
ASSET MANAGEMENT REPORT

Town of Deseronto



Prepared for:



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Report Dated: May 9th, 2019

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1. INTRODUCTION

The Town of Deseronto is comprised of an urban centre on the banks of the Bay of Quinte. Surrounding primarily rural lands belong to the neighboring Township of Tyendinaga on the northern boundary, Greater Napanee along the east boundary, and the Mohawks of the Bay of Quinte on the west and north boundary who currently have a land claim which comprises most of the Town.

The municipal infrastructure is an essential part of the Town. The urban centre is defined by its municipal services – roads, water, sanitary and storm sewers, sidewalks and facilities. The urban centre of Deseronto also provides services to the neighboring rural communities as well as the Town’s residents. The Town’s ability to maintain and improve its infrastructure assets is a major factor in determining growth and sustainability. Careful and responsible asset management is critical to the overall goal of providing municipal services efficiently and cost effectively.

The Town of Deseronto created an Asset Management Plan to compile and examine data on its assets and to develop a strategy to manage the existing and future infrastructure needs. An asset management committee was established, consisting of Council, senior and contract staff. The committee initiated the process by identifying the major categories which comprise the municipality’s infrastructure: Buildings and Facilities; Roads including sidewalks, streetlights and storm sewers; Water Treatment and Distribution; Wastewater Treatment and Collection; and major Equipment. All current and existing resources relevant to the municipal infrastructure were compiled: records, reports, mapping, and Public Sector Accounting Board (PSAB) data. Gaps in the existing data were identified and a process put in place to retrieve and improve reserves necessary for a complete and comprehensive plan. Contact was made with the appropriate engineers for follow-up information where needed. Agencies such as Ontario Good Roads Association and Quinte Conservation were utilized for information exchange.

Using the Ministry of Infrastructure Building Together Guide¹, the consultant with municipal staff implemented a process to determine the state of municipal infrastructure, the desired levels of service, the management of the infrastructure assets, and current and future financing. Each of the infrastructure categories was assessed, rated and prioritized using this criteria. Data was organized in a comfortable format for review by Council, staff and public. The plan includes a component for annual evaluation and both short-term and long-term implementation schedules.

¹Ministry of Infrastructure, Building Together: Guide for Municipal Asset Management Plans, (Queen’s Printer for Ontario, 2012)

1.1. Annual Review

The Asset Management Plan will be reviewed on an annual basis by staff reporting to Council. Department Heads will be the initial resource for review and updates of infrastructure assets, levels of service, strategies, and financing. Ratings and priorities will be reviewed using internal and external resources.

1.2. Objective & Scope

The Town of Deseronto retained the Greer Galloway Group to develop a comprehensive Asset Management Plan in accordance with the Ministry of Infrastructure's "Building Together: Guide for Municipal Asset Management Plans". An asset management plan is a strategic document that states how a group of assets is to be managed over a period of time. The plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions. In summary, the goal of the Asset Management Plan is to provide the Town with:

1. A detailed list of their current significant assets; and
2. Develop a plan and process for making the best possible decisions in the future regarding the building, operation, maintenance, renewal, replacement and disposal of infrastructure assets.

This asset management plan provides an itemized list of significant assets. This is not an exhaustive list, rather it focuses on larger, more costly, individual assets. For example, it includes assets such as public works vehicles, but it does not include the individual tools that are used to maintain the vehicle; it includes the library building, but not the books in the library.

The intention – as directed by the Town – is to detail large capital expenditures. It is possible the scope of the elements included in the municipal asset management system may be expanded over time as the asset management plan is developed.

The assets included in this study are grouped into the following categories:

- Road System
- Storm Sewer System Collection and Treatment
- Water Distribution
- Wastewater Collection
- Bridges
- Buildings and Facilities
- Drinking Water Treatment and Pumping
- Wastewater Treatment
- Equipment & Fleet

The following publications were utilized in the development of this report and subsequent analysis:

- The National Guide for Sustainable Municipal Infrastructure
- Ontario Good Roads Association: How to Develop a Municipal Asset Management Plan
- Building Together: Guide for Municipal Asset Management Plans
- Ontario Good Roads Association: A Guide for Road and Bridge Asset Management Plan Development

Future provincial capital funding will be conditional on municipalities ensuring their asset management plans include the elements above. All data and analysis supporting the asset management plan must be documented and kept on file.

Municipalities are responsible for tailoring their asset management plans to their unique needs and ensuring that all of the relevant expertise has been brought to bear in developing them.

2. STATE OF LOCAL INFRASTRUCTURE

The Town of Deseronto has an obligation to provide a particular service to its residents and those who may happen to visit the area.

How one may define that service may vary from person to person – it may involve providing access to various points across Deseronto, or a level of safety, or access to particular resources, or otherwise. However, it's defined the 'service' that the local government provides is directly dependent on the assets that are available to them. Without the buildings, roads, equipment, drinking water, wastewater, and other systems the people who make up the government would not be able to do their jobs or help contribute to the quality of life that residents of and guests to the area currently enjoy.

Documents such as this asset management report are a critical tool which provides current condition and future costing information that may impact the many decisions a local government must make.

This asset management plan is a public document that will be made available to the public and provides information on how the local infrastructure is managed, where their tax dollars are spent and the magnitude of the costs that the available assets demand.

While the Province requires the asset management plan cover a span of 10 years, this document extends over a full 30-year horizon. There are a great many assets for which a Town is responsible that extend well beyond 10 years. It is felt critical that the horizon of a study such as this extend far enough to ensure that the bulk of the assets for which it covers are captured.

An inventory of significant local infrastructure elements is provided in the appendix. This inventory outlines the full list of assets, as well as a description of the current condition, estimated replacement value, and forecasted replacement date for each.

The following provides a general explanation of the approaches, assumptions and other elements that were considered when creating the appended database.

2.1. Assets Included in Management Plan

Table 1 lists each of the asset groups including a subset of assets related to each. Included

Asset	Asset Sub-Class	Quantity	Average Expected Life
Roads	Urban Paved	11.94 km	25 yrs.
	Rural Paved	3.63 km	20 yrs.
	Surface Treatment	0.1 km	8 yrs.
	Gravel	1.1 km	50 yrs.
Bridges	Culvert – large	2	40yrs.
Water System	Water Supply Lines	12 km	40 yrs.
	Standpipe	1	50 yrs.
	Water Treatment	1	50 yrs.
Wastewater System	Storm Sewers	11 km	40 yrs.
	Sanitary Sewers	11.5 km	40 yrs.
	Pumping Stations	3	45 yrs.
	Sewage Treatment	1	40 yrs.
Buildings and Facilities	various	5	50 yrs.
Equipment	various	25	15 yrs.

are asset attributes such as quantity and expected life. The expected life assumes regular maintenance of the assets. Table 2 includes the attributes collected as well as calculated information that aids in the decision-making process such as replacement costs, average remaining useful life, and average condition. This information gives a high-level indication of the current state of the municipality’s assets and some insight into what could be expected in the future.

Table 1: Asset Attributes

Asset	Asset Sub-Class	Quantity	Average Expected Life
Roads	Urban Paved	11.94 km	25 yrs.
	Rural Paved	3.63 km	20 yrs.
	Surface Treatment	0.1 km	8 yrs.
	Gravel	1.1 km	50 yrs.
Bridges	Culvert – large	2	40yrs.
Water System	Water Supply Lines	12 km	40 yrs.
	Standpipe	1	50 yrs.
	Water Treatment	1	50 yrs.
Wastewater System	Storm Sewers	11 km	40 yrs.
	Sanitary Sewers	11.5 km	40 yrs.
	Pumping Stations	3	45 yrs.
	Sewage Treatment	1	40 yrs.
Buildings and Facilities	various	5	50 yrs.
Equipment	various	25	15 yrs.

Table 2: Asset Information

Asset	Asset Sub-Class	Average Condition	Replacement Cost	Average Remaining Useful Life
Roads	Urban Paved	6.4	\$12,150,144	15.7 yrs.
	Rural Paved	7.6	\$738,778	15.2 yrs.
	Surface Treatment	7	\$6,081	5 yrs.
	Gravel	7.6	\$13,229	38 yrs.
Bridges	Culvert	Poor	\$508,800	2 yrs.
Water System	Water Supply Lines	Fair	Included in Village Street Cost and Lifespan	
	Standpipe	Fair	\$615,648	0 yrs.
	Treatment Plant	Good	\$7,000,000	47 yrs.
Wastewater Collection and Treatment	Storm Sewers	Fair	Included in Village Street Cost and Lifespan	
	Sanitary Sewers	Fair	Included in Village Street Cost and Lifespan	
	Pumping Stations	Poor	\$483,807	12.7 yrs.
	Treatment Plant	Good	\$8,100,000	26 yrs.
Buildings and Facilities		Fair	\$3,266,434	11.7 yrs.
Equipment		Fair	\$1,408,696	6.2 yrs.

2.2. Data Collection

Information Gathering

The information contained in this document comes from a variety of sources, however the principal sources are municipal staff and their knowledge of both current practices and historical activities; available reports previously completed speaking to the inventory of assets and their makeup; and in-house knowledge of local assets Greer Galloway staff have developed through our previous involvement with a number of municipal systems.

The initial activities completed in this state of the assignment were to identify the inventory of infrastructure assets owned by the Town, their current conditions, and current and future maintenance and growth plans.

Significant documents utilized in the information gathering process include the Municipal Road Needs Study, Public Sector Accounting Board (PSAB) documents and previous Municipal Budgets.

Where necessary, information gaps were filled through consultation with Town staff and / or field inspection of particular assets.

Condition Analysis

An organized review of the condition of each asset was undertaken. Where available, detailed condition assessments were considered and a single rating out of 10 was assigned.

It is this condition rating that drives the timing and therefore the priority of an asset need / expenditure.

Where available, the condition ratings reflect rating provided by a recent road needs study or other municipal record. Where existing current records were not available field inspections were completed and guidance provided by Town staff.

Table 3: Assets Condition Assessment Frequency

Asset	Asset Sub-Class	Condition Assessment Frequency
Roads	Urban Paved	2 yrs.
	Rural Paved	2 yrs.
	Surface Treatment	2 yrs.
	Gravel	2 yrs.
Bridges	Culverts	0.5 yrs.
Water System	Water Supply Lines	10 yrs.
	Standpipe	10 yrs.
	Treatment Plant	Yearly Operator Report
Wastewater System	Storm Sewers	10 yrs.
	Sanitary Sewers	10 yrs.
	Pumping Stations	Yearly Operator Report
	Treatment Plant	Yearly Operator Report
Building and Facilities	Facility	Continual Use Basis
Municipal Fleet	Equipment	Continual Use Basis

Level of Service

Part of the overall assessment of the assets is an evaluation of the ‘Level of Service’ provided to the general public and residents.

Financial Analysis

The financial analysis is broken into two separate areas.

The first, anticipated future expenditure an asset will require to maintain a condition, generally reflective of that provided today for similar assets.

The feeling of both Greer Galloway and Town staff is the assets across the Town are generally in fair condition. There are clearly assets in need of immediate attention, and others in comparatively good condition. This is typical and should be expected at any point in time as various elements move through their life cycle. The intent of this document is not to overstate the costs associated with these assets, nor is it to understate the costs solely to fit a particular budget limitation or unsustainable practice. The intent is to estimate expenditures for each element to the greatest extent possible based on real, local examples of similar work consistent with good practice and reflective of the environment in which the asset exists.

The second, is provided by the Town and is an estimate of the revenue that can reasonably be expected to be available to offset the projected asset expenditure. Again, the intent is not to exaggerate or underestimate the revenue that is likely to be available in the future, but to provide a reasonable representation of current practices regarding recurring and reliable municipal income streams.

Conclusions

After taking into consideration all the information assembled as part of this process, conclusions will be made regarding:

1. Is the anticipated funding adequate or is there a shortfall between anticipated infrastructure burdens (expenditure) and anticipated revenue?
2. If there is a shortfall, how might the gap be filled (i.e. additional income streams, modification of a level of service, other)?

2.3. Asset Management Database – General Fields

There are general aspects of the asset management database applicable to each element category. A brief description of those elements is provided here:

Initial Year – This is the year in which the study takes effect. It is 2014 as the database has inflation built into the coming year.

Study Horizon – As noted earlier, this represents the number of years for which asset needs have been considered – in this case 30 years.

Opening Balance – This reflects the estimated existing reserve balance that will be available to offset asset costs in Year 5 (2019).

Current Capital Budget / Year 5 Capital Budget – For the purpose of this study these values are assumed equal – there are no significant changes to the available budget anticipated for 2019. The Capital Budget refers to the funds expected to be available to offset the cost burden of the stated assets.

Interest Rate – This is an assumed average interest rate earned on invested funds held in reserve *OR* interest charged on (negative) funds financed.

Inflation Rate – This is an assumed average rate of inflation applied to all costs. Costs are shown in ‘todays or current 2019 dollars’. Costs are compounded year over year and results in the actual costs of an element increasing over time.

Taxes (H.S.T.) – This is the portion of the Harmonized Sales Tax that is NOT rebated to a municipal government.

Budget Increase Rate – This is the rate at which the budget or the funds available are assumed to increase year-over-year. In this case the budget is assumed to increase at a rate consistent with the rate of inflation.

Budget Increase Period – How often the budget is increased can vary. For instance, it can be a yearly increase (as is proposed) or a larger increase can be applied every two or three years.

Special Contribution / Year of Contribution – If there was a known special or unique, one-time source of additional funding, a lump sum could be applied in any particular year. For example, were funding agreements in place for the completed reconstruction of the Town’s wastewater treatment facility and current rehabilitation of the Towns drinking water supply and standpipe. An amount equal to the funds to be received from higher levels of government for this work has been included.

2.4. Road System

The asset management data base has the following elements that are applicable to the Road System:

Item – Item numbers have been provided that reflect the numbering system of the road needs study.

Condition Rating – This reflects the condition rating from the previous road needs study, modified for subsequent changes including improved conditions for reconstructed roads and lowered conditions to reflect deterioration from when the study was completed.

This condition rating is important as it drives the remaining life and thus when funds are allocated for that asset. For instance:

- A condition rating of 10 reflects a new road that has its full life expectancy remaining;
- A condition rating of 5 reflects a road that has half of its life expectancy remaining; and
- A condition rating of 0 reflects a road that is due for full reconstruction immediately.

As noted, when the consideration of an assets relative risk is discussed, it is possible for two roads in physically similar condition to have different condition ratings. The intent is to acknowledge a road with a history of accidents, steep grade, winding nature or otherwise may be felt to be of higher risk to motorists and the municipality can be given a lower rating because it will not tolerate the same degree of deterioration.

Life Expectancy – This is essentially the useful life of the asset. Major rehabilitation or reconstruction is required when a road reached the end of its useful life.

Road systems life expectancies are broken down as follows:

- An urban road is assumed to have a useful life of 25 years.

While this is longer than what is typically expected for a hotmix surface, this is more representative of the actual replacement rate and the typically lower volume roads found in Deseronto will maximize the potential life cycle of the urban road network.

- A rural paved (HCB – high cost bitumen / hot mix) road is assumed to have a useful life of 20 years.

Rural roads that have a hotmix driving surface are presumed to be higher volume rural roads – commonly downloaded County roads –subject to greater truck traffic and the extended life assumed for the urban roads is not appropriate.

- A rural paved (LCB – low cost bitumen / surface treated) road is assumed to have a useful life of 8 years.

Surface treated roads are assumed to be double surface treated, well-drained and it's reasonable to expect a life span such as this as appropriate.

- A gravel road is assumed to have a useful life of 50 years.

Remaining Life – This is the number of years remaining until a provision is made for the major rehabilitation or reconstruction of an asset.

Year Constructed/Purchased – The year a road is constructed is not typically known, or is no longer relevant, accordingly this column is left blank.

Current Year – This is starting year of the asset management table and year to which the remaining life of an asset is added to determine when provisions are made for the rehabilitation or reconstruction of the asset.

Life Expectancy Adjustment – This allows the timing of an asset cost to be adjusted for any number of reasons. The most common reason is to spread out a group of assets due on the same year. This can also be used to adjust an assets priority by manually moving it forward or back in time.

Replacement Date – This is the sum of the current year, remaining life and life expectancy adjustment. This is the year the rehabilitation / replacement expenditure is applied.

Repair / Rehabilitation Staging – For larger projects this allows the costs for that asset to be spread over 1, 2 or 3 years.

Repair Cycle – This is the spacing between repair provisions. This is a repeating or recurring provision applied to extend an assets useful life beyond that which is normally found. If the practice is to replace an asset at the end of its life cycle – as it is in Deseronto – this feature is not applied.

Road Type – This documents the basic classification of a road. This determines the life expectancy, repair cycle and unit cost of the road.

Quantity & Units – This is the amount of the asset, be it the total length or quantity of the asset.

Unit Cost - This replacement or rehabilitation cost of the asset per unit length or per asset. In the case of a road it is the full cost of the removal of the existing roadway surface elements, construction of new surface and drainage elements, professional services and other typically

associated costs. It does NOT include the cost of water distribution or wastewater collection pipes beneath the road, these are accounted for separately.

The specific elements required in the reconstruction of each individual road section will vary, however it is anticipated that over time these unit rates will reflect the overall cost of the reconstruction work.

Examples are provided below:

- An urban road is assumed to have a unit cost of \$1,000/meter.

This cost would include the reconstruction of the existing road base, a single lift of hotmix pavement, new concrete curb and gutters, new sidewalk, new stormwater drainage works and associated works.
- A rural paved (HCB – high cost bitumen / hot mix) road is assumed to have a unit cost of \$200/meter.

This cost would include the pulverizing of the existing driving surface, new single lift of hotmix pavement and isolated improvements to the road base, roadside drainage or other associated features.
- A rural paved (LCB – low cost bitumen / surface treated) road is assumed to have a unit cost of \$50/meter.

This cost reflects a double application of surface treatment combined with isolated improvements to the road base, roadside drainage or other associated features.
- A gravel road is assumed to have a unit cost of \$25/meter.

This cost reflects the additional application of granular road base combined with isolated improvements to the road base, roadside drainage or other associated features.

2.5. Water Distribution & Wastewater Collection

The Town of Deseronto has extensive water distribution and wastewater collection systems associated with their urban road network.

The asset management database has these provisions broken out separately to accommodate municipal accounting requirements. However, these provisions are directly linked to the road reconstruction provisions. The expectation being when a road surface is replaced is precisely when (typically) the pipes underneath that road are also replaced.

There may be instances where a water or sewer main is replaced without the associated surface road improvements, or conversely there may be instances where the road surface elements may be replaced without replacing the mains beneath, but this would not be considered typical.

The asset management database has the following elements specifically applicable to the Water Distribution and Wastewater Collection systems:

Condition Rating & Life Expectancy – These fields are blank because the timing of this asset cost is linked to the timing of the associated road reconstruction.

Unit Cost – The unit cost to replace a watermain and associated appurtenances is \$500/meter. The unit cost to replace a sewer main is \$400/meter.

While this will vary somewhat with the particular size of main, number of services and appurtenances, this cost is assumed to be typical and representative of what should be budgeted.

Repair Percentage – Repair or maintenance provisions are funded independently to these capital improvement-based provisions.

Rehabilitation / Replacement Percentage - For the purpose of this database it is assumed all watermains and sanitary sewers will be replaced when the associated road system is reconstructed.

2.6. Bridges and Culverts

The Town of Deseronto does not currently have any water crossings that are large enough to be classified as bridges – smaller water crossings not considered ‘bridges’ will be considered part of the associated road drainage provisions. However, the Town does have several large culverts that it does maintain and given the size of some of them their replacement costs cannot be rolled into the cost of replacing the associated street.

Specifically, the culvert located on Main Street is currently in need of replacement and as such is placed on the asset management plan as a Bridge structure in order to include its estimated replacement cost of \$150,000 in the financial model.

Another culvert in need of replacement and placed on the asset management plan is a large culvert located on Dundas Street between 65 and 70 Dundas Street. Based on a condition assessment, rehabilitation is not economical as the structure has deteriorated too much and would be extremely costly to repair and maintain. The removal of the existing concrete box and replacement with a new pre-cast structure is the most favourable scenario for the Town of Deseronto. The estimated replacement cost of \$350,000 is built into the financial model.

2.7. Buildings and Facilities

The asset management database accounts for 6 principal buildings and facilities. Though the Town is responsible for several more minor assets, however these are the most critical and carry

the most significant expense burden.

The replacement of building and facility assets is one of the more subjective asset classes. For each facility there are a variety of approaches that may be taken as the end of a life cycle is reached – be it significant rehabilitation or full reconstruction, expansion or maintaining the status quo.

For Deseronto, the feeling is the existing facilities will in all likelihood remain in one form or another well beyond the horizon of this study. However, significant repairs and maintenance will be required over that period various. Accordingly, an ongoing annual provision equal to 2% of the buildings assessed value is applied over the horizon of the study.

For the time being, generally the assessed (MPAC) value of the building has been used. As the future of the various facilities becomes more clear a true replacement cost-reflective of the new structure will need to be added as these MPAC values are likely to be less than a true replacement cost. The exception is the arena which had a more detailed breakdown of building elements and costs available that when totaled were well in excess of the MPAC value. In this case, with more detailed information available a different value was used.

2.8. Drinking Water Treatment

The Town of Deseronto Water Treatment Plant is a Large Municipal Residential Class 3 chemically assisted filtration plant capable of delivering approximately 1700 m³ of treated water to the community each day.

Serving approximately 700 customers, the treatment process generally includes the following elements:

Raw Water Supply

- Water is drawn from Lake Ontario (Bay of Quinte);
- Coarse screens prevent any large debris from passing into the treatment process; and
- The raw water flows into a tank referred to as a low lift well from where it is pumped to the treatment process.

Coagulation / Flocculation / Sedimentation

- Coagulation, flocculation, and sedimentation processes take place in a single cylindrical tank called a reactor clarifier.

Filtration

- Overflow from the surface of the reactor clarifier flows to the filters;
- There are two dual media (sand and anthracite) filters followed by two granular activated carbon (GAC) contactors; and

-
- Following filtration, the water is directed to large reservoirs called clearwells.

Chlorination / Disinfection

- Chlorine is typically added to the process in two locations; the raw water to control the accumulation of zebra mussels and other biological growth; and to the treated water for disinfection.

Elevated Storage Tank

- Treated water is pumped from the clearwells into the distribution system. Included as part of the distribution system, is a treated water storage standpipe. The 1135 m³ standpipe provides relatively constant system pressure and a reserve volume of water for community fire protection.

Process Waste Residual Treatment

- Waste residuals generated through the treatment process are directed to the waste holding tank. Wastewater from the holding tank is either pumped to the waste clarifier for treatment, or directly to the municipal wastewater treatment plant. The waste clarifier separates the waste stream solids by gravity sedimentation. The settled solids are then pumped to the municipal wastewater treatment plant, and the clear liquid at the top of the clarifier is discharged to the Bay of Quinte.

2.9. Water Pollution Control

The Waste Water Treatment Plant (WWTP) in Deseronto was originally constructed in the early 1970's. After extensive investigation the Town in cooperation with the Mohawks of the Bay of Quinte replaced and expanded the existing facility in 2015. Due to the significant cost of the necessary work funding agreements have been put in place with provincial and federal government through the Build Canada Fund (BCF) program, as well as neighbouring governments including the Mohawks of the Bay of Quinte and Hastings County.

The process of reconstructing the facilities is now complete. The work included the following:

1. New headworks screening and grit removal building;
2. New septage receiving and equalization system;
3. Two new aeration basins with fine-bubble aeration;
4. Two new secondary clarifiers;
5. New aerobic digester;
6. Additional biosolids covered-storage capacity; and
7. New two-train cloth media tertiary filter enclosed in a building.

3. DESIRED LEVELS OF SERVICE

Level of Service (LOS) can be defined using various criteria. Regardless of the criteria used, all methods measure performance versus targets and timelines. Although performance measures are subject to change through the evolution of the plan, the Town is responsible for legislated performance criteria such as Minimum Maintenance Standards for Municipal Highways², and Environmental Compliance Approvals³.

The current operation of assets is generally guided by governmental requirements and the desire to exceed these requirements where possible to best serve the changing needs of the community. The following are examples of the legislative documents which the Town references when considering appropriate levels of service:

Minimum Maintenance Standards for Municipal Highways (Ontario Regulation 239/02)

The Minimum Maintenance Standards provides specific guidance regarding recommended road maintenance duties and response times, specifically associated with patrolling, snow accumulation, icy roadways, potholes, shoulder drop-offs, pavement cracks, debris on the road, luminaires (lighting), signs, bridge deck spalls, roadway surface discontinuities and sidewalk surface discontinuities.

Safe Drinking Water Act (Ontario Regulation 170/03)

The purpose of the Safe Drinking Water Act is to protect human health through the control and regulation of drinking water systems and drinking water testing.

Building on existing policy and practice in Ontario's treatment and distribution of drinking water, the Safe Drinking Water Act requires all municipal drinking water systems obtain an approval from the Director of the Ministry of the Environment in order to operate. Operators are required to be trained and certified to provincial standards. The act also provides legally binding standards for testing of drinking water and requires testing be done in licensed and accredited laboratories.

Clean Water Act (Ontario Regulation 287/07)

Ontario protects our source water ("source water" refers to the lakes, rivers and aquifers from which we get the water we drink and use) through the Clean Water Act which:

² Ontario, Municipal Act 2001, O. Reg. 239/02, Minimum Maintenance Standards for Municipal Highways, (Consolidated 2013)

³ Ontario, Environmental Protection Act, R.S.O. 1990, Chapter E.19, (Consolidated 2011)

-
- Requires local communities - through local Source Protection Committees - assess existing and potential threats to their water, and they set out and implement the actions needed to reduce or eliminate these threats;
 - Empowers communities to take action to prevent threats from becoming significant;
 - Requires public participation on every local source protection plan - the planning process for source protection is open to anyone in the community; and
 - Requires all plans and actions to be based on sound science.

Ontario Water Resources Act

The Ontario Water Resources Act is designed to conserve, protect and manage Ontario's water resources for efficient and sustainable use. The act focuses on both groundwater and surface water throughout the province.

The Water Resources Act regulates sewage disposal and "sewage works" and prohibits the discharge of polluting materials that may impair water quality.

Environmental Protection Act

The Environmental Protection Act is Ontario's key legislation for environmental protection. The act grants the Ministry of the Environment broad powers to deal with the discharge of contaminants which cause negative effects. The act specifically:

- Prohibits the discharge of any contaminants into the environment which cause or are likely to cause negative effects - and in the case of some approved contaminants requires they must not exceed approved and regulated limits; and
- Requires any spills of pollutants be reported and cleaned up in a timely fashion.

Accessibility for Ontarians with Disabilities Act

The government enacted the Accessibility for Ontarians with Disabilities Act in 2005. This act lays the framework for the development of province-wide mandatory standards on accessibility in all areas of daily life.

3.1. Roads

The number one priority for the Town of Deseronto (in terms of this asset) is to ensure safe travel and public health and to meet and/or exceed the Minimum Maintenance Standards set by the Province. The Town will log all public calls and concerns for follow-up action and annual review.

The pavement condition rating is an important tool towards this goal as it categorizes the remaining life of roads and thus determines when funds are allocated for that road. The standard grouping and associated Pavement Condition Index (PCI) is listed in Table 4.

Table 4: Standard PCI Rating Scale

Pavement Management Strategy		Scale
Preventive Maintenance	Good	10-8.5
	Satisfactory	8.4-7.0
	Fair	6.9-5.5
Operation & Maintenance	Poor	5.4-4.0
	Very Poor	3.9-2.5
Full Reconstruction	Serious	2.4-1.0
	Failed	0.9-0

Critical PCI 5.5

A target average of “Fair” or better has been the determined goal condition level of the roads within the Town. Because of the low volume of traffic within the town road system the expected life expectancy of our road system is extended relative to standard estimates and is outlined in **Table 5**. It is believed that maintaining a higher condition level of roads through regular maintenance will considerably extend the lifespan of our road system leading to longer periods of time between complete road rehabilitations.

Table 5: Adjusted Road Life Expectancy in the Town of Deseronto

Road Type	Standard Life Expectancy	Expected Life Expectancy in Deseronto
Urban Paved	25 yrs.	40 yrs.
Rural Paved	20 yrs.	20 yrs.
Surface Treatment	8 yrs.	8 yrs.
Gravel Roads	50 yrs.	50 yrs.

The Town’s road network inspection reviewed many segments that established an overall PCI of approximately 6.67. Each road category was evaluated and given an individual PCI. **Table 6** provides insight into the average state of the entire network.

Table 6: Average PCI for Road Network

Road Type	Average PCI
Urban Paved	6.93
Rural Paved	5.81
Surface Treatment	10
Gravel Roads	7.67
OVERALL	6.79

3.2. Water Distribution & Wastewater Collection

The Town’s drinking water distribution and wastewater collection systems run in parallel throughout the Town. The wastewater collection systems can be divided between sanitary sewers and storm sewers. The Town’s storm sewer system is separate from the sanitary sewage system with minimal cross connections. The historical policy regarding the replacement of the water and wastewater network has been to plan to replace the network at the same time as the accompanying street is scheduled for full rehabilitation. Based on the low volume of traffic on our streets as well as historical experience, streets have an expected life expectancy of about 40 years instead of the standard 25 years seen in higher volume cities. With such a long lifecycle, the Town of Deseronto has deemed it an efficient and cost-effective strategy to plan for the water and wastewater network to be rehabilitated during the same timeframe as the Town streets.

3.3. Storm Water Outfall (Treatment)

The Town of Deseronto resides along the shore of the Bay of Quinte which is part of the Bay of Quinte Remedial Action Plan (BQRAP) and an Area of Concern due to degradation of the water quality in the Bay. One source of pollution input to the Bay is urban runoff or stormwater discharge. Contaminants such as oil, grease, metals and pesticides tend to build up on surfaces in urban environments as well as other wastes transported to the Bay through storm sewer systems. This has many detrimental effects; including a decline in plant and animal diversity, pollution of drinking water supplies, and degradation of recreational uses.

In 1985, the International Joint Commission under the Great Lakes Water Quality Agreement designated the Bay of Quinte as an Area of Concern due to the deteriorated water quality in the Bay. Therefore, the BQRAP was established to restore the health and beneficial uses of the Bay of Quinte. The existing stormwater discharges from the Town’s storm sewer systems and presently do not provide quality treatment as recommended in the BQRAP guidelines.

Of particular concern for the Town of Deseronto is the ‘Mill Pond’, a relatively shallow cove along the Bay of Quinte shoreline and including Centennial Park and beach areas. Three storm sewer outlets discharge directly into the ‘Mill Pond’ untreated storm runoff. There is an expectation of the public for the Municipality to protect the natural areas, particularly along the Bay of Quinte shoreline. Therefore, in 2016, Quinte Conservation partnered with the Town of Deseronto and the Ministry of the Environment and Climate Change to complete a Municipal Class Environmental to assess the methods of treatment for the stormwater discharging to the ‘Mill Pond’ and the Bay of Quinte. The Deseronto ‘Mill Pond’ Storm Outfall Municipal Class

Environmental Assessment was completed in March 2017. The preferred solution identified was the retrofit of the storm sewer discharge lines with underground oil and grit separators at the end of each pipe. This solution will assist in addressing concerns previously raised by the public regarding water quality in the Town's 'Mill Pond'.

The Municipal Council has endorsed the proposed upgrading of the existing storm sewer systems and the increased level of service for the storm sewer systems in the Town.

3.4. Wastewater (Sewage) Treatment Facility

The Town of Deseronto recently upgraded the Wastewater Treatment Facility which services both the Town of Deseronto and the nearby Mohawks of the Bay of Quinte and Hastings County. With the addition of this new upgraded waste treatment plant, the Town is in a position to provide a level of service for Wastewater treatment that will sustain the current and future populations.

3.5. Drinking Water Treatment Facility

The Town of Deseronto currently operates a Drinking Water Treatment facility which was constructed in 1976. With a current age of 43 years the facility is beginning to show its age. In its current state the water treatment facility is no longer capable of adequately supplying the Town Deseronto with drinking water. It is the goal to replace the current facility and construct a new treatment plant capable of meeting the Town's needs. The drinking water treatment facility was a top priority for the 2017 Asset Management Plan update. Funding through the Small Communities Fund was secured for this important project and is currently under construction.

In addition to funding from the Provincial and Federal Governments, an agreement has been executed with the Mohawks of the Bay of Quinte who are also served by the Deseronto Water Treatment Plant, to partner in the project and provide financial support for the project.

3.6. Buildings and Facilities

The asset management database accounts for 5 buildings and facilities. The Town is responsible for several more assets; however, after reviewing the assets with municipal staff, these 5 were felt to be the most critical.

The replacement of municipal building and facility assets is one of the more subjective asset classes. For each facility, there are a variety of approaches that may be taken as the end of a life cycle is reached – be it significant rehabilitation or full reconstruction, expansion or maintaining the status quo.

For Town of Deseronto most of the facilities have a significant service life remaining, this will allow decisions on what to be done with these facilities to wait for some time. For those facilities farthest along their service life, it will become progressively more important to develop a replacement strategy for these elements.

Many buildings will require significant expenditures to replace principal systems – roof, heating, cooling, etc. – and to allow for this a recurring provision has been provided for these more minor, yet costly expenses.

3.6.1. Equipment

Principle equipment considered significant by the Town includes 25 items, primarily vehicles from plow trucks to mowers. This equipment is used by the Fire Department, Public Works, Roads, Transit and the Water and Sewer departments. This equipment is maintained routinely and replaced as required.

Town staff undertake regular inspections of vehicles / equipment for problems and provide regular maintenance to extend the life of the equipment, including regular oil changes and rust proofing. Equipment is inspected regularly and maintained to avoid possible problems. There is a replacement schedule for vehicles and equipment over a 10-year period. Funds are identified in the annual budget to create reserves for replacement. Older equipment is traded for newer equipment.

4. GROWTH AND DEMAND

The Town of Deseronto had a measured population of 1,645 people according to the 2016 Census. This represents a percentage change of -1.7% from 2011 which is significantly smaller than the provincial and national average of 4.6% and 5.0%, respectively. However, despite slight population reduction, the Town experiences much traffic due to Dundas Street. Based on the 2012, Environmental Study Report for the Deseronto Sewage Treatment Plant, the ultimate population projection for the Town is estimated at 2,898.

5. ASSET MANAGEMENT STRATEGY – LIFE CYCLE

The Asset Management plan is a living document and continued review of the asset management strategy, condition assessments, priority conformation and financial strategy will be necessary to ensure the future viability of the plan. The asset management strategy is the set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle costs. The following tables in this section will attempt to summarize the following strategies:

- **Non-infrastructure solutions** – actions or policies that can lower costs or extend the asset life;
- **Maintenance activities** – including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events;

- **Renewal/rehabilitation activities** – significant repairs designed to extend the life of the asset;
- **Replacement activities** – activities expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option;
- **Disposal activities** – the activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the Town; and
- **Expansion activities** – planned activities required to extend services to previously unserved areas - or expand services to meet growth demands.

Table 7: Roads

Planned Action	Policy
Non-infrastructure solutions	The historical practice based on the low volume traffic on roads is to estimate longer road rehabilitation cycles in comparison to other regions with a higher traffic volume.
Maintenance activities	The goal of the Town is to schedule road maintenance in order to keep the condition level fair or better. This policy aims to extend the lifecycles of roads while keeping a lower overall maintenance and rehabilitation cost.
Renewal/rehabilitation activities	Due to the high life expectancy of urban streets, the water and wastewater delivery networks are scheduled for replacement only when the streets are due for rehabilitation. This policy eliminates needless duplication of road rebuilding costs.
Replacement activities	The rehabilitation of roads nearing their life expectancy is planned in advance according to the roads replacement cost. Projects in excess of \$800,000 are staged over a 3-year period, while projects between \$400,000 and \$799,999 are staged over a 2-year period.
Disposal activities	Road surfaces are milled and used as road base.
Expansion activities	Given the current population growth forecast, although higher than the provincial average as a percentage, in absolute population increase there is no foreseeable requirement to expand the existing road system.

Table 8: Bridges / Culvert

Planned Action	Policy
Replacement activities	Complete replacement of the culvert when funding becomes available.

Table 9: Water and Wastewater Distribution Network

Planned Action	Policy
Non-infrastructure solutions	Water conservation education to conserve resources.
Maintenance activities	Sewer mains on various streets have been sealed and pressure tested to prevent infiltration. Videotaping (CCTV) has occurred to determine problem areas.
Renewal/rehabilitation activities	Trenchless technologies are used as needed and appropriate to address isolated issues when they arise.
Replacement activities	Complete replacement of the water and wastewater distribution system, where needed, coinciding with street reconstruction.
Expansion activities	None planned.

Table 10: Equipment

Planned Action	Policy
Non-infrastructure solutions	Regular inspections of vehicles/equipment for problem areas, and regular maintenance to extend the life of the equipment – regular oil changes, rust proofing.
Maintenance activities	Equipment is regularly inspected and maintained to avoid possible problems.
Renewal/rehabilitation activities	Capital plan for replacement of equipment.
Replacement activities	10-year capital plan, with funds identified in the yearly budget to create reserves for equipment replacement.
Disposal activities	Older equipment is traded for new equipment.

Table 11: Buildings / Facilities

Planned Action	Policy
Non-infrastructure solutions	Regular inspections of building components for problem, and regular maintenance to extend the life of the equipment.
Maintenance activities	Equipment is regularly inspected and maintained to avoid possible problems.
Renewal/rehabilitation activities	Capital plan for replacement of large items such as roof or furnace replacement.
Replacement activities	10-year capital plan, with funds identified in the yearly budget to create reserves for building upgrades and replacement.
Disposal activities	

This asset management plan will be a tool to ensure asset needs are anticipated, planned for and managed with a preventative and proactive strategy. The plan will provide council, staff and the public the means to see all assets in one comprehensive package. The plan will illustrate the asset management strategy supported by the Town and how they plan to manage their assets from needs and condition ratings to desired levels of service to managing risks and lowering life cycle costs.

The Asset Management plan is a living document and continued review of the asset management strategy, condition assessments, priority conformation and financial strategy will be necessary to ensure the future viability of the plan.

In the past, the Town’s approach to asset management has been generally reactive. Once an asset reached the end of its useful life funds were directed to replace the most critical asset to the extent that available funds would allow. Inevitably funds have not been sufficient to address community needs so service standards were lowered, poor conditions tolerated or external funding sources pursued.

As this asset management plan is developed, it is expected that all the assets will be viewed collectively and a more coordinated approach to funding their needs will develop and embrace planned actions such as those noted by the Ministry of Infrastructure below:

- Non-infrastructure solutions – actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and land use planning, demand management, insurance, process optimization, managed failures, etc.);
- Maintenance activities – including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events;
- Renewal/rehabilitation activities – significant repairs designed to extend the life of the asset. For example, the lining of iron water mains can defer the need for replacement;
- Replacement activities – activities expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option;

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- Disposal activities – the activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the Town; and
 - Expansion activities (if necessary) – planned activities required to extend services to previously unserved areas - or expand services to meet growth demands.

5.1. Procurement

The Town has a Procurement Policy as required by the Municipal Act. The purpose of the procurement guideline is to ensure that:

- There is competition among suppliers that will result in the Municipality receiving the best value to the taxpayers;
- There is fairness between bidders and objectivity in the procurement process;
- There is openness, accountability and transparency in the procurement process;
- The required quality and quantity of goods and/or services, including professional and consulting services is purchased, rented or leased in an efficient, timely and cost-effective manner; and
- All costs, including but not limited to, acquisition, operating, training, maintenance, quality, warranty, payment terms, disposal value and disposal costs, are considered in evaluating bid submissions from qualified, responsive and responsible vendors.

This policy generally requires the following:

Low Value Purchase (less than \$1,000.00) - A Department Supervisor may authorize low value purchases that do not exceed \$1,000.00 provided sufficient funds are available within their budget and the purchase is for legitimate Corporation purposes. Purchases can be made without issuing purchase orders and obtaining quotations.

Request for Quotation – Informal (Purchases between \$1,000.00 and \$5,000.00) - Three quotations, in writing, must be obtained by the Department Supervisor for purchases between \$1,000.00 and \$5,000.00. These purchases do not require formal advertising nor the receipt of sealed bids, however there must be sufficient funds available within their budget and the purchase must be for legitimate Corporation purposes. The Town Clerk / Treasurer must review the three quotations and sign off on the purchase order before the successful bidder is notified.

Request for Tender– Formal (Purchases exceeding \$5,000.00) - For the procurement of goods or services having a contract value of \$5,000.00 or more, a Request for Tender shall be used where all of the following criteria apply:

1. Two or more sources are considered capable of supplying the good, or service.

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2. The good or service is adequately defined to permit the evaluation of tenders against clearly stated criteria.
 3. The market conditions are such that tenders can be submitted on a common pricing basis.
 4. It is intended the compliant tender will be accepted without negotiations.

Request for Proposal - For the procurement of goods or services having a contract value of \$5,000.00 or more, a Request for Proposal shall be used where all of the following criteria apply:

1. The procurement is required as a result of a particular problem, requirement or objective.
2. The selection of the supplier depends more upon the effectiveness of the proposed solution, than the price alone.
3. It is expected negotiation with one or more bidders may be required with respect to any aspect of the contract.
4. The precise good, service or the specifications therefore are not known or are not definable and it is expected the bidders will further define them.

Standing Offer - A Standing Offer Agreement shall be used for the procurement of goods or services of any contract value when the following criteria apply:

1. Where it is important the Corporation be guaranteed a continuous supply of goods or services.
2. The volume of goods or services over the course of a year is high.
3. Economies of scale can be achieved by eliminating multiple low-value bids.
4. Demand is not known in advance.
5. The use of the goods or services required is repetitive in nature.
6. Delivery of the goods or services is contracted for as the need arises.

This policy provides the basic minimum requirements for the acquisition of goods and services with a view to ensuring the Town obtains the best value for the goods and services it purchases.

5.2. Options Analysis

Undertaking an options analysis is necessary to develop the strategy aspect of the asset management plan. This analysis compares different actions that would enable assets to provide the needed levels of service.

For the time being the focus of the Town will continue to be on addressing immediate, critical needs that generally are well beyond the end of their useful life.

In order to delay other imminent costs some portion of the municipal resources may be redirected to more preventative or life extending measures (i.e. pipe lining vs. replacing; road/crack sealing and resurfacing vs. replacing; bridge rehabilitation vs. replacement; facility renovation vs. replacement).

This approach has some overlap into maintenance related activities. For the purpose of this document maintenance provisions have been excluded and only significant capital works have been included as requested by the Town.

Building elements are expected to be demand more regular, smaller costs over the life of the element. Accordingly, for this element costs have been spread across the horizon to allow for more regular but less costly repairs / renovations and a longer lifecycle for building assets.

Asset management options can be compared based on:

- Lifecycle cost – the total cost of constructing, maintaining, renewing and operating an infrastructure asset throughout its service life.
- An assessment of all other relevant direct and indirect costs and benefits associated with each option. Examples include:

Direct Benefits and Costs

- Efficiencies and network effects (such as savings in wastewater treatment due to conservation and efficiency improvements to the water system or savings of time and vehicle operating costs for users of transportation infrastructure);
- Investment scheduling to appropriately time expansion in asset lifecycles (for example, consider delaying the resurfacing of road assets before an imminently-planned expansion to save costs and minimize waste);
- Safety (accident reduction and impact on both property damage and injury/fatalities).
- Environmental impacts such as greenhouse gas emissions or nutrient loading; and
- Vulnerability to climate change impacts or climate change adaptation.

Indirect Benefits and Costs

- Local wellbeing and health;
 - Amenity values;
 - Value of culturally or historically significant sites; and
 - Local image.
- An assessment of the risks associated with all potential options. Each option can be evaluated based on its potential risks, using an approach that allows for comparative analysis. Risks associated with each option can be scored based on quantitative measures when reasonable estimates can be made of the probability of the risk event happening and the cost associated with the risk event. Qualitative measures can be used when reasonable estimates of the probability and the cost associated with the risk event cannot be made.

Again, it is expected these elements will be considered in greater detail and included in the asset management plan as Town Staff and Council build on the initial asset management database.

5.3. Risk Analysis

A detailed asset management plan includes an overview of the ways in which the asset management strategy could fail to generate the expected service levels (risks) and the actions taken in response to these identified risks (risk management strategies).

Risk analysis involves proactively identifying risks, the consequence and likelihood of their occurrence, and the best ways to reduce, mitigate, or transfer each risk so as to minimize the adverse effects.

As a best practice, risk analysis should be embedded throughout the asset management planning process. Through the development of the asset management strategy, different actions are compared that would enable assets to provide desired levels of service in a sustainable way. Evaluating the risks and available risk management strategies associated with each option is an essential part of this comparison.

5.4. Identifying Risks

Risks can be identified using a variety of techniques, including:

- Analysis of historical information;
- Facilitated workshops among staff;
- Consultations with external experts; and
- Research into experiences of other municipalities.

5.5. Critical Assets

Some assets are more critical to the continuity of operations than others. Determining which assets are most critical to the Town can help in prioritizing risk management activities. It can also help to ensure that operation and maintenance dollars and capital expenditures are targeted to assets with the greatest potential impact on service delivery. Critical assets are not necessarily those that have a high probability of failure - rather, they are those that would have the most significant impact on the Town's ability to deliver services in the event of failure.

5.6. Risk Management Strategies

The risk analysis process should identify and evaluate a range of options for managing risks. Every risk management strategy has an associated cost - so the evaluation will ultimately assess value for money.

Risk management strategies can be separated into five broad categories:

- 1) *Prevention*: Terminate the risk by doing things differently.

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- 2) *Reduction*: Take action to either reduce the likelihood of occurrence or limit the impact when the risk does occur.
 - 3) *Transference*: Pass management of the risk to a third party (e.g. insurance, contract provisions). Not all risks can be transferred in this way.
 - 4) *Acceptance*: Tolerate the risk, if the cost to mitigate the risk outweighs the likelihood and consequence of the risk, or the likelihood and impact of the risk occurring is acceptable.
 - 5) *Contingency*: Plan and organize actions to be initiated if the risk occurs. This includes ensuring the required resources are in place and responsibility for implementing the actions is clear.

5.7. Deseronto's Approach to Risk Management

For the Town of Deseronto's Asset Management Plan the elements described in this risk analysis process are imbedded in the condition rating or the remaining useful life of each particular element.

There is no specific individual statement of a particular elements relative risk to another. For instance where there are two roads of similar relative condition, a roadway that has a higher traffic volume, higher speed, greater accident history or otherwise which would result in it being considered a greater "risk" than the other is given a higher priority by more rapidly reducing its condition rating. This reflects the fact that its numeric condition rating is driving the point in time where funds are allocated for a particular asset relative to the next.

Simply put, a troublesome road will reach a "0" condition rating more quickly than another because it should not be allowed to deteriorate to similar point due to the more rapid increase in risk (of accidents or otherwise) that accompanies such deterioration.

Critical Risk

The municipality will first and foremost endeavor to prevent the risk from occurring. Instances where there is a risk that has been identified and is felt to be particularly critical, specific and directed measures will be put in place to remove that risk. The highest of priority will be given to these assets as they are identified.

Tolerable Risk

The more common condition that will exist is where a risk is known, but not felt to be of a critical nature. These may be items that have long been in existence and have no particular accident or occurrence history. The risks associated with these assets will be tolerated until such time that the whole asset is in need of attention and the asset will be improved in a manner that will prevent or reduce the impact of that risk at that time.

5.8. Transferring, Accepting or Risk Contingencies

Where a known risk cannot reasonably be prevented and will remain in some manner for the foreseeable future that risk will be accepted by the Town and where appropriate that risk may be transferred, or a contingency put in place to minimize the impact of that risk.

5.9. Anticipating Risk

It is important to note that a risk analysis is based on the expectation a risk has been or can be identified by the Town.

In many cases a risk may not be known until something happens to bring it to the attention of the Town. This is not to say the Town should not exercise its due diligence in proactively identifying areas of risk, rather it is simply to acknowledge not all conditions, situations, actions or results can be anticipated.

5.10. Review and Improvement

As with asset management planning as a whole, risk analysis should be seen as an ongoing process to be refined and improved over time. Implementation of risk management strategies should be monitored and reviewed. This includes:

- Watching for the early warning signs a risk is developing;
- Tracking trends and refining predictions around the consequence and likelihood of risks;
- Checking planned actions are being implemented; and
- Checking actions taken are effective.

6. HIGH PRIORITY ASSETS

This asset management plan provides a full listing of the Town's major assets, their condition and their current ability to provide the desired level of service. In accomplishing this plan, certain assets were flagged as *high priority* concerns. As such, the Town of Deseronto has prioritized funding for the following assets.

6.1. College Street from Dundas Street to Thomas Street

This project includes the reconstruction of the underground piping on College Street from Dundas to Thomas Street with the necessary associated restoration. The work will include replacing the old 150 mm cast iron watermain with new 200 mm diameter PVC piping and new 19 mm services to the property line. This will improve the water quality as well as improved fire flows through the older mature area of the Town.

The storm sewer will be upgraded and improved with proposed realignment of the storm outfall

along the existing right of ways so that drainage will be improved, and the system can be maintained.

The sanitary sewer piping will be replaced as it has reached its useful life and ensure the integrity of the municipal infrastructure for decades to come.

This section of College Street is designated as a “Now” deficiency in the Town’s 10-year capital plan and therefore is a top priority road project and is to be completed in 2019. The current condition of the roadway requires immediate rehabilitation to alleviate safety issues to the motoring public and pedestrians. The surface condition deterioration allows water to be trapped on the roadway surface during major rainfalls, causing vehicular hydroplaning. In winter conditions, the roadway surface will trap slush in the wheel ruts creating extreme safety issues to the motoring public. Due to the lack of roadside ditches and poor drainage, areas of the roadway are prone to short term flooding. The Municipality is expending excessive maintenance costs: for surface patching and repairs in summer; and for additional ploughing and sanding in winter since the road condition makes snow and slush removal more difficult. Inadequate sidewalks do not accommodate pedestrian and bike traffic safely.

6.2. Dundas Street from Bells Road to Deseronto Road

This project includes the reconstruction of approximately 2,270 m of urban paved surface and the replacement of adjacent curb and gutter on Dundas Street from Bells Road to Deseronto Road. The extent is a high-volume road, accompanied by severe alligator cracks along its length, and requires rehabilitation. This section of Dundas Street has been assigned poor condition ratings and is designated as a “Now” deficiency in the Town’s 10-year capital plan and therefore is a top priority road project for 2020. This roadway was formerly old provincial Highway 2 that was downloaded first to the County of Hastings and then when the County Roads department folded, this highway was downloaded to the Town of Deseronto.

The current condition of the roadway requires immediate rehabilitation to alleviate safety issues to the motoring public and pedestrians. Catch basin grates are unsafe for cyclists and require replacement. Inadequate sidewalks do not accommodate pedestrian and bike traffic safely. The sidewalks fail to comply with Accessibility for Ontarians with Disabilities Act (AODA).

Based on opening balance and projected revenue for the 2019 AMP update, the Town does not have the means to upgrade Dundas Street from Bells Road to Deseronto Road without help. Greer Galloway recommends the Town to seek special contribution(s) to help finance the road reconstruction as soon as possible.

6.3. Dundas Street Culvert

The Dundas Street Culvert between 65 and 70 Dundas Street has been assigned a poor condition rating and is designated as a “Now” deficiency in the Town’s 10-year capital plan and therefore is a top priority Bridge project for 2020.

The work includes removal of the existing concrete box culvert with a total deck length of 6.1m and replacement in-kind with a new pre-cast structure. The works required include excavation and removal of existing components above and below the water line; replacement with pre-engineered components above waterline; rip rap slope protection; erosion and sediment control; and modifications and improvements to approaches.

6.4. Main Street Culvert

This is the largest drainage structure in the Town. It is about 30 m long under Main Street at the west end of Centennial Park. It has been extended over the years so that now there are 4 distinct sections with varying pipe materials and sizes. Based on a detailed inspection in 2014, there are no immediate concerns of structural stability of the culvert. However, the life of this culvert is limited to only a few years. Given the conditions of the culvert and its limited hydraulic capacity, consideration should be given to completely replacing the culvert. In the interim, temporary internal supports were recommended at the north inlet and along section 4 to prevent potential caving in of the culvert. Until the culvert can be replaced, semi-annual inspections should be completed to monitor the culvert and additional temporary supports be provided as required.

6.5. Water Treatment Plant

The Deseronto Water Treatment Plant (WTP) was originally built in the early 1970's and serves the Town as well as a portion of the Mohawks of the Bay of Quinte Territory to the west. The rated capacity of the facility is listed as 2,946 cubic metres per day (m³/day), however bottlenecks within the system limit the sustainable production to a level below 2,000 m³/day. There is a lack of redundancy with respect to key unit processes which could drastically impact supply should an unforeseen issue occur. A large-scale plant upgrade is under construction to remove the capacity bottlenecks and address the lack of redundancy.

The project cost is approximately \$7 million, funded through the Small Communities Fund in partnership with the Town and the Mohawks of the Bay of Quinte. A reliable water and wastewater system is the backbone of a municipality.

7. FINANCIAL STRATEGY

A financial plan is critical for putting an asset management plan into action. By having a strong financial plan, municipalities can demonstrate they have made a concerted effort to integrate asset management planning with financial planning and budgeting and to make full use of all available infrastructure financing tools.

7.1. Capital Revenue / Expenditure History

We understand there has been no specific provision in recent years for budgets specifically directed to the expenses identified in this asset management inventory. Virtually all construction and general improvement works in the Town have been accomplished using maintenance provisions, through funding programs with the cooperation of the Provincial / Federal governments or other means.

Accordingly, this study will be able to speak to the forecasted expenditure of the existing assets, however it will not be able to compare against existing revenue provisions. The study will consider various contribution rates and determine what annual expenses may be expected and what level of expense should be funded through one means or another to provide a viable 30-year forecast.

The Town of Deseronto has set aside funds for the reconstruction of the underground piping on College Street from Dundas to Thomas Street with the necessary associated restoration. Based on opening balance and projected revenue for this 2019 AMP update, the Town does not have the means to upgrade Dundas Street from Bells Road to Deseronto Road without help. Greer Galloway recommends the Town to seek special contribution(s) to help finance the road reconstruction as soon as possible.

7.2. Capital Revenue / Expenditure Forecast

The breakdown and distribution of anticipated expenditures and revenues across a 30-year horizon are provided in the appendix. Particular highlights are provided below:

Revise below based on Council comments and final table.

Revenue

- Opening Balance\$0
- Annual Capital RevenueTo be determined below.
- External Funding Sources\$544,500 (\$605,000 project cost – water tower)
- External Funding Sources\$6.6M (\$8.1M project cost – wastewater treatment)
- External Funding Sources\$5,452,300 (SCF and MBQ for WTP)
- Interest Rate (Reserves/Loans)2.0%
- Capital Revenue Increase Rate2.0%

Expenditure

- Inflation Rate2.0%
- Total Expenditure.....\$63.5M
 - Road System\$18.2M
 - Water Distribution\$11.3M
 - Wastewater Collection\$9.0M
 - Bridges\$1.2M
 - Buildings & Facilities\$3.3M
 - Drinking Water Treat & Pump ...\$8.4M
 - Wastewater Treatment\$10.5M*
 - Equipment.....\$1.6M

* (The bulk of the wastewater treatment expense is captured by the existing funding agreement.)

- Average Yearly Expenditure.....\$1.98M

The following revenue scenarios have been considered:

1. Existing practice of no specific municipal funding for these expenses and no future funding agreements or other revenue streams.
 - Annual Capital Revenue = \$0/year
 - Minimum Balance = (\$64 M)
 - Forecast is not sustainable and quickly cascades into unmanageable debt conditions.
2. Additional revenue streams and/or regular funding resources are made available.
 - Annual Capital Revenue = \$1.25M/year
 - Minimum Balance = (\$7.4 M)
 - Forecast is further improved and provides a more balanced mixture of deficit and reserve conditions over the horizon.

Based on these scenarios it is estimated that regular and predictable revenue stream in the order of \$1.25M are required immediately and would need to continue to increase over time to offset the effects of inflation.

Commented [RS1]: Requires updated figures from the Town

8. CONCLUSIONS

This asset management plan is an update for the Town of Deseronto. While the assets noted have been tracked and lifecycles considered to varying degrees, there will undoubtedly be modifications made to this plan as the various asset groups become more regularly considered collectively and over a longer horizon.

As revenue sources are developed and the significant discrepancy between revenue and expense better balanced, more discrete assessments and management of the elements can be incorporated and the asset management plan can be further refined over time.

However, for the time being, this initial asset management plan provides the following:

1. The Town of Deseronto is responsible for an extensive and varied service and infrastructure system.
2. The Town of Deseronto currently provides a level of service that is appropriate to its size, location and public demands.
3. Responding to need to improve the conditions of College Street from Dundas Street to Thomas Street in 2019 and Dundas Street from Bells Road to Deseronto Road in 2020, with the latter contingent on funding support or will have to wait many years for

improvement.

4. This asset management plan considers the maintenance of the assets in a manner more or less consistent with current practices or improved upon replacement to those considered typical for a town such as Deseronto.
5. The financial demands of the existing assets are well beyond the revenue currently being allocated to this purpose.
6. The existing tax base and revenue it generates is insufficient to provide the necessary revenue to support the existing assets.
7. While there are opportunities to extend the life of existing assets through preventative or proactive maintenance and improvement strategies (i.e. sewer relining, road crack sealing, etc.) they are less viable in smaller communities such as Deseronto where it is more difficult to take advantage of costs of scale and benefits would be minor relative to the existing revenue / expense forecast.
8. Where particular peak financial demands arise due to coincident needs of various assets it would be reasonable and expected the Town would consider financing the costs over the short term – as has been done in the past – however this approach is not sufficient to address the existing shortfall on its own.
9. In previous years there have been opportunities to bridge the gap between revenue and expenses with cost sharing agreements and funding programs with other levels of government. While unclear if this will be available in the future, additional funding from Provincial and Federal governments seems to be a critical element to any future approach to the maintenance of the existing municipal assets.
10. Without additional sources of revenue, the level of service, safety and general quality of life for those living in and visiting the Town of Deseronto will slowly deteriorate in the short term but will continue to deteriorate at a progressively more rapid pace over time.

Respectfully Submitted,

**THE GREER GALLOWAY GROUP INC.
CONSULTING ENGINEERS**

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Appendix A – Maps

Appendix B – Asset Management Database: Data Entry Table

Appendix C – Asset Management Database: Financial Schedule

Appendix D – Asset Management Database: Summary Tables

1. Summary Table for \$0.0M Annual Capital Revenue
2. Summary Table for \$1.0M Annual Capital Revenue
3. Summary Table for \$1.25M Annual Capital Revenue
4. Summary Table for \$1.5M Annual Capital Revenue

Commented [RS2]: To be updated with Table data