higher volume of service by a supplier, which would reduce the overall cost per municipality.

### **5.4 SCHEDULE OF PRIORITIES**

This Asset Management Plan identifies the schedule of priority projects based on asset type for the next ten years. Options have been considered for each type of core asset as outlined above and further assets, with the options being evaluated for risk and lifecycle costs.

The list of priority projects are listed on Appendix "B" .

## **6.0 FINANCING STRATEGY**

Establishment of a financial plan is critical to the successful implementation of this asset management plan.

In conjunction with developing this Asset Management Plan, the replacement cost of all the Town's assets has been estimated. Replacement costs for linear assets were generated through use of local competitive bid construction costs for projects of similar scope and size. Replacement costs for non-linear assets such as the water treatment plant, lagoon and associated components were indexed forward from historical PSAB costs available in the Town's Asset Register.

The Town is not required to budget for the full replacement value of all its assets, as portions of assets only require an initial investment followed by further re-investment to maintain acceptable levels of service.

The Town is continually reviewing and implementing different options to decrease the magnitude of the annual shortfall to maintain and/or replace the Town's assets.

Council annually reviews and implements the following methods to lessen the short fall:

- Increasing municipal taxes;
- Implementing or increasing user fees;
- Financing projects;
- Provide for the Infrastructure Reserve
- Investments

The actual finance strategy will not only vary from year to year but may vary from one asset project to another.

## **7.0 CLOSURE**

This comprehensive asset management plan will require on-going updates, and improvements to the methodologies of data collection for developing more accurate inventory information. The ability for the Town to leverage its knowledge of infrastructure and by applying the best Asset Management practices at the time will result in very positive improvements in infrastructure. This document will also provide the means to effectively apply for external funding opportunities as they may become available.

The implementation of this plan has required the Town to find additional funds from various sources however overall, the outlook for municipal infrastructure is promising. The municipality has maintained infrastructure in a manner that has controlled the backlog of projects for most asset types to a minimum. Continued contribution of municipal funds, as well as contributions from Government grants into capital projects will ensure the sustainability of the Town's infrastructure assets.

## **8.0 QUALIFICATIONS**

This comprehensive asset management plan has been prepared for the exclusive use of the Town of Thessalon by Tulloch Engineering Inc. and Municipal Staff. This plan is intended to be a living document, updated on an annual basis to project future costs and expenditures on a planning basis only. This plan is not intended to establish annual budgets but rather act a guide to identify the priority projects. All cost projections presented in this report must be verified through detailed cost estimation at time of consideration for the works and subsequent budgeting.

## **9.0 ACKNOWLEDGEMENT**

The Town of Thessalon acknowledges the financial support of the Ontario Ministry of Agriculture, Food and Rural Affairs in the preparation of this comprehensive asset management plan. The views expressed in this plan are the views of the Town of Thessalon and do not necessarily reflect those of Ontario Ministry of Agriculture, Food and Rural Affairs.

## **10.0 DEFINITIONS**

**AMP** -Asset Management Plan

**AADT** -Average Annual Daily Traffic Count

**Expenditure** Forecast-Average Annual Historic Expenditure projected over 10 years with inflation;

**HCB**- High Class Bituminous Surface (Hot Mix Asphalt)

**Historic Expenditure** -Average of expenditures made over the past three years

**LCB** - Low Class Bituminous Surface {Surface Treatment}

**OCWA**- Ontario Clean Water Agency

**OSIM** - Ontario Structure Inspection Manual Bridge Inspections

**PSAB** - Public Sector Accounting Boar

