The Corporation of the Municipality of Whitestone

Agenda for Special Council Meeting
Wednesday, December 8, 2021

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1. Call to Order and Roll Call **2:00 p.m.**

National Anthem

Indigenous Land Acknowledgement Statement

The Municipality of Whitestone recognizes all of Canada resides on traditional, unceded and/or treaty lands of the Indigenous People of Turtle Island.

We recognize our Municipality on The Robinson Huron Treaty territory is home to many past, present and future Indigenous families.

This acknowledgment of the land is a declaration of our commitment and collective responsibility to reconcile the past, and to honour and value the culture, history and relationships we have with one another.

2. Disclosure of Pecuniary Interest

3. Approval of Agenda ®

Move into Committee of the Whole ®

4. Asset Management Plan

Presentation of the 2021 Municipality of Whitestone Asset Management Plan and Financial Strategy for Core assets and Vehicles, by R.J. Burnside & Associates Limited

- Arunas Kalinauskas, Business Manager - Asset Management & GIS; and
- Dan Wilson, Financial Strategy Specialist

Reconvene into Regular Meeting ®

Matters Arising from Committee of the Whole

5. Closed Session

Adjourn to Closed Session ®

5.1 Personal matters about an identifiable individual, including municipal or local board employees, pursuant to Ontario Municipal Act, Section 239. (2) (b)

- Human Resources Matters

5.2 A proposed or pending acquisition or disposition of land by the municipality or local board, pursuant to Ontario Municipal Act, Section 239. (2) (c)

- Proposed land acquisition

Reconvene to Open Session ®

Matters Arising from Closed Session

6. Confirming By-law ®

7. Adjournment ®

PRESENTATIONS AND DELEGATIONS

BURNSIDE

50 YEARS

Asset Management Plan

Final Report

Municipality of Whitestone

November 2021

Municipality of Whitestone 2021 Asset Management Plan (Core Assets - Roads, Bridges, Water, Wastewater, Storm Water and Vehicles)

R.J. Burnside & Associates Limited
15 Townline
Orangeville ON L9W 3R4 CANADA

November 19, 2021
300052313

Record of Revisions

Revision	Date	Description
1	October 21, 2021	Initial Submission to Municipality of Whitestone
2	November 19, 2021	Include Edits post Client discussions

R.J. Burnside & Associates Limited

Report Prepared By: *signature removed for unprotected version of file*

Arunas Kalinauskas
Business Manager – Asset Management / GIS
AK:jh

Executive Summary

This report contains the Asset Management Plan for the Municipality of Whitestone (Municipality) core assets. The report has been organized as follows:

- Chapter 1: Introduction;
- Chapter 2: State of Local Infrastructure;
- Chapter 3: Expected Levels of Service;
- Chapter 4: Asset Management Strategy;
- Chapter 5: Financing Strategy; and
- Chapter 6: Recommendations.

The “state of local infrastructure” section provides an overview of the core capital assets plus vehicles owned by the Municipality. This includes detailed information on asset inventory, including asset attributes, accounting valuations, replacement costs, useful life, age, and asset condition. This information provides the foundation for other sections of the asset management plan.

Based on data provided by the Municipality and discussions with Municipal Staff, it is believed that the Municipality’s core assets including Water, Wastewater, Storm Water, Roads, and Bridges, plus Vehicles have a Fair/Average weighted average condition (with the weighting based on asset replacement cost) as outlined in the following assets table. Please note that weighted average conditions do not fully reflect the many assets that need to have capital improvement investments but provide an overall perspective of all the assets found in that asset grouping/network. For example, approximately 21% by length (16.6 km) of the Municipality’s Gravel Surface roads are in poor condition, yet the overall weighted average is identified as Fair/Average. The 21% poor condition of gravel roads is expected to be addressed through the development of a gravel resurfacing plan. All of these poor gravel surface roads have less than 50 vehicles per day traffic and have alternate access/exit routes for residence (more than one exit route). These roads therefore have been identified as having Minor consequence of failure and Moderate risk of failure.

The Municipality is currently developing a multi year gravel resurfacing plan. Knowledge of the road system by internal staff is key in determining the needs of specific roads. Depending on a number of factors including Average Annual Daily Traffic, length of road, surface, base and drainage feature conditions. The developed gravel resurfacing program could range from 5 to 15 years for full depth resurfacing.

Asset Type	Asset Sub-Type	Condition (weighted average)	Risk (weighted average)	Useful Life (UL) - Weighted Average	Remaining Service Life (RSL) - Weighted Average	RSL as a % of UL
Road Base	Base		Low			
Road Surface	Asphalt	Good	Moderate	31	19	61%
	Surface Treatment	Good	Moderate	16	12	73%
	Gravel	Average	Moderate	23	10	45%
Bridge & Culverts		Good	Moderate	64	32	50%
Storm Water	Storm Mains	Average	Moderate	75	49	65%
	Catch Basins	Good	Low	75	56	75%
Water		Good	Moderate	36	15	42%
Wastewater		Good	Moderate	50	32	64%
Vehicles	Fire	Good	Moderate	27	11	41%
	Municipal	Average	Moderate	14	8	57%

Looking at the remaining life as a percentage of useful life one may quickly identify the most used up asset value is with Fire Department vehicles, and yet these vehicles are in Good condition. So, it is important not to view these percentages as absolutes but as triggers to seek more information about an asset type. For example, the Fire department has some vehicles that may have exceeded 50% of their identified useful life and yet due to low usage and a very good maintenance program the Fire Chief believes that some of the vehicles will provide excellent service for many more years. Another factor in the lower 41% value is that some Fire vehicles are purchased as used vehicles in excellent condition for an incredibly low cost, which in turn does not elevate a weighted average against a false market replacement cost value.

“Expected levels of service" compares the current level of service provided by the Municipality, and the recommended levels of service that will help extend the life of the above mentioned asset types as well as help accommodate for growth of the Municipality. The Municipality of Whitestone takes great care in the service levels they offer their constituents and public. This report has made a few additional Levels of Service (LOS) recommendations that can extend the life of the Municipality’s tangible capital assets and therefore reduce the total lifecycle costs of Municipal assets.

The "asset management strategy" for core assets plus vehicles provides a long term operating and capital forecast for these asset related capital costs, indicating the requirements for maintaining, rehabilitating, replacing/disposing, and expanding the Municipality's assets, while moving towards the specified expected levels of service identified above. The goal of the asset management strategy is to have the Municipality moving towards a more sustainable asset management position over the 10 year forecast period. We have also taken into consideration the potential risk of each asset by identifying the asset consequence of failure and probability of failure.

Asset risk was assessed based on the asset's age, condition, consequence of failure, and probability of failure. The following have been identified based on Municipal data as assets that need to be replaced or improved over the next few years:

Water

The Municipality only provides drinking water to Municipal buildings. These assets are included in this asset management plan to help the Municipality maintain a proper understanding of any capital and maintenance costs.

- Library potable water supply – A water distribution extension pipe from the Municipal Office and Community Centre to the Library (approximate cost - $25,000 – completed 2021).

Wastewater

The Municipality's only wastewater assets are linked to Municipal buildings in their septic systems (seven septic systems in total). These assets are included in this asset management plan to help the Municipality maintain a proper understanding of any capital and maintenance costs. As the Municipality's staff have indicated, the Library septic system is in fair condition and we recommend that the next time the septic tank is cleaned out, a relative condition of the septic system is documented as a future reference.

Storm Water

The Municipality has provided the storm water assets that are located in the area of the Municipal Office and Community Centre. It is understood that there are more storm water assets like crossroad culverts, throughout the Municipality however this information still needs to be collected and assessed in the future. What we do know is that the Municipality invests approximately $13,000 annually in replacing crossroad culverts.

Roads

- Balsam Road, from Canning Road to Highway 124 – Slurry Seal improvement is recommended. (approximate cost – $32,000.00 – completed in 2021)
- Bunny Trail, from Highway 520 to Snakeskin Trail – Slurry Seal improvement is recommended. (approximate cost – $76,840 – completed in 2021)
- Canning Road, from Balsam Road to Fox Lair West Leg – Slurry Seal with some road base improvements are recommended. (approximate cost – $90,000 – completed in 2021; $43,000 – 2022)
- Whitestone Lake Road, from Highway 520 to Whitestone Lake Resort – Pulverize the existing road surface and reinforce the base with gravel and a double high float (e.g., Double Surface Treatment) is recommended. (approximate cost – $162,420 – completed in 2021)
- Maple Island Road, from Highway 520 to Shady Maple Trail - Pulverize the existing road surface and reinforce the base with gravel and a double high float, followed by a Slurry Seal the next year is recommended. (approximate cost - $234,000 – 2022; $35,100 - 2023)
- Farley's Road, from Highway 124 to Dobson Road - Single Surface Treatment with some roadside ditches and culverts are recommended. (approximate cost - $102,000 – 2022)
- Whitestone Lake Road, from Highway 520 to Whitestone Lake Resort – Slurry seal of the new surface that was put on in 2021 is recommended. (approximate cost – $48,600 - 2022)
- York Street, from Highway 124, to Landfill site - Slurry seal and crack seal the surface is recommended. (approximate cost – $14,400 - 2022)
- ½ Grey Owl Road, from Highway 124 to Shakell Road – Single Surface Treatment is recommended. (approximate cost $2,700 - 2023)
- Bunny Trail, from railway Crossing to Boakview Road – Single Surface Treatment is recommended. (approximate cost $200,500 - 2023)
- Shakell Road, from Grey Owl Road to East End Cul-de-sac - Pulverize the existing road surface and reinforce the base with gravel and a double high float is recommended. (approximate cost $144,000 – 2023).

Bridges

- Bridge 2 – Maple Island Bridge – 1.1 km north of Highway 520, which is a concrete slab on steel girder bridge requires repair of concrete parapet wall and replace end treatment. (approximate cost - $18,000 - 2022)

- Culvert 1 – Maple Island CSP – which is a corrugated steel round pipe requires upgrade guide rail end treatments on approaching ends. (approximate cost - $76,000 – 2022)
- Bridge 9 – Auld's Road Bridge – which is a timber deck on timber girder bridge requires installation of guide rail over the deck and on the approaches, replace & repair deteriorated section of timber crib, retaining wall and replace separated deck members, replace broken sections of timber curb, and repair guide rail until such time that it can be replaced. (approximate cost - $200,000 – 2023).

Fire Department Vehicles

- Rescue #1 - Pickup Truck – Is ten years old and needs to be replaced. Replacement vehicle is obtained from used emergency services vehicles for a very low cost. (approximate cost - $4,000 – 2021).

Other Municipal Vehicles

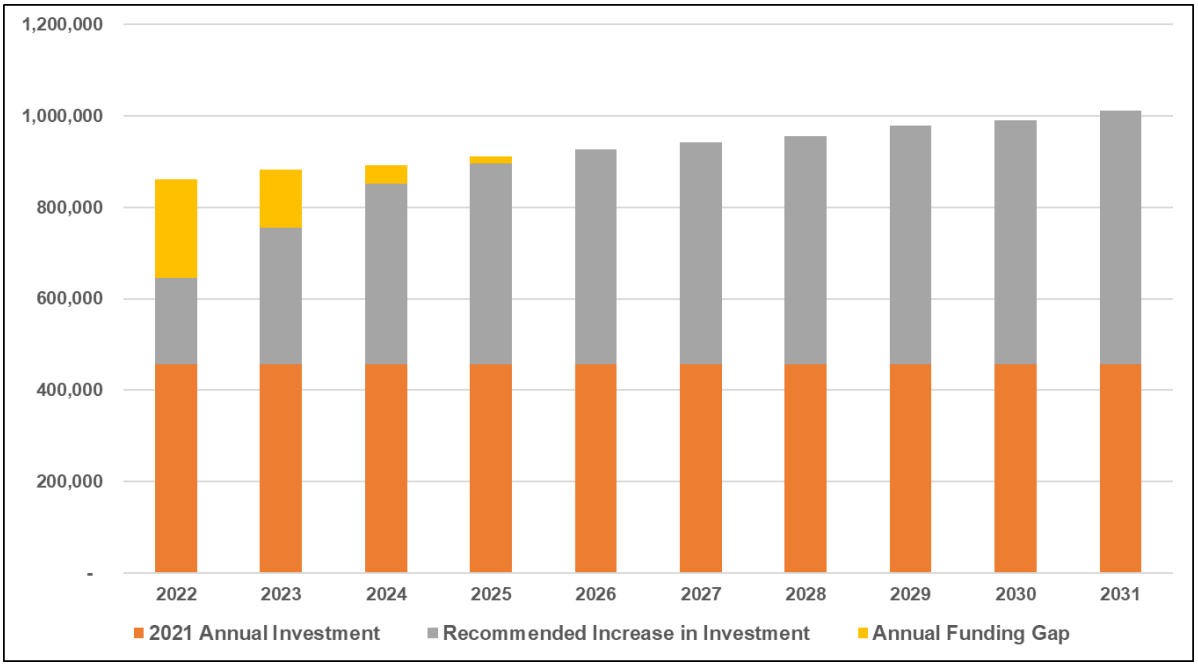
- Backhoe – Case 590 Backhoe – Is in poor condition and is a very significant vehicle for Public Works operations. This vehicle needs to be replaced. (approximate cost - $250,000 – 2021)
- Pick-up Truck – 2015 Chevrolet 3500 – Is in poor condition and one of three very important Public Works operations vehicles. This vehicle needs to be replaced. (approximate cost - $80,000 – 2022)
- Grader – JD 770G Grader – Is over 11 years old but only in fair condition. This vehicle is a key operations vehicle and will need to be replaced. (approximate cost - $475,000 – 2023).

The above listed projects summarise the most current core assets plus vehicle improvement needs for the Municipality. Adding up the total costs of these projects and comparing this to the Municipality's past capital funding investments shows a growing gap in infrastructure funding, which is found not only in the Municipality of Whitestone but throughout Ontario and across Canada. See the graphic representation below that identifies the Municipality's funding gap. The Municipality has been making steps to close this funding gap and working hard to seek available funding grants to help close the gap. However, more needs to be done to ensure that the Municipality can offer appropriate levels of service to the public now and into the future.

We have recommended that detailed inspections of the Municipality's crossroad culverts, and other storm water assets are undertaken to provide an inventory and accurate asset condition, remaining life, potential risk of failure, and future levels of service requirements.

The "financing strategy" described in Section 5 of this report identifies a funding plan for the recommended asset management strategy, including a review of historical results and recommendations with respect to the required amounts and types of funding (revenue) annually over the forecast period. Also, any infrastructure funding gaps are identified, and recommendations are made regarding potential approaches to reduce and mitigate these gaps over the 10 year forecast period.

Annual Asset Investment & Funding Gap



Overall, this asset management plan is a tool to be used by the Municipality for capital and financial decision making. It can be tied to various existing reports (such as budget, official plan, and strategic planning reports) to ensure the asset management plan can be updated to reflect any changes in the Municipality of Whitestone's priorities.

Please note that this study only focused on the Municipality's core assets (Water, Wastewater, Storm Water, Roads, and Bridges), plus Vehicles. The identified gap in infrastructure funding is expected to change when incorporating all of the remaining Municipality's asset types of which Facilities and Recreation Equipment are the major contributors.

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Appendices

Appendix A Municipality Asset Inventory & Asset Management Plan Assumptions
Appendix B Draft Data Verification and Condition Assessment Policy
Appendix C 10 Year Detailed Asset Management Strategy & Financing Strategy

Disclaimer

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1.0 Introduction

1.1 Overview

R.J. Burnside & Associates Limited (Burnside) was retained by the Municipality of Whitestone (Municipality) to prepare an asset management plan for core assets plus vehicles. This plan is intended to be a tool for the Municipality to use during various decision making processes, including the annual budget process and Provincial/Federal capital grant application processes. This plan will serve as a road map for sustainable infrastructure planning going forward.

Assets included in this asset management plan are the following:

- Water (Mains, Wells, Equipment)
- Wastewater (Pressure Mains, Gravity Mains, Septic Tanks/Beds)
- Storm Water (Catch basins, Mains);
- Roads (Bases and Surfaces - Asphalt, Surface Treated, Gravel);
- Bridges; and
- Vehicles (Fire and Other Municipal).

It is recommended that this plan be updated on an annual basis to ensure that it is kept up to date. All assets listed above are tax supported and are discussed more thoroughly in this report.

1.2 Plan Objectives

The Municipality's goals and objectives with respect to their core plus vehicle capital assets relate to the level of service being provided to the Municipality's residents and visitors. Services should continue to be provided at expected levels, as defined within this asset management plan. The Municipality's infrastructure and other capital assets are anticipated to be maintained at condition levels that provide for a safe and functional environment for its residents and visitors. Therefore, the asset management plan and its implementation will be evaluated based on the Municipality's ability to meet these goals and objectives.

1.3 Plan Development

The development of the Municipality's asset management plan was based on the steps summarized below:

1. Develop a complete listing of core plus vehicle capital assets to be included in the plan, including attributes such as useful life, age, accounting valuation and

current replacement valuation. Update the replacement cost of assets to 2021 dollars, and where required, using applicable inflationary indices.

2. Assess current condition of the assets, based on a combination of the following:
   - Existing reports;
   - Burnside desktop assessments;
   - Staff assessments; and
   - Asset age analysis.

3. Assess the risk of asset failure for each asset, based on determining the probability of each asset failing, as well as the consequence of the asset failing. This risk analysis is one of the components used to identify priority projects for inclusion in the asset management plan, as well as asset risk levels that require mitigation.

4. Determine current levels of service, based on standard practices and discussions with Municipal staff and discussions with Burnside Engineering staff who have delivered the Municipality's Road Needs Study report. Further analysis of the maintenance practices and identification of additional measures that can be applied to the assets to extend their lifecycle and potentially provide a lower asset total lifecycle cost.

5. Prepare an asset management strategy (i.e., operating and capital forecast) based on the asset inventory, identified priorities, forecast scenarios and level of service analysis discussed above.

6. Determine a financial strategy to support the asset management strategy, thus determining how the operating and capital related expenditure forecast will be funded over the plan period.

7. Prepare a final report, summarizing the process, strategy, and results of the asset management plan.

1.4 Maintaining the Asset Management Plan

The asset management plan should be updated as the capital needs and priorities of the Municipality changes. This can be accomplished in conjunction with the Municipality's budget process. With the delivery of this project spreadsheet file, the Municipality will have the tools available to perform updates to the plan when needed.

When updating the asset management plan, note that the state of local infrastructure, expected levels of service, asset management strategy and financing strategy are integrated and impact each other. Looking at these components in reverse order, one can see the financing strategy outlines how the asset management strategy will be

funded. The asset management strategy illustrates the costs required to maintain expected levels of service at a sustainable level. The expected levels of service component summarizes and links each service area to specific assets contained in the state of local infrastructure section and thus determines how these assets will be used to provide expected service levels.

This report covers a forecast period of 10 years; however, it is suggested that more focus and attention be put on the first 5 years of the asset management plan, to ensure accurate capital planning in the short term. It is also recommended that the Municipality start moving towards 50 year forecasts. This longer term vision will ensure that future infrastructure investments are not lost in the shorter 10 year forecast window.

1.5 Plan Integration

The municipal environment is continually changing and demanding when it comes to legislation and other responsibilities. Integrating the asset management plan with the Municipality's budget process, as well as Public Standards Accounting Board Handbook Section 3150 (tangible capital asset) requirements can make updates in all three areas more efficient.

With respect to integrating the Municipality's budget process with asset management planning, requires a projection of capital and operating costs over a future period. The budget outlines total operating and capital requirements for the Municipality, while the asset management plan focuses in on specific asset related requirements. With this link to the annual budget, the budget update process can also become an asset management plan update process.

Both asset management and PSAB 3150 require a complete and accurate asset inventory. The significant difference between the two lies in valuation approaches (PSAB 3150 requires historical cost valuation, while asset management requires future replacement cost valuation). Using a single asset inventory as developed in the asset management spreadsheets for the core assets and vehicles contain both historic and current replacement valuation methods as an effective approach to maintaining the Municipality's asset data (digital spreadsheets of these assets are provided in Appendix A).

2.0 State of Local Infrastructure

2.1 Scope and Process

This section of the plan provides an opportunity to develop a greater understanding of the core plus vehicle capital assets owned by the Municipality. The state of local infrastructure analysis includes:

- An asset inventory documenting asset types, sub-types including quantities, materials, and other similar asset attributes (where available);
- Financial accounting valuation (where available);
- Replacement cost valuation;
- Asset age distribution analysis and asset age as a proportion of expected useful life;
- Asset condition information (mostly based on report and/or staff assessment as well as the age of the asset);
- Draft Data Verification and Asset Condition policies; and
- Documentation of assumptions made in creating the asset inventory.

Burnside developed a detailed asset inventory listing for the Municipality which was used as a starting point in fulfilling the requirements for this report. This inventory provides current financial accounting valuations (i.e., historical cost, accumulated amortization, and net book value), as well as attributes such as replacement cost, useful life, and age). With respect to replacement cost, the Municipality provided various recent valuations, which were inflated in order to estimate current 2021 replacement costs. Other valuations were made for assets that were not part of the PSAB 3150 asset listing using a current 2021 replacement cost and deflating the value to the year or estimated year that the asset was constructed and/or acquired.

The following data and reports were used to develop the Municipality's asset inventory during this project:

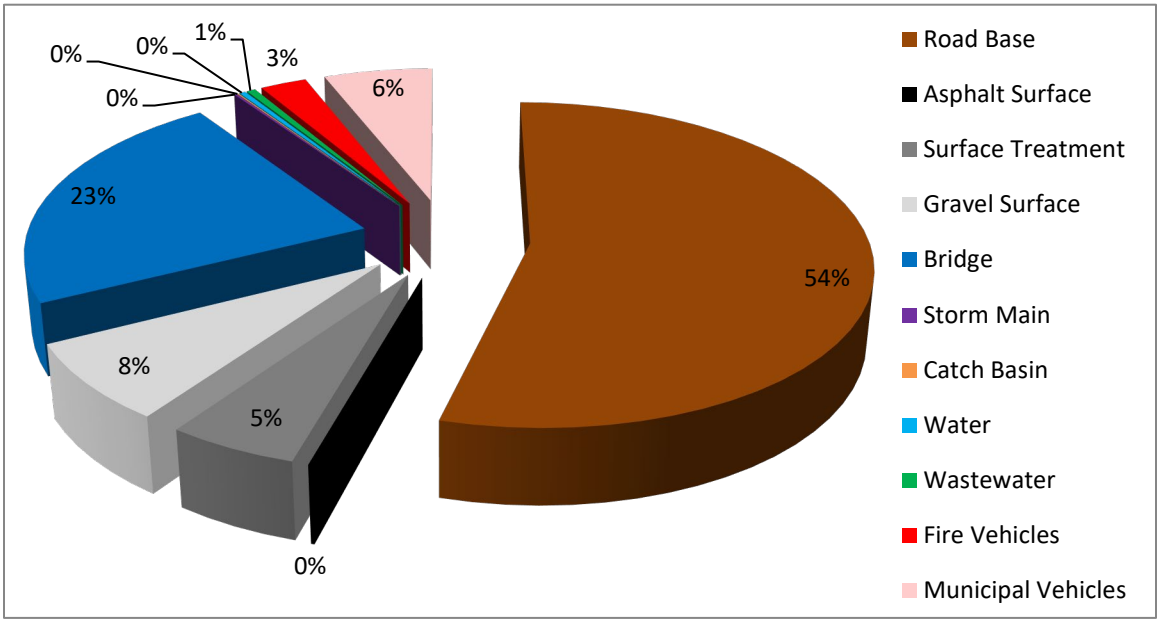
- Municipality PSAB 3150 asset inventory;
- Municipal reports (such as vehicle spreadsheets; septic system documents; water system expenses);
- Municipal 2020 Road Needs Study Report;
- Municipal 2019 Bridge Inspection Report (Note: inspections were competed in 2021 however at the time of writing this report, the 2021 report had not been receive by the Municipality);
- Recent purchase information from the Municipality; and
- Discussions with Municipal staff.

Some adjustments to asset useful lives have been made but further analysis may reveal that the Municipality will want to update some useful life values in the tangible capital asset financial reporting so that they better reflect the lifecycle and remaining life of the Municipality's assets. Burnside engineers and the Municipality's staff have reviewed the useful lives of the core assets and vehicle asset types identified in this project and believe they now better reflect the conditions, maintenance practices and management of the Municipality's assets.

2.2 Capital Asset Overview

The Municipality presently owns core plus vehicle capital assets with a 2021 replacement value of approximately $35.7 million. All of the assets studied in this project are tax supported assets. Over half of the total replacement value is contained in Road Base assets ($19.3 million) which then results in the remaining replacement asset value of $16.3 million. Table 2-1, Figure 2-1, and Figure 2-2 outline the breakdown of these totals into the Municipality's asset categories.

Figure 2-1: Tax Supported Asset Distribution Replacement Costs (2021)



The capital asset inventory was organized in a Microsoft Excel spreadsheet and delivered to the Municipality in digital form shown in Appendix A. Each of the asset types were assessed for their age, condition (where available) and for data accuracy and completeness. The Municipality reviewed the asset inventory over the course of this project.

Table 2-1 and Figure 2-1 show the Municipality's financial accounting valuation summary by asset type for tax supported assets. Since 2009, municipalities have been required under the Public Sector Accounting Board Handbook Section 3150 (PSAB 3150) to maintain asset listings complete with historical cost (i.e., the original cost to purchase or construct an asset), accumulated amortization and net book value. These values were to be reported on the Municipality's audited financial statements each year. Burnside has done the additional work of developing the 2021 Cost for assets that have been added to the Municipality's asset inventory. If the Municipality chooses to use the asset inventory developed in this project to report the PSAB 3150 values, the data/information is found in Appendix A.

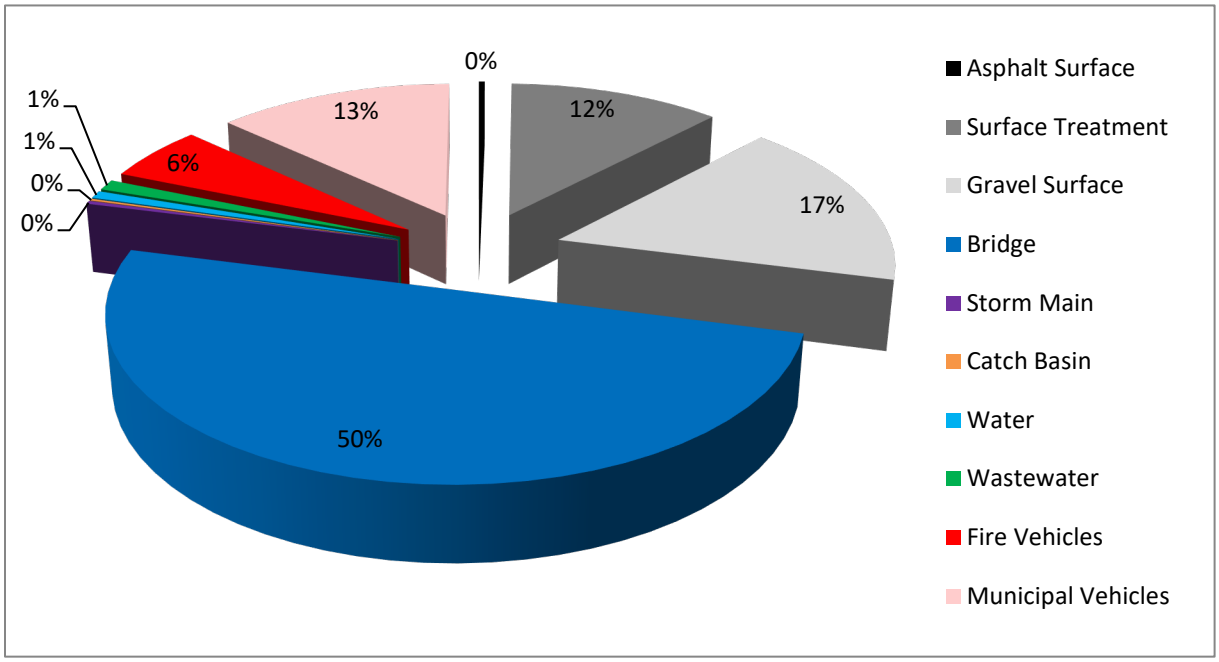
Table 2-1: Municipality Tax Supported Asset Summary

Asset Type	Asset Sub-Type	Historic Cost	2019 Accumulated Amortization	2019 Net Book Value	2021 Replacement Cost	Condition (weighted average)		Useful Life (years)	Age (weighted average)	Remaining Life (weighted average)	Risk (weighted average)	
						Value	Text				Value	Text
Road Base	Base	$4,345,392	$2,984,901	$1,360,491	$19,341,750			75	119	5		Low
Road Surface	Asphalt	$13,565	$13,565	$0	$52,800	7.0	Good	31	22	19	2	Moderate
	Surface Treatment	$2,177,153	$1,419,713	$757,440	$1,920,200	7.8	Good	16	17	12	2	Moderate
	Gravel	$2,968,645	$2,942,555	$26,090	$2,781,650	5.1	Average	20, 27	17	10	2	Moderate
Bridge & Culverts		$2,671,869	$889,605	$1,782,264	$8,137,000	6.8	Good	50, 75, 100	29	32	2	Moderate
Storm Water	Storm Mains	$23,500	$7,800	$15,700	$52,500	6.0	Average	75	25	49	2	Moderate
	Catch Basins	$19,600	$5,824	$13,776	$30,000	7.6	Good	75	23	56	1	Low
Water		$72,883	$37,192	$35,691	$122,700	6.9	Good	20, 50	23	15	2	Moderate
Wastewater		$104,165	$34,374	$69,791	$175,000	7.2	Good	50	19	32	2	Moderate
Vehicles	Fire	$567,782	$461,210	$106,572	$915,000	8.0	Good	4, 15, 20, 25, 30	16	11	2	Moderate
	Municipal	$1,470,105	$510,685	$959,420	$2,133,600	6.0	Average	8, 10, 15, 20	6	8	2	Moderate
	Total	**$14,434,660**	**$9,307,425**	**$5,127,235**	**$35,662,200**	**5.0**	**Average**		**46**	**17**	**1**	**Moderate**
	Total without Road Base Replacement Costs				**$16,320,450**	**6.6**	**Average**		**22**	**20**	**2**	**Moderate**

Including all the Municipality's assets studied in this project, the total tangible capital asset historical cost is approximately $14.4 million. This is approximately 40.5% of the total replacement cost, or 61.8% without road base replacement costs included. It is expected that historical cost totals are less than replacement cost totals, given inflationary adjustments that would occur between the original asset purchase/ construction date and 2021. Total accumulated amortization for the Municipality's project assets is approximately $9.3 million or 26.1% of the total asset historical cost and $6.3 million or 38.7% without road base historic costs included. This represents the proportion of tangible capital assets that have been amortized (i.e., used up) to date from a financial valuation perspective.

Clearly the Municipality's owned road assets have the greatest percentage tax supported replacement cost if the road base values were included in the calculation (see Table 2-1). Road bases are considered assets that will never be totally replaced but will from time to time be improved and in spot locations reconstructed on an as needed basis. Therefore, by excluding road base asset values (see figure 2.2), the Municipality's bridges percentage replacement costs are 50% of the asset types studied in this project. Other asset types studied are Road Surfaces with 29% (made up of Asphalt 0.3%, Surface Treated 11.8%, and Gravel16.9%), Vehicles with 18.7% (made up of Fire 5.6%, and Other Municipal Vehicles 13.1%), Wastewater with 1.1%, Water with 0.8%, and documented Storm Water with 0.5% (made up of Storm Mains 0.3% and Catch Basins 0.2%). More in depth discussion of these asset types follows below.

Figure 2-2: Tax Supported Asset Distribution Replacement Costs, Without Road Bases (2021)



It is important to note that the identified Municipality's Water and Wastewater assets in this project are all tax supported as these assets are related to municipal buildings. These assets are separated out to ensure that the Municipality can best maintain and prepare for future asset replacements.

2.3 Road Environment Assets

The Municipality's road assets make up a key service that reflects the economic and social development of the community. The road environment assets are 90.3% of the assets studied in this project are made up of the following asset types:

- Road Surface Asphalt – 0.1% of the total Municipality's asset replacement costs;
- Road Surface Treatment – 5.4% of the total Municipality's asset replacement costs;
- Road Surface Gravel – 7.8% of the total Municipality's asset replacement costs;
- Road Bases – 54.2% of the total Municipality's asset replacement costs;
- Bridges – 22.8% of the total Municipality's asset replacement costs;
- Cross Road Culverts – not identified in the Municipality's asset inventory;
- Street Lights – not identified in the Municipality's asset inventory;
- Signs – not identified in the Municipality's asset inventory;
- Barriers – not identified in the Municipality's asset inventory; and
- Sidewalks – not identified in the Municipality's asset inventory.

Figure 2-3 and Figure 2-4 outline the replacement cost distribution of Road assets with and without Road Base values included.

Figure 2-3: Road Environment Asset Distribution Replacement Costs (2021)

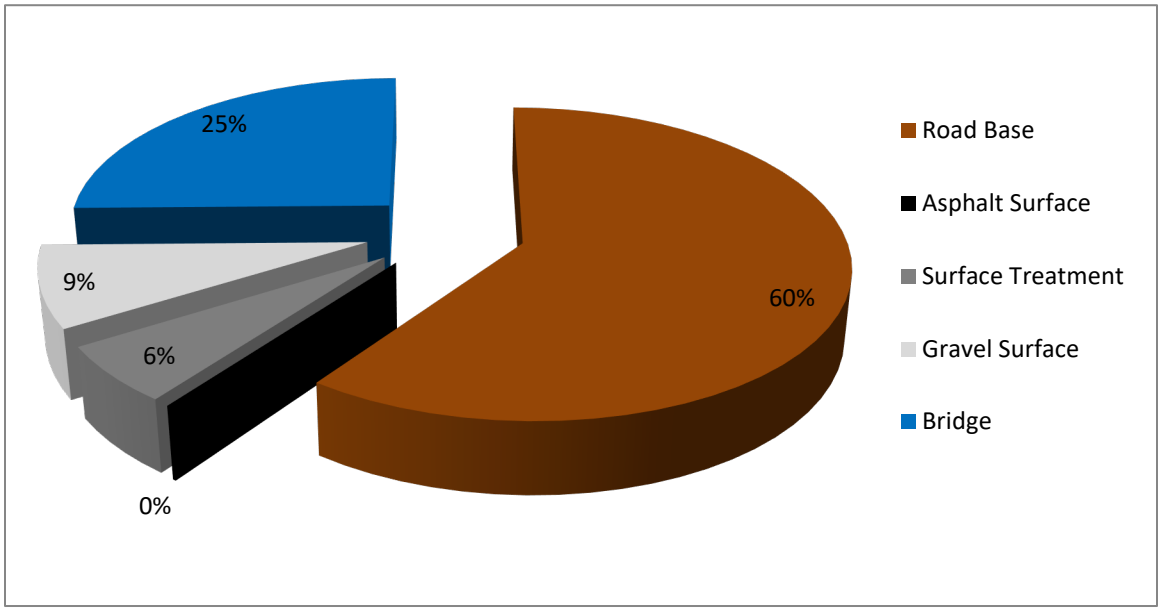
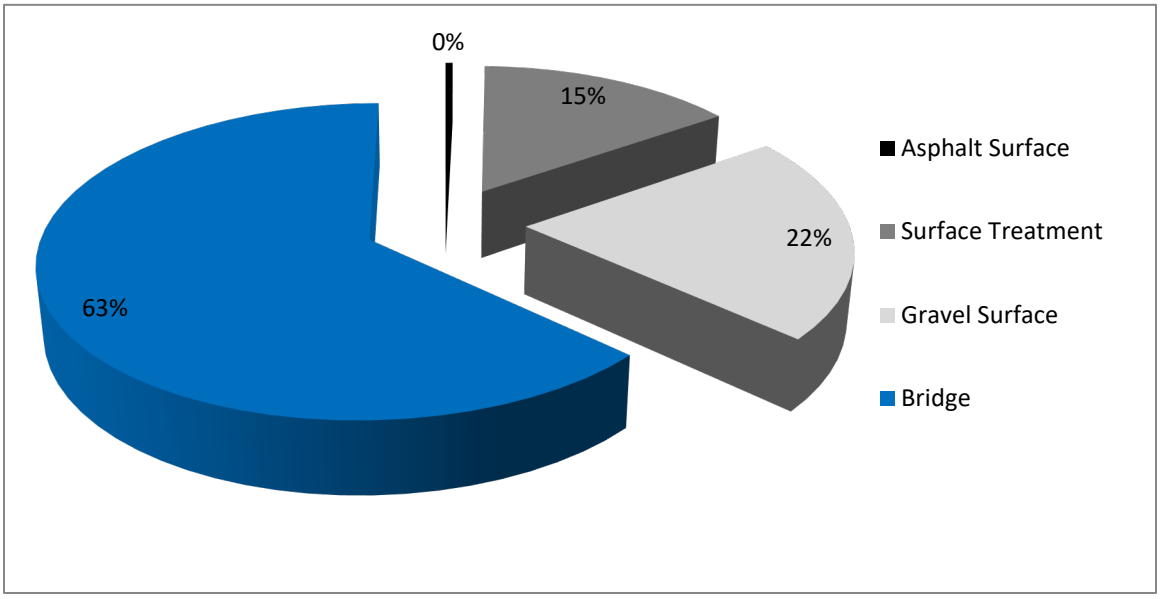


Figure 2-4: Road Environment Asset Distribution Replacement Costs (2021) without Road Bases



Below we provide more detail on the two key asset groups in the Road Environment group of assets, Roads, and Bridges.

2.3.1 Roads

At the current replacement cost the road environment assets account for $32.2 million dollars and without Road Bases included $12.9 million or 79% of the assets studied in this project. The composition of the road surfaces is outlined in Table 2-2. There are two road segments identified in the Road Needs Study as having an Earth Surface:

- Maple Island Road from Bridge to East End – 1,760 m; and
- Clear lake Road from start of seasonal road to Hunt Camp – 1,070 m.

These earth surface roads were identified as not having a road surface and included as a road with only a Road Base. This is why the 102.84 km Road Surface length is shorter than the 105.67 km Road Base length by 2.83 km.

The Municipality only has 0.56 km of Semi-Urban roads with the remaining 105.1 km as Rural roads.

Table 2-2: Road Surface Assets

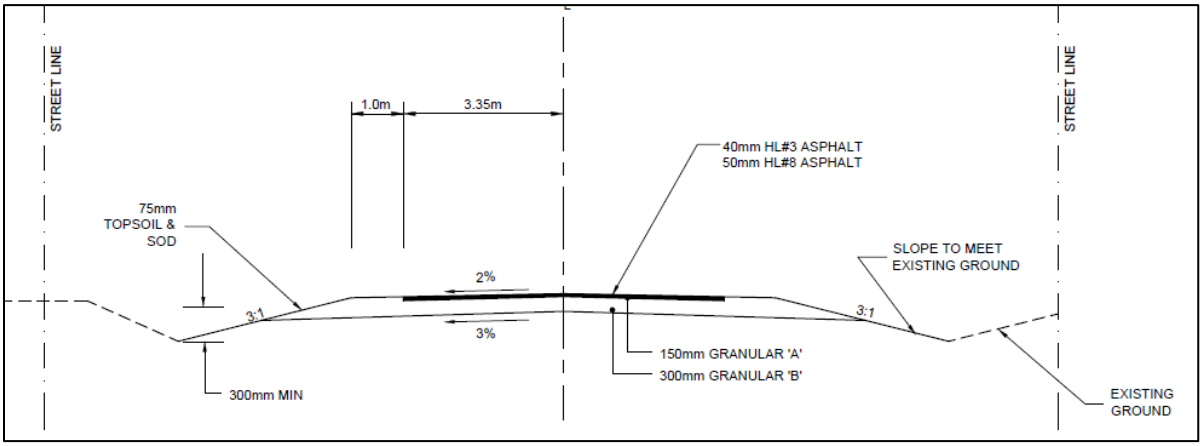
Road Surface	Surface Length (m)	Condition (weighted average)	Condition (Text)	Replacement Cost		
				Surface	Base	Total
Asphalt	160	7.0	Good	$52,800	$29,600	$82,400
Surface Treatment	22,130	7.8	Good	$1,920,200	$4,094,050	$6,014,250
Gravel	80,550	5.1	Average	$2,781,650	$14,901,750	$17,683,400
Earth	2,830	N/A	N/A	$0	$523,550	$523,550
Total	**105,670**		**Average**	**$4,754,650**	**$19,548,950**	**$24,303,600**

Burnside completed a Road Needs Study for the Municipality in 2020 and established a more complete road inventory then the PSAB 3150 asset listing and prioritization of both capital and operational maintenance programs for the Municipality. Many discussions with the Municipality's Manager of Public Works, helped to clarify and verify road conditions, and needs for road surfaces. We recommend that the Municipality incorporate their road data within their Geographic Information System (GIS) dataset if possible. This will assist the Municipality's staff in updating more readily identified roadway deficiencies and plan for improvements.

The Municipality is working hard to maintain fairly good roads. However, approximately 21% by length or 17 km of the Municipality's Gravel Surface roads are in Poor condition. All of these poor gravel surface roads have less than 50 vehicles per day traffic and have alternate access/exit routes for residence (more than one exit route). These roads therefore have been identified as having Minor consequence of failure and Moderate risk of failure.

Key to all roads is the road base on which they are built. These road bases in most cases have been established many years ago. Hard top (asphalt, and surface treated) road surface roads provide the longest life cycle with best level of service when constructed on excellent road bases. Once the road base becomes soft it cannot economically support a hardtop road surface and it can be best to convert it to a gravel road until funding is made available and the base has been reinforced. Figure 2-5 provides a typical road cross-section diagram. This can be applied for all surface types as asphalt (shown in figure), surface treatment replaced for asphalt and without asphalt or surface treatment for gravel road surfaces. Please note that the Municipality has some roads located in challenging granite outcrop, or wet areas, which require more specific localized engineering design.

Figure 2-5: Typical Asphalt Road Surface Cross-Section



The Municipality's gravel surface roads are upgraded as required with surface gravel replacement/top-up. In some locations additional gravel is at times required to help reinforce the road base.

The Municipality is currently developing a multi year gravel resurfacing plan. Depending on a number of factors including Average Annual Daily Traffic, length of road, surface, base and drainage feature conditions. The gravel program could range from 5 to 15 years for full depth resurfacing.

The Road Needs Study provides detailed explanations of the Municipality's road conditions and related deficiencies that impact longevity or operations of the roads, including road widths, drainage, surface type, alignment, and brushing maintenance where required. Results of the Road Needs Study were incorporated into this asset management plan.

2.3.2 Bridges & Culverts

The Municipality had 12 bridges and culverts structures over the span of 3.0 m inspected in 2019 (2021 inspections were not available for use in this study and report). The inspection report was reviewed, and information used in this asset management analysis. Visual inspections are required to be carried out every two years in accordance with the Ministry of Transportation – Ontario Structure Inspection Manual (OSIM). The inspections are to be completed under the direction of a Professional Engineer to assess their condition and identify any material defects, performance deficiencies, maintenance needs, additional studies and/or repairs/rehabilitation work required on a structure by structure basis.

It is important to note that two additional culverts (Bunny Trail CN Crossing, and Balsam Road Culvert) listed in the Municipality's financial PSAB 3150 asset inventory were added to this bridge/culvert listing for completeness. These two structures may not exceed the 3.0 m span limit and therefore were not included in the structure inspection study however it is recommended that these structures are inspected more frequently than other culverts due to their replacement values ($45,000, and $130,000).

An additional structure the WahWashKesh Dam is also included in the asset listing. Staff have indicated that the WahWashKesh Dam is in very good condition and relatively young in age, as per its lifecycle. As this structure ages it is recommended that it be inspected by a qualified engineer to estimate the remaining life of this asset and any future potential maintenance and or rehabilitation it may require.

The Municipality has a total of just over $8 million replacement cost of bridge, culvert, and dam assets. Table 2-3 provides the distribution of the types of bridges that the Municipality owns.

Table 2-3: Structure Types

Bridge Type	Number	Replacement Cost
Dam	1	$750,000
Prefab Superstructure - Steel Girder	1	$627,000
Concrete Slab on Steel Girder	1	$1,491,000
Timber Deck on Steel Girder	3	$2,196,000
Timber Deck on Timber Girder	3	$1,096,000
Epoxy Coated Steel Culvert	1	$85,000
Corrugated Steel Pip Round	3	$1,018,000
Corrugated Steel Pip Arch	2	$874,000
Total	**15**	**$8,137,000**

It was identified that three bridges have load limits from the OSIM report. These structures and their load limits are presented in Table 2-4.

Table 2-4: Structure Load Limits

				Load Posting		
Asset ID	OSIM #	Asset Name	Structure Type	L3	L2	L1
B003	3	Maple Island Bridge - 6.5 km N of Hwy 520	Timber Deck on Timber Girder	10	18	25
B004	4	Ladd's Road Bridge	Timber Deck on Steel Girder	8	14	19
B008	8	Farley's Road Bridge	Prefab Superstructure - Steel Girder	25	45	

The inspection report made recommendations based on the inspected data. Depending on the condition of each structure, the remedial needs were provided in three classifications; routine maintenance, additional investigations and repairs and rehabilitations (Capital Works). The review of the 2019 OSIM inspection report identified the most current Ministry of Transportation Ontario (MTO) structure degradation models were not used. The older version of OSIM inspections do not calculate Bridge Condition Index and therefore approximations for condition index were tabulated based on the OSIM report data and structure photos.

The OSIM report identified that the Municipality's defined PSAB 3150 Useful Life of 60 years for all bridges did not reflect the true nature of the lifecycle of these assets. The useful life was adjusted to the following for this project:

- Dam – 100 years (recommendation by staff);
- "Structures constructed prior to 2000 were generally designed to 50 year lifespan" (based on Engineer's Bridge Inspection Report);
- Current new structures are designed for a 75 year lifespan (based on Engineer's Bridge Inspection Report); and
- New epoxy coated culvert is expected to have a lifespan of 100 years (recommendation by staff).

The capital works needs include any repair, rehabilitation or replacement work which would typically be completed by the Municipality's hired Contractor, to assist in extending the service life of a structure and increasing the Bridge Condition Index (BCI). In accordance with the OSIM, the capital and maintenance works required are based on a priority of six to ten years, one to five years, within one year, and urgent now needs have been estimated and presented in Table 2-5.

Table 2-5: Bridge Capital Works Costs and Timeframes (OSIM Report)

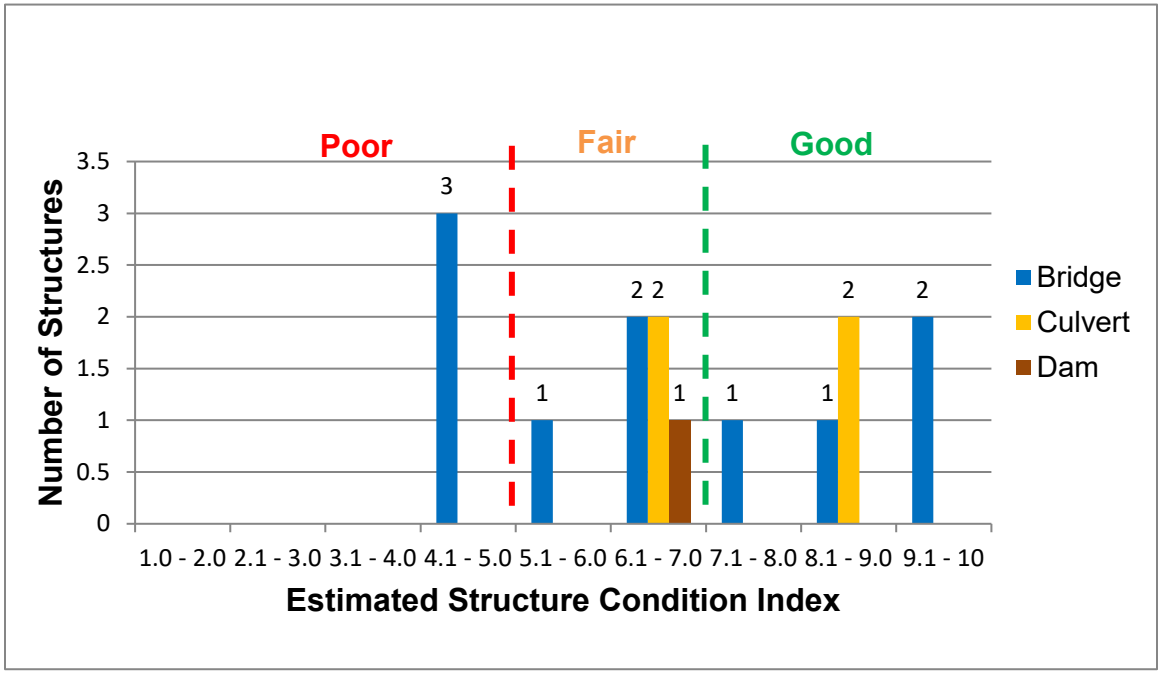
Time Frame	Capital and Maintenance Cost
< 1 year	$94,000.00
1 – 5 years	$1,037,500.00
6 – 10 years	$103,000.00
TOTAL	**$1,234,500.00**

It should be noted that the Capital Works costs include recommended replacement or rehabilitation costs for structures in need.

Taking into consideration the structures estimated condition index, several structures have been identified for some form of rehabilitation and/or maintenance. Within the next seven years, eleven structures have been identified for rehabilitation and/or maintenance work.

Based on the biennial inspection of each structure, the estimated Structure Condition Index Distribution graph, shown in Figure 2-6 below, provides a summary of the current state of the Municipality's structures.

Figure 2-6: Estimated Structure Condition Distribution



Currently, 40% of the Municipality's structures are within the "good" range, with 40% of the structures classified as "fair" and 20% classified as "poor", as illustrated in Figure 2-6 above. Of interest, the Ministry of Transportation Ontario (MTO) has established a goal to have 85% of their structures in "good" condition by the year 2021, and to maintain that condition moving forward by addressing rehabilitations and replacements as necessary. Burnside recognizes that the above goal was not established by the Municipality, but it is noted that, based on the current state of the inspected structures, the Municipality could increase investment in the management of their bridge assets when compared to the MTO's established goal.

It should be noted that Boakview Bridge was converted to Boakview Culvert in 2021 and reported differently in the OSIM report. For this study Boakview Culvert (C11) has therefore been assigned a condition index of 10 for the purpose of reviewing the Municipality's structures. Condition index values were also estimated using an age based calculation as well as consultation with the Municipality's Staff for those structures that were not inspected in the OSIM report.

Continued maintenance and completion of rehabilitative work as recommended in this report will help to continue a trend of overall improvement of the Municipality's bridge/culvert assets.

2.4 Vehicles

The Municipality maintains their vehicles very well. This is due to staff's regular hands-on use of these assets. When vehicle assets are used regularly the end users want to ensure that they are maintained to their manufacturer's specifications. Even though there are vehicles that have exceeded their identified useful lives they are still safe to use. This does not mean that they will never have to be replaced.

The Municipality's vehicles were subset into two groups Fire and Other Municipal as this is more in line with the Municipality's departmental and budgeting structure.

The Municipality owns $3 million ($0.9 million Fire and $2.1 million Other Municipal) in replacement cost vehicles. This is 18.7% of the Municipality's assets studied in this project (without road bases included). These vehicles are also both key to Emergency Services as well as functional assets used to provide clear drivable roads, and safe recreational fields and facilities.

Vehicle conditions were obtained from the Fire Chief and Manager of Public Works. Several conversations with both managers exposed the difference between accounting established useful life and the real expected life of these assets. This study made use of the Fire Chief's and Manager of Public Works identified vehicle expected lifecycle. The vehicle conditions exposed two vehicles that are in poor condition:

- 2016 Case 590 Backhoe – very important vehicle for Public Works
- 2015 Chevrolet 3500 Pick-up Truck – important for general operations

The Backhoe in particular is concerning as the Public Works Operations (more specifically winter control efforts) can be delayed if thebackhoe fails.

The Fire Department vehicles are critical to public safety and as such are in good condition. There are only three Fire Department vehicles that are in fair condition. Fire pumper truck age is regulated to ensure they function as expected all the time. On the other hand, the remaining Municipality's vehicles are in fair condition, with a range in condition from poor to brand new.

2.5 Storm Water Assets

The Municipality has limited number of catch basins and storm sewer pipes estimated at $30,000 in replacement cost assets. These assets are expected to have a long lifecycle of 75 years; however, it is important to inspect these assets as they approach their half-life period.

It is expected that the Municipality has many more Storm Water assets as crossroad culverts which were constructed during road construction. These crossroad culverts are key to ensuring that water stays away from the Municipality's road base. This is particularly important during extreme weather events which produce large volumes of rain over a short period of time.

In discussions with the Manager of Public Works, the Municipality will be undertaking an inventory to locate all the crossroad culverts and any other municipal drainage network assets along with their attributes (material, length, diameter, year of construction etc.). These assets are best incorporated, if possible, in the Municipality's GIS dataset which is serviced by the West Parry Sound GIS (WPSGIS) group.

Table 2-1 provides the summary of the recorded storm water assets, which indicates good condition and approximately 50 years remaining to their lifecycle.

The expected storm water pipe lifecycle of 75 years indicates, as long as the asset is well maintained it provides for a long lasting cost effective storm water system. Ensuring that these pipes do not degrade beyond two thirds of their lifecycle will enable the Municipality to re-line the storm mains and ensure they provide appropriate levels of service for many more years.

2.6 Water Assets

The Municipality does not have a formal water distribution network however since the 2012 upgrade connecting the Municipal Office, Nursing Station, Fire Hall1 and Community Centre one can start to see a more complex water system developing. This well, pumps, pressure tank, chemical feed pump, and filtration system currently has a replacement value of just under $50,000. The water distribution pipes are expected to be in very good condition.

The Municipality owns water assets implemented for each of the Municipality's facilities. These assets include wells and filtration systems. Water quality testing is completed three times a week to ensure clean potable water is provided to staff and public at each facility. There is an expectation of the Library also connecting to the Municipal Office water system by the end of 2021.

In general, the condition of the water assets are good. The water wells and pumps are aging at Fire Station 2, Public Works Yard, and Maple Island Hall, so it is recommended that these wells be assessed for their potential remaining service life.

2.7 Wastewater Assets

The Municipality wastewater assets provide an environmentally acceptable safe process of returning back to nature used water supplies. These assets are located at municipally owned facilities and include the following:

- Septic Tank;
- Pumping Chamber;
- Pressure Main;
- Gravity Main; and
- Septic Bed.

The Municipality's wastewater assets are in good condition. The septic systems of concern are the one located at the Library and Maple Island Hall. These systems are aging and therefore require a better understanding of their remaining life.

As outlined in the water system assets the Municipality has combined some buildings into grouped septic system processes. A combined system for the Municipal Office, Fire Hall 1; and Nursing Station and another system for the Dunchurch Community Centre and DunDome Pavilion. These combined systems bring the wastewater to an individual septic bed. Both of these wastewater systems have a pressure main pushing to a distribution box and septic bed.

2.8 Asset Condition

Each asset was tracked based on estimated total useful life and remaining service life. Using this data, along with staff information, and age analysis of the Municipality's assets assisted in identifying potential areas of focus where inspected asset condition was not available. We want to state that asset condition is always best defined via engineering best practices. Engineering based condition assessments can provide more realistic estimates of an asset's remaining service life, which can then be used to establish asset rehabilitation and/or replacement schedules. Age related condition values can be problematic if the asset's useful life is not appropriately defined. For example, if a useful life of an asset is defined shorter than the assets true performance, this will result in a lower/poorer age assessed condition rating. This method of condition approximation was only used when inspected or staff commented conditions were not available.

A rating out of 10 was established for all assets and was based on a combination of past reported physical inspections, current inspections, staff assessment, and asset age analysis. This rating was then converted to a condition description of "Very Good" to "Very Poor" as shown in Table 2-6.

Table 2-6: Asset Condition Format for all Assets

Condition (Value 0-10)	Condition
9 – 10	Very Good
7 – 8	Good
5 – 6	Average
3 – 4	Poor
1 – 2	Very Poor

The condition of the assets is an important element of any lifecycle assessment process. This process also identifies maintenance and operating practices that can be applied to ensure appropriate service levels, as well as extending the life of the asset to its maximum service life.

A draft policy has been proposed that will ensure the Municipality's core assets as well as vehicles are reviewed using established engineering methods and practices. Appendix B contains the draft Data Verification and Condition Assessment Policy, which identifies how often the Municipality's assets are recommended to be assessed.

A high level summary of the average conditions for the Municipality's assets are shown in Table 2-1. The conditions listed in Table 2-1 were calculated using weighted average conditions. The weighting factor used was the asset replacement costs so that the greater the cost the greater the weighting of that asset's condition used to determine the average. Using this method provides more emphasis on the more expensive to replace assets. However please note that averages are a composition of many assets in a group. Averages can be misleading with respect to immediate needs as the new assets offset the old assets requiring urgent replacement.

2.9 Data Accuracy and Completeness

An important element of this asset management plan is ensuring that tools and procedures are in place to maintain accuracy and completeness of the asset data and calculations moving forward. As time passes, assets are used, maintained, improved, disposed of, and replaced.

All of these lifecycle events can trigger changes to the asset database used within the asset management plan. Therefore, tools and procedures are essential to ensure the asset data remains accurate and complete. Please refer to Appendix B of this report for the draft "Data Verification and Condition Assessment Policy" for the Municipality. This policy illustrates how the asset data can be updated and verified going forward. This includes the timing of condition assessments for each asset type and what should be included within the condition assessment procedures.

3.0 Expected Levels of Service

The Municipality has been offering and maintaining for its residents and visitors, good service levels, during challenging economic times. The Province has demanded via Ontario Regulation 588/17 that municipalities complete asset management plans on a regular basis to ensure that appropriate investments are being made in municipal infrastructure. Reviewing past records has shown that small investments were being made into maintaining and replacing the Municipality's infrastructure. The last few years have seen much improvement with greater investments in Municipal infrastructure. It is important to note that the long term objective of the Municipality needs to be infrastructure sustainability. In general, the Municipality is performing maintenance activities when required.

3.1 Scope and Process

A levels of service (LOS) analysis gives the Municipality an opportunity to document the levels of service that are currently being provided and compare it to the levels of service that will ensure the assets achieve their full lifecycle potential. This can be done through a review of current practices and procedures, an examination of trends or issues facing the Municipality and/or through an analysis of performance measures and targets that staff can use to measure performance.

Expected LOS can be impacted by a number of factors, including:

- Legislative requirements (e.g., Minimum maintenance standards for roads, water guidelines, etc.);
- Strategic planning goals and objectives;
- Resident expectations;
- Visitor expectations;
- Council expectations; and
- Financial or resource constraints.

The previous task of determining the state of the Municipality's local infrastructure establishes the asset inventory and condition, as well as asset management policies and principles to guide the refinement and upkeep of asset infrastructure. The LOS analysis utilizes this information and factors in the impact of asset service level targets. It is important to document an expected LOS that is realistic to the community. It is common to strive for the highest LOS; however, these service levels usually come at a cost. It is also helpful to consider the risk associated with a certain LOS. Therefore, expected LOS should be determined in a way that balances both level of investment and associated risk to the Municipality.

Burnside received verbal confirmation of maintenance practices that the Municipality undertakes. We recommend that the Municipality revisit and update the Road Needs Study every 10 years and continue the biannual bridge inspections and analysis utilizing the most up to date MTO bridge/culvert degradation models. These practices will provide historic condition information as well as information related to any changes to asset maintenance. This will also help better determine the remaining life of the municipality's assets.

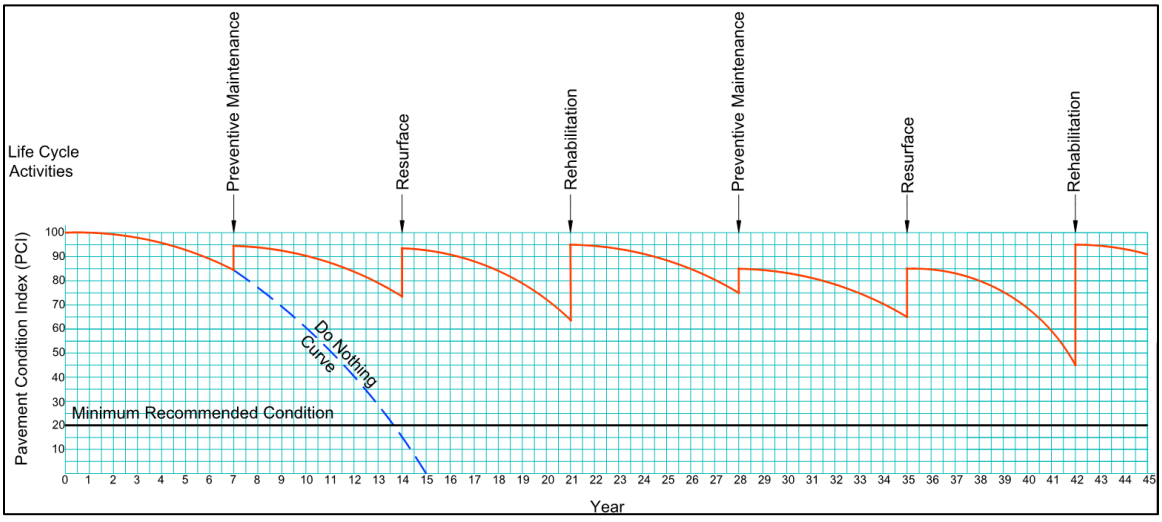
This information will help not only identify the current needs but also future requirements due to Levels of Service changes. For example, two road segments were identified in the Municipality's Road Needs Study that were recommended to be reviewed for their "functional class" when updating the Municipality's Official Plan:

- Balsam Road; and
- Lorimer Lake Road.

These two roads do not have the traffic volume to identify them as arterial roads. We suggest that the Municipality ensure that the correct wording be developed for the Official Plan update when this is undertaken in the next few years. Ensuring that appropriate levels of service are determined and recorded will help when additional growth occurs across the Municipality.

Figure 3-1 illustrates an example of a recommended strategy of investing more often in smaller amounts which provides higher levels of service and better asset condition with over all lower total cost over the lifecycle of the asset.

Figure 3-1: Benefit of Applying Preventative Maintenance – Surface Treatment Road Service Life



The Municipality's Road Needs Study also identified some roads that when requiring rehabilitation or reconstruction work in the future, that they be considered as potential for upgrading to a surface treatment or asphalt road surface. However, at this time these roads (listed in Table 3-1) do not have the traffic volumes that would indicate an upgrade was needed.

Table 3-1: Roads Reviewed for Potential Surface Type Upgrading

Road ID	Road Name	Length (m)	AADT (vpd)
Semi-Urban Gravel Roads			
190	Marina Drive (Highway 124 to north end)	0.11	50
220	Butler Street (Highway 124 to north end)	0.11	40
230	Sackville Street (Highway 24 to north end)	0.08	20
240	William Street (Highway 124 to south end)	0.1	40
Gravel Roads > 200 AADT			
120	Farley's Road (Dobson Road to Pine Grove)	1.26	230
370	Whitestone Lake Road (Tee intersection to east end turnaround)	1.1	250
Surface Treatment Roads > 400 AADT			
50	Balsam Road (Canning Road to Highway 124)	1.17	451
360	Whitestone Lake Road (Highway 520 to Whitestone Lake Resort)	1.8	500

3.2 Current Levels of Service versus Expected Levels of Service

The Municipality's current LOS has resulted in the current state of infrastructure as discussed in the previous section of the report. The current LOS also relates to the risk assessment discussed in later report sections. Regarding the cost of this LOS, the municipality has established an operating and capital budget for the current year that includes the cost of providing this LOS. The Municipality is doing well with delivering levels of service as only under $15,000 was identified as additional cost to deliver identified expected levels of service.

Table 3-2 outlines broad LOS descriptions (both current and enhanced LOS). This analysis was noted through discussions with the Municipality's staff and engineering best practices. Based on the information provided there are a few enhanced maintenance related LOS identified. The Levels of Service cost impact analysis was factored into the financial strategy discussed in Section 5 of this report.

Table 3-2: Expected Levels of Service

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost of Expected LOS	Cost Description
Roads & Related Assets	Safe Roads	Meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.	Meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.	Regulation Standard	$4,500	$4,500	Municipality has an AVL system in all vehicles recording Roads Patrolled. Cost represent annual pothole patching.
	Fix Public Identified Issues Quickly	Track complaints and resolve them as quickly as possible	Track complaints by road segment so that history can be recorded.	Respond to Public Inquiry within 7 days			Municipality delivers this Level of Service well
	Maintain Road System Network Condition for safe use	Road Maintenance is completed regularly and when required	Maintain adequate road network condition index to ensure safe roads	Assess Road Conditions every 10 years with Internal assessment annually	$25,000 every 10 years	$25,000 every 10 years	Roads Needs Study every 10 years to include Network Condition analysis (next proposed for 2029). Municipality completing crack seal, and slurry seal program well.
	Asphalt Roads are Clean and Clear	Street sweeping and flushing are completed annually	Roads are swept and flushed to ensure they are clear of debris and safe.				Municipality has minimal Asphalt roads. Debris is collected as per Minimum Maintenance Standards.
	Follow Best Practice for Asphalt Roads	Completing a regular Crack Seal program.	Completing a regular crack seal program.		$10,000	$10,000	Municipality delivers this Level of Service, via annual crack seal program.
	Gravel Roads are well maintained and Dust Inhibited	Gravel roads are smoothed when required, and Calcium Chloride applied to control dust	Gravel roads are smoothed when required, and Calcium Chloride applied to control dust		$47,500	$47,500	Municipality delivers this Level of Service well
	Safe and well maintained Roadsides	Municipality provides brushing, ditching, grass mowing, and shoulder maintenance to ensure roadsides are safe and well maintained	Roadsides are clear of obstructions and well maintained for safe road travel.		$12,000	$12,000	Municipality delivers this Level of Service well
	Winter Road Maintenance	Winter roads are cleared and safe.	Roads are maintained and meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.		$35,000	$40,000	Municipality can use more material to deliver an improved Level of Service
	Weather forecast information	Municipal staff check weather forecasts minimum 3 times per day in the Winter months (October 1 - April 30)	Weather forecasts are reviewed three times per day during the Winter Maintenance months.				Municipality delivers this Level of Service well
	Signs can be seen clearly	Signs: Visual inspections done in the evening. Replaced when required/needed.	Signs: Visual inspections. Replace when needed.	Reflectivity Standard			Municipality delivers this Level of Service well
	Safe Well lit Semi-Urban Street areas	Maintenance activated by Public Notice for Street Lights	Maintenance activated by Public Notice for Street Lights	Correction of Issues within MMS			Recommendation for conversion to LED lights

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost of Expected LOS	Cost Description
Bridge & Culvert Assets	Safe Bridges	Maintain good bridge condition and 3 bridges with load limits.	Maintain good condition and no load limits.	MTO bridge guides			Municipality is working towards completing this LOS. To be reviewed in 2021 bridge study
	Bridges Maintained	Follow Bridge Inspection Report recommendations for Bridge and Culvert maintenance.	Proactive Bridge and Culvert maintenance (based on bridge inspection report).		$30,000	$30,000	Municipality is completing this LOS, with improving the improved safety features identified in the Municipality's Bridge Inspection Report over the next 10 years. Required funds are identified in the LOS tables
	Proper Bridge Spring Maintenance	Bridge washing is completed in Spring	Blowing out Expansion Joints & Washing of Bridges in Spring				Municipality delivers this Level of Service well
	Bridge Inspections	Bridge inspections (i.e. using OSIM forms) required every 2 years.	Bridge inspections (i.e. using current OSIM forms) required every 2 years.	Completed every 2 years	$8,000 every two years	$8,000 every two years	Municipality needs to ensure that the engineering firm inspecting the bridges and culverts (greater then 3m diameter) use the most current MTO inspection forms, so that appropriate Bridge Condition Indexes are calculated.

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost to Move to Expected LOS	Cost Description
Vehicle Assets	Safe & Well Maintained Vehicles	Proactive maintenance plan, as per Manufacturer's Guidelines	Proactive maintenance plan, as per Manufacturer's Guidelines		$97,100	$105,000	Municipality is completing this LOS. $95,000 for Public Works and $10,500 for Fire to complete annual vehicle maintenance program.
	Optimal Replacement of Vehicles	Replace Vehicles as required (some areas based on legislated replacements, others minimum safety).	Replace Vehicles as required (some areas based on legislated replacements, others minimum safety).				Some concern over the age of some of the vehicles the Municipality uses, however they are safe to use. The older vehicles are being used as back-up.
	Have the Required Vehicles to provide LOS	Fire Department has appropriate Vehicles to ensure access even during hazardous weather conditions. Public Works is concerned that their Backhoe may fail.	Have appropriate vehicles to provide Levels of Service				Municipality is discussing the potential purchase of an excavator which will help to provide better ditching and quick road patching due to Spring Run-Off and/or Extreme Weather Events

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost to Move to Expected LOS	Cost Description
Storm Water Assets	Effective Storm Water Management	Investigate and respond based on public complaints/concerns	Proper flows and clear system with little to no inhibitors	No storm water back-up incidents			Municipality delivers this Level of Service well
	Cross Road Culverts are Appropriately Sized and Maintained	Cross Road Culverts are replaced when required	Climate Change and/or Extreme Weather events do not cause adverse issues with the Municipal road network		$13,000	$13,000	Cross road culverts are replaced when required. It is recommended that assessment of the size of the cross road culverts can withstand extreme weather events to ensure Road Bases are secure.
	Catch Basins are clear and well Maintained	Catch Basin cleaning every three years	Annual Catch Basin cleaning		$3,000 every three years	$3,000 every three years	With the limited number of catch basins and location in the area of the Municipal Office it is considered that this LOS is being completed.
	Storm Water Mains are clear and well Maintained	No identified issues	Regular inspection for condition and no phusical obstructions				Municipality delivers this Level of Service well

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost of Expected LOS	Cost Description
Water Assets	Source Water is well Protected	Maintaining appropriate Zoning and Planning to ensure Source Water Protection	Maintaining appropriate Zoning and Planning to ensure Source Water Protection				Municipality delivers this Level of Service well
	Production Wells are well Maintained	Appropriate maintenance is undertaken when required	Appropriate maintenance is undertaken when required		$15,500	$15,500	Municipality delivers this Level of Service well
	Treatment Processes Meet Legislative Requirements	Meet all legislative requirements.	Meet all Provincial legislative requirements.	Provincial Guidelines			Municipality is completing this LOS, with water testing 3 times per week.
	Appropriate Water Storage for Distribution Network	Water Storage is sufficient for currently approved systems.	Water Storage meets the needs of the Water Distribution Network				Municipality is completing this LOS. Expansion of the Community Centre water system to include the Library is to be completed in 2021.
	Efficient Water Distribution System	Water losses are tracked and at a minimized	Water Losses are tracked and minimized				Municipality delivers this Level of Service well

	Expected Strategic LOS	Level of Service (LOS) Analysis					
		Current LOS	Expected LOS	Benchmark (if Applicable)	Current Cost of LOS	Estimated Cost of Expected LOS	Cost Description
Wastewater Assets	Treatment Processes Meet Legislative Requirements	Meet all legislative requirements.	Meet all Provincial legislative requirements.	Provincial Guidelines	N/A		Municipality delivers this Level of Service well
	Safe Treatment Structures (Tanks and Septic Beds)	Meet legislative requirement (Building Code, Fire Code, Health & Safety, etc.)	Meet legislative requirement (Building Code, Fire Code, Health & Safety, etc.)	Provincial Guidelines	$2,500	$2,500	Septic tanks clean out every other year
	Wastewater Pipes are clear and well Maintained	Ensuring Obstruction and/or Infiltration into Wastewater system	Review of flows to be completed when septic tanks are cleaned out.		staff		No additional costs but good practice staff can perform when septic tanks are cleaned out.

4.0 Asset Management Strategy

4.1 Scope and Process

The asset management strategy provides the recommended course of actions required to maintain (or move towards) a sustainable asset position while delivering the levels of service discussed in the previous section. The course of actions, when combined together, form a long-term operating and capital forecast that includes:

- **Non-infrastructure solutions**: Reduce costs and/or extend expected useful life estimates;
- **Maintenance activities**: Regularly scheduled activities to maintain existing levels of service levels, or repairs needed due to unplanned events;
- **Renewal/Rehabilitation**: Significant repairs or maintenance planned to maintain the levels of service and increase the remaining life of assets; and
- **Replacement/Disposal**: Complete disposal and replacement of assets when renewal or rehabilitation is no longer an option.

Priority identification becomes a critical process during the development of an asset management strategy. Priorities have been determined based on assessment of the overall risk of asset failure, which is determined by looking at both the probability of an asset failing, as well as the consequences of asset failure. The consequences of the municipality not meeting desired levels of service must also be considered in determining risk. As discussed in Section 3, adding enhanced levels of service results in both operating and capital budget impacts over the 10 year forecast period. This has to be taken into consideration, with the overall objective of reaching sustainable levels while mitigating risk.

4.2 Risk Assessment

The risk of an asset failing is defined by the following calculation:

Risk of Asset Failure = Probability of Failure X Consequence of Failure

Probability of failure has been linked to the condition assessment for each asset, assuming that an asset in “very good” condition has a “rare” probability of failure. The following table outlines the probability factor tied to each condition rating:

Table 4-1: Probability of Failure Matrix

Condition (Value)	Condition	Probability of Failure
9 – 10	Very Good	Rare
7 – 8	Good	Unlikely
5 – 6	Average	Possible
3 – 4	Poor	Likely
1 – 2	Very Poor	Almost Certain

Consequence of failure has been determined by examining each asset type separately. Consequence refers to the impact on the municipality if a particular asset were to fail.

Types of impacts include the following:

- **Cost Impacts**: the cost of failure to the Municipality (i.e., capital replacement, rehabilitation, fines and penalties, damages, etc.);
- **Social impacts**: potential injury or death to residents/public;
- **Environmental impacts**: the impact of the asset failure on the environment; and
- **Service delivery impacts**: the impact of the asset failure on the Municipality's ability to provide services at desired levels.

Each type of impact was reviewed and consequence of failure for each asset type was determined by using the information contained in Table 4-2 as a guide to assess the level of impact. Levels of impact were documented as ranging from "significant" to "insignificant".

Table 4-2: Consequence of Failure Matrix

	Cost	Social	Environmental	Service Delivery
Significant	Significant Cost – Difficult to Recover	Death, Serious Injury	Long-term Impact – Permanent	Major Interruptions
Major	Substantial Cost – Multi-year Budget Impacts	Major Injury	Long-term Impact – Fixable	Significant Interruptions
Moderate	Considerable Cost – Requires Revisions to Budget	Moderate Injury	Medium-term Impact – Fixable	Moderate Interruptions
Minor	Small/Minor Cost – within Budget Allocations	Minor Injury	Short-term/Minor Impact – Fixable	Minor Interruptions
Insignificant	Negligible or Insignificant Cost	No Injury	No Impact	No Interruptions

With both probability of failure and consequence of failure documented, total risk of asset failure was determined using the matrix contained in Table 4-3. Total risk has been classified under the following categories:

- **Extreme Risk** (E): Risk beyond acceptable levels;
- **High Risk** (H): Risk slightly beyond acceptable levels;
- **Medium/Moderate** Risk (M): Risk at acceptable levels, monitoring required to ensure risk does not become high; and
- **Low Risk** (L): Very little risk.

Table 4-3: Total Risk of Asset Failure Matrix

Probability of Failure	Consequence of Failure				
	Significant	Major	Moderate	Minor	Insignificant
Almost Certain	E	E	H	H	M
Likely	E	H	H	M	M
Possible	H	H	M	M	L
Unlikely	H	M	M	L	L
Rare	M	M	L	L	L

Risk levels can be reduced or mitigated through planned maintenance, rehabilitation and/or replacement of an asset. An objective of this asset management plan is to reduce risk levels where they are deemed to be too high, as well as ensure assets are maintained in a way that keeps risk at acceptable levels.

4.3 Priority Identification

Through a review of the asset risk of failure assessment, the assets/categories listed below were identified as being priorities of the Municipality for over the next few years.

4.3.1 Roads

- Balsam Road, from Canning Road to Highway 124 – Slurry Seal improvement is recommended. (approximate cost – $32,000.00 – completed in 2021)
- Bunny Trail, from Highway 520 to Snakeskin Trail – Slurry Seal improvement is recommended. (approximate cost – $76,840 – completed in 2021)
- Canning Road, from Balsam Road to Fox Lair West Leg – Slurry Seal with some road base improvements are recommended. (approximate cost – $90,000 – completed in 2021; $43,000 - 2022)

- Whitestone Lake Road, from Highway 520 to Whitestone Lake Resort – Pulverize the existing road surface and reinforce the base with gravel and a double high float (e.g., Double Surface Treatment) is recommended. (approximate cost – $162,420 – completed in 2021)
- Maple Island Road, from Highway 520 to Shady Maple Trail - Pulverize the existing road surface and reinforce the base with gravel and a double high float, followed by a Slurry Seal the next year is recommended. (approximate cost - $234,000 – 2022; $35,100 - 2023)
- Farley's Road, from Highway 124 to Dobson Road - Single Surface Treatment with some roadside ditches and culverts are recommended. (approximate cost - $102,000 – 2022)
- Whitestone Lake Road, from Highway 520 to Whitestone Lake Resort – Slurry seal of the new surface that was put on in 2021 is recommended. (approximate cost – $48,600 - 2022)
- York Street, from Highway 124, to Landfill site - Slurry seal and crack seal the surface is recommended. (approximate cost – $14,400 - 2022)
- ½ Grey Owl Road, from Highway 124 to Shakell Road – Single Surface Treatment is recommended. (approximate cost $2,700 - 2023)
- Bunny Trail, from railway Crossing to Boakview Road – Single Surface Treatment is recommended. (approximate cost $200,500 - 2023)
- Shakell Road, from Grey Owl Road to East End Cul-de-sac - Pulverize the existing road surface and reinforce the base with gravel and a double high float is recommended. (approximate cost $144,000 – 2023).

4.3.1.1 Warning Sign Requirements

The Road Needs Study identified some roads that have alignment deficiencies that require warning signs are summarized in Table 4-4. It is expected that these signs can be purchased out of the Roads general maintenance budget.

Table 4-4: Roads with Alignments Requiring Additional Warning Signage

Road ID	Road Name	AADT (vpd)	Alignment Deficiency
10	Balsam Road (McKellar Townline to Irwin's Road)	190	1 curve
20	Irwin's Road (Balsam Road to west end)	10	1 curve
30	Balsam Road (Irwin's Road to Jackson Lane)	190	1 curve
40	Balsam Road (Jackson Lane to Canning Road)	190	1 curve
140	Farley's Road (Bridge to west end)	100	3 hills
270	East Townline Road (Highway 124 to Boundary Spur Road)	40	1 curve
420	Ladds Road (Maple Island Road to Labrash Lake Road)	75	3 curves
430	Ladds Road (Labrash Lake Road to Bridge)	50	3 curves
450	Labrash Lake Road (Ladds Road to west end turnaround)	50	2 curves
560	Parker Bay Road (Highway 520 to Shaker Lane)	50	4 curves
740	Lorimer Lake Road (Shawanaga Lake Road to Green Lane)	50	1 curve
810	Sword's Road (Highway 124 to 0.66 km west)	50	1 curve

4.3.1.2 Road Width Deficiencies

The roads in the Municipality that have been identified in the Road Needs Study to have widths that currently do not meet the Geometric Design Standards for Ontario Highways tolerable widths for hard top roads or recommended widths for gravel roads are summarized in Table 4-5. All of the roads with deficient widths are gravel roads and the traffic volume of these roads is low; therefore it is not critical in the short term. It is recommended that road widths be upgraded to meet minimum acceptable standards when these road sections undergo rehabilitation or reconstruction.

Table 4-5: Summary of Roads with Deficient Widths

ID	Road Section	Length (km)	AADT (vpd)	Speed (km/h)	Width (m)
Rural Gravel Roads					
20	Irwin's Road (Balsam Road to west end)	0.4	10	30	5
320	Lot 30 and 31 Sideroad (Highway 123 to Bridge)	2.2	25	50	5
410	Maple Island Road (Bridge to east end)	1.76	25	50	5
440	Ladds Road (Bridge to west end)	0.2	20	50	4
480	Chambers Drive (450 m east of Wahwashkesh Road 2100 m east of Wahwashkesh Road	1.65	10	40	4
540	Wahwashkesh Road (Indian Narrows Road to west end)	1.06	40	50	5
600	Clear Lake Road (start of seasonal road to hunt camp)	1.07	10	50	4.5
610	Nesbitts Road (Clear Lake Road to north end)	0.3	10	50	5
630	Boat Launch (Highway 520 to Lake)	0.23	25	50	3
670	Boakview Road (Bunny Trail to railway crossing)	0.86	10	50	3
770	Beach Road (Lorimer Lake Road to north end)	0.41	25	50	4

4.3.1.3 Roadside Drainage Needs

Maintaining adequate drainage (i.e., both surface drainage and subsurface drainage of the road base) is vitally important to maximize the useful life of the roads in the network. Conditions affecting drainage include flat crown, high shoulders, deficient ditching or no ditching, ponding, flooding or vegetation encroachment.

It is recommended that the Municipality continue to undertake ditching and brushing along its municipal roads to maintain adequate drainage. Where road works are proposed, it is recommended that additional investigations be completed to determine the requirements for drainage improvements, including the provision of sufficient drainage outlets.

4.3.2 Bridges

All bridges and large culverts are a concern to the Municipality as a failure of this type of asset can result in a major consequence of failure.

- Bridge 2 – Maple Island Bridge – 1.1 km north of Highway 520, which is a concrete slab on steel girder bridge requires repair of concrete parapet wall and replace end treatment. (approximate cost - $18,000 - 2022)
- Culvert 1 – Maple Island CSP – which is a corrugated steel round pipe requires upgrade guide rail end treatments on approaching ends. (approximate cost - $76,000 – 2022)
- Bridge 9 – Auld's Road Bridge – which is a timber deck on timber girder bridge requires installation of guide rail over the deck and on the approaches, replace & repair deteriorated section of timber crib, retaining wall and replace separated deck members, replace broken sections of timber curb, and repair guide rail until such time that it can be replaced. (approximate cost - $200,000 – 2023).

4.3.3 Vehicles

4.3.3.1 Fire Department

- Rescue #1 - Pickup Truck – Is ten years old and needs to be replaced. Replacement vehicle is obtained from used emergency services vehicles for a very low cost. (approximate cost - $4,000 – 2021).

4.3.3.2 Other Municipal

- Backhoe – Case 590 Backhoe – Is in poor condition and is a very significant vehicle for Public Works operations. This vehicle needs to be replaced. (approximate cost - $250,000 – 2021)
- Pick-up Truck – 2015 Chevrolet 3500 – Is in poor condition and one of three very important Public Works operations vehicles. This vehicle needs to be replaced. (approximate cost - $80,000 – 2022)
- Grader – JD 770G Grader – Is over 11 years old but only in fair condition. This vehicle is a key operations vehicle and will need to be replaced. (approximate cost - $475,000 – 2023).

4.3.4 Storm Water

One of the priorities identified with the storm water assets is to obtain the location and attributes (diameter, length, material) of the Municipality's cross road culverts. There are approximately $13,000 of cross road culverts replaced annually, however there are more

extreme weather events which may require some areas to have increased water flow to prevent damage to Municipal roads.

4.3.5 Water

- Library potable water supply – A water distribution extension pipe from the Municipal Office and Community Centre to the Library is to be constructed. (approximate cost - $25,000 – 2021).

4.3.6 Wastewater

The only wastewater assets that we recommend noting on is related to the condition of the Library septic system. When the septic tank is cleaned out, it will be better understood the operating condition of the septic system. Staff have identified this as only in fair condition.

This list of capital asset replacements is only for the next few years, and do not limit the needs that the Municipality requires to become fully sustainable. The Finance Strategy will further outline the needs for investing in assets annually via reserves to ensure that funds are available for future asset replacements.

4.4 Climate Change

Over the past decade there has been increased numbers of extreme weather events which are putting greater stress on municipal infrastructure, and pressure to ensure levels of service are maintained. Climate change poses a real risk management question which needs to be addressed within the context of municipal decision making.

Some climate change projections (Federation of Canadian Municipalities):

- Warmer summer temperatures;
- Warmer winter temperatures;
- More intense storms;
- Longer droughts;
- Increased frequency and amount of ice;
- Summers stretching longer; and
- Sea level rising.

The Municipality of Whitestone has witnessed some of these climate change projections already causing potential challenges with road washouts from an extreme weather event, or quick winter thaw runoff. Many roads have not been designed for such intense high volume rainstorms.

Identifying areas of concern will help the Municipality to design road and storm water assets to improve resiliency to extreme weather events. This type of investment will reduce risk of failure of infrastructure and ensure appropriate levels of service are maintained for the public.

Another factor to climate change issues is the materials used in asset construction. The focus is to reduce the total carbon footprint on the construction of infrastructure assets. One such attempt by the Municipality is the Boakview culvert which has special epoxy coating providing for a longer lifecycle. This is one example of the Municipality investing in infrastructure with a long term view.

As noted above the Municipality will be collecting crossroad culvert data which is a start to identifying if the culverts can withstand potential extreme weather. Then focusing on concern areas and upgrading them over a 10 year period will make good progress to becoming a more climate change resilient municipality.

4.5 Long-term Forecast

For many years, lifecycle costing has been used in the field of engineering to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use recently in the management of capital assets. By definition, lifecycle costs are all the costs which are incurred during the lifecycle of a capital asset, from the time it is purchased or constructed, to the time it is taken out of service for disposal.

In defining the long-term forecast for the Municipality's asset management strategy, costs incurred through an asset's lifecycle, the assets condition, expected LOS, and risk were considered and documented. Asset Replacement Analysis in forecasting the municipality's asset replacement needs are summarized in Figure 4-1, which we are calling Asset Strategy Scenario 1 based on expected levels of service.

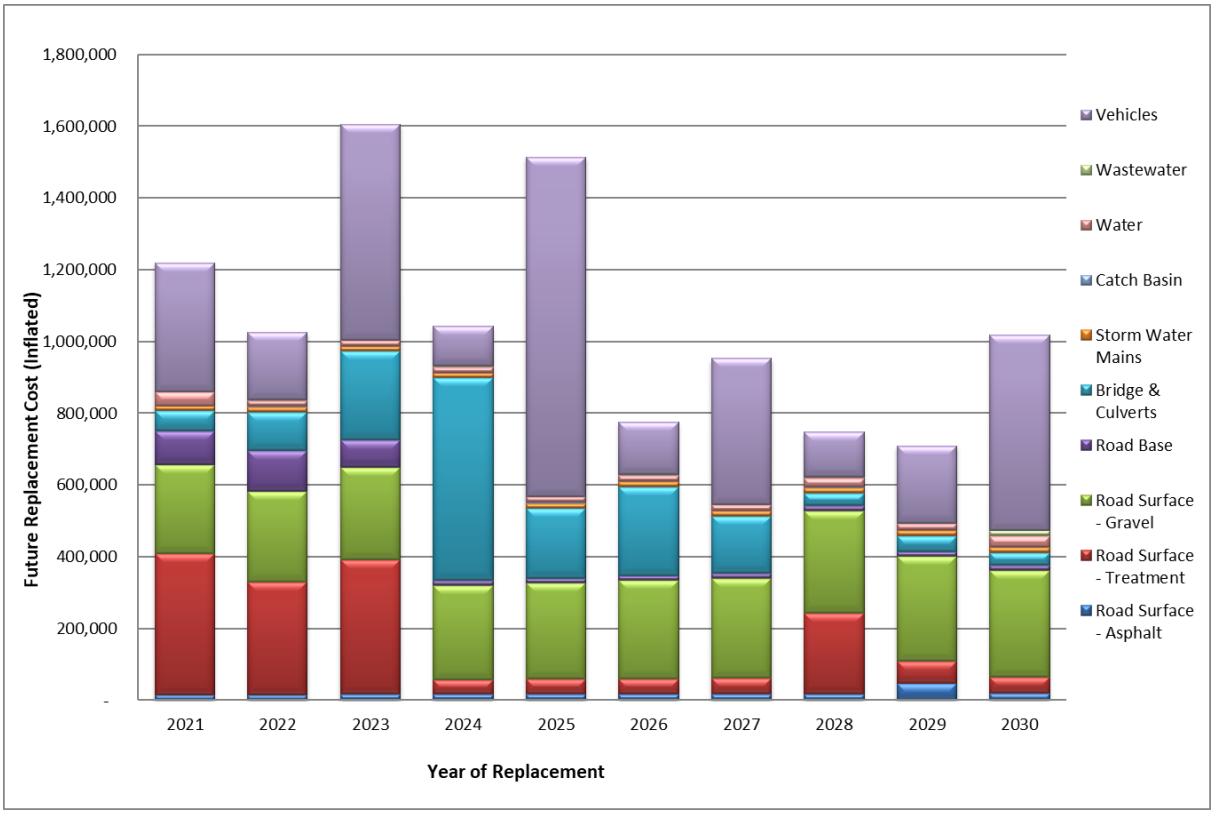
The asset strategy incorporated all of the information discussed above in this report and based on the information provided by the Municipality, past reports, staff input, and understanding of the asset's reaction in their current environment as well as the expected asset maintenance levels, and the current asset condition, which is expected to produce a reduced asset potential risk of failure. The outcome of this scenario approach was to provide appropriate asset service levels, and assets are expected to meet or exceed their useful life which reduces expected infrastructure deficits. In total (all assets), $10.6 million in assets (inflated to appropriate year) are shown as replacement needs in the 10 year forecast. This is the recommended asset strategy for the Municipality of Whitestone.

Assets like Bridges, and major culverts, are not expected to be replaced for usually over 50 years. It needs to be stated, to ensure that these assets have reserve funding for their replacement schedule in the future. The Financial Strategy provides the Municipality with an investment plan into the reserve accounts.

For the recommended scenario to be feasible, the expected level of service adjustments discussed in Section 3 are needed in conjunction with the current level of service amounts in order to effectively maintain and rehabilitate the assets as required.

The financing strategy discussed in the next section will incorporate the level of service adjustments into the recommended financing analysis.

Figure 4-1: Scenario 1 - Proposed Asset Strategy Based on Expected Levels of Service



5.0 Financing Strategy

5.1 Scope and Process

The financing strategy provides the recommended use of various funding sources to finance the asset management strategy and levels of service recommendations discussed in Sections 3 and 4. The financing strategy also provides recommendations to increase annual investments in assets that will be used beyond this report's 10-year forecast period.

5.2 Funding Sources

The following funding sources have been used within the financing strategy:

Grant Funding: It has been assumed that Gas Tax Funding (now called the Canada Community Building Fund) will continue throughout the forecast period. The Municipality's allocation is expected to reach $60,628 by 2023 and it has been assumed that funding will remain constant at this amount moving forward.

It has also been assumed that Ontario Community Infrastructure Fund (OCIF) annual amounts will remain constant as current funding levels, $50,000 per year.

Operating Budget: Given that there are levels of service recommendations that are operating in nature, it has been assumed that these costs will be funded from the annual operating budget. This could be through existing funding or proposed increases each year.

Reserves: Existing municipal reserves have been consolidated for the purposes of this financing strategy into "Roads Capital" and "Vehicle & Equipment" categories. These reserves become the primary source of funding over the forecast period. It is recommended that increases in annual asset investment be allocated to these reserves for capital use.

Debt: When all other funding sources fall short in funding recommended lifecycle needs, debt financing is recommended.

5.3 Historic Asset Investment

Table 5-1 outlines the Municipality's historic capital investment in assets over the past four years. As shown, the annual investment has been relatively constant throughout this period. In 2021 the Municipality received an additional one-time allocation of Gas Tax Funds; however, this has been removed from the total investment as it is a one-time investment that does not continue moving forward.

Table 5-1: Historic Asset Investment – Capital

Funding Type	2018	2019	2020	2021
Canada Community Building Fund (Gas Tax)	55,576	55,576	55,576	113,957
OCIF Funding	50,000	50,000	50,000	50,000
Contribution to Roads Reserves	80,000	75,000	75,000	75,000
Contribution to Vehicle & Equipment Reserves	62,182	50,500	50,000	50,000
Contribution to Building Dept Vehicle Reserve	-	3,500	3,500	-
Total Annual Asset Investment - Capital	**247,758**	**234,576**	**234,076**	**288,957**
Less: One-time top-up of the Canada Community Building Fund (Gas Tax)				(55,855)
Total 2021 Asset Investment - Capital (Sustainable)				**233,102**

Therefore, a capital investment in 2021 of $233,102 becomes the starting point for recommending increases in annual asset investments over the forecast period.

5.4 Optimal Asset Investment

Based on an analysis of the Municipality's capital assets in terms of replacement cost and useful life, the following summary of optimal annual asset investment has been created.

Table 5-2: Optimal Asset Investment Summary

Core Infrastructure & Vehicles	2021 Replacement Cost	Weighted Average Useful Life	Annual Replacement Investment (2021 $)
Road Surface - Asphalt	52,800	31	1,700
Road Surface - Treatment	1,920,200	16	120,000
Road Surface - Gravel	2,781,650	23	123,000
Road Base	19,548,950	75	12,000
Bridge & Culverts	8,137,000	64	136,000
Storm Water Mains	52,500	75	700
Catch Basin	30,000	75	400
Water	122,700	36	4,200
Wastewater	175,000	50	3,500
Vehicles	3,048,600	18	211,500
Total	**35,869,400**		**613,000**

In summary, an annual asset investment of $613,000 is needed to fund long-term asset management planning needs. This does not include other non-core assets that have been excluded from this asset management plan. In addition, road base assets have been provided funding allocations for specific maintenance needs only and not replacement.

This $613,000 annual asset investment becomes the funding target over the forecast period. However, this target increases over time as inflation increases this amount annually. Assuming 2% annual inflation, the target annual asset investment amount becomes $747,400 by the year 2031.

5.5 Financing Strategy

The detailed 10-year financing strategy is provided in Appendix C to this report.

As the 2021 Budget has already been developed and passed by the Municipality, all recommendations provided in Section 4 have been shifted by one year. For example, all 2021 recommendations from Section 4 are shown as 2022 funding requirements in this section. Also, like Section 4, a 2% inflation factor has been applied annually to all costs.

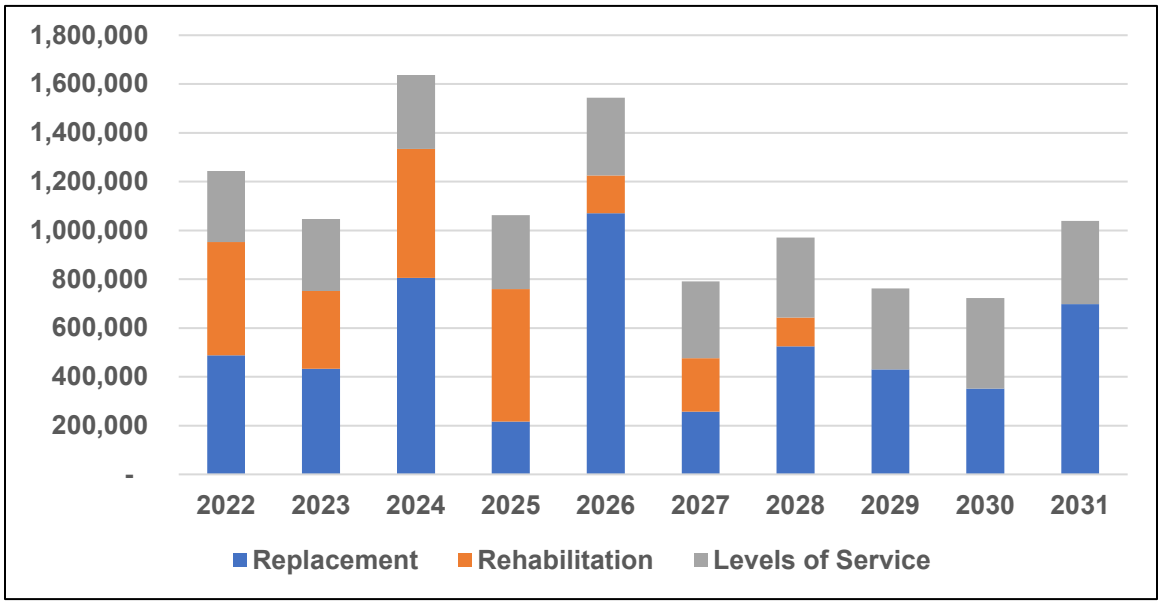
The following table provides a high-level summary of the 10-year forecast by cost type (i.e., asset replacement needs, asset rehabilitation needs, and levels of service recommendations).

Table 5-3: Forecast Summary

Forecast	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Replacement	488,580	433,327	805,457	216,486	1,069,854	256,765	524,949	430,585	351,835	697,265
Rehabilitation	463,345	318,883	528,800	543,381	155,675	219,039	118,315	-	-	-
Levels of Service	291,210	294,433	302,975	303,081	318,527	315,325	327,950	331,580	371,076	341,318
Total	**1,243,135**	**1,046,642**	**1,637,232**	**1,062,948**	**1,544,057**	**791,129**	**971,214**	**762,164**	**722,911**	**1,038,583**

Figure 5-1 shows the same capital forecast in graph form. As illustrated, there is a higher capital need in the first five years of the forecast period in comparison to the remaining five years.

Figure 5-1: Ten Year Forecast Summary



As shown in Appendix C, the 10-year forecast has a recommended funding plan as follows:

Table 5-4: Capital Forecast with Funding Sources

Asset Class	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Totals by Asset Class (Replacement, Rehabilitation and Levels of Service)											
Road Surface - Asphalt	**15,810**	**16,126**	**16,449**	**16,778**	**17,113**	**17,456**	**17,805**	**18,161**	**48,401**	**18,894**	**202,992**
Road Surface - Treatment	**401,635**	**320,963**	**383,414**	**42,215**	**43,059**	**43,920**	**44,799**	**230,231**	**63,818**	**47,541**	**1,621,596**
Road Surface - Gravel	**252,450**	**257,499**	**262,649**	**267,902**	**273,260**	**278,725**	**284,300**	**289,986**	**295,785**	**301,701**	**2,764,257**
Road Base	**95,370**	**113,924**	**76,407**	**12,989**	**13,249**	**13,514**	**13,784**	**14,060**	**14,341**	**14,628**	**382,266**
Bridge & Culverts	**57,120**	**110,282**	**252,568**	**575,854**	**197,630**	**252,823**	**161,965**	**35,150**	**45,414**	**36,570**	**1,725,376**
Storm Water Mains	**13,260**	**13,525**	**13,796**	**14,072**	**14,353**	**14,640**	**14,933**	**15,232**	**15,536**	**15,847**	**145,193**
Catch Basin	**-**	**3,121**	**-**	**-**	**3,312**	**-**	**-**	**3,515**	**-**	**-**	**9,948**
Water	**41,310**	**16,126**	**16,449**	**16,778**	**17,113**	**17,456**	**17,805**	**25,191**	**18,524**	**31,084**	**217,835**
Wastewater	**-**	**2,601**	**-**	**2,706**	**-**	**2,815**	**-**	**2,929**	**-**	**15,237**	**26,289**
Vehicles	**366,180**	**192,474**	**615,501**	**113,655**	**964,967**	**149,780**	**415,824**	**127,711**	**221,092**	**557,080**	**3,724,264**
Total	**1,243,135**	**1,046,642**	**1,637,232**	**1,062,948**	**1,544,057**	**791,129**	**971,214**	**762,164**	**722,911**	**1,038,583**	**10,820,017**

Funding Analysis	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Canada Community Building Fund (Gas Tax)	58,102	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	**603,754**
OCIF Funding	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	**500,000**
Transfer from Capital Reserves:											
Roads Capital Reserve	450,000	230,000	300,000	300,000	334,037	300,000	312,957	385,221	258,667	234,933	**3,105,815**
Vehicle & Equipment Reserve	259,080	83,232	350,000	-	450,000	31,533	295,212	4,687	95,607	429,086	**1,998,437**
Building Department Vehicle Reserve	-	-	-	-	30,914	-	-	-	-	-	**30,914**
Operating Funding (LOS Impacts)	236,910	245,090	241,876	247,139	250,354	252,518	252,417	261,629	258,009	263,936	**2,509,878**
Debt Funding (see section 2)	189,043	377,692	634,728	405,181	368,124	96,451	-	-	-	-	**2,071,219**
Total	**1,243,135**	**1,046,642**	**1,637,232**	**1,062,948**	**1,544,057**	**791,129**	**971,214**	**762,164**	**722,911**	**1,038,583**	**10,820,017**
Total Cost less Funding	-	-	-	-	-	-	-	-	-	-	-

As noted in Section 5.2 above, Gas Tax and OCIF funding is shown as a funding source in each year of the forecast period, reserves are used as the primary funding source, operating budget funding is used for levels of service recommendations that are considered operating in nature, and debt funding is used to finance the remaining funding needs each year.

Debt Funding

Debt funding of $2,071,219 is required in the first six years of the forecast period. Given that the Municipality's ability to use debt funding is restricted based on the province's debt capacity (annual repayment limit) calculations, an analysis of all current and proposed debt was completed.

Figures 5-2 and 5-3 below show that current and projected debt requirements are well within the annual debt capacity limits of 25% of municipal revenues, reaching a maximum level of between 11% and 12% in 2027 to 2029.

Figure 5-2: Summary of Current and Proposed Debt Payments

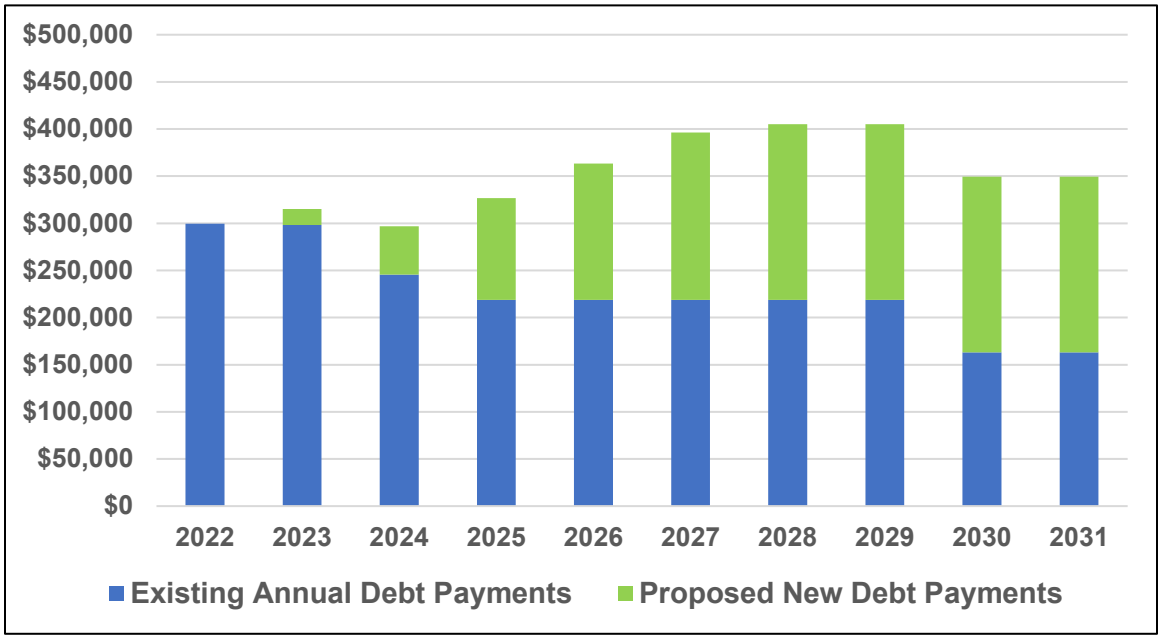
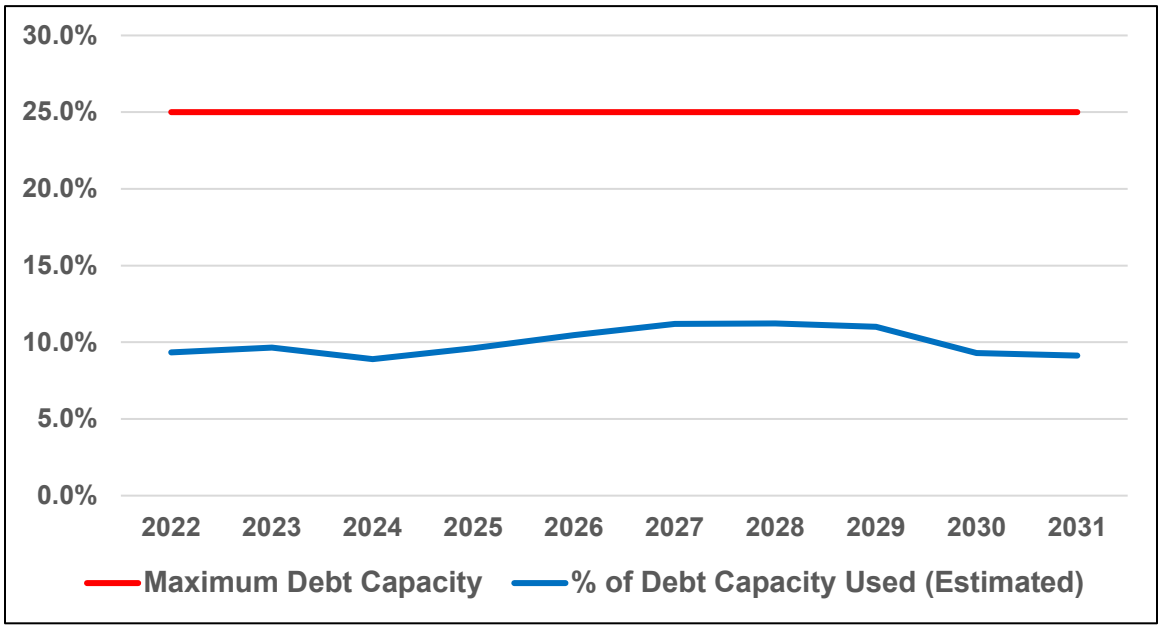


Figure 5-3: Percent of Annual Repayment Limit Used



Reserve Funding

With reserve funding becoming a primary source of funding within this financing strategy, a recommended phased-in approach to increasing contributions to these reserves is provided. Table 5-5 outlines the actual transfer amounts for 2021 (totaling $125,000) with a recommended plan to increase those transfers to reach $636,772 by 2031. This combined with anticipated Gas Tax and OCIF funding allows the Municipality to reach the optimum annual asset investment amount of $747,400 by 2031.

Table 5-5: Contributions to Reserves

Funding Type	Actual	Forecast									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Contribution to Roads Reserves	75,000	150,000	225,000	300,000	313,972	337,172	341,472	350,472	359,672	369,072	378,672
Contribution to Vehicle & Equipment Reserves	50,000	150,000	175,000	200,000	224,600	229,100	233,700	238,400	243,200	248,100	253,100
Contribution to Building Dept Vehicle Reserve	-	-	-	-	-	-	4,600	4,700	4,800	4,900	5,000
Total	125,000	300,000	400,000	500,000	538,572	566,272	579,772	593,572	607,672	622,072	636,772
Gas Tax Funding	58,102	58,102	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628
OCIF Funding	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total Asset Investment	**233,102**	**408,102**	**510,628**	**610,628**	**649,200**	**676,900**	**690,400**	**704,200**	**718,300**	**732,700**	**747,400**

This analysis will have to be updated once other non-core assets have been included in this asset management plan, and a replacement needs assessment is completed for road base assets.

It is recommended that specific existing reserves be consolidated into the reserve categories shown in Table 5-5. However, an alternate approach to breaking down the “Vehicle & Equipment” Reserve into departmental specific reserves is also provided in Appendix C.

Operating Budget Funding

From a levels of service perspective, the Municipality is doing really well. Section 4 of Appendix C to this report outlines very minor adjustments are needed to the Municipality's operating budget to account for any further levels of service impacts that are not currently funded.

The introduction of new debt funding also has an impact on the Municipality's operating budget going forward. This is also outlined in Appendix C and summarized below in Table 5-6. It has also been assumed that when existing debt payments are complete, the budget space created will be used to either fund new debt or to increase transfers to reserves.

Table 5-6: Increase in Funding Summary

Increase in Funding	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Increase in Transfers to Reserves	175,000	102,526	100,000	38,572	27,700	13,500	13,800	14,100	14,400	14,700
Increase (Decrease) in Operating - LOS	13,400	8,180	(3,215)	5,264	3,215	2,164	(101)	9,212	(3,620)	5,928
Increase (Decrease) in Operating - Debt	-	15,833	(18,560)	30,181	36,440	33,110	8,670	-	(55,694)	-
Total Impact on Annual Budget	**188,400**	**126,539**	**78,225**	**74,017**	**67,355**	**48,774**	**22,369**	**23,312**	**(44,914)**	**20,628**

Table 5-6 above outlines the total annual increase in funding recommended from 2022 to 2031. These increases can be incorporated through:

a) Finding efficiencies in the annual budget

b) Increase in external funding (i.e., grants or third party contributions).

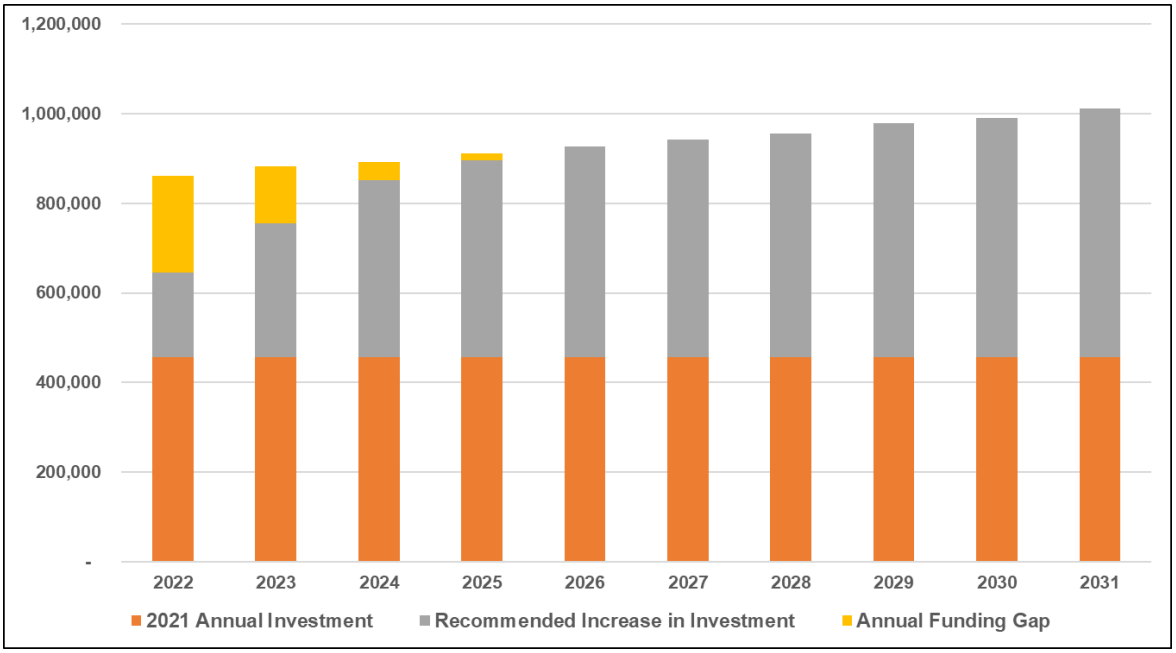
c) Allocations of annual surpluses to capital reserves (if available).

d) Recommending budget increases.

Funding Gap

Figure 5-4 provides an overall summary of the recommended annual investment levels (shown in orange and gray) as well as the funding gap (shown in yellow). The funding recommendations outlined in this section ensure the funding gap is eliminated by year five of the forecast period. Given the increased need for capital investment in the first half of the forecast period, it was necessary to have the gap eliminated by 2026 to minimize debt needs.

Figure 5-4: Annual Asset Investment & Funding Gap



This graph is also provided in Appendix C to this report, along with detailed figures to support the graph.

5.6 Summary of Financing Strategy Recommendations

The following represents a list of financing strategy recommendations:

i. Consolidate applicable existing capital related reserves into a “Roads Capital” reserve and “Vehicle & Equipment” reserve.

ii. Use capital reserves as the primary source of asset investment annually. Funds should flow from the operating budget to these reserves, which are then used to fund capital projects.

iii. Increase asset management funding as outlined in Table 5-6.

iv. Transfer any annual surpluses to capital reserves annually.

v. Dedicate any budget savings from the elimination of debt payments to funding asset management needs (i.e., either new debt or transfers to reserves).

vi. Update this financing strategy to account for other non-core assets as well as any road base replacement needs in the future.

6.0 Recommendations

The following recommendations have been provided for the Municipality of Whitestone's consideration:

- that this Asset Management Plan be received and approved by the Municipality of Whitestone Council; and

- that consideration of this Asset Management Plan be given as part of the annual budgeting process to ensure sufficient capital funds are available to fund capital requirements over the 10 year period.

The current level of funding for asset replacement and renewal at the Municipality will not sufficiently fund required capital needs or close the infrastructure funding gap. As such, it is recommended that the following be considered:

- That the "levels of service" strategies discussed in this report be approved;
- The Municipality consolidate applicable existing capital related reserves into a "Roads Capital" reserve and "Vehicle & Equipment" reserve;
- The Municipality use capital reserves as the primary source of asset investment annually. Funds should flow from the operating budget to these reserves, which are then used to fund capital projects;
- The Municipality increase asset management funding as outlined in Table 5-6;
- The Municipality transfer annual surpluses to capital reserves;
- The Municipality dedicate any budget savings from the elimination of debt payments to funding asset management needs (i.e., Either new debt or transfers to reserves);
- The Municipality update the financing strategy to account for other non-core as well as any road base replacement needs in the future;
- That this Asset Management Plan be updated as per the Municipality's Asset Management Strategy Policy; and
- The Municipality consider the capital priorities identified within this report when applying for future grants or deciding on how to utilize Gas Tax, OCIF funding and/or other funding that becomes available.

Substantial investment in asset capital needs will be required over the 10 year forecast period and beyond. Through the recommendations provided above, proactive steps will be made to increase capital investment, as well as reduce the annual infrastructure funding gap for the Municipality's core assets. Enhanced maintenance plans will assist in maintaining adequate asset conditions, mitigate asset risk as well as potentially defer capital needs within the forecast period. In addition, the Municipality of Whitestone is

recommended to pursue all available capital grants wherever possible to further reduce the infrastructure funding gap.

Through the creation of this plan, the Municipality has been provided with Excel spreadsheets in which amendments and revisions can be made as needed by the Municipality. It is anticipated that this plan adopted by the Municipality of Whitestone Council will be monitored and updated frequently as part of the budget process, with refinements and specific recommendations being provided with respect to the priority of each individual project.

BURNSIDE

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Appendix A

Municipality Asset Inventory & Asset Management Plan Assumptions

APPENDIX A: Asset Management Plan Assumptions

The following assumptions were made and applied during the creation of the Municipality of Whitestone's asset management plan.

1. State of Local Infrastructure

a) All replacement costs were estimates based on current 2020/21 pricing;
b) Historic Costs of assets that were added to the Municipality's asset inventory and did not have a historic cost identified made use of deflation tables from estimated current 2020 costs back to the installation date of the asset. Indexes were using Non-Residential Building Construction Price Index (NRBCPI);
c) Amortization of assets was using the Municipality's PSAB 1350 data tables where possible but assets that were added to the Municipality's asset inventory a straight line amortization was used;
d) Useful life of an asset were provided by the Municipality, or reports provided to the Municipality by engineering consultants. Staff provided some adjustments to vehicle useful lives;
e) Condition was extracted from Municipal reports, from staff's understanding of the asset's relative condition, and finally via estimation from the asset's age. Bridge condition values were estimated from the Municipality's bridge inspection report; and
f) Condition values were used to provide estimated remaining life to the assets.

2. Asset Management Strategy

a) Capital inflation rate was assumed to be 2.0% annually.
b) Operating budget inflation rate was assumed to be 2.0% annually.
c) Regarding operating expenses included in the Municipality's current budget, it is assumed that they will increase at an operating inflation rate annually.

3. Financing Strategy

a) Gas Tax and OCIF Formula Based Funding revenue have been identified as a funding source for the purposes of this analysis (i.e., for asset replacement purposes), and has been assumed to continue throughout the forecast period.
b) Interest rate earned on a Capital Replacement Reserve Funds will be 1.0% annually.

Whitestone
Water Systems (Tax Funded)

FIXED ASSET ID	Asset Name	Asset Type	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2019 Accumulated Amortization	2019 Net Book Value	Replacement Cost (2021)	Condition Based On Useful Life	Staff Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure
		Weighted (Replacement $) Average		**36**	**15**	**23**	**$ 72,883**	**$ 37,192**	**$ 35,691**	**$ 122,700**			**6.9**				
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Well Church St.	Well	2012	50	42	8	$20,000	$3,200	$16,800	$25,000	8	8	8	Good	Unlikely	Major	M
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre 2 Well Pumps	Well Pumps	2012	20	12	8	$2,300	$920	$1,380	$2,600	6	8	8	Good	Unlikely	Moderate	M
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Pressure Tank	Pressure Tank	2012	20	12	8	$1,000	$400	$600	$1,300	6	8	8	Good	Unlikely	Moderate	M
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Chemical Feed Pump and Tanks	Chemical Feed Pump	2012	20	12	8	$2,300	$920	$1,380	$2,700	6	8	8	Good	Unlikely	Moderate	M
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Filters	Water Filtration System	2012	20	12	8	$4,700	$1,880	$2,820	$5,300	6	8	8	Good	Unlikely	Moderate	M
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Filters UV Light Filtration	Water Filtration System	2012	20	12	8	$7,500	$3,000	$4,500	$8,500	6	8	8	Good	Unlikely	Moderate	M
RD	Public Works Yard Well 2125 Balsam Road	Well	1975	50	5	45	$3,000	$2,700	$300	$15,000	1	7	7	Good	Unlikely	Major	M
RD	Public Works Yard Reverse Osmosis filtration System	Water Filtration System	2004	20	4	16	$3,400	$2,720	$680	$4,500	2	7	7	Good	Unlikely	Moderate	M
RD	Public Works Yard Water Softener	Water Filtration System	2004	20	4	16	$1,300	$1,040	$260	$1,800	2	7	7	Good	Unlikely	Moderate	M
F	Fire Station 2 Well 6 McDonald Drive	Well	1988	50	18	32	$7,500	$4,800	$2,700	$15,000	4	7	7	Good	Unlikely	Major	M
F EQ13	Fire Station 2 Water Filter System	Water Filtration System	2004	20	4	16	$4,924	$3,816	$1,108	Not to be replaced	2						
REC	Maple Island Hall Well 1 Maple Island Rd	Well	1950	50	0	70	$900	$900	$0	$10,000	0	7	7	Good	Unlikely	Moderate	M
REC EQ03	Maple Island Hall Water Filter System	Water Filtration System	2004	20	4	16	$4,614	$3,576	$1,038	$6,000	2	5	5	Average	Possible	Moderate	M
LIB EQ01	Library Water Filter System	Water Filtration System	2004	20	4	16	$9,445	$7,320	$2,125	$25,000	2	5	5	Average	Possible	Moderate	M

Whitestone
Water Systems (Tax Funded)

FIXED ASSET ID	Asset Name	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Current Levels of Service Replacement/Improvement Year Based on Current Levels Service: Revised Levels Service Replacement Year	Current Levels of Service Replacement/Improvement Year Based on Current Levels Service: Year Replacement Applying Risk Score		Proposed Rehabilitation Cost (2020 $)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service: Expected Levels of Service % benefit over Current + Condition better then expected for age	Expected Levels of Service Replacement/Improvement Year Based on Expected Levels Service: Revised Levels Service Replacement Year	Expected Levels of Service Replacement/Improvement Year Based on Expected Levels Service: Year Replacement Applying Risk Score - or Staff Override	Expected Levels of Service Replacement/Improvement Year Based on Expected Levels Service: Subsequent Replacement Year	Revised Remaining Useful Life
		2						$ -							
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Well Church St.	2	2057	10	2062	2062					0	2062	2062	2112	41
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre 2 Well Pumps	2	2030	10	2032	2032					10	2034	2034	2054	13
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Pressure Tank	2	2030	10	2032	2032					10	2034	2034	2054	13
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Chemical Feed Pump and Tanks	2	2030	10	2032	2032					10	2034	2034	2054	13
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Filters	2	2030	10	2032	2032					10	2034	2034	2054	13
GG	Municipal Office/Nursing Station/Fire Hall 1/Community Centre Filters UV Light Filtration	2	2030	10	2032	2032					10	2034	2034	2054	13
RD	Public Works Yard Well 2125 Balsam Road	2	2020	10	2025	2025					50	2050	2050	2100	29
RD	Public Works Yard Reverse Osmosis filtration System	2	2022	10	2024	2024					40	2032	2032	2052	11
RD	Public Works Yard Water Softener	2	2022	10	2024	2024					40	2032	2032	2052	11
F	Fire Station 2 Well 6 McDonald Drive	2	2033	10	2038	2038					20	2048	2048	2098	27
F EQ13	Fire Station 2 Water Filter System														
REC	Maple Island Hall Well 1 Maple Island Rd	2	1995	10	2000	2021					60	2030	2030	2080	9
REC EQ03	Maple Island Hall Water Filter System	2	2022	10	2024	2024					20	2028	2028	2048	7
LIB EQ01	Library Water Filter System	2	2022	11	2024	2024					20		2021	2041	0

Whitestone
Wastewater Systems (Tax Funded)

FIXED ASSET ID	Asset Type	Asset Name	Tank Size / Length	Install Year	Useful Life	Remaining Useful Life 2020	Age	Historic Cost	2020 Accumulated Amortization	2020 Net Book Value	Replacement Cost	Condition Based On Useful Life	Staff Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure
					50	**32**	**19**	**$ 104,165**	**$ 34,374**	**$ 69,791**	**$ 175,000**			**7.2**				
GG	Septic System	Septic System - Municipal Office, Fire Hall 1 and Nursing Station 21 Church St (Tank; Pumping Chamber; Pressure Main; Gravity Main; Septic Bed)	9,000 l	2012	50	42	8	$30,000	$4,800	$25,200	$35,000	8	8	8	Good	Unlikely	Major	M
RD	Septic System	Septic System Public Works Yard 2125 Balsam Rd - (Tank; Gravity Main; Septic Bed)	9,092 l	2011	50	41	9	$8,915	$3,789	$5,126	$30,000	8	8	8	Good	Unlikely	Major	M
F	Septic System	Septic System Fire Station 2 6 McDonald Drive - (Tank; Septic Bed)	3,600 l	1999	50	29	21	$6,750	$2,835	$3,915	$15,000	6	6	6	Average	Possible	Moderate	M
LIB	Septic System	Septic System Library 2206 Hwy 124 - (Tank; Septic Bed)	2,700 l	1977	50	7	43	$2,500	$2,150	$350	$10,000	1	5	5	Average	Possible	Minor	M
REC	Septic System	Septic System Hagerman Community Centre 2199 Hwy 124 & DunDome Pavilion - (2 Tanks; Pumping Chamber; Pressure Main; Gravity Main; Distribution Box; Septic Bed)	14,000 l & 4,500 l	2002	50	32	18	$55,000	$19,800	$35,200	$75,000	6	7	7	Good	Unlikely	Major	M
REC	Septic System	Septic System Maple Island Hall 1 Maple Island Road - (Tank; Septic Bed)	2,700 l	1950	50	0	70	$1,000	$1,000	$0	$10,000	0	7	7	Good	Unlikely	Moderate	M

Whitestone
Wastewater Systems (Tax Funded)

				Current Levels of Service Replacement/Improvement Year Based on Current Levels Service								Expected Levels of Service Replacement/Improvement Year Based on Expected Levels Service				
FIXED ASSET ID	Asset Type	Asset Name	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score		Proposed Rehabilitation Cost (2020 $)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better then expected for	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life
			2						$ -							
GG	Septic System	Septic System - Municipal Office, Fire Hall 1 and Nursing Station 21 Church St (Tank; Pumping Chamber; Pressure Main; Gravity Main; Septic Bed)	2	2057	10	2062	2062					0	2062	2062	2112	41
RD	Septic System	Septic System Public Works Yard 2125 Balsam Rd - (Tank; Gravity Main; Septic Bed)	2	2056	10	2061	2061					0	2061	2061	2111	40
F	Septic System	Septic System Fire Station 2 6 McDonald Drive - (Tank; Septic Bed)	2	2044	10	2049	2049					0	2049	2049	2099	28
LIB	Septic System	Septic System Library 2206 Hwy 124 - (Tank; Septic Bed)	2	2022	10	2027	2027					30	2042	2042	2092	21
REC	Septic System	Septic System Hagerman Community Centre 2199 Hwy 124 & DunDome Pavilion - (2 Tanks; Pumping Chamber; Pressure Main; Gravity Main; Distribution Box; Septic Bed)	2	2047	10	2052	2052					5	2055	2055	2105	34
REC	Septic System	Septic System Maple Island Hall 1 Maple Island Road - (Tank; Septic Bed)	2	1995	10	2000	2021					60	2030	2030	2080	9

Whitestone
Inventory

Expected Levels of Service + Town Input
Replacement/Improvement Year Based on Expected

Road Needs ID	Agency ID	Road Name	From	To	Seasonal Rd.	Surface Material	Boundary Rd	Length (m)	Width (m)	Road Area (m2)	Install Year	Useful Life based on Road Study	Remaining Useful Life (calculation)	Remaining Useful Life (Road Study)	Age	Historic Cost	2019 Accumulated Amortization System	2019 Net Book Value System	2020 Replacement Cost/Section	Cost per Linear m	Condition Based On Useful Life from Study	Condition from Study 2020	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure	Numerical Value of Risk of Failure	Proposed Rehabilitation Cost (2021 $)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Subsequent Improvement Cost	Subsequent Improvement Year	Year Replacement Applying From Road Study	Subsequent Replacement Year from Road Study	Revised Remaining Useful Life
								102,840		**595,661**		**20**		**11**	**17**	**$5,159,363**	**$4,375,834**	**$783,530**	**$4,754,650**				**6.2**					**1.9**	**$634,460**							
00200		CHURCH STREET	HWY 124	SOUTH END		Asphalt	N	160	7.2	1152	1998	31	9	19	22	$ 13,565.00	$ 13,565.00	$0	$52,800	$330	6	7	7	Good	Unlikely	Moderate	M	2						2040	2071	19
00700		1/2 GREY OWL ROAD	SHAKELL ROAD	BRIDGE		Gravel	Y	1660	5	8300	2003	27	10	6	17	$ 33,459.00	$ 33,459.00	$0	$58,100	$35	2	3	3	Poor	Likely	Minor	M	2						2024	2051	3
00320		1/2 LOT 30 AND 31 SIDEROAD	HWY 124	BRIDGE		Gravel	Y	2200	4	8800	2003	27	10	10	17	$ 44,343.00	$ 44,343.00	$0	$38,500	$18	4	5	5	Average	Possible	Moderate	M	2								
00520		AMORAK TRAIL	WAHWASHKESH ROAD	1KM WEST OF WAHWASHKESH ROAD		Gravel	N	1000	6	6000	2003	27	10	17	17	$ 40,312.00	$ 40,312	$0	$35,000	$35	6	7	7	Good	Unlikely	Moderate	M	2						2030	2057	9
00570.1		AULDS ROAD	HWY 520	BEAR HUG LANE		Gravel	N	1820	6	10920	2011	20	11	14	9	$ 59,764.64	$ 59,765	$0	$63,700	$35	7	7	7	Good	Unlikely	Moderate	M	2						2029	2049	8
00570.2		AULDS ROAD	BEAR HUG LANE	MCLELLAN LANE		Gravel	N	400	6	2400	2011	20	11	10	9	$ 13,135.08	$ 13,135	$0	$14,000	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00010		BALSAM ROAD	MCKELLAR TOWNLINE	IRWIN'S ROAD		Gravel	N	3440	6	20640	2003	20	3	12	17	$ 138,672.00	$ 138,672.00	$0	$120,400	$35	6	6	6	Average	Possible	Moderate	M	2						2028	2048	7
00030		BALSAM ROAD	IRWIN'S ROAD	JACKSON LANE		Gravel	N	1950	6	11700	2003	20	3	14	17	$ 78,607.00	$ 78,607.00	$0	$68,300	$35	7	7	7	Good	Unlikely	Moderate	M	2						2028	2048	7
00040		BALSAM ROAD	JACKSON LANE	CANNING ROAD		Gravel	N	1960	6	11760	2003	20	3	14	17	$ 79,011.00	$ 79,011.00	$0	$68,600	$35	7	7	7	Good	Unlikely	Moderate	M	2						2028	2048	7
00770		BEAH ROAD	LORIMER LAKE ROAD	NORTH END		Gravel	N	410	3	1230	2003	27	10	8	17	$ 16,528.00	$ 16,528.00	$0	$14,400	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00080		BEARS PAW	CANNING ROAD	BEARS PAW		Gravel	N	630	5.5	3465	2003	20	3	10	17	$ 25,396.00	$ 25,396.00	$0	$22,100	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00670		BOAKVIEW ROAD	BUNNY TRAIL	RAILWAY CROSSING	Yes	Gravel	N	860	2	1720	2003	27	10	10	17	$ 34,668.00	$ 34,668.00	$0	$30,100	$35	4	5	5	Average	Possible	Moderate	M	2								
00630		BOAT LAUNCH	HWY 520	LAKE	Yes	Gravel	N	230	2	460	2003	27	10	8	17	$ 9,272.00	$ 9,272	$0	$8,050	$35	3	4	4	Poor	Likely	Minor	M	2								
00180		BOB CRESCENT	HWY 124			Gravel	N	260	5	1300	2003	27	10	10	17	$ 10,481.00	$ 10,481.00	$0	$9,100	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00250		BOUNDARY SPUR ROAD	HWY 124	EAST TOWNLINE ROAD		Gravel	N	500	6	3000	2003	20	3	10	17	$ 20,156.00	$ 20,156.00	$0	$17,500	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00260		BOUNDARY SPUR ROAD	EAST TOWNLINE ROAD	HWY 124		Gravel	N	960	6	5760	2003	20	3	10	17	$ 38,699.00	$ 38,699.00	$0	$33,600	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00220		BUTLER STREET	HWY 124	NORTH END		Gravel	N	110	5	550	2003	27	10	10	17	$ 4,434.00	$ 4,434.00	$0	$3,900	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00470		CHAMBERS DRIVE	WAHWASHKESH ROAD	450M EAST OF WAHWASHKESH ROAD		Gravel	N	450	5	2250	2003	27	10	10	17	$ 18,140.00	$ 18,140	$0	$15,800	$35	4	5	5	Average	Possible	Minor	M	2						2026	2053	5
00480		CHAMBERS DRIVE	450M EAST OF WAHWASHKESH ROAD	2100 m East of WAHWASHKESH ROAD	Yes	Gravel	N	1650	3	4950	2003	27	10	8	17	$ 20,156.00	$ 20,156	$0	$57,750	$35	3	4	4	Poor	Likely	Minor	M	2								
00330		CHUR LEE ROAD	HWY 520	2.2KM WEST OF HWY 520		Gravel	N	2200	6	13200	2003	20	3	10	17	$ 88,685.00	$ 88,685.00	$0	$77,000	$35	5	5	5	Average	Possible	Moderate	M	2						2022	2027	1
00580		CLEAR LAKE ROAD	END OF HWY 520 - 300M W RAILWAY TRACKS	1.9KM WEST OF END OF HWY 520		Gravel	N	1900	6	11400	2003	20	3	14	17	$ 76,592.00	$ 76,592	$0	$66,500	$35	7	7	7	Good	Unlikely	Moderate	M	2						2029	2049	8
00590		CLEAR LAKE ROAD	1.9KM WEST OF END OF HWY 520	START OF SEASONAL ROAD		Gravel	N	1500	6	9000	2003	27	10	17	17	$ 60,467.00	$ 60,467	$0	$52,500	$35	6	7	7	Good	Unlikely	Moderate	M	2						2030	2057	9
00720		CROWN RETREATS ROAD	HWY 124	EAST END		Gravel	N	1650	6	9900	2003	20	3	10	17	$ 66,514.00	$ 66,514.00	$0	$57,800	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00150		DOBSON ROAD	FARLEY'S ROAD	WEST END		Gravel	N	1000	5.5	5500	2003	27	10	10	17	$ 40,312.00	$ 40,312.00	$0	$35,000	$35	4	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00100		DUNCHURCH ESTATE ROAD	HWY 124	MAILBOXES		Gravel	N	30	6	180	2003	27	10	14	17	$ 1,209.00	$ 1,209.00	$0	$1,100	$37	5	7	7	Good	Unlikely	Moderate	M	2						2029	2056	8
00270		EAST TOWNLINE ROAD	HWY 124	BOUNDARY SPUR ROAD		Gravel	N	380	5	1900	2003	27	10	10	17	$ 62,376.83	$46,923	$15,454	$13,300	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00280		EAST TOWNLINE ROAD	BOUNDARY SPUR ROAD	TAHINCA ROAD		Gravel	N	1200	6	7200	2003	20	3	14	17	$ 48,374.00	$ 48,374.00	$0	$42,000	$35	7	7	7	Good	Unlikely	Moderate	M	2						2028	2048	7
00290		EAST TOWNLINE ROAD	TAHINCA ROAD	WIN BUR LANE		Gravel	N	2400	5.6	13440	2003	20	3	10	17	$ 51,599.00	$ 51,599.00	$0	$84,000	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00550		EDGWOOD ROAD	HWY 520	NONA LANE		Gravel	N	1490	5.5	8195	2003	20	3	10	17	$ 60,064.00	$ 60,064	$0	$52,200	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00120		FARLEY'S ROAD	DOBSON ROAD	PINE GROVE		Gravel	N	1260	6	7560	2003	20	3	10	17	$ 50,792.00	$ 50,792.00	$0	$44,100	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00130		FARLEY'S ROAD	PINE GROVE	BRIDGE		Gravel	N	900	6	5400	2003	20	3	10	17	$ 36,280.00	$ 36,280.00	$0	$31,500	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00140		FARLEY'S ROAD	BRIDGE	WEST END		Gravel	N	3120	6	18720	2003	20	3	10	17	$ 125,772.00	$ 125,772.00	$0	$109,200	$35	5	5	5	Average	Possible	Moderate	M	2						2026	2046	5
00340		GIBSON BAY ROAD	HWY 520	NICKEL COVE ROAD		Gravel	N	500	5.2	2600	2003	20	3	10	17	$ 20,156.00	$ 20,156.00	$0	$17,500	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00500		GORHAM ROAD	WAHWASHKESH ROAD	SOUTH END		Gravel	N	120	5	600	2003	27	10	8	17	$ 4,837.00	$ 4,837	$0	$4,200	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00620		HAYWARD ROAD	HWY 520	SAW CUT RUN		Gravel	N	250	5	1250	2003	27	10	8	17	$ 10,078.00	$ 10,078	$0	$8,800	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00020		IRWIN'S ROAD	BALSAM ROAD	WEST END		Gravel	N	400	4	1600	2003	27	10	6	17	$ 16,125.00	$ 16,125.00	$0	$14,000	$35	2	3	3	Poor	Likely	Minor	M	2						2025	2052	4
00450		LABRASH LAKE ROAD	LADDS ROAD	WEST END TURNAROUND		Gravel	N	800	6	4800	2011	27	18	10	9	$ 30,000.00	$ 27,112	$2,888	$28,000	$35	4	5	5	Average	Possible	Moderate	M	2						2025	2052	4
00420		LADDS ROAD	MAPLE ISLAND ROAD	LABRASH LAKE ROAD		Gravel	N	700	6	4200	2003	20	3	10	17	$ 39,932.50	$ 39,932.50	$0	$24,500	$35	5	5	5	Average	Possible	Moderate	M	2						2023	2028	2
00430		LADDS ROAD	LABRASH LAKE ROAD	BRIDGE		Gravel	N	1600	5.5	8800	2011	27	18	10	9	$ 45,000.00	$ 41,475	$3,525	$56,000	$35	4	5	5	Average	Possible	Moderate	M	2						2025	2052	4
00440		LADDS ROAD	BRIDGE	WEST END	Yes	Gravel	N	200	3	600	2003	27	10	8	17	$ 8,062.00	$ 8,062	$0	$7,000	$35	3	4	4	Poor	Likely	Minor	M	2								
00800		LAUCK'S ROAD	BALSAM ROAD	LAKE		Gravel	N	250	5	1250	2003	27	10	8	17	$ 6,000.00	$ 6,000.00	$0	$8,800	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00730		LORIMER LAKE ROAD	HWY 124	SHAWANAGA LAKE ROAD		Gravel	N	1150	6	6900	2003	20	3	10	17	$ 74,250.59	70,027.81	$4,223	$40,300	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00740		LORIMER LAKE ROAD	SHAWANAGA LAKE ROAD	GREEN LANE		Gravel	N	2440	6	14640	2003	27	10	10	17	$ 98,360.00	$ 98,360.00	$0	$85,400	$35	4	5	5	Average	Possible	Moderate	M	2						2025	2052	4
00750		LORIMER LAKE ROAD	GREEN LANE	WESTVIEW ROAD		Gravel	N	500	5.5	2750	2003	27	10	10	17	$ 20,156.00	$ 20,156.00	$0	$17,500	$35	4	5	5	Average	Possible	Moderate	M	2						2025	2052	4
00760		LORIMER LAKE ROAD	WESTVIEW ROAD	MCDOUGALL BOUNDARY		Gravel	N	3710	5.5	20405	2003	27	10	6	17	$ 149,556.00	$ 149,556.00	$0	$129,900	$35	2	3	3	Poor	Likely	Minor	M	2						2024	2051	3
00390		MAPLE ISLAND ROAD	SHADY MAPLE TRAIL	LADDS ROAD		Gravel	N	1150	6	6900	2003	20	3	14	17	$ 46,358.00	$ 46,358.00	$0	$40,300	$35	7	7	7	Good	Unlikely	Moderate	M	2						2028	2048	7
00400		MAPLE ISLAND ROAD	LADDS ROAD	BRIDGE		Gravel	N	2260	6	13560	2003	20	3	14	17	$ 91,104.00	$ 91,104.00	$0	$79,100	$35	7	7	7	Good	Unlikely	Moderate	M	2						2029	2049	8
00190		MARINA DRIVE	HWY 124	NORTH END		Gravel	N	110	5	550	2003	20	3	10	17	$ 4,434.00	$ 4,434.00	$0	$3,900	$35	5	7	7	Good	Unlikely	Moderate	M	2						2026	2046	5
00170		MITCHELL LANE	MOORE DRIVE	EAST END TURNAROUND		Gravel	N	540	6	3240	2003	20	3	10	17	$ 21,768.00	$ 21,768.00	$0	$18,900	$35	5	5	5	Average	Possible	Moderate	M	2						2030	2050	9
00160		MOORE DRIVE	HWY 124	MITCHELL LANE		Gravel	N	300	6	1800	2003	20	3	10	17	$ 12,093.00	$ 12,093.00	$0	$10,500	$35	5	5	5	Average	Possible	Moderate	M	2						2026	2046	5
00350		NELSON CLELLAND ROAD	HWY 520	EAST END		Gravel	N	3600	5	18000	2003	27	10	10	17	$ 145,121.00	$ 145,121.00	$0	$126,000	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00610		NESBITTS ROAD	CLEAR LAKE ROAD	NORTH END	Yes	Gravel	N	300	4	1200	2003	27	10	8	17	$ 12,093.00	$ 12,093	$0	$10,500	$35	3	4	4	Poor	Likely	Minor	M	2								
00560		PARKER BAY ROAD	HWY 520	SHAKER LANE		Gravel	N	1400	4.7	6580	2003	27	10	8	17	$ 56,436.00	$ 56,436	$0	$49,000	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00110		PUGSLEY ROAD	FARLEY'S ROAD	EAST END		Gravel	N	220	5	1100	2003	20	3	10	17	$ 8,869.00	$ 8,869.00	$0	$7,700	$35	5	5	5	Average	Possible	Moderate	M	2						2026	2046	5
00310		QUINN ROAD	EAST TOWNLINE ROAD	COOPER LANE		Gravel	N	400	5	2000	2003	20	3	10	17	$ 16,125.00	$ 16,125.00	$0	$14,000	$35	5	5	5	Average	Possible	Moderate	M	2						2022	2027	1
00230		SACKVILLE STREET	HWY 124	NORTH END		Gravel	N	80	5.3	424	2003	20	3	10	17	$ 3,225.00	$ 3,225.00	$0	$2,800	$35	5	5	5	Average	Possible	Moderate	M	2						2026	2046	5
00780		SHAWANAGA LAKE ROAD	LORIMER LAKE ROAD	GRANITE LANE		Gravel	N	2130	6	12780	2003	27	10	8	17	$ 115,492.77	$ 115,492.77	$0	$74,600	$35	3	4	4	Poor	Likely	Minor	M	2						2024	2051	3
00790		SHAWANAGA LAKE ROAD	GRANITE LANE	LAND END ROAD		Gravel	N	3910	5	19550	2003	27	10	8	17	$ 157,618.00	$ 157,618.00	$0	$136,900	$35	3	4	4	Poor	Likely	Minor	M	2						2025	2052	4
00810		SWORD'S ROAD	HYW 124	End		Gravel	N	660	6	3960	2003	27	10	10	17	$ 17,000.00	$ 17,000.00	$0	$23,100	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00460		WAHWASHKESH ROAD	HWY 520	CHAMBERS DRIVE		Gravel	N	2100	6	12600	2003	20	3	10	17	$ 6,438.99	$6,439	$0	$73,500	$35	5	5	5	Average	Possible	Moderate	M	2						2022	2027	1
00490		WAHWASHKESH ROAD	CHAMBERS DRIVE	GORHAM ROAD		Gravel	N	350	6	2100	2003	20	3	10	17	$ 14,109.00	$ 14,109	$0	$12,300	$35	5	5	5	Average	Possible	Moderate	M	2						2022	2027	1
00510		WAHWASHKESH ROAD	GORHAM ROAD	AMORAK TRAIL		Gravel	N	1310	6	7860	2003	20	3	10	17	$ 52,808.00	$ 52,808	$0	$45,900	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00530		WAHWASHKESH ROAD	AMORAK TRAIL	INDIAN NARROWS ROAD		Gravel	N	3900	6	23400	2003	20	3	10	17	$ 19,212.00	$ 19,212	$0	$136,500	$35	5	5	5	Average	Possible	Moderate	M	2						2022	2027	1
00540		WAHWASHKESH ROAD	INDIAN NARROWS ROAD	WEST END	Yes	Gravel	N	1060	4	4240	2003	27	10	10	17	$ 42,730.00	$ 42,730	$0	$37,100	$35	4	5	5	Average	Possible	Moderate	M	2								
00370		WHITESTONE LAKE ROAD	TEE INTERSECTION	EAST END TURNAROUND		Gravel	N	1100	6	6600	2003	20	3	10	17	$ 87,150.73	$ 87,150.73	$0	$38,500	$35	5	5	5	Average	Possible	Moderate	M	2						2021	2026	0
00240		WILLIAM STREET	HWY 124	SOUTH END		Gravel	N	100	4.6	460	2003	27	10	10	17	$ 4,031.00	$ 4,031.00	$0	$3,500	$35	4	5	5	Average	Possible	Moderate	M	2						2026	2053	5
00300		WIN BUR LANE	EAST TOWNLINE ROAD	End of Win Bur Lane		Gravel	N	1430	5	7150	2003	27	10	10	17	$ 57,645.00	$ 57,645.00	$0	$50,050	$35	4	5	5	Average	Possible	Moderate	M	2						2023	2026	2
00690		1/2 GREY OWL ROAD	HWY 124	SHAKELL ROAD		Surface Treated	Y	100	7	700	2004	16	0	10	16	$ 2,540.00	$ 2,540.00	$0	$10,500	$105	6	7	7	Good	Unlikely	Moderate	M	2	$2,700	2023	0			2031	2047	10
00050		BALSAM ROAD	CANNING ROAD	HWY 124		Surface Treated	N	1170	7	8190	2004	16	0	16	16	$ 162,536.36	$65,876	$96,660	$31,600	$27	0	10	10	Very Good	Rare	Moderate	L	1	$32,000	2021	0			2037	2053	16
00640		BUNNY TRAIL	HWY 520	SNAKESKIN TRAIL		Surface Treated	N	2700	7	18900	2004	16	0	16	16	$ 151,317.41	$28,372	$122,945	$283,500	$105	0	10	10	Very Good	Rare	Moderate	L	1	$76,840	2021	0			2036	2052	15
00650		BUNNY TRAIL	SNAKESKIN TRAIL	RAILWAY CROSSING		Surface Treated	N	1500	7	10500	2000	16	0	16	20	$ 105,000.00	$ 105,000	$0	$157,500	$105	0	10	10	Very Good	Rare	Moderate	L	1						2028	2044	7
00660		BUNNY TRAIL	RAILWAY CROSSING	BOAKVIEW ROAD		Surface Treated	N	6500	7	45500	2000	16	0	12	20	$ 701,639.19	$199,160	$502,480	$682,500	$105	8	8	8	Good	Unlikely	Moderate	M	2	$200,500	2023				2033	2049	12
00680		BUNNY TRAIL	BOAKVIEW ROAD	MCDOUGALL BOUNDARY		Surface Treated	N	2040	7	14280	2010	16	6	10	10	$ 430,371.67	$ 430,371.67	$0	$214,200	$105	6	7	7	Good	Unlikely	Moderate	M	2						2031	2047	10
00060		CANNING ROAD	BALSAM ROAD	KARBEHUWE LN		Surface Treated	N	1590	7	11130	2004	16	0	16	16	$ 200,082.01	$188,265	$11,817	$43,000	$27	0	10	10	Very Good	Rare	Moderate	L	1	$45,000	2021	0			2037	2053	16
00070		CANNING ROAD	KARBEHUWE LN	FOX LAIR WEST LEG		Surface Treated	N	1100	6	6600	2004	16	0	12	16	$ 55,876.00	$ 55,876.00	$0	$38,500	$35	8	8	8	Good	Unlikely	Moderate	M	2	$38,500	2021	0	$43,000	2022	2037	2053	16
00090		FARLEY'S ROAD	HWY 124	DOBSON ROAD		Surface Treated	N	1000	6	6000	2004	16	0	10	16	$ 134,518.15	123,288.65	$11,230	$35,000	$35	6	7	7	Good	Unlikely	Moderate	M	2	$27,000	2022	10			2032	2048	11
00380		MAPLE ISLAND ROAD	HWY 520	SHADY MAPLE TRAIL		Surface Treated	N	1300	6.5	8450	2004	16	0	7	16	$ 66,036.00	$ 66,036.00	$0	$136,500	$105	4	5	5	Average	Possible	Moderate	M	2	$35,100	2023				2022	2038	1
00710		SHAKELLROAD	GREY OWL ROAD	EAST END CULDESAC		Surface Treated	N	800	7	5600	2004	16	0	7	16	$ 40,637.00	$ 40,637.00	$0	$84,000	$105	4	5	5	Average	Possible	Moderate	M	2						2023	2039	2
00360		WHITESTONE LAKE ROAD	HWY 520	WHITESTONE LAKE RESORT		Surface Treated	N	1800	6.5	11700	2004	16	0	7	16	$ 60,956.00	$ 60,956.00	$0	$189,000	$105	4	5	5	Average	Possible	Moderate	M	2	$162,420	2021	0	$48,600	2022	2037	2053	16
00210		YORK STREET	HWY 124	LAND FILL SITE		Surface Treated	N	530	7	3710	2013	16	9	10	7	$ 65,643.43	$53,335	$12,308	$14,400	$27	6	7	7	Good	Unlikely	Moderate	M	2	$14,400	2022	0			2029	2045	8

Whitestone
Road Base Inventory

Road Needs ID	Agency ID	Road Name	From	To	Seasonal Road	Surface Material	Boundary	Length (m)	Install Year	Useful Life	Remaining Useful Life	Road Needs Remaining Life	Age	Historic Cost	2019 Accumulated Amortization System	2019 Net Book Value System	2020 Replacement Cost/Section
								105,670		75	7	5	102	$4,345,392	$2,984,901	$1,360,491	$19,548,950
00200		CHURCH STREET	HWY 124	SOUTH END		Asphalt	N	160	1900	75	0	0	120	$ 59,300.00	$ 9,726.57	$ 49,573.43	$ 29,600
00600		CLEAR LAKE ROAD	START OF SEASONAL ROAD	HUNT CAMP	Yes	Earth	N	1070	1900	75	0	0	120	$ 4,644.00	$ 4,644.00	$ -	$ 197,950
00410		MAPLE ISLAND ROAD	BRIDGE	EAST END	Yes	Earth	N	1760	1900	75	0	0	120	$ 91,229.00	$ 91,229.00	$ -	$ 325,600
00700		1/2 GREY OWL ROAD	SHAKELL ROAD	BRIDGE		Gravel	Y	1660	1900	75	0	0	120	$ 22,002.00	$ 22,002.00	$ -	$ 307,100
00320		1/2 LOT 30 AND 31 SIDEROAD	HWY 124	BRIDGE		Gravel	N	2200	1900	75	0	0	120	$ 29,159.00	$ 29,159.00	$ -	$ 407,000
00520		AMORAK TRAIL	WAHWASHKESH ROAD	1KM WEST OF WAHWASHKESH ROAD		Gravel	N	1000	1900	75	0	0	120	$ 26,508.00	$ 26,508.00	$ -	$ 185,000
00570.1		AULDS ROAD	HWY 520	BEAR HUG LANE		Gravel	N	1820	1900	75	0	0	120	$ 50,418.92	$ 50,418.92	$ -	$ 336,700
00570.2		AULDS ROAD	BEAR HUG LANE	MCLELLAN LANE		Gravel	N	400	1900	75	0	0	120	$ 11,081.08	$ 11,081.08	$ -	$ 74,000
00010		BALSAM ROAD	MCKELLAR TOWNLINE	IRWIN'S ROAD		Gravel	N	3440	1900	75	0	0	120	$ 91,189.00	$ 91,189.00	$ -	$ 636,400
00030		BALSAM ROAD	IRWIN'S ROAD	JACKSON LANE		Gravel	N	1950	1900	75	0	0	120	$ 51,691.00	$ 51,691.00	$ -	$ 360,750
00040		BALSAM ROAD	JACKSON LANE	CANNING ROAD		Gravel	N	1960	1900	75	0	0	120	$ 51,957.00	$ 51,957.00	$ -	$ 362,600
00770		BEAH ROAD	LORIMER LAKE ROAD	NORTH END		Gravel	N	410	1970	75	25	10	50	$ 36,810.00	$ 24,294.60	$ 12,515.40	$ 75,850
00080		BEARS PAW	CANNING ROAD	BEARS PAW		Gravel	N	630	1968	75	23	8	52	$ 56,997.96	$ 36,302.56	$ 20,695.40	$ 116,550
00670		BOAKVIEW ROAD	BUNNY TRAIL	RAILWAY CROSSING	Yes	Gravel	N	860	1900	75	0	0	120	$ 22,797.00	$ 22,797.00	$ -	$ 159,100
00630		BOAT LAUNCH	HWY 520	LAKE	Yes	Gravel	N	230	1900	75	0	0	120	$ 6,097.00	$ 6,097.00	$ -	$ 42,550
00180		BOB CRESCENT	HWY 124	HWY 124		Gravel	N	260	1900	75	0	0	120	$ 6,892.00	$ 6,892.00	$ -	$ 48,100
00250		BOUNDARY SPUR ROAD	HWY 124	EAST TOWNLINE ROAD		Gravel	N	500	1900	75	0	0	120	$ 13,254.00	$ 13,254.00	$ -	$ 92,500
00260		BOUNDARY SPUR ROAD	EAST TOWNLINE ROAD	HWY 124		Gravel	N	960	1900	75	0	0	120	$ 25,448.00	$ 25,448.00	$ -	$ 177,600
00220		BUTLER STREET	HWY 124	NORTH END		Gravel	N	110	1900	75	0	0	120	$ 2,916.00	$ 2,916.00	$ -	$ 20,350
00470		CHAMBERS DRIVE	WAHWASHKESH ROAD	450M EAST OF WAHWASHKESH ROAD		Gravel	N	450	1900	75	0	0	120	$ 11,929.00	$ 11,929.00	$ -	$ 83,250
00480		CHAMBERS DRIVE	450M EAST OF WAHWASHKESH ROAD	2100 m East of WAHWASHKESH ROAD	Yes	Gravel	N	1650	1900	75	0	0	120	$ 13,254.00	$ 13,254.00	$ -	$ 305,250
00330		CHUR LEE ROAD	HWY 520	2.2KM WEST OF HWY 520		Gravel	N	2200	1930	75	0	0	90	$ 88,603.00	$ 88,603.00	$ -	$ 407,000
00580		CLEAR LAKE ROAD	END OF HWY 520 - 300M W RAILWAY TRACKS	1.9KM WEST OF END OF HWY 520		Gravel	N	1900	1900	75	0	0	120	$ 50,366.00	$ 50,366.00	$ -	$ 351,500
00590		CLEAR LAKE ROAD	1.9KM WEST OF END OF HWY 520	START OF SEASONAL ROAD		Gravel	N	1500	1900	75	0	0	120	$ 39,763.00	$ 39,763.00	$ -	$ 277,500
00720		CROWN RETREATS ROAD	HWY 124	EAST END		Gravel	N	1650	1960	75	15	0	60	$ 113,241.00	$ 89,837.86	$ 23,403.14	$ 305,250
00150		DOBSON ROAD	FARLEY'S ROAD	WEST END		Gravel	N	1000	1900	75	0	0	120	$ 26,508.00	$ 26,508.00	$ -	$ 185,000
00100		DUNCHURCH ESTATE ROAD	HWY 124	MAILBOXES		Gravel	N	30	1965	75	20	5	55	$ 2,231.00	$ 1,621.23	$ 609.77	$ 5,550
00270		EAST TOWNLINE ROAD	HWY 124	BOUNDARY SPUR ROAD		Gravel	N	380	1900	75	0	0	120	$ 10,073.00	$ 10,073.00	$ -	$ 70,300
00280		EAST TOWNLINE ROAD	BOUNDARY SPUR ROAD	TAHINCA ROAD		Gravel	N	1200	1900	75	0	0	120	$ 31,810.00	$ 31,810.00	$ -	$ 222,000
00290		EAST TOWNLINE ROAD	TAHINCA ROAD	WIN BUR LANE		Gravel	N	2400	1900	75	0	0	120	$ 33,931.00	$ 33,931.00	$ -	$ 444,000
00550		EDGWOOD ROAD	HWY 520	NONA LANE		Gravel	N	1490	1900	75	0	0	120	$ 39,498.00	$ 39,498.00	$ -	$ 275,650
00120		FARLEY'S ROAD	DOBSON ROAD	PINE GROVE		Gravel	N	1260	1900	75	0	0	120	$ 33,401.00	$ 33,401.00	$ -	$ 233,100
00130		FARLEY'S ROAD	PINE GROVE	BRIDGE		Gravel	N	900	1900	75	0	0	120	$ 23,858.00	$ 23,858.00	$ -	$ 166,500
00140		FARLEY'S ROAD	BRIDGE	WEST END		Gravel	N	3120	1950	75	5	0	70	$ 172,054.00	$ 159,436.67	$ 12,617.33	$ 577,200
00340		GIBSON BAY ROAD	HWY 520	NICKEL COVE ROAD		Gravel	N	500	1930	75	0	0	90	$ 20,137.00	$ 20,137.00	$ -	$ 92,500
00500		GORHAM ROAD	WAHWASHKESH ROAD	SOUTH END		Gravel	N	120	1900	75	0	0	120	$ 3,181.00	$ 3,181.00	$ -	$ 22,200
00620		HAYWARDS ROAD	HWY 520	SAW CUT RUN		Gravel	N	250	1900	75	0	0	120	$ 6,627.00	$ 6,627.00	$ -	$ 46,250
00020		IRWIN'S ROAD	BALSAM ROAD	WEST END		Gravel	N	400	1900	75	0	0	120	$ 10,603.00	$ 10,603.00	$ -	$ 74,000
00450		LABRASH LAKE ROAD	LADDS ROAD	WEST END TURNAROUND		Gravel	N	800	1900	75	0	0	120	$ 21,207.00	$ 21,207.00	$ -	$ 148,000
00420		LADDS ROAD	MAPLE ISLAND ROAD	LABRASH LAKE ROAD		Gravel	N	700	1900	75	0	0	120	$ 18,556.00	$ 18,556.00	$ -	$ 129,500
00430		LADDS ROAD	LABRASH LAKE ROAD	BRIDGE		Gravel	N	1600	1900	75	0	0	120	$ 42,413.00	$ 42,413.00	$ -	$ 296,000
00440		LADDS ROAD	BRIDGE	WEST END	Yes	Gravel	N	200	1900	75	0	0	120	$ 5,302.00	$ 5,302.00	$ -	$ 37,000
00800		LAUCK'S ROAD	BALSAM ROAD	LAKE		Gravel	N	250	1900	75	0	0	120			$ -	$ 46,250
00730		LORIMER LAKE ROAD	HWY 124	SHAWANAGA LAKE ROAD		Gravel	N	1150	1900	75	0	0	120	$ 30,485.00	$ 30,485.00	$ -	$ 212,750
00740		LORIMER LAKE ROAD	SHAWANAGA LAKE ROAD	GREEN LANE		Gravel	N	2440	1900	75	0	0	120	$ 64,681.00	$ 64,681.00	$ -	$ 451,400
00750		LORIMER LAKE ROAD	GREEN LANE	WESTVIEW ROAD		Gravel	N	500	1900	75	0	0	120	$ 13,254.00	$ 13,254.00	$ -	$ 92,500
00760		LORIMER LAKE ROAD	WESTVIEW ROAD	MCDOUGALL BOUNDARY		Gravel	N	3710	1900	75	0	0	120	$ 98,346.00	$ 98,346.00	$ -	$ 686,350
00390		MAPLE ISLAND ROAD	SHADY MAPLE TRAIL	LADDS ROAD		Gravel	N	1150	1900	75	0	0	120	$ 30,485.00	$ 30,485.00	$ -	$ 212,750
00400		MAPLE ISLAND ROAD	LADDS ROAD	BRIDGE		Gravel	N	2260	1900	75	0	0	120	$ 59,909.00	$ 59,909.00	$ -	$ 418,100
00190		MARINA DRIVE	HWY 124	NORTH END		Gravel	N	110	1900	75	0	0	120	$ 2,916.00	$ 2,916.00	$ -	$ 20,350

Whitestone
Road Base Inventory

Road Needs ID	Agency ID	Road Name	From	To	Seasonal Road	Surface Material	Boundary	Length (m)	Install Year	Useful Life	Remaining Useful Life	Road Needs Remaining Life	Age	Historic Cost	2019 Accumulated Amortization System	2019 Net Book Value System	2020 Replacement Cost/Section
00170		MITCHELL LANE	MOORE DRIVE	EAST END TURNAROUND		Gravel	N	540	1960	75	15	0	60	$ 37,061.00	$ 29,401.77	$ 7,659.23	$ 99,900
00160		MOORE DRIVE	HWY 124	MITCHELL LANE		Gravel	N	300	1900	75	0	0	120	$ 7,953.00	$ 7,953.00	$ -	$ 55,500
00350		NELSON CLELLAND ROAD	HWY 520	EAST END		Gravel	N	3600	1900	75	0	0	120	$ 95,430.00	$ 95,430.00	$ -	$ 666,000
00610		NESBITTS ROAD	CLEAR LAKE ROAD	NORTH END	Yes	Gravel	N	300	1900	75	0	0	120	$ 7,953.00	$ 7,953.00	$ -	$ 55,500
00560		PARKER BAY ROAD	HWY 520	SHAKER LANE		Gravel	N	1400	1900	75	0	0	120	$ 37,112.00	$ 37,112.00	$ -	$ 259,000
00110		PUGSLEY ROAD	FARLEY'S ROAD	EAST END		Gravel	N	220	1900	75	0	0	120	$ 5,832.00	$ 5,832.00	$ -	$ 40,700
00310		QUINN ROAD	EAST TOWNLINE ROAD	COOPER LANE		Gravel	Y	400	1900	75	0	0	120	$ 22,058.00	$ 22,058.00	$ -	$ 74,000
00230		SACKVILLE STREET	HWY 124	NORTH END		Gravel	N	80	1900	75	0	0	120	$ 2,121.00	$ 2,121.00	$ -	$ 14,800
00780		SHAWANAGA LAKE ROAD	LORIMER LAKE ROAD	GRANITE LANE		Gravel	N	2130	1900	75	0	0	120	$ 56,463.00	$ 56,463.00	$ -	$ 394,050
00790		SHAWANAGA LAKE ROAD	GRANITE LANE	LAND END ROAD		Gravel	N	3910	1900	75	0	0	120	$ 103,648.00	$ 103,648.00	$ -	$ 723,350
00810		SWORD'S ROAD	HYW 124	End		Gravel	N	660	1900	75	0	0	120			$ -	$ 122,100
00460		WAHWASHKESH ROAD	HWY 520	CHAMBERS DRIVE		Gravel	N	2100	1900	75	0	0	120	$ 90,527.92	$ 62,238.91	$ 28,289.01	$ 388,500
00490		WAHWASHKESH ROAD	CHAMBERS DRIVE	GORHAM ROAD		Gravel	N	350	1900	75	0	0	120	$ 54,779.24	$ 15,027.11	$ 39,752.13	$ 64,750
00510		WAHWASHKESH ROAD	GORHAM ROAD	AMORAK TRAIL		Gravel	N	1310	1900	75	0	0	120	$ 34,726.00	$ 34,726.00	$ -	$ 242,350
00530		WAHWASHKESH ROAD	AMORAK TRAIL	INDIAN NARROWS ROAD		Gravel	N	3900	1900	75	0	0	120	$ 103,383.00	$ 103,383.00	$ -	$ 721,500
00540		WAHWASHKESH ROAD	INDIAN NARROWS ROAD	WEST END	Yes	Gravel	N	1060	1900	75	0	0	120	$ 28,099.00	$ 28,099.00	$ -	$ 196,100
00370		WHITESTONE LAKE ROAD	TEE INTERSECTION	EAST END TURNAROUND		Gravel	N	1100	1950	75	5	0	70	$ 92,645.00	$ 85,851.73	$ 6,793.27	$ 203,500
00240		WILLIAM STREET	HWY 124	SOUTH END		Gravel	N	100	1900	75	0	0	120	$ 2,651.00	$ 2,651.00	$ -	$ 18,500
00300		WIN BUR LANE		End of Win Bur Lane		Gravel	N	1430	1960	75	15	0	60	$ 98,142.00	$ 77,859.32	$ 20,282.68	$ 264,550
00690		1/2 GREY OWL ROAD	HWY 124	SHAKELL ROAD		Surface Treated	Y	100	1900	75	0	0	120	$ 1,443.00	$ 1,443.00	$ -	$ 18,500
00050		BALSAM ROAD	CANNING ROAD	HWY 124		Surface Treated	N	1170	1900	75	0	0	120	$ 33,772.00	$ 33,772.00	$ -	$ 216,450
00640		BUNNY TRAIL	HWY 520	SNAKESKIN TRAIL		Surface Treated	N	2700	1900	75	0	0	120	$ 77,935.00	$ 77,935.00	$ -	$ 499,500
00650		BUNNY TRAIL	SNAKESKIN TRAIL	RAILWAY CROSSING		Surface Treated	N	1500	2009	75	64	49	11	$ 142,005.07	$ 19,880.70	$ 122,124.37	$ 277,500
00660		BUNNY TRAIL	RAILWAY CROSSING	BOAKVIEW ROAD		Surface Treated	N	6500	2009	75	64	49	11	$ 615,355.28	$ 86,149.77	$ 529,205.51	$ 1,202,500
00680		BUNNY TRAIL	BOAKVIEW ROAD	MCDOUGALL BOUNDARY		Surface Treated	N	2040	2009	75	64	49	11	$ 193,126.89	$ 27,037.15	$ 166,089.74	$ 377,400
00060		CANNING ROAD	BALSAM ROAD	KARBEHUWE LN		Surface Treated	N	1590	1940	75	0	0	80	$ 61,088.00	$ 61,088.00	$ -	$ 294,150
00070		CANNING ROAD	KARBEHUWE LN	FOX LAIR WEST LEG		Surface Treated	N	1100	1940	75	0	0	80	$ 42,262.00	$ 42,262.00	$ -	$ 203,500
00090		FARLEY'S ROAD	HWY 124	DOBSON ROAD		Surface Treated	N	1000	1900	75	0	0	120	$ 28,865.00	$ 28,865.00	$ -	$ 185,000
00380		MAPLE ISLAND ROAD	HWY 520	SHADY MAPLE TRAIL		Surface Treated	N	1300	1900	75	0	0	120	$ 37,524.00	$ 37,524.00	$ -	$ 240,500
00710		SHAKELLROAD	GREY OWL ROAD	EAST END CULDESAC		Surface Treated	N	800	2004	75	59	44	16	$ 402,483.00	$ 81,602.35	$ 320,880.65	$ 148,000
00360		WHITESTONE LAKE ROAD	HWY 520	WHITESTONE LAKE RESORT		Surface Treated	N	1800	1900	75	0	0	120	$ 34,638.00	$ 34,638.00	$ -	$ 333,000
00210		YORK STREET	HWY 124	LAND FILL SITE		Surface Treated	N	530	1900	75	0	0	120	$ 15,298.00	$ 15,298.00	$ -	$ 98,050

Whitestone
Bridge Inventory - tax funded

FIXED ASSET ID	OSIM Bridge No	Subtype	Asset Name	Structure Type	Load Posting L3t	Load Posting L2t	Load Posting L1t	No of Spans	Deck Length (m)	Deck Width (m)	Install Year	TCA Useful Life	OSIM Schedule Proposed Useful Life	Remaining Useful Life (OSIM)	Age	Historic Cost	2019 Accumulated Amortization	2019 Net Book Value	Replacement Cost 2021	Condition Based On OSIM Useful Life	Inspection Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)
													64	32	29	$ 2,671,869	$ 889,605	$ 1,782,264	$ 8,137,000			6.8		
RD D01		Dam	WahWaskKesh Dam								2008	60	100	48	12	$625,939	$119,972	$505,968	$750,000	5	6.5	7	Good	Unlikely
B001	2	Bridge	Maple Island Bridge - 1.1 km N of Hwy 520	Concrete Slab on Steel Girder	0	0	0	1	32.3	5.6	2000	60	75	55	20	332,614	$106,005	$226,609	$1,491,000	7	7.5	8	Good	Unlikely
B003	3	Bridge	Maple Island Bridge - 6.5 km N of Hwy 520	Timber Deck on Timber Girder	10	18	25	1	11.5	4.9	1960	60	50	0	60	101,000	$100,158	$842	$437,000	0	4.5	5	Average	Possible
B004	4	Bridge	Ladd's Road Bridge	Timber Deck on Steel Girder	8	14	19	1	17	4.2	1995	60	50	25	25	128,000	$52,267	$75,733	$724,000	5	6.5	7	Good	Unlikely
B005	5	Bridge	13th & 14th Concession Bridge	Timber Deck on Steel Girder	0	0	0	1	21.3	5.1	1975	60	50	5	45	196,000	$145,367	$50,633	$982,000	1	5.5	6	Average	Possible
B006	6	Bridge	30th & 31st Concession Bridge	Timber Deck on Timber Girder	0	0	0	1	6.1	4.7	1970	60	50	0	50	26,000	$21,450	$4,550	$311,000	0	4.5	5	Average	Possible
B007	7	Bridge	East Townline Bridge	Timber Deck on Steel Girder	0	0	0	1	8.5	4.8	1970	60	50	0	50	109,875	$64,551	$45,324	$490,000	0	6.5	7	Good	Unlikely
B008	8	Bridge	Farley's Road Bridge	Prefab Superstructure - Steel Girder	25	45	0	1	12.5	4.7	2009	60	75	64	11	250,920	$43,911	$207,009	$627,000	9	8.5	9	Very Good	Rare
B009	9	Bridge	Auld's Road Bridge	Timber Deck on Timber Girder	0	0	0	1	7.5	4.9	1983	60	50	13	37	67,000	$40,758	$26,242	$348,000	3	5.0	5	Average	Possible
C001	C1	Culvert	Maple Island CSP	Corrugated Steel Pipe Round	0	0	0	1	7.6	39	1994	60	50	24	26	267,000	$113,475	$153,525	$843,000	5	7.0	7	Good	Unlikely
C010	C10	Culvert	Bunny Trail CSP	Corrugated Steel Pipe Arch	0	0	0	1	5.4	16.5	2019	60	75	74	1	$249,504	$2,083	$247,420	$468,000	10	9.5	10	Very Good	Rare
B011	C11	Culvert	Boakview Bridge	Epoxy coated Culvert	0	0	0	1	2	32	2021	60	100	101	0	85,000	$0	$85,000	$85,000	10	10.0	10	Very Good	Rare
C012	C12	Culvert	Shawanaga Road CSP	Corrugated Steel Pipe Arch	0	0	0	1	3.8	19.5	1960	60	50	0	60	$67,000	$66,442	$558	$406,000	0	6.5	7	Good	Unlikely
		Culvert	Bunny Trail CN Crossing								2013	60	75	68	7	$40,927	$4,434	$36,493	$45,000	9		9	Very Good	Rare
		Culvert	Balsam Road Culvert								2014	60	75	69	6	$125,091	$8,733	$116,358	$130,000	9		9	Very Good	Rare

Whitestone
Bridge Inventory - tax funded

FIXED ASSET ID	OSIM Bridge No	Subtype	Asset Name	Consequence of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Current Levels of Service Replacement/Improvement Year Based on Current Levels: Revised Levels Service Replacement Year	Current Levels of Service Replacement/Improvement Year Based on Current Levels: Year Replacement Applying Risk Score	Proposed Rehabilitation Cost (2021 $)	Priority (based on OSIM Inspections)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better then expected for age	Expected Levels of Service Replacement/Improvement Year Based on Expected: Revised Levels Service With Risk Replacement Year	Expected Levels of Service Replacement/Improvement Year Based on Expected: Revised Remaining Useful Life
						2					$ 1,234,500						
RD D01		Dam	WahWaskKesh Dam	Major	M	2	2098	10	2108	2108					5	2113	92
B001	2	Bridge	Maple Island Bridge - 1.1 km N of Hwy 520	Major	M	2	2068	10	2076	2076	$18,000	8	2021	0	0	2076	55
B003	3	Bridge	Maple Island Bridge - 6.5 km N of Hwy 520	Major	H	3	2005	10	2010	2021	$237,000	2	2024	40	30	2064	43
B004	4	Bridge	Ladd's Road Bridge	Major	M	2	2040	10	2045	2045	$265,000	3	2024	40	5	2064	43
B005	5	Bridge	13th & 14th Concession Bridge	Major	H	3	2020	10	2025	2020	$123,000	4	2025	40	30	2065	44
B006	6	Bridge	30th & 31st Concession Bridge	Major	H	3	2015	10	2020	2021	$91,500	6	2026	40	30	2066	45
B007	7	Bridge	East Townline Bridge	Major	M	2	2015	10	2020	2021	$27,000	7	2027	40	50	2046	25
B008	8	Bridge	Farley's Road Bridge	Major	M	2	2077	10	2085	2085	$76,000	9	2027	0	0	2085	64
B009	9	Bridge	Auld's Road Bridge	Major	H	3	2028	10	2033	2028	$200,000	5	2023	40	10	2063	42
C001	C1	Culvert	Maple Island CSP	Major	M	2	2039	10	2044	2044	$76,000	1	2022	0	10	2049	28
C010	C10	Culvert	Bunny Trail CSP	Major	M	2	2087	10	2095	2095	$18,000	3	2025	0	0	2095	74
B011	C11	Culvert	Boakview Bridge	Major	M	2	2111	10	2121	2121		1			0	2121	100
C012	C12	Culvert	Shawanaga Road CSP	Major	M	2	2005	10	2010	2021	$103,000	2	2026	0	50	2046	25
		Culvert	Bunny Trail CN Crossing	Major	M	2	2081	10	2089	2089					0	2089	68
		Culvert	Balsam Road Culvert	Major	M	2	2082	10	2090	2090					0	2090	69

Whitestone
Storm - Catch Basin Inventory - tax funded

Fixed Asset #	Subtype	Asset Name	Water Type	Easting (m)	Northing (m)	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2020 Accumulated Amortization System	2020 Net Book Value System	Replacement Cost (2021)	Condition Based On Useful Life	Staff Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure
							75	**56**	**23**	**$ 19,600**	**$ 5,824**	**$ 13,776**	**$ 30,000**			**7.6**				
1a	Storm - Catch Basin	Hagerman/Dunchurch Community Centre	Storm			1990	75	49	30	$3,500	$1,400	$2,100	$6,000	7	7	7	Good	Unlikely	Minor	L
1b	Storm - Catch Basin	Hagerman/Dunchurch Dun Dome Rink	Storm			1990	75	49	30	$3,500	$1,400	$2,100	$6,000	7	7	7	Good	Unlikely	Minor	L
2a	Storm - Catch Basin	Whitestone Nursing Station South Catch Basin	Storm			2002	75	61	18	$4,200	$1,008	$3,192	$6,000	8	8	8	Good	Unlikely	Minor	L
2b	Storm - Catch Basin	Whitestone Nursing Station North Catch Basin	Storm			2002	75	61	18	$4,200	$1,008	$3,192	$6,000	8	8	8	Good	Unlikely	Minor	L
2c	Storm - Catch Basin	Whitestone Nursing Station South Catch Basin	Storm			2002	75	61	18	$4,200	$1,008	$3,192	$6,000	8	8	8	Good	Unlikely	Minor	L

Whitestone
Storm - Catch Basin Inventory - tax funded

				Current Levels of Service								Expected Levels of Service					
				Replacement/Improvement Year Based on Current Levels Service								Replacement/Improvement Year Based on Expected Levels Service					
Fixed Asset #	Subtype	Asset Name	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year		Rehabilitation Year	Rehabilitation Cost (2021)	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life
			1								$ -						
1a	Storm - Catch Basin	Hagerman/Dunchurch Community Centre	1	2058	10	2066	2066	2142					0	2066	2066	2141	45
1b	Storm - Catch Basin	Hagerman/Dunchurch Dun Dome Rink	1	2058	10	2066	2066	2142					0	2066	2066	2141	45
2a	Storm - Catch Basin	Whitestone Nursing Station South Catch Basin	1	2070	10	2078	2078	2154					0	2078	2078	2153	57
2b	Storm - Catch Basin	Whitestone Nursing Station North Catch Basin	1	2070	10	2078	2078	2154					0	2078	2078	2153	57
2c	Storm - Catch Basin	Whitestone Nursing Station South Catch Basin	1	2070	10	2078	2078	2154					0	2078	2078	2153	57

Whitestone
Storm - Gravity Main Inventory - tax funded

Fixed Asset #	Subtype	Asset Name	Diameter (mm)	Length (m)	Material	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2020 Accumulated Amortization System	2020 Net Book Value System	Replacement Cost (2021)	Condition Based On Useful Life	Condition from Municipality	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure
				95			**75**	**49**	**25**	**$23,500**	**$7,800**	**$15,700**	**$52,500**			**6**				
1a	Gravity Main	Storm Drain Community Centre property	300	50	PVC	1990	75	44	30	$10,000	$4,000	$6,000	$25,000	6		6	Average	Possible	Minor	M
1b	Gravity Main	Storm Drain DunDome Pavilion	300	15	PVC	1990	75	44	30	$3,500	$1,400	$2,100	$7,500	6		6	Average	Possible	Minor	M
2a	Gravity Main	Storm Drain Nursing Station Parking Lot	300	20	PVC	2002	75	56	18	$5,000	$1,200	$3,800	$10,000	7		7	Good	Unlikely	Minor	L
2b	Gravity Main	Storm Drain Fire Hall 1 Parking Lot	300	5	PVC	2002	75	56	18	$2,500	$600	$1,900	$5,000	7		7	Good	Unlikely	Minor	L
2c	Gravity Main	Storm Drain Municipal Building Parking Lot	300	5	PVC	2002	75	56	18	$2,500	$600	$1,900	$5,000	7		7	Good	Unlikely	Minor	L

Whitestone
Storm - Gravity Main Inventory - tax funded

						Current Levels of Service Replacement/Improvement Year Based on Current Levels							Expected Levels of Service + Town Input Replacement/Improvement Year Based on Expected Levels Service		
Fixed Asset #	Subtype	Asset Name	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score		Proposed Rehabilitation Cost (2015 $)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better then expected for age	Revised Levels Service Plus Risk Replacement Year	Subsequent Replacement Year	Revised Remaining Useful Life
			2												
1a	Gravity Main	Storm Drain Community Centre property	2	2058	10	2066	2066					0	2066	2141	45
1b	Gravity Main	Storm Drain DunDome Pavilion	2	2058	10	2066	2066					0	2066	2141	45
2a	Gravity Main	Storm Drain Nursing Station Parking Lot	1	2070	10	2078	2078					0	2078	2153	57
2b	Gravity Main	Storm Drain Fire Hall 1 Parking Lot	1	2070	10	2078	2078					0	2078	2153	57
2c	Gravity Main	Storm Drain Municipal Building Parking Lot	1	2070	10	2078	2078					0	2078	2153	57

Whitestone

Vehicles Inventory - tax funded

Fixed Asset ID	Department	Asset Name - Vehicles	Asset Type	Install Year	Useful Life (accounting)	Useful Life (real)	Remaining Useful Life	Age	Historic Cost	2019 Accumulated Amortization	2019 Net Book Value	Replacement Cost (2021)	Condition Based On Useful Life	Staff Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure
						18	**9**	**9**	**$ 2,037,887**	**$ 971,895**	**$ 1,065,992**	**$ 3,048,600**			**7.0**				
F V01	Fire	Argo 8x8 off Road Vehicle	8x8 off Road Vehicle	2008	15	30	18	12	$28,216	$21,643	$6,573	$40,000	6	9	9	Very Good	Rare	Major	M
F V03	Fire	2001 Superior Pumper #1	Pumper Truck	2002	15	25	7	18	$219,737	$158,210	$61,526	$390,000	3	8	8	Good	Unlikely	Major	M
F V04	Fire	2003 Ford F-450 Rescue #1	Pick-up Truck	2011	8	4	0	9	$29,357	$29,357	$0	$4,000	0	6	6	Average	Possible	Major	H
F V05	Fire	2003 Ski-doo Skandic ZT	Snowmobile	2002	15	15	0	18	$8,377	$8,377	$0	$20,000	0	9	9	Very Good	Rare	Major	M
F V06	Fire	2003 Ski-doo Skandic LT	Snowmobile	2002	15	15	0	18	$8,377	$8,377	$0	$20,000	0	9	9	Very Good	Rare	Major	M
F V07	Fire	2005 International E-One Tanker #2	Tanker	2005	15	30	15	15	$170,286	$164,692	$5,594	$350,000	5	9	9	Very Good	Rare	Major	M
F V10	Fire	Boat 1 with motor and trailer	Boat with Trailer	2000	15	30	10	20	$6,216	$4,144	$2,072	$15,000	3	8	8	Good	Unlikely	Major	M
F V11	Fire	Boat 2 with motor and trailer	Boat with Trailer	1990	15	30	0	30	$5,110	$5,110	$0	$12,000	0	6	6	Average	Possible	Major	H
F V12	Fire	Ford F550 Rescue #2	Pick-up Truck	2010	8	20	10	10	$49,013	$31,057	$17,956	$4,000	5	6	6	Average	Possible	Major	H
	Fire	Ford F150 Truck #10	4x4 Pick-up Truck	2014	8	25	19	6	$38,882	$26,731	$12,151	$40,000	8	9	9	Very Good	Rare	Major	M
EM V01	Fire	6 X 12 Single Axle Enclosed Trailer	Trailer	2007	15	30	17	13	$4,212	$3,512	$700	$20,000	6	9	9	Very Good	Rare	Moderate	L
PL V01	Building Department	CBO Truck	SUV	2019	8	7	6	1	$27,619	$0	$27,619	$28,000	9	9	9	Very Good	Rare	Moderate	L
RD EQ02	Public Works	Float	Trailer	2021	20	20	21	-1	$39,000	$0	$39,000	$40,000	10		10	Very Good	Rare	Moderate	L
RD EQ04	Public Works	JD 770G Grader	Grader	2010	20	20	10	10	$283,255	$129,067	$154,188	$475,000	5	5	5	Average	Possible	Major	H
RD V01	Public Works	2007 International Tandem	Truck	2007	15	15	2	13	$186,805	$155,749	$31,056	$300,000	1	5	5	Average	Possible	Minor	M
RD V05	Public Works	2015 Freightliner Plow	Truck	2014	15	15	9	6	$227,641	$83,510	$144,131	$300,000	6	7	7	Good	Unlikely	Minor	L
RD V07	Public Works	2017 Freightliner single Ax Plow	Truck	2016	15	15	11	4	$219,403	$51,220	$168,183	$250,000	7	8	8	Good	Unlikely	Minor	L
	Public Works	2021 Freightliner Tandem Plow	Truck	2020	15	13	13	0	$295,000	$0	$295,000	$300,000	10	10	10	Very Good	Rare	Minor	L
B V01	Protective Inspection	Chevy Colorado	Pick-up Truck	2016	8	7	3	4	$29,007	$12,691	$16,316	$37,500	4	7	7	Good	Unlikely	Minor	L
REC V02	Recreation	Change Room Trailer	Trailer	2010	15	25	15	10	$17,618	$11,164	$6,454	$25,000	6	6	6	Average	Possible	Insignificant	L
REC V03	Recreation	2018 Dodge Ram	Pick-up Truck	2018	8	7	5	2	$40,146	$7,527	$32,618	$37,500	7	8	8	Good	Unlikely	Minor	L
	Parks	Riding Lawn Mower	Lawn Mower	2021	20	5	6	-1	$6,900	$0	$6,900	$7,000	10	10	10	Very Good	Rare	Moderate	L
RD EQ01	Public Works	Case 590 Backhoe	Backhoe	2016	10	6	2	4	$61,612	$39,445	$22,166	$250,000	3	4	4	Poor	Likely	Significant	E
	Pubic Works	Landscape Trailer	Trailer	2021	20	20	21	-1	$3,600	$0	$3,600	$3,600	10	10	10	Very Good	Rare	Minor	L
	Public Works	2015 Chevrolet 3500	Pick-up Truck	2015	8	7	2	5	$32,500	$20,313	$12,188	$80,000	3	4	4	Poor	Likely	Major	H

Whitestone

Vehicles Inventory - tax funded

Current Levels of Service Replacement/Improvement Year Based on Current Levels Service

Expected Levels of Service

Replacement/Improvement Year Based on Expected Levels Service

Fixed Asset ID	Department	Asset Name - Vehicles	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score		Proposed Rehabilitation Cost (2021 $)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current	Revised Levels Service Replacement Year	Subsequent Replacement Year	Revised Remaining Useful Life
			2						$ -						
F V01	Fire	Argo 8x8 off Road Vehicle	2	2035	10	2038	2038					5	2040	2070	19
F V03	Fire	2001 Superior Pumper #1	2	2025	10	2028	2028					20	2025	2050	4
F V04	Fire	2003 Ford F-450 Rescue #1	3	2015	10	2015	2021					30	2021	2025	0
F V05	Fire	2003 Ski-doo Skandic ZT	2	2016	10	2018	2021					60	2030	2045	9
F V06	Fire	2003 Ski-doo Skandic LT	2	2016	10	2018	2021					60	2030	2045	9
F V07	Fire	2005 International E-One Tanker #2	2	2032	10	2035	2035					10	2038	2068	17
F V10	Fire	Boat 1 with motor and trailer	2	2027	10	2030	2030					20	2036	2066	15
F V11	Fire	Boat 2 with motor and trailer	3	2017	10	2020	2021					30	2030	2060	9
F V12	Fire	Ford F550 Rescue #2	3	2028	10	2030	2028					0	2028	2048	7
	Fire	Ford F150 Truck #10	2	2037	10	2040	2040					0	2040	2065	19
EM V01	Fire	6 X 12 Single Axle Enclosed Trailer	1	2034	10	2037	2037					5	2039	2069	18
PL V01	Building Department	CBO Truck	1	2025	10	2026	2026					0	2026	2033	5
RD EQ02	Public Works	Float	1	2039	10	2041	2041					0	2041	2061	20
RD EQ04	Public Works	JD 770G Grader	3	2028	10	2030	2028					0	2023	2043	2
RD V01	Public Works	2007 International Tandem	2	2021	10	2023	2023					10	2025	2040	4
RD V05	Public Works	2015 Freightliner Plow	1	2028	10	2030	2030					0	2030	2045	9
RD V07	Public Works	2017 Freightliner single Ax Plow	1	2030	10	2032	2032					0	2032	2047	11
	Public Works	2021 Freightliner Tandem Plow	1	2032	10	2033	2033					0	2033	2046	12
B V01	Protective Inspection	Chevy Colorado	1	2022	10	2023	2023					5	2025	2032	4
REC V02	Recreation	Change Room Trailer	1	2033	10	2036	2036					0	2036	2061	15
REC V03	Recreation	2018 Dodge Ram	1	2024	10	2025	2025					0	2025	2032	4
	Parks	Riding Lawn Mower	1	2026	10	2027	2027					0	2027	2032	6
RD EQ01	Public Works	Case 590 Backhoe	4	2021	10	2022	2021					0	2021	2027	0
	Pubic Works	Landscape Trailer	1	2039	10	2041	2041					0	2041	2061	20
	Public Works	2015 Chevrolet 3500	3	2021	10	2022	2021					0	2022	2029	1

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Appendix B

Draft Data Verification and Condition Assessment Policy

APPENDIX B: Draft Data Verification and Condition Assessment Policy

Data Verification

1. The main source of asset data updating, and editing will be through the Municipality of Whitestone's asset inventory that aligns with PSAB 3150 compliance procedures and/or annual reporting process.

2. Asset additions, disposals, betterments, and write-offs will be recorded based on the Municipality's PSAB 3150 Compliance Policies and/or general updates to the Asset Management Spreadsheets.

3. Verification of the correct treatment of asset revisions will be completed through frequent annual reviews by the Municipality's staff, as well as an annual review by the Municipality's auditor.

4. During years which condition assessments are not being performed, asset replacement cost will be determined based on a combination of inflating previous values or through the use of the current year's historical invoice data. Where indices are being used, the Non-Residential Building Construction Price Index (NRBCP) shall be used for construction related assets (i.e., infrastructure) and Consumer Price Index (CPI) shall be used for all other assets (i.e., furniture, interior finishes, appliances, etc.).

Condition Assessment

1. Condition assessments shall be performed as outlined in Table B-1 below.

2. Condition assessments shall be performed by qualified individuals (or companies) and shall include a review of the following:
   a. Current asset condition (consistent with the rating format used within this report, unless the Municipality stipulates a new format, or regulatory body required format);
      i. Identify any unusual wear from asset use that may hinder asset performance and eventually reduce useful life.
      ii. Assess asset performance and identify (if any) capital improvements that can be applied to extend the asset's useful life and/or bring the asset back to appropriate service levels.
   b. Current asset replacement cost. This is to be based on replacing the asset under current legislation/requirements using the Municipality's specification; and
   c. Remaining service life, assuming current identified maintenance and usage levels.

Table B-1: Condition Assessment Timetable

Asset Type	Frequency of Condition Assessment	Comments
Bridges	Every two years	As per Provincial Regulation using OSIM Inspection format
Equipment (Office, Other)		As identified by Staff, so Equipment is safe and in good working order
Facilities	Every ten - fifteen years	Complete detailed assessment every ten years but annual staff and specialized inspection/cleaning of some components (e.g., HVAC, Fans, Pumps, etc.)
Land Improvements (Playing Surfaces, Parking Lots, Parks, Landscaping)	Annually	Staff assessment annually
Roads	Every five - ten years	Complete Roads Needs study every five years but internal staff review annually
Road Signs		As per Regulation 239 Minimum Maintenance Standards
Sidewalks		As per Regulation 239 Minimum Maintenance Standards
Software & Hardware		As identified by Staff, so software and hardware operating well
Storm Water Mains	Every fifteen years	CCTV scans and review of Storm Water system
Storm Water (Catch Basins, Manholes, Stormceptors)	Annually	To be assessed while doing a clean out
Vehicles		As per Manufacturer's Warranty and Maintenance Program
Generators	Every season	Minimum four times per year

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Appendix C

10 Year Detailed Asset Management Strategy & Financing Strategy

Municipality of Whitestone
2021 Asset Management Plan
Financing Strategy

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Section 1: Capital Forecast and Funding Analysis
Section 2: Future Debt
Section 3: Reserve Schedules
Section 4: Budget Impacts & Funding Gap
Section 3 Revised: Vehicle & Equipment Reserve Schedules

Section 1: Capital Forecast and Funding Analysis

Asset Class	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Capital Replacement											
Road Surface - Asphalt	-	-	-	-	-	-	-	-	-	-	**-**
Road Surface - Treatment	-	142,015	89,141	-	-	-	-	184,536	17,209	-	**432,902**
Road Surface - Gravel	204,000	208,080	212,242	216,486	220,816	225,232	229,737	234,332	239,019	243,799	**2,233,743**
Road Base	-	-	-	-	-	-	-	-	-	-	**-**
Bridge & Culverts	-	-	-	-	-	-	-	-	-	-	**-**
Storm Water Mains	-	-	-	-	-	-	-	-	-	-	**-**
Catch Basin	-	-	-	-	-	-	-	-	-	-	**-**
Water	25,500	-	-	-	-	-	-	7,030	-	12,190	**44,720**
Wastewater	-	-	-	-	-	-	-	-	-	12,190	**12,190**
Vehicles	259,080	83,232	504,074	-	849,038	31,533	295,212	4,687	95,607	429,086	**2,551,549**
Subtotal - Capital Replacement	**488,580**	**433,327**	**805,457**	**216,486**	**1,069,854**	**256,765**	**524,949**	**430,585**	**351,835**	**697,265**	**5,275,103**
Capital Rehabilitation											
Road Surface - Asphalt	-	-	-	-	-	-	-	-	-	-	**-**
Road Surface - Treatment	361,855	138,373	252,886	-	-	-	-	-	-	-	**753,114**
Road Surface - Gravel	-	-	-	-	-	-	-	-	-	-	**-**
Road Base	83,130	101,439	63,672	-	-	-	-	-	-	-	**248,241**
Bridge & Culverts	18,360	79,070	212,242	543,381	155,675	219,039	118,315	-	-	-	**1,346,082**
Storm Water Mains	-	-	-	-	-	-	-	-	-	-	**-**
Catch Basin	-	-	-	-	-	-	-	-	-	-	**-**
Water	-	-	-	-	-	-	-	-	-	-	**-**
Wastewater	-	-	-	-	-	-	-	-	-	-	**-**
Vehicles	-	-	-	-	-	-	-	-	-	-	**-**
Subtotal - Capital Rehabilitation	**463,345**	**318,883**	**528,800**	**543,381**	**155,675**	**219,039**	**118,315**	**-**	**-**	**-**	**2,347,437**
Levels of Service Costs											
Road Surface - Asphalt	15,810	16,126	16,449	16,778	17,113	17,456	17,805	18,161	48,401	18,894	**202,992**
Road Surface - Treatment	39,780	40,576	41,387	42,215	43,059	43,920	44,799	45,695	46,609	47,541	**435,580**
Road Surface - Gravel	48,450	49,419	50,407	51,416	52,444	53,493	54,563	55,654	56,767	57,902	**530,514**
Road Base	12,240	12,485	12,734	12,989	13,249	13,514	13,784	14,060	14,341	14,628	**134,025**
Bridge & Culverts	38,760	31,212	40,326	32,473	41,955	33,785	43,650	35,150	45,414	36,570	**379,294**
Storm Water Mains	13,260	13,525	13,796	14,072	14,353	14,640	14,933	15,232	15,536	15,847	**145,193**
Catch Basin	-	3,121	-	-	3,312	-	-	3,515	-	-	**9,948**
Water	15,810	16,126	16,449	16,778	17,113	17,456	17,805	18,161	18,524	18,894	**173,115**
Wastewater	-	2,601	-	2,706	-	2,815	-	2,929	-	3,047	**14,099**
Vehicles	107,100	109,242	111,427	113,655	115,928	118,247	120,612	123,024	125,485	127,994	**1,172,715**
Subtotal - Levels of Service	**291,210**	**294,433**	**302,975**	**303,081**	**318,527**	**315,325**	**327,950**	**331,580**	**371,076**	**341,318**	**3,197,476**

Report Table 5-4

Asset Class	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Totals by Asset Class (Replacement, Rehabilitation and Levels of Service)											
Road Surface - Asphalt	15,810	16,126	16,449	16,778	17,113	17,456	17,805	18,161	48,401	18,894	202,992
Road Surface - Treatment	401,635	320,963	383,414	42,215	43,059	43,920	44,799	230,231	63,818	47,541	1,621,596
Road Surface - Gravel	252,450	257,499	262,649	267,902	273,260	278,725	284,300	289,986	295,785	301,701	2,764,257
Road Base	95,370	113,924	76,407	12,989	13,249	13,514	13,784	14,060	14,341	14,628	382,266
Bridge & Culverts	57,120	110,282	252,568	575,854	197,630	252,823	161,965	35,150	45,414	36,570	1,725,376
Storm Water Mains	13,260	13,525	13,796	14,072	14,353	14,640	14,933	15,232	15,536	15,847	145,193
Catch Basin	-	3,121	-	-	3,312	-	-	3,515	-	-	9,948
Water	41,310	16,126	16,449	16,778	17,113	17,456	17,805	25,191	18,524	31,084	217,835
Wastewater	-	2,601	-	2,706	-	2,815	-	2,929	-	15,237	26,289
Vehicles	366,180	192,474	615,501	113,655	964,967	149,780	415,824	127,711	221,092	557,080	3,724,264
Total	1,243,135	1,046,642	1,637,232	1,062,948	1,544,057	791,129	971,214	762,164	722,911	1,038,583	10,820,017

Funding Analysis	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Canada Community Building Fund (Gas Tax)	58,102	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	**603,754**
OCIF Funding	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	**500,000**
Transfer from Capital Reserves:											
Roads Capital Reserve	450,000	230,000	300,000	300,000	334,037	300,000	312,957	385,221	258,667	234,933	**3,105,815**
Vehicle & Equipment Reserve	259,080	83,232	350,000	-	450,000	31,533	295,212	4,687	95,607	429,086	**1,998,437**
Building Department Vehicle Reserve	-	-	-	-	30,914	-	-	-	-	-	**30,914**
Operating Funding (LOS Impacts)	236,910	245,090	241,876	247,139	250,354	252,518	252,417	261,629	258,009	263,936	**2,509,878**
Debt Funding (see section 2)	189,043	377,692	634,728	405,181	368,124	96,451	-	-	-	-	**2,071,219**
Total	1,243,135	1,046,642	1,637,232	1,062,948	1,544,057	791,129	971,214	762,164	722,911	1,038,583	10,820,017

Total Cost less Funding	-	-	-	-	-	-	-	-	-	-	-

Section 2: Future Debt

Year	Principal Amount	New Annual Payments									
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2022	189,043		17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
2023	377,692			33,970	33,970	33,970	33,970	33,970	33,970	33,970	33,970
2024	634,728				57,090	57,090	57,090	57,090	57,090	57,090	57,090
2025	405,181					36,440	36,440	36,440	36,440	36,440	36,440
2026	368,124						33,110	33,110	33,110	33,110	33,110
2027	96,451							8,670	8,670	8,670	8,670
2028	-								-	-	-
2029	-									-	-
2030	-										-
2031	-										
Total	**2,071,219**	**-**	**17,000**	**50,970**	**108,060**	**144,500**	**177,610**	**186,280**	**186,280**	**186,280**	**186,280**

Assumptions:

Term:	15	years
Rate:	4%	per year
Timing:	Debt is incurred at the end of the given year, with principal & interest payments starting in the following year.	

Debt Capacity Analysis

* Ontario municipalities must maintain annual debt principal and interest payments below the equivalent of 25% of revenues.

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Existing Annual Debt Payments	299,401	298,234	245,704	218,795	218,795	218,795	218,795	218,795	163,101	163,101
Proposed New Debt Payments	-	17,000	50,970	108,060	144,500	177,610	186,280	186,280	186,280	186,280
Total Anticipated Debt Payments	**299,401**	**315,234**	**296,674**	**326,855**	**363,295**	**396,405**	**405,075**	**405,075**	**349,381**	**349,381**
Estimated 25% of Revenues*	3,204,359	3,268,446	3,333,815	3,400,491	3,468,501	3,537,871	3,608,629	3,680,801	3,754,417	3,829,506
Maximum Debt Capacity	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
% of Debt Capacity Used (Estimated)	**9.3%**	**9.6%**	**8.9%**	**9.6%**	**10.5%**	**11.2%**	**11.2%**	**11.0%**	**9.3%**	**9.1%**

* Annual revenue estimate assumes inflation of 2% annually.

Figure 5-2: Summary of Current and Proposed Debt Payments

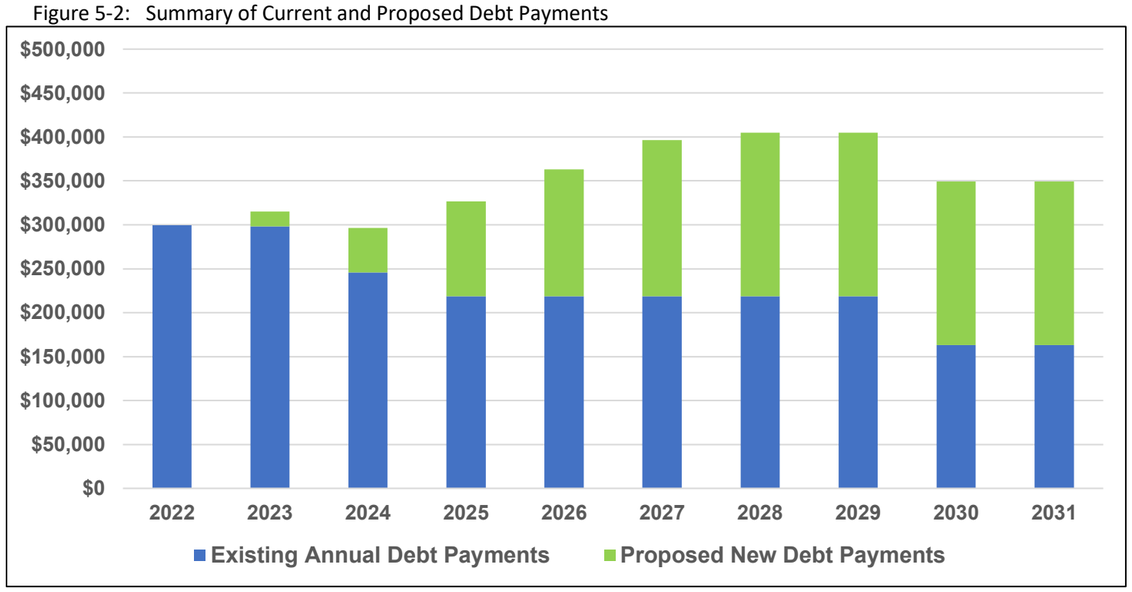
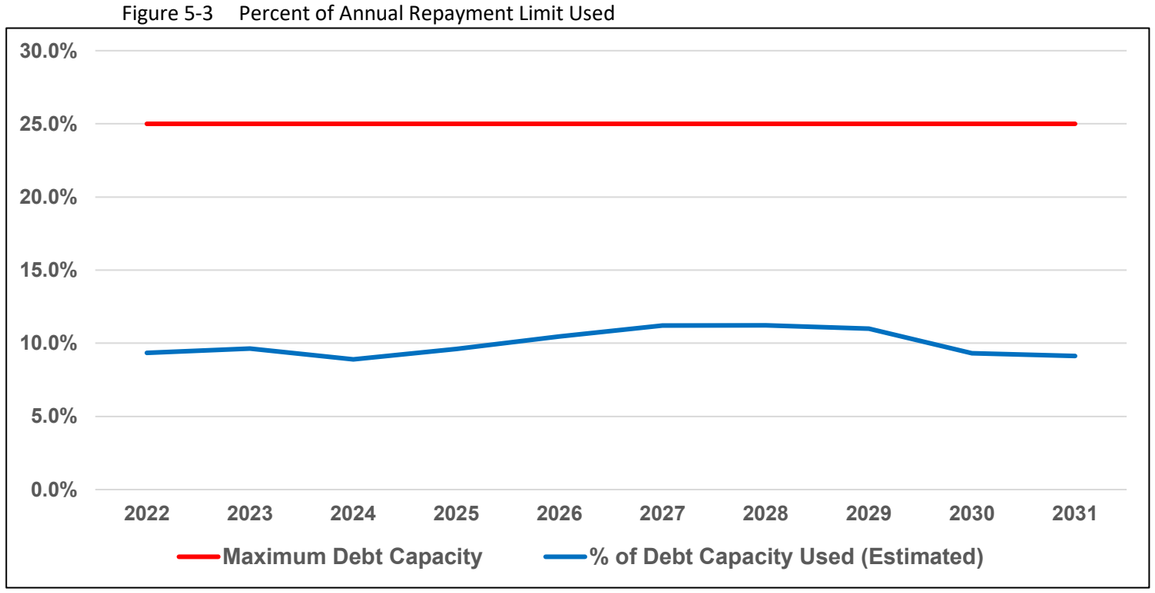


Figure 5-3 Percent of Annual Repayment Limit Used



Section 3: Reserve Schedules

Roads Capital Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	354,203	54,203	49,203	49,203	63,175	66,310	107,782	145,297	119,748	230,153
Add: Contributions from Operating	150,000	225,000	300,000	313,972	337,172	341,472	350,472	359,672	369,072	378,672
Less: Contributions to Capital	(450,000)	(230,000)	(300,000)	(300,000)	(334,037)	(300,000)	(312,957)	(385,221)	(258,667)	(234,933)
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**54,203**	**49,203**	**49,203**	**63,175**	**66,310**	**107,782**	**145,297**	**119,748**	**230,153**	**373,892**

Vehicle & Equipment Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	233,151	124,071	215,839	65,839	290,439	69,539	271,707	214,894	453,408	605,900
Add: Contributions from Operating	150,000	175,000	200,000	224,600	229,100	233,700	238,400	243,200	248,100	253,100
Less: Contributions to Capital	(259,080)	(83,232)	(350,000)	-	(450,000)	(31,533)	(295,212)	(4,687)	(95,607)	(429,086)
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**124,071**	**215,839**	**65,839**	**290,439**	**69,539**	**271,707**	**214,894**	**453,408**	**605,900**	**429,914**

Building Department Vehicle Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	43,000	43,000	43,000	43,000	43,000	12,086	16,686	21,386	26,186	31,086
Add: Contributions from Operating	-	-	-	-	-	4,600	4,700	4,800	4,900	5,000
Less: Contributions to Capital	-	-	-	-	(30,914)	-	-	-	-	-
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**43,000**	**43,000**	**43,000**	**43,000**	**12,086**	**16,686**	**21,386**	**26,186**	**31,086**	**36,086**

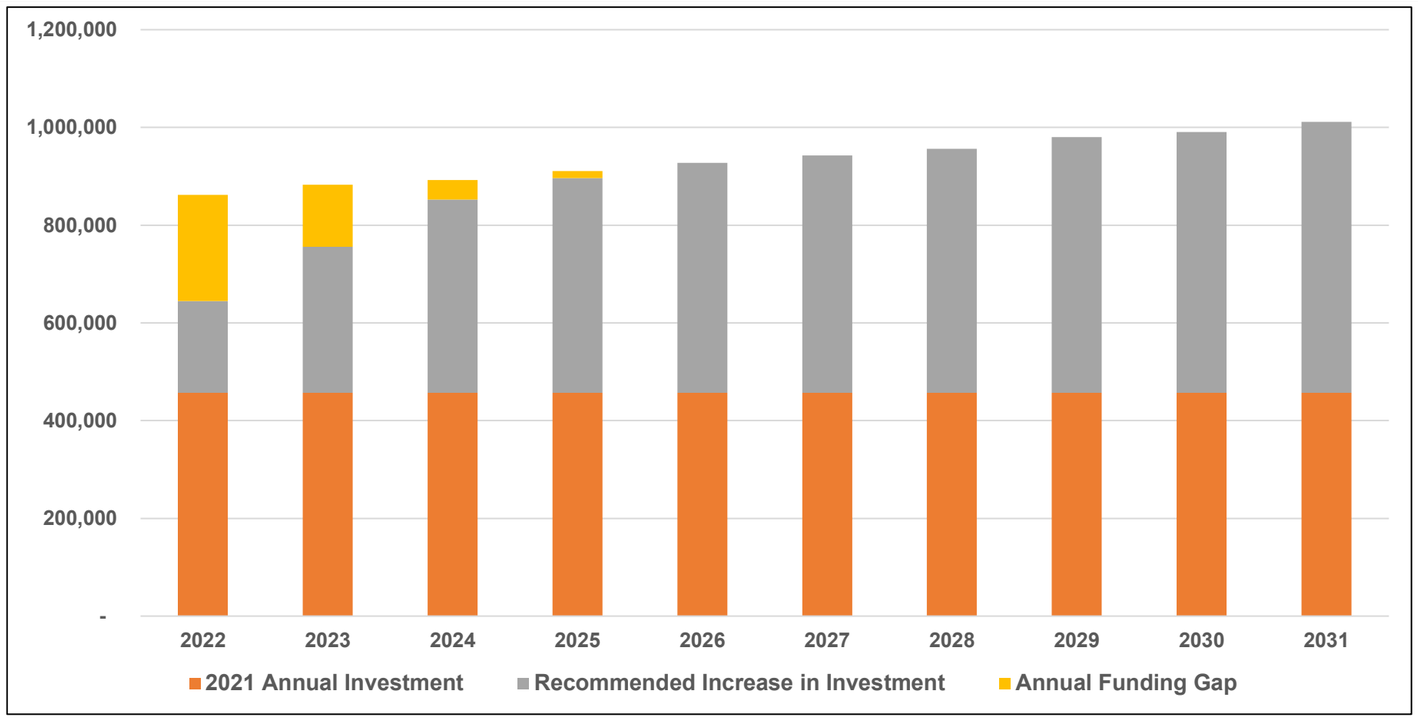
Section 4: Budget Impacts & Funding Gap

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Replacement, Rehabilitation & LOS Impacts (Capital)										
Optimal Investment - Capital	625,300	637,800	650,600	663,600	676,900	690,400	704,200	718,300	732,700	747,400
Optimal Investment - Operating LOS	236,910	245,090	241,876	247,139	250,354	252,518	252,417	261,629	258,009	263,936
Total Optimal Investment	**862,210**	**882,890**	**892,476**	**910,739**	**927,254**	**942,918**	**956,617**	**979,929**	**990,709**	**1,011,336**
Recommended Investment - Capital										
Canada Community Building Fund (Gas Tax)	58,102	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628	60,628
OCIF Funding	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Transfer from Capital Reserves:										
Roads Capital Reserve	150,000	225,000	300,000	313,972	337,172	341,472	350,472	359,672	369,072	378,672
Vehicle & Equipment Reserve	150,000	175,000	200,000	224,600	229,100	233,700	238,400	243,200	248,100	253,100
Building Department Vehicle Reserve	-	-	-	-	-	4,600	4,700	4,800	4,900	5,000
Total Recommended Investment - Capital	**408,102**	**510,628**	**610,628**	**649,200**	**676,900**	**690,400**	**704,200**	**718,300**	**732,700**	**747,400**
LOS Impacts - Operating										
Recommended Investment	236,910	245,090	241,876	247,139	250,354	252,518	252,417	261,629	258,009	263,936
Total Recommended Investment - LOS Operating	**236,910**	**245,090**	**241,876**	**247,139**	**250,354**	**252,518**	**252,417**	**261,629**	**258,009**	**263,936**
Total Recommended Investment - Capital & Operating	**645,012**	**755,718**	**852,504**	**896,339**	**927,254**	**942,918**	**956,617**	**979,929**	**990,709**	**1,011,336**
Funding Gap	**(217,198)**	**(127,172)**	**(39,972)**	**(14,400)**	**-**	**-**	**-**	**-**	**-**	**-**

2021 Investment - Capital	2021
Canada Community Building Fund (Gas Tax)	58,102
OCIF Funding	50,000
Transfer from Capital Reserves:	
Roads Capital Reserve	75,000
Vehicle & Equipment Reserve	50,000
Building Department Vehicle Reserve	-
Total 2021 Investment	**233,102**

	Impact on Funding	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	Total Recommended Investment - Capital	**408,102**	**510,628**	**610,628**	**649,200**	**676,900**	**690,400**	**704,200**	**718,300**	**732,700**	**747,400**
	Previous Year's Investment	**233,102**	**408,102**	**510,628**	**610,628**	**649,200**	**676,900**	**690,400**	**704,200**	**718,300**	**732,700**
	Annual Increase in Capital Investment										
	Tax Supported	175,000	102,526	100,000	38,572	27,700	8,900	13,700	9,400	14,200	9,900
	Building Department	-	-	-	-	-	4,600	100	4,700	200	4,800
	Total Change	**175,000**	**102,526**	**100,000**	**38,572**	**27,700**	**13,500**	**13,800**	**14,100**	**14,400**	**14,700**
	Total Recommended Investment - Operating LOS	236,910	245,090	241,876	247,139	250,354	252,518	252,417	261,629	258,009	263,936
	Previous Year's Investment	**223,510**	**236,910**	**245,090**	**241,876**	**247,139**	**250,354**	**252,518**	**252,417**	**261,629**	**258,009**
	Annual Increase/(Decrease) in Capital Investment										
	Tax Supported	13,400	8,180	(3,215)	5,264	3,215	2,164	(101)	9,212	(3,620)	5,928
	Total Change	**13,400**	**8,180**	**(3,215)**	**5,264**	**3,215**	**2,164**	**(101)**	**9,212**	**(3,620)**	**5,928**
A	**Total Change - Capital & Operating LOS**	**188,400**	**110,706**	**96,785**	**43,836**	**30,915**	**15,664**	**13,699**	**23,312**	**10,780**	**20,628**
B	**Net Increase (Decrease) in Debt Payments**	**-**	**15,833**	**(18,560)**	**30,181**	**36,440**	**33,110**	**8,670**	**-**	**(55,694)**	**-**
A + B	**Total Impact on Annual Budget**	**188,400**	**126,539**	**78,225**	**74,017**	**67,355**	**48,774**	**22,369**	**23,312**	**(44,914)**	**20,628**

Figure 5-4: Annual Asset Investment & Funding Gap



Section 3 Revised: Vehicle & Equipment Reserve Schedules

* The Financing Strategy above recommends 1 consolidated tax supported Vehicle & Equipment Reserve. This revised schedule shows the impact of separating this consolidated reserve into separate reserves for Fire, Public Works and Other (Protective Inspection, Parks & Recreation).

** In some years, individual reserves end in a negative balance, however the combined Vehicle & Equipment Reserve balances remains positive.

Fire Vehicle & Equipment Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	214,973	210,893	210,893	210,893	210,893	174,923	174,923	215,816	252,840	295,386
Add: Contributions from Operating	-	-	-	-	-	-	40,893	41,711	42,545	43,396
Less: Contributions to Capital	(4,080)	-	-	-	(35,970)	-	-	(4,687)	-	(63,388)
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**210,893**	**210,893**	**210,893**	**210,893**	**174,923**	**174,923**	**215,816**	**252,840**	**295,386**	**275,394**

Public Works Vehicle & Equipment Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	-	(105,000)	(13,232)	(163,232)	61,368	(40,756)	96,784	(7,929)	178,212	272,503
Add: Contributions from Operating	150,000	175,000	200,000	224,600	229,100	137,540	182,458	186,142	189,898	193,735
Less: Contributions to Capital	(255,000)	(83,232)	(350,000)	-	(331,224)	-	(287,171)	-	(95,607)	(365,698)
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**(105,000)**	**(13,232)**	**(163,232)**	**61,368**	**(40,756)**	**96,784**	**(7,929)**	**178,212**	**272,503**	**100,540**

Other Vehicle & Equipment Reserve	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Opening Balance	18,178	18,178	18,178	18,178	18,178	(64,628)	(0)	7,007	22,356	38,011
Add: Contributions from Operating	-	-	-	-	-	96,160	15,048	15,349	15,656	15,969
Less: Contributions to Capital	-	-	-	-	(82,806)	(31,533)	(8,041)	-	-	-
Interest Earned (if applicable)	-	-	-	-	-	-	-	-	-	-
Ending Balance	**18,178**	**18,178**	**18,178**	**18,178**	**(64,628)**	**(0)**	**7,007**	**22,356**	**38,011**	**53,980**

Combined Ending Balance	**124,071**	**215,839**	**65,839**	**290,439**	**69,539**	**271,707**	**214,894**	**453,408**	**605,900**	**429,914**
Ending Balance of Proposed Vehicle & Equipment Reserve	124,071	215,839	65,839	290,439	69,539	271,707	214,894	453,408	605,900	429,914
Difference	-	-	-	-	-	-	-	-	-	-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