THE CORPORATION OF THE TOWNSHIP OF THE NORTH SHORE

ASSET MANAGEMENT PLAN

JUNE 2022

Executive Summary

As with most Municipalities across Ontario, The Township of the North Shore has undertaken the development of an Asset Management Plan in response to the Ontario Government's provincial capital funding requirements. The purpose of this Asset Management Plan is to assist with prioritizing needs over wants to ensure that infrastructure funding, whether generated through local or senior levels of government, be applied to projects with the higher needs. This Asset Management Plan has been structured to adhere to the requirement described by O. Reg. 588/17.

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

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

2022 Corporate Asset Management Plan

The 2022 Corporate Asset Management Plan is a strategic document that states how the Township's assets are to be managed over a period of time. The Plan describes the characteristics and condition of infrastructure assets.

The Municipality provides a range of services and infrastructure to stakeholders that require ownership, responsible operation and maintenance of its physical assets including land, buildings, equipment, transportation, environment, utilities, technology and information/documentation. The Plan supports the Municipality in focusing its infrastructure efforts on managing risks, addressing priorities, and meeting both short and long term needs. It is intended to guide the consistent use of asset management across the organization, to facilitate logical and evidence-based decision-making for the management of municipal infrastructure

assets and to support the delivery of sustainable community services now and in the future.

The Plan demonstrates an organization-wide commitment to the good stewardship of municipal infrastructure assets and to improve accountability and transparency to the community through the adoption of best practices regarding asset management planning.

Assets Included in the Plan

This asset management plan is intended to include all assets with available information at the time of development. The following physical asset systems that support the Township's services are included in the plan:

- Administrative Facilities;
- Corporate Vehicles and Equipment;
- Culture and Recreation;
- Emergency Services;
- Information Technology;
- Solid Waste;
- Stormwater;
- Wastewater; and
- Water

This Plan has been developed to cover a ten (10) year window but is intended to be updated on a regular basis as operating conditions and municipal goals change. A key aspect of this plan is the ongoing evaluation of asset performance and value that will be required in future years.

Purpose of the Plan

The purpose of this plan is to:

- Ensure that the Township is well-positioned for current and future grant programs and regulations, by meeting the requirements on the Asset Management Plan as required by O. Reg. 588/17;

- Establish a baseline of current asset management practices to inform a work plan for continually improving asset management;
- More accurately quantify the infrastructure deficit and investment gap;
- Demonstrate long-term asset care and sustainability;
- Support the development of improved practices that clarify and justify funding requirements; and
- Provide increase transparency related to the Township's asset management practices, challenges and opportunities.

State of the assets and budget analysis

The Township of the North Shore has an infrastructure Asset Base with a 2022 calculated replacement value of approximately $12,059,469.54. Of the asset portfolio, approximately $3.6 million (30%) have below 40 per cent remaining life, meaning these assets will likely be due for replacement within the next 10 years. These assets should be addressed as a priority within our Capital Budget.

While the available asset information used to generate this AMP did not indicate that there are any major physical issues with the assets at a whole-system perspective, normal degradation of physical and electromechanical assets will continue on an individual asset level, and these will require funding to address future needs.

The infrastructure investment backlog represents the assets that have exceeded their service life. The replacement value of the backlog as of December 31, 2021 was determined to be approximately $282,838.39 for the Township asset portfolio. It should be noted, assets that are included in the backlog are not necessarily performing poorly, only that they will soon be in need of replacement or rehabilitation in order to ensure they continue to function to their intended capacity and performance levels.

With regards to physical condition, the chart in Figure 4 displays the condition of the Township assets based on their current replacement value (CRV). About 30% of the total inventory with a value of approximately $3.6 million is considered in "very poor", "poor" or "past due" condition. This indicates that within the next 1-5 years those assets in "very poor" or "past due" conditions ($2,265,435.80) may require complete replacement or significant renewal efforts to ensure continued

long-term performance, and those in “poor” condition ($1,364,600.68) will require attention within 5-10 years, or sooner. While this is a challenge, many municipalities in Canada are in a similar situation, and so the situation in the North Shore can be considered typical.

Recognizing this challenge, the Township will begin addressing the issue by building prioritized plans to first address assets in poorest condition, or those that are most critical to the future service delivery by the Township. While it will take a few years, this AMP includes forecast scenarios that will help to eliminate the backlog, and enable the services delivered to be complete din a sustainable manner.

Figure 1 – Condition of the Township of the North Shore assets by Category: **<u>Core Asset Types</u>**: Total CRV

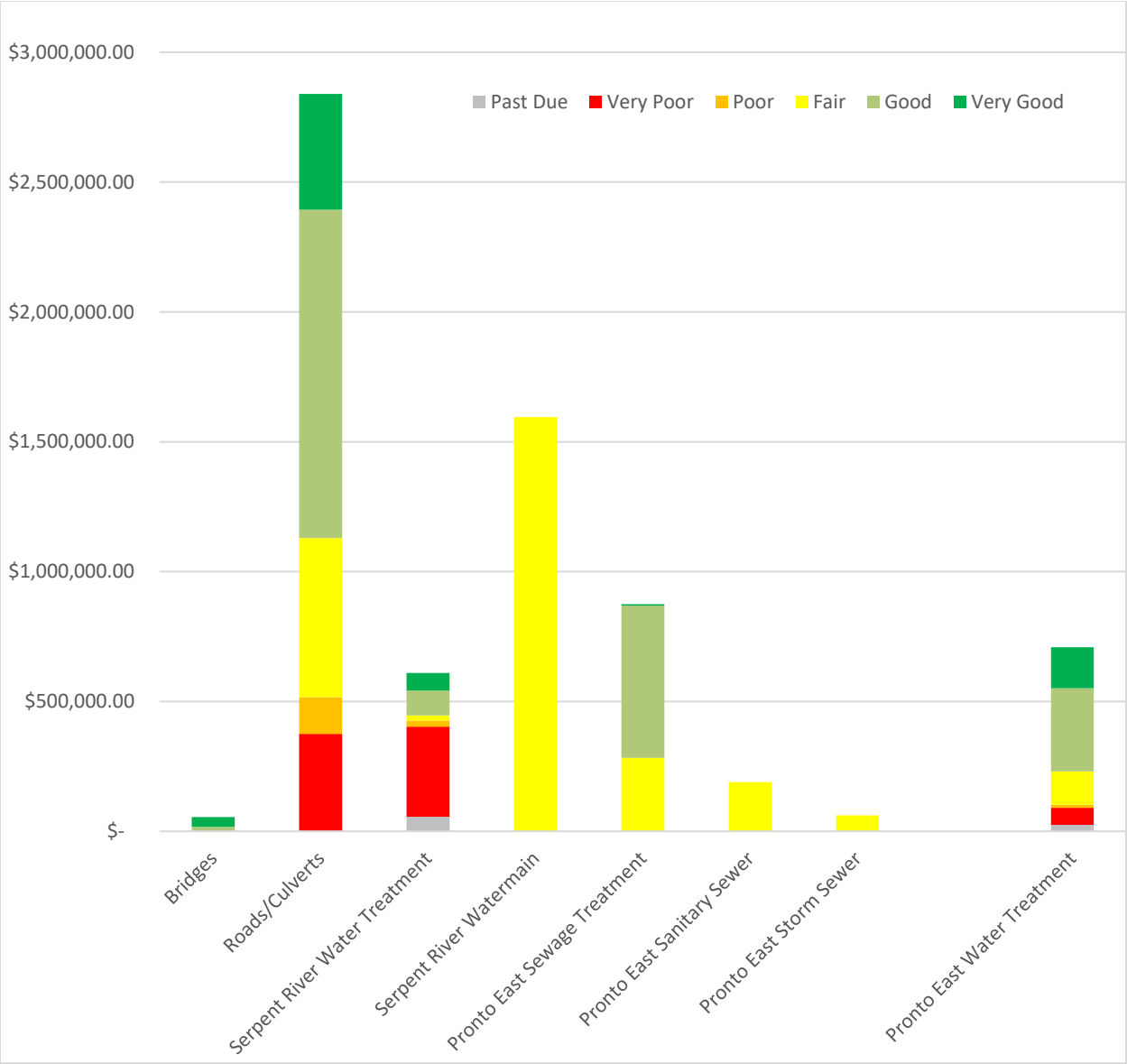
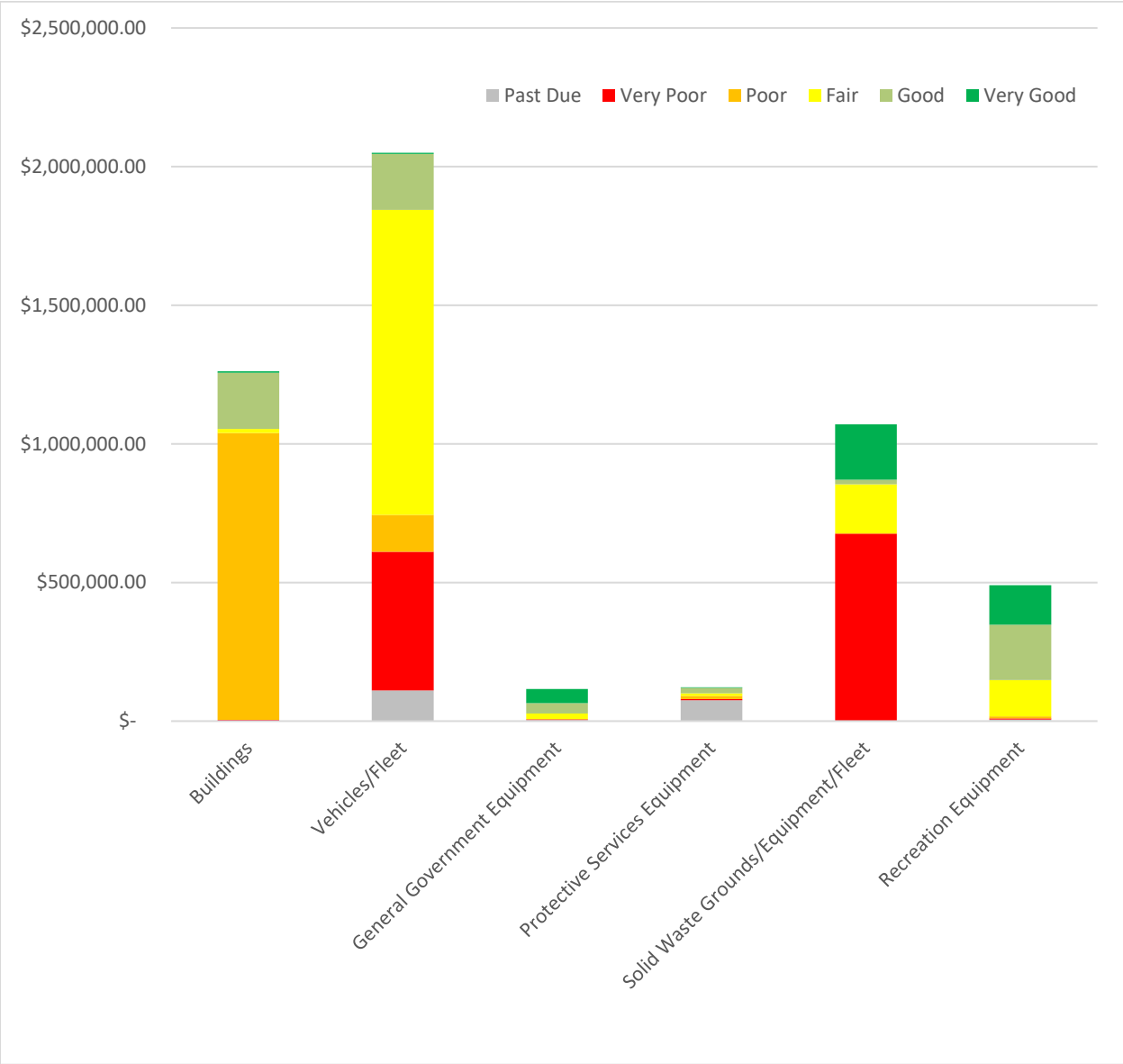


Figure 2 – Condition of the Township of the North Shore assets by Category:
<u>Non-Core</u> Asset Types: Total CRV



Infrastructure Funding Progress

The infrastructure gap is the difference between the funding needed in a given year to build, maintain, repair and replace infrastructure and the amount of funding available. The Township continues its efforts to increase its reserves by transferring annual amounts from the operating budget and continues to apply for grants and other funding opportunities. As a small municipality, it is difficult to fund infrastructure projects without the help of any additional funding.

Conclusions

As the Township matures the Asset Management Program, there continues to be improvements in the confidence of data, which will improve the accuracy of calculations such as the Township's backlog and sustainable funding targets. Based on current calculations, the backlog is $282,838.39 and the very poor replacement cost of assets are $1,982,597.41, which solidifies that the Township needs to continue executing the long-term capital financial strategies.

Using consistent asset management guidelines and principles with an effort placed on continuous improvement will lead to an optimized balance between asset performance and asset risks that will create real value for the Township of the North Shore and its citizens.

It is important to note that the addition of new assets to the infrastructure portfolio comes at a cost in future years as the assets move through their life cycle and require more expensive treatments including rehabilitation and replacement. The investment requirements shown within this Asset Management Plan do not address the future asset funding needs associated with the projected growth.

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Introduction

Our Community – The Township of the North Shore

Together, Algoma Mills, Spragge and Serpent River make up the Township of The North Shore. These small friendly communities are located along the North Channel of Lake Huron and offer residents and visitors a chance to enjoy some of the most beautiful landscapes in the world. Each community hosts exquisite walking/hiking trails that give everyone the opportunity to explore and enjoy the many species of birds and wildlife that inhabit the area. With rivers and lakes so readily available and the natural beauty of the area, the tourism sector continues to flourish. Restaurants and various types of accommodations are available at resorts, motels and camping sites in the communities. It is home to a variety of small friendly businesses that look forward to meeting the public's needs. The recreational activities are in abundance during all seasons and each community offers a variety of facilities for everyone to use. Whether it is the beaches, trails, parks, playgrounds, tennis court or skating rink, there is something for everyone.

According to Statistics Canada data associated with the Township of the North Shore, the population in 1991 was 729, in 2001 was 544, in 2011 was 509, in 2016 was 497, and the population in 2021 was 531.[1] The average age of the population is 54.9. Statistics Canada also includes that in 2021, there were 365 total private dwellings within the Township, where 249 were private dwellings occupied by usual residents. Due to the limited amounts of industries in the surrounding area, it is currently difficult to confidently determine the percentage increase of the Township's population growth. The estimated population increase for 2031 is forecasted to be approximately 5% more than 2021, due to the growing popularity of living in northern rural communities.

Asset Management – What Does This Mean?

The practice of Asset Management (AM), which is focused on integration, sustainability, and whole lifecycle optimization, has in the past few years become

[1] https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=The%20North%20Shore&DGUIDlist=2021A00053557040&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

the practice by which organizations of all sizes and operations type improve both the current and long-term planning of the organization resources. Where assets are defined as “an item, thing or entity that has potential or actual value to an organization” and “can be tangible or intangible, financial or non-financial.”

The discipline of Asset Management is a combination of management, financial, economic, engineering, operations and other skills used with the objective of managing the assets to provide the required levels of service in the most cost effective manner, with an eye on the long-term future as well as immediate needs. The benefit of AM is to “enable an organization to realize value from assets in the achievement of its organizational objectives.” A successful AM strategy employed by the Township of the North Shore will provide:

- Improved financial performance;
- Allow informed asset investment decisions;
- Help manage risks associated with Township assets;
- Improve performance of services and outputs that the assets provide;
- Improve efficiency and effectiveness of the Township’s operations;
- Demonstrate good social responsibility and improve the reputation of the Township governance among the residents.

The Province of Ontario has identified the benefits of AM in legislation. The Province of Ontario implemented O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure, requires Municipalities to follow established AM practices and standards and mandates some specific levels of service that are required to be reported on.
Perhaps most importantly the O.Reg 588/17 requires municipalities to have a Strategic Asset Management Policy that:

- identifies goals, policies or plans supported by the asset management plan;
- emphasize a continuous improvement approach to AM;
- ensuring that AM is aligned with financial plans and Provincial Land Use Plans;
- identify the persons in the Township governance structure who will be responsible for AM, including City Council; and
- identifies a commitment to provide opportunities for the residents and other parties to provide input to the AM planning.

The Asset Management Plan must include:

- the inventory of Township assets;
- the current levels of service being provided;
- the current replacement value, average age, and physical condition of the assets;
- what activities will be required to maintain current levels of service;
- the proposed levels of service for each asset category that the Township proposes to provide; and
- a lifecycle and financial strategy that identifies how the Township intends to meet the stated goals and objectives.

Most importantly, O.Reg 588/17 requires the Township to use established lifecycle planning and risk management practices in both the assessment of the current state of the assets, and the plans for future years. Further, the O.Reg identifies a phased approach to developing an AMP. Five core asset categories – roads, bridges, potable water, wastewater and stormwater - have been identified by the Provincial Government with the requirement that these should be included in an AMP by July 1, 2022, with all remaining asset categories included by July 1, 2024. The Regulation also identifies the requirement to review and update the AMP at least every five years.

2022 Asset Management Plan

Background

The 2022 Asset Management Plan builds upon the 2013 plan, incorporating new and enhanced information about the Township's assets that has been developed in response to some of the items identified in the first plan. Where the 2013 plan was developed with consideration to meet and exceed the requirements of the Infrastructure Ontario (2012) Building Together Guide for Asset Management Plans, the introduction of the Infrastructure for Jobs and Prosperity Act in December 2017, and specifically O. Reg 588/17 has changed the requirements of what the Township's AMP should include.

AMPs are intended to be high-level documents, providing a high level review and information about the assets and the financial needs of the Township of the North Shore. The AMP helps to identify gaps and opportunities that exist in the context of meeting intended service level targets. Like all such documents, it is a snapshot in time based on the best information regarding the assets and the asset management processes and practices that was available. An AMP outlines a

roadmap for continual improvement in the future as the Township's asset management practices mature.

Effective Asset Management is a combination of knowledgeable staff, with good data, managing assets using established processes with the support of the entire organization.

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

1) What do you have and where is it?
2) What it is worth? (Current and Estimated Replacement Costs)
3) What is its condition?
4) What is the level of service expectation?
5) What gets fixed first?
6) What are the deferred maintenance needs and costs?
7) What is the expected remaining service life?
8) How do you ensure long-term affordability?

By answering these questions, any person, at any level of the organization should be able to make effective, evidence based decisions regarding the state of assets within the organization.

The frameworks and tools used in the preparation of this AMP will allow future versions to continue to be improved, as well as provide the ability to measure progress against historical decisions and plans with respect to how well the Township is meeting the goals outlined in the AMP.

Purpose of the AMP

The Municipality provides a range of services and infrastructure to stakeholders that require ownership, responsible operation and maintenance of its physical assets including land, buildings, equipment, transportation, environment, utilities, technology and information/documentation.

This plan is intended to guide the consistent use of asset management across the organization, to facilitate logical and evidence-based decision-making for the management of municipal infrastructure assets and to support the delivery of sustainability community services now and in the future.

This plan demonstrates an organization-wide commitment to the good stewardship of municipal infrastructure assets, and to improved accountability and transparency to the community through the adoption of best practices regarding asset management planning.

The AMP is intended to work in conjunction with the Township Budget to improve both planning and accountability.

Assets Included in the 2022 AMP

This asset management plan is intended to include all Township assets with the most up-to-date information that is available at the time of development. The following physical asset systems are included in the plan:

- Township Administrative & Operational Facilities & Buildings;
- Roads and Traffic Control Equipment;
- Corporate Vehicles and Equipment;
- Bridges and Major Culvers;
- Parks, Recreation and Cultural Facilities;
- Solid Waste Management Facilities;
- Water Treatment and Distribution;
- Sanitary Sewers;
- Storm Sewers.

AMP Lifecycle

The AMP is a snapshot in time. The information in that snapshot is used to predict how the Township of the North Shore might change, and as a result how the Township assets will change over time - how are assets performing with regards to their expected level of service delivery, and what are the financial implications of that information.

Most infrastructure asset types have an expected useful lifecycle in the range of 22 years. Some types are longer, and some are shorter. However, predicting infrastructure needs, asset conditions, and forecasting costs for the Township through lifecycles of those time lengths is difficult. Forecasting the needs of a

Township and its assets 50 years and beyond is difficult. A 10-year forecast period can provide a good long-term view forward while maintaining a higher confidence in the accuracy of the data compared to longer periods.

Evaluating Assets

Understanding the condition of an asset, as well as the remaining useful functional life of an asset is essential to being able to forecast future service needs and budgets for capital replacement and cyclical maintenance. The ratio of the "remaining service life" (RSL) of an asset to its "estimated useful life" (EUL) can be used as a basic measure of the condition of an asset – the closer in age an asset is to its EUL, the poorer the condition rating will be. Table 2 outlines the criteria used to assign a condition rated when only age based information is available.

Table 1: Assigning Rated Condition Based on Age

Percentage of RSL / EUL	Rated Condition	Rating Score
80% - 100%	Very Good	5
60% - 80%	Good	4
40% - 60%	Fair	3
20% - 40%	Poor	2
0% - 20%	Very Poor	1
< 0%	Past Due	0

Typically an asset will undergo some kind of rehabilitation or renewal project during its lifetime which will extend its lifecycle beyond the theoretical normal EUL and extending the period of time before the asset ultimately needs replacing. If that information is not known or recorded anywhere, the age-based rating method will fail to identify the proper condition and remaining life, and the resulting financial planning will identify a forecast required cost earlier than is actually needed.

Ideally the true condition of an asset will be determined based on quantitative and evidenced based information – i.e. inspecting, testing and assessing assets in the actual performance of their function. An assessment like this should be able

to identify the extended lifecycle of an asset due to any mid-life rehabilitation work, and would also be able to identify an asset that is performing better, or worse, than the theoretical EUL ages would allow for. In the absence of assessment information, the final condition rating is based on the age and RSL compared to the EUL.

Regardless of the method used to determine asset condition, all assets were assigned a condition rating based on the criteria in Table 2.

Table 2: Condition Rating Definitions and Criteria

Rating Category	Rating Score	% of Remaining Service Life	Definition
Very Good	5	80% - 100%	Fit for the Future - An asset in very good condition is typically new or recently rehabilitated. Regular maintenance should enable the asset to reach its full EUL; failure to complete intended or recommended maintenance will shorten the EUL and increase resources required to manage the asset.
Good	4	60% - 79%	Adequate for Now - Assets show general signs of deterioration from normal use but the asset is still able to provide its intended function without problems. Levels of service are not affected. Regular maintenance should enable the asset to reach its full EUL.
Fair	3	40% - 59%	Requires Attention – The asset shows general signs of deterioration, likely from normal use but possibly as the result of another deficiency and require repair or some rehabilitation. Maintenance needs and costs will increase, but the asset should still reach its EUL if these tasks are performed when planned.
Poor	2	20% - 39%	At Risk – An asset in poor condition is approaching its EUL and likely can no longer provide its intended design function; levels of service will be negatively affected. Major repairs or rehabilitation will be required with full replacement possibly needed.

Very Poor	1	< 20%	Unfit for sustained service – An asset in very poor condition will demonstrate evidence of advanced deterioration. Service levels will be negatively affected, and there may be a risk to health and safety of persons using the asset without mitigation in the form of major rehabilitation or replacement taking place.
Past Due	0	0% of less	Past recommended replacement date. Based on the age of the asset, the asset is past its EUL. Alternatively, based on an actual assessment of the asset, it has been determined that the asset is no longer able to provide its intended design function. Replacement or extensive rehabilitation is recommended.

Budget & Financial Needs Analysis

The future required costs for an asset is forecasted using the rated condition of the asset in order to predict a year when the asset will require replacement. This method accounts for assets that have quantitative assessment info, as well as assets that have a rated condition based on only their age. The rated condition of the asset was used to establish the replacement year according to the following criteria:

Table 3: Criteria Used to Determine Forecast Replacement Year

Condition Rating	Replacement Year (RY)
Past Due	2022
Very Poor	2022 + 10% of EUL
Poor	2022 + 30% of EUL
Fair	2022 + 50% of EUL
Good	2022 + 70% of EUL
Very Good	2022 + 90% of EUL

Where the EUL is the normal Expected Useful Lifecycle of an asset.

Example:

IF the Condition rating is Good, and the EUL is 20 years,

RY = 2022 + (70% X 20 years)

= 2022 + 14

= 2036

Therefore, the replacement cost for the asset is assigned to 2036 as a forecast requirement in that year. When the above analysis is completed for all the assets in the Township's inventory, an annual forecast funding requirement was developed.

Historically, not all required infrastructure projects have been funded on time, meaning for some assets, replacement or renewal work was not done in the years it should have been. This is defined as the "backlog" work, also commonly known as "deferred" work. Within the AMP analysis, the backlog was calculated by reviewing the year when an asset should have been replaced, but wasn't. If that replacement year was determined to have been required in 2022 or earlier, the asset was assigned a condition rating of "past due" and the replacement cost for that asset was added to the backlog sum.

If the Expected Useful Lifecycle of an asset was unknown, staff assessed the asset and estimated the EUL of the asset. As further information on each asset is gathered, the data will be amended in the Asset Management Plan in order to have the most accurate information as possible.

Current Year Valuation

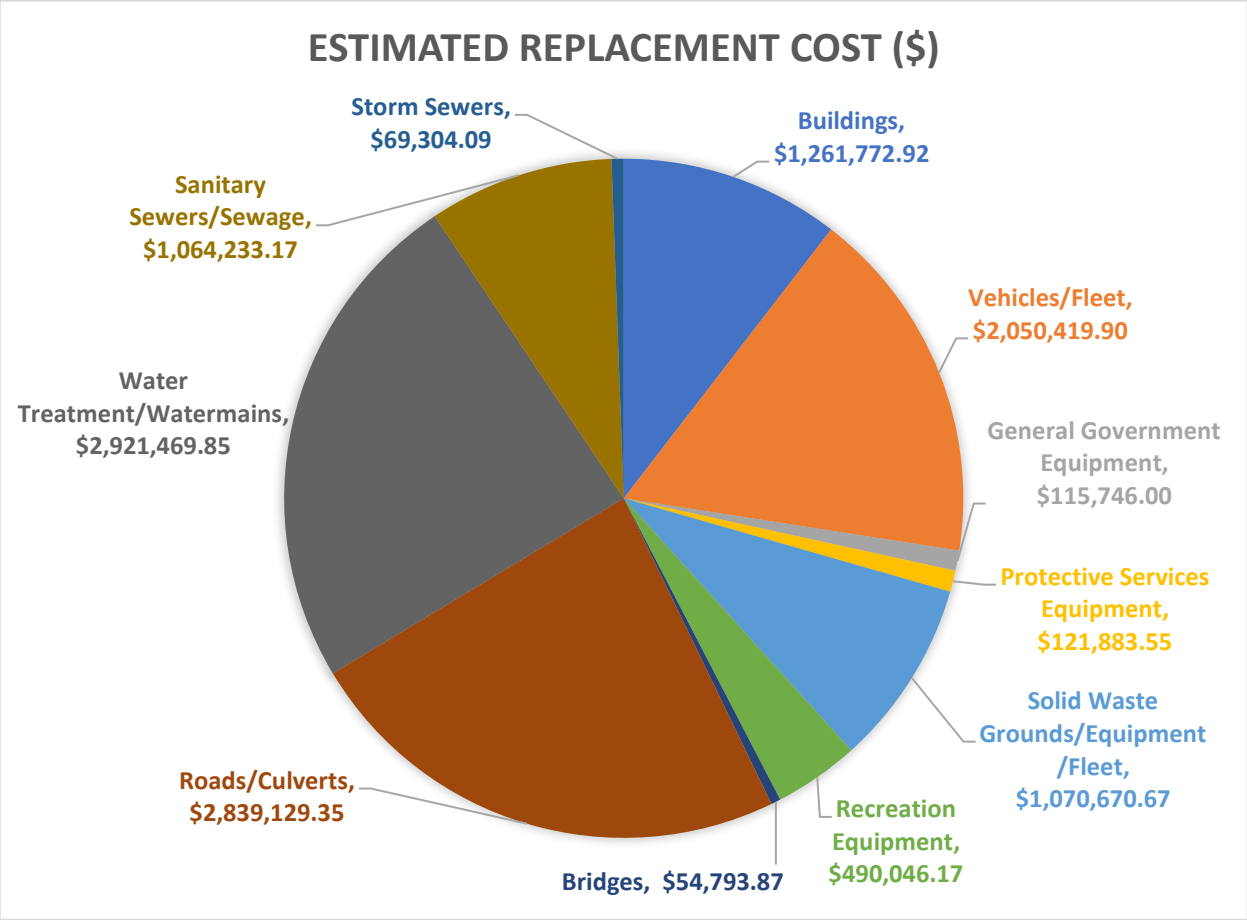
With regards to current replacement values (CRV), if a recently prepared estimate was not provided, the value available was inflated to 2022 dollar ($) values using information published by Statistics Canada and based on the historical rates for the Consumer Price Index (CPI).

Township of the North Shore Infrastructure Assets

The Township of the North Shore has a total infrastructure asset base with a 2022 calculated replacement value (CRV) of approximately $12,059,469.54. Based on a review of the available inventory and asset condition information, approximately $282,838.39 worth of assets remain in service have aged past a normal expected lifecycle. These assets make up what is known as “the backlog”. Likewise, approximately $3.6 million worth of assets have been assessed in “poor”, “very poor”, or “past due” conditions.

Figure 3 presents the categorization and valuation of the assets in the Township inventory.

Figure 3: Township of the North Shore Asset Base by CRV



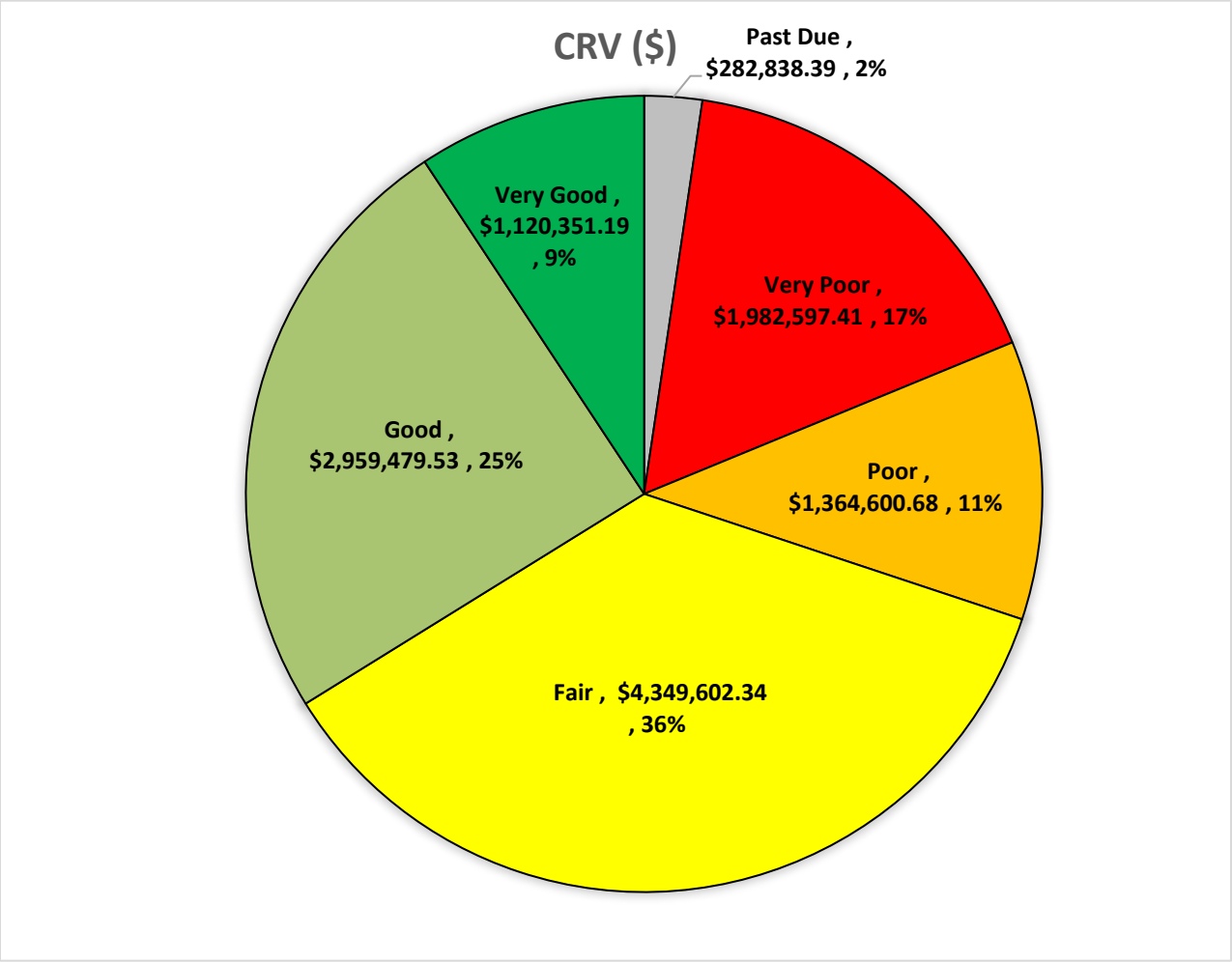
State of the Assets

The assets in the inventory serve various functions, and are of various ages and materials, but in all cases they are physical items that despite best efforts at maintaining them will eventually degrade. Most of the assets will degrade normally –meaning they will function well through their entire expected normal lifecycle but as they age their material will degrade, or perhaps they will no longer be able to fulfill their intended design level capacity. Other assets will degrade as a result of other reasons such as poor quality materials, excessive use or use for something beyond the original intended purpose, or as the result of something unexpected.

Table 4 summarizes the replacement costs of the assets in each condition rating.

	TOTAL ($)	Percentage (%)
PAST-DUE	$282,838.39	2.35%
VERY POOR	$1,982,597.41	16.43%
POOR	$1,364,600.68	11.32%
FAIR	$4,349,602.34	36.07%
GOOD	$2,959,479.53	24.54%
VERY GOOD	$1,120,351.19	9.29%

Figure 4: Overall Condition of the Asset Based by Current Replacement Value



Details of the specific asset categories including their condition and replacement/rehabilitation details to continue to ensure the assets remain in good functional condition are outlined in the following sections of this AMP.

Important to note however, an asset considered in less than “fair” condition does not imply it is no longer functioning, only that increased attention to the asset is required in order to ensure it remains functional. Additionally, when evaluating an asset by age, an asset that may be considered “past due” because of its age may in fact be in good functional condition. This occurred many times through the analysis for the AMP. When an asset had a condition rating based on an actual assessment, the age based rating was ignored.

Levels of Service

A level of service (LOS) is a measure of what the Municipality is providing to the community and the nature and quality of that service. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available.

These measures include those that have been outlined in O. Reg. 588/17. The Municipality measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

Community Levels of Service

Definition: a simple, plain language description or measure of the service that the community receives.

Example: Description or images that illustrate the different levels of road class pavement condition

Technical Levels of Service

Definition: Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to reflect the impact of the municipality's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

Example: Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. Once current levels of service have been measured, the Municipality will need to establish proposed levels of service over a 10-year period by July 1, 2025, in accordance with O. Reg. 588/17.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Municipality. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals and long-term sustainability.

Once proposed levels of service have been established, and prior to July 2024, the Municipality must identify a lifecycle management and financial strategy which allows these targets to be achieved.

Levels of Service (LOS) are statements of service performance delivery. LOS is established based on Council direction, the needs or wants of the community, as well as legislative and regulatory requirements. Through the ongoing Asset Management process, LOS will be further deafened for the Township, the Township's assets, and the community. All are interconnected.

There is likely further effort required by the Township to address and formally define levels of service from a customer perspective. Asset management, at its root, is about balancing between the full life cycle costs of various services and the levels of service being provided. It is about knowing what levels of service customers expect and what they are willing to pay. The level of service is a reflection of the quality, function and capacity of the services being provided. Township considerations include:

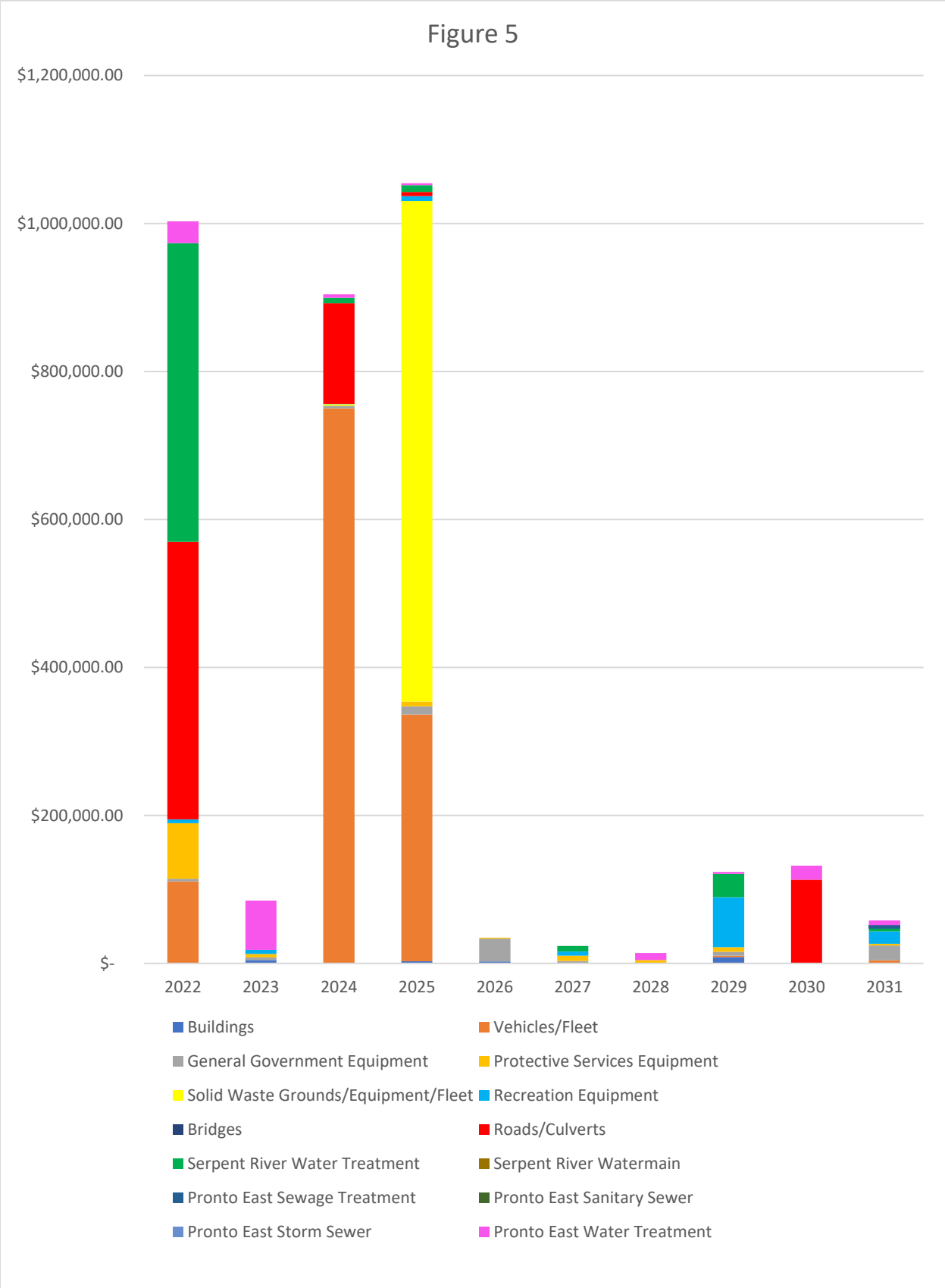
- The level of service the Township is currently providing to users;
- The annual cost to continue to provide the current level of service;
- How the current level of service is expected to change in the future given current funding levels; and
- If the Township is meeting the level of service expectations of the users given the costs to provide current, increased, or decreased levels of service.

Future Year Forecast Requirements

Table 5: Future Year Forecast Requirements (10 YRS)

ASSET TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Buildings	$ -	$ 4,624.62	$ -	$ 2,995.20	$ 2,600.00	$ -	$ -	$ 8,449.97	$ -	$ -	$ 1,243,103.13
Vehicles/Fleet	$ 110,756.03	$ -	$ 750,000.00	$ 333,344.04	$ -	$ -	$ -	$ 2,140.14	$ -	$ 4,179.69	$ 850,000.00
General Government Equipment	$ 3,677.48	$ 3,697.11	$ 3,660.76	$ 11,228.82	$ 30,865.79	$ 3,436.94	$ -	$ 5,269.47	$ -	$ 20,109.29	$ 33,800.35
Protective Services Equipment	$ 75,104.97	$ 4,622.11	$ -	$ 6,335.63	$ 1,170.91	$ 7,224.88	$ 4,756.24	$ 6,168.18	$ -	$ 2,163.14	$ 14,337.49
Solid Waste Grounds/Equipment/Fleet	$ -	$ -	$ 2,141.63	$ 676,609.77	$ -	$ -	$ -	$ -	$ -	$ -	$ 391,919.27
Recreation Equipment	$ 5,372.21	$ 5,430.14	$ 264.25	$ 6,651.49	$ -	$ 5,382.66	$ -	$ 67,350.20	$ -	$ 16,908.66	$ 382,686.57
Bridges	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 54,793.87
Roads/Culverts	$ 375,000.00	$ -	$ 136,179.58	$ 5,584.50	$ -	$ -	$ -	$ -	$ 113,000.00	$ -	$ 2,209,365.27
Serpent River Water Treatment	$ 403,587.11	$ -	$ 7,337.27	$ 9,087.00	$ -	$ 7,611.64	$ -	$ 31,484.18	$ -	$ 4,224.04	$ 149,601.95
Serpent River Watermain	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,595,232.82
Pronto East Sewage Treatment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,086.97	$ 870,767.25
Pronto East Sanitary Sewer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 189,378.95
Pronto East Storm Sewer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 69,304.09
Pronto East Water Treatment	$ 29,340.61	$ 66,551.70	$ 4,602.00	$ 2,482.00	$ -	$ -	$ 9,307.50	$ 2,889.90	$ 19,002.49	$ 6,246.00	$ 572,881.64
TOTAL FUNDING REQUIREMENT:	**$ 1,002,838.39**	**$ 84,925.68**	**$ 904,185.49**	**$ 1,054,318.46**	**$ 34,636.69**	**$ 23,656.12**	**$ 14,063.74**	**$ 123,752.04**	**$ 132,002.49**	**$ 57,917.79**	**$ 8,627,172.64**
Total Approved Capital Budget (to date):	-$ 629,566.23	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
OCIF Funding Estimated Revenue:		-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	-$ 50,000.00	
CCBF (Federal Gas Tax) Estimated Revenue:		-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	-$ 31,000.00	
TOTAL ESTIMATED FUNDING GAP:	$ 373,272.16	$ 3,925.68	$ 823,185.49	$ 973,318.46	-$ 46,363.31	-$ 57,343.88	-$ 66,936.26	$ 42,752.04	$ 51,002.49	-$ 23,082.21	

Figure 5: Future Year Forecast Requirements (10 YRS)



Roads

The Road Network is a critical component of the provision of safe and efficient transportation services. It includes all municipally owned and maintained roadways, in addition to supporting roadside signs.

The Township's roads are maintained by the Public Roads department. Large road maintenance and/or road rehabilitation are contracted out.

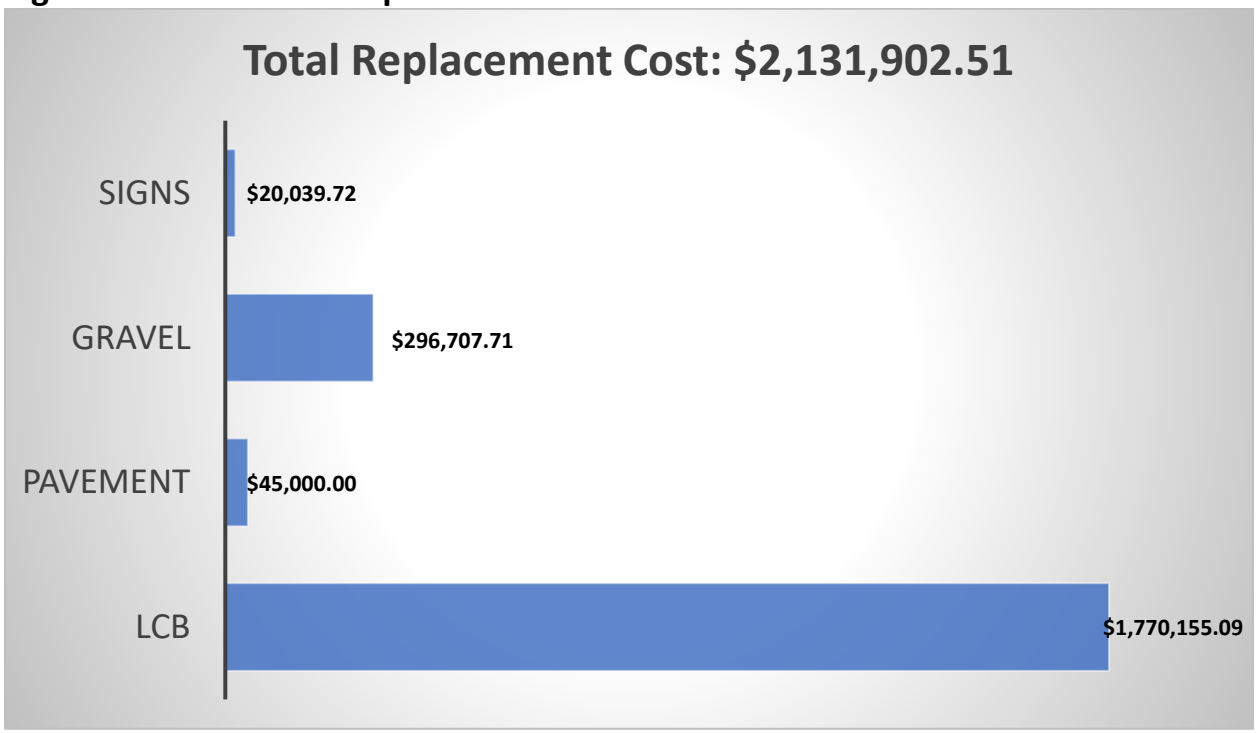
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's road inventory.

Table 6: Roads Asset Inventory

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Paved Roads	0.45km	Engineer Report/Actual/Estimates	$45,000.00
Gravel Roads	1.375km	Engineer Report/Actual/Estimates	$296,707.71
LCB Roads	13.225km	Engineer Report/Actual/Estimates	$1,770,155.09
Signs		Engineer Report/Actual/Estimates	$20,039.72
			$2,131,902.51

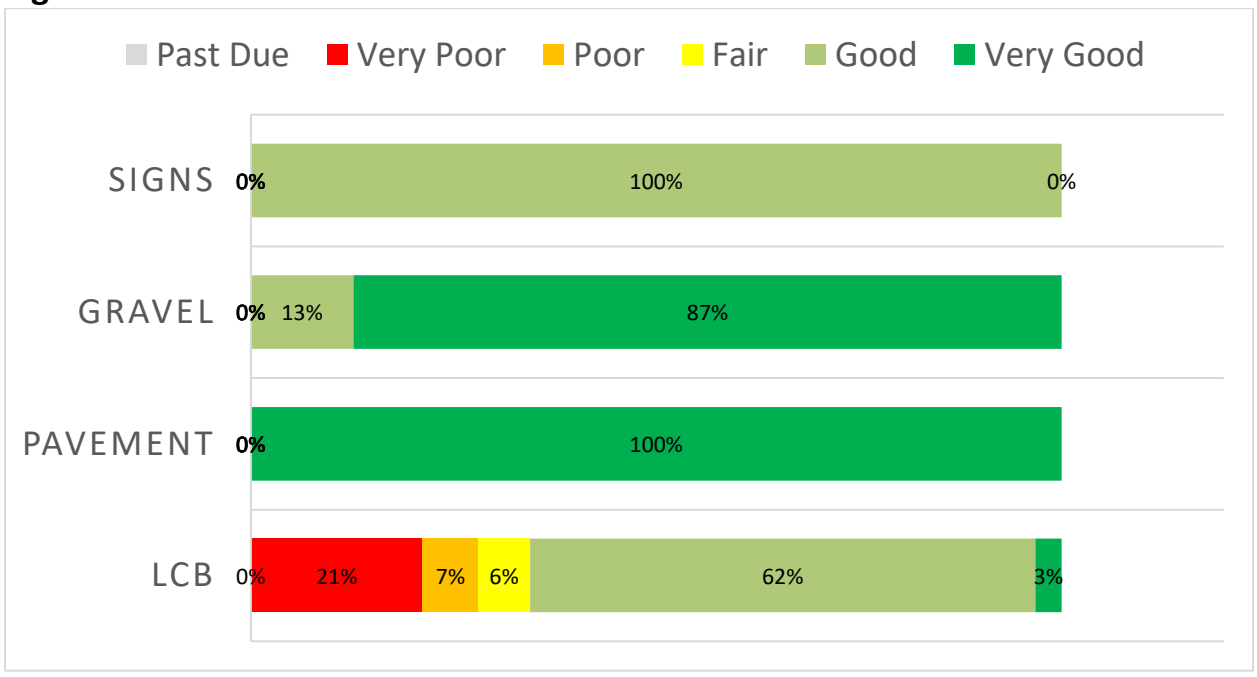
Figure 6: Roads Asset Replacement Cost



Asset Condition

The table below identifies the current average condition of available condition data for each asset segment.

Figure 7: Roads Asset Condition



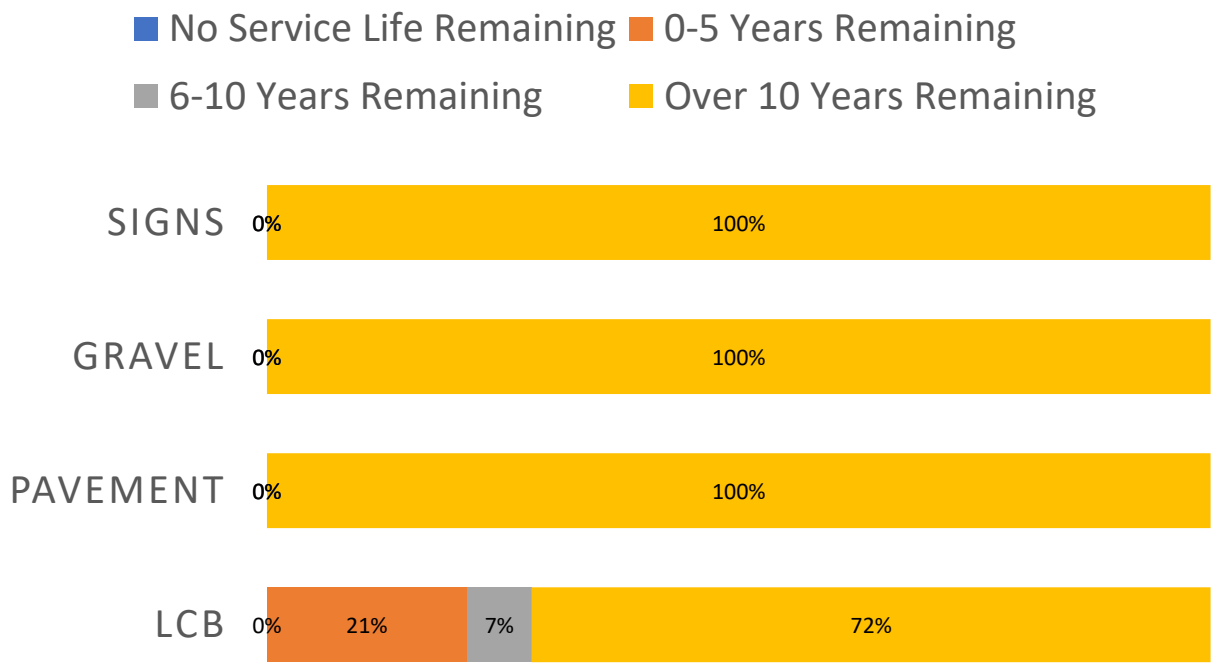
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Staff would like to complete roads assessments on a more regular schedule (3-5 years) to inform lifecycle planning, depending on funding availability.

Estimated Useful Life & Average Age

The Estimated Useful Life for road assets have been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Finally, the Average Remaining Service Life represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Figure 8: Roads Estimated Useful Life



Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with observed length of service life for each asset type.

The above LCB road assets with 0-5 years remaining include Riverview Road and Handi-Spot Road (both located in Serpent River).

Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment.

The following table expands on the Township's current approach to lifecycle management:

Table 7: Roads Asset Management

Activity Type	Description of Current Strategy
Maintenance	**Gravel Roads:** Back blading and hole fillings are undertaken on an "as needed" or "as necessary" basis as there is very low traffic and as there are capacity and availability of funding concerns. Annual operating budgets include patching, resurfacing, and grading expenses.
	Paved Roads: Cold patch is used on an "as needed" or "as necessary" basis. Annual operating budgets include patching, resurfacing, and grading expenses.
	LCB Roads: Cold patch is used on an "as needed" or "as necessary" basis. Annual operating budgets include patching, resurfacing, and grading expenses.
Rehabilitation	Ability to implement a proactive rehabilitation strategy (including re-surfacing) is limited due to availability of funding.

	Based on life expectancy or roads, staff expect surface pavement to re-surface 20 years and full road reconstruction approximately every 60-80 Years (depending on actual road condition).
	Rehabilitation projects are prioritized based on life expectancy, health & safety concerns and traffic counts.
Replacement	Full road reconstruction is not common and is mostly cost effective when coordinated with sub-surface infrastructure (water/sewer), if any.
	The Township expects to rehabilitate very poor roads, such as Riverview Road in Serpent River, which is expected to be funded through grants (ICIP,CCBF (FGT).

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. See Appendix A for the criteria used to determine the risk rating of each asset.

Figure 9: Roads Asset Risk & Criticality

Probability					
5	$-	$35,000.00	$-	$-	$340,000.00
4	$-	$-	$-	$-	$121,535.78
3	$13,000.00	$-	$-	$100,000.00	$-
2	$47,539.72	$109,000.00	$-	$-	$826,014.90
1	$34,100.65	$68,109.04	$178,394.71	$-	$259,207.71
	1	2	3	4	5
	Consequence				

Critical Assets

The identification of critical assets will allow the Municipality to determine appropriate risk mitigation strategies and treatment options. This may include

asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The above matrix provides a high-level overview of the level of risk present according to the criteria outlined in Appendix A. This is a high-level model developed for the purposes of this AMP and Municipality staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Municipality's current level of service for the Road Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

Table 8: Roads Asset Levels of Service

Service Attribute	Condition Rating Score	Probability of Failure Score
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	See Appendix B
Quality	Description or images that illustrate the different levels of road class condition.	See Appendix B

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Road Network.

Table 9: Roads Asset Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	Total of 15.05km due to road wideness, low traffic level, and low sped of 50km/h or below.
Quality	Average pavement condition index for paved roads in the municipality	5 - Very Good
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	3.63 - Fair/Good

Bridges & Culverts

The Township's culverts are maintained by the Public Roads department. The maintenance and rehabilitation of Township bridges are undertaken by engineers and contractors.

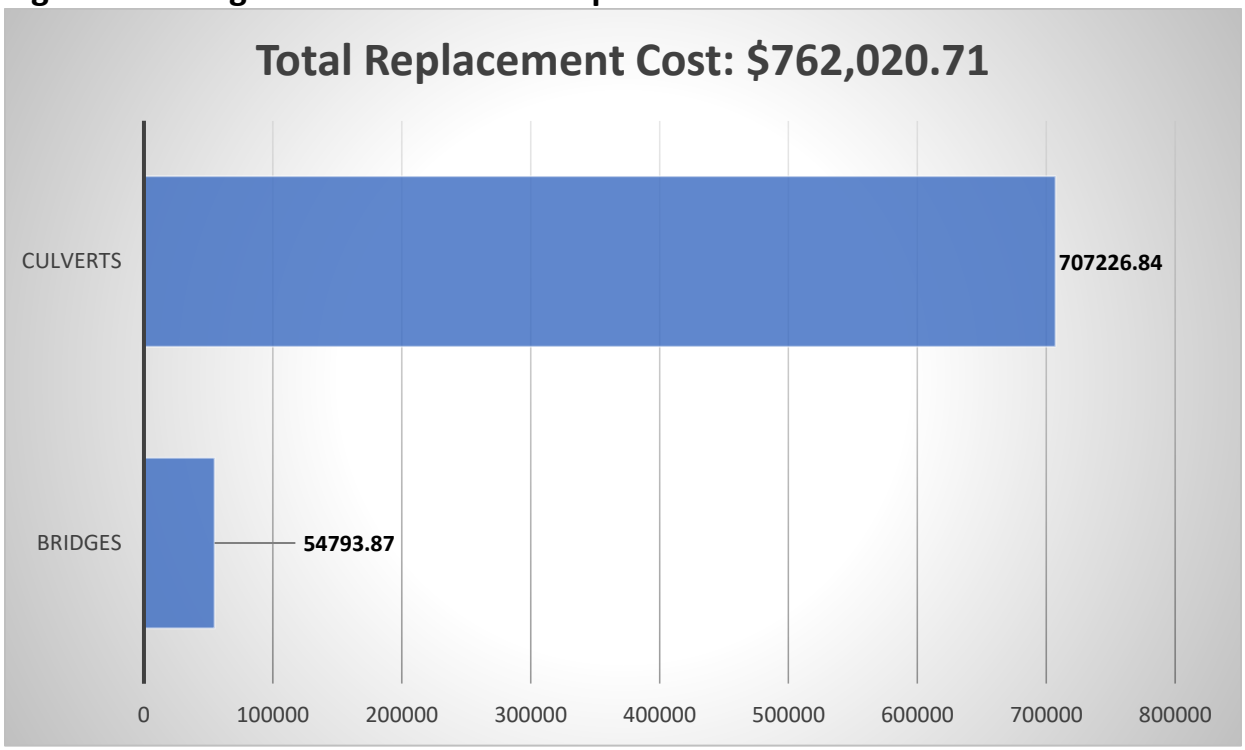
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's bridges & culverts inventory.

Table 10: Bridges & Culverts Asset Inventory

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	2	Engineer Report/Actual/Estimates	$54,793.87
Culverts	61	Engineer Report/Actual/Estimates	$707,226.84
			$762,020.71

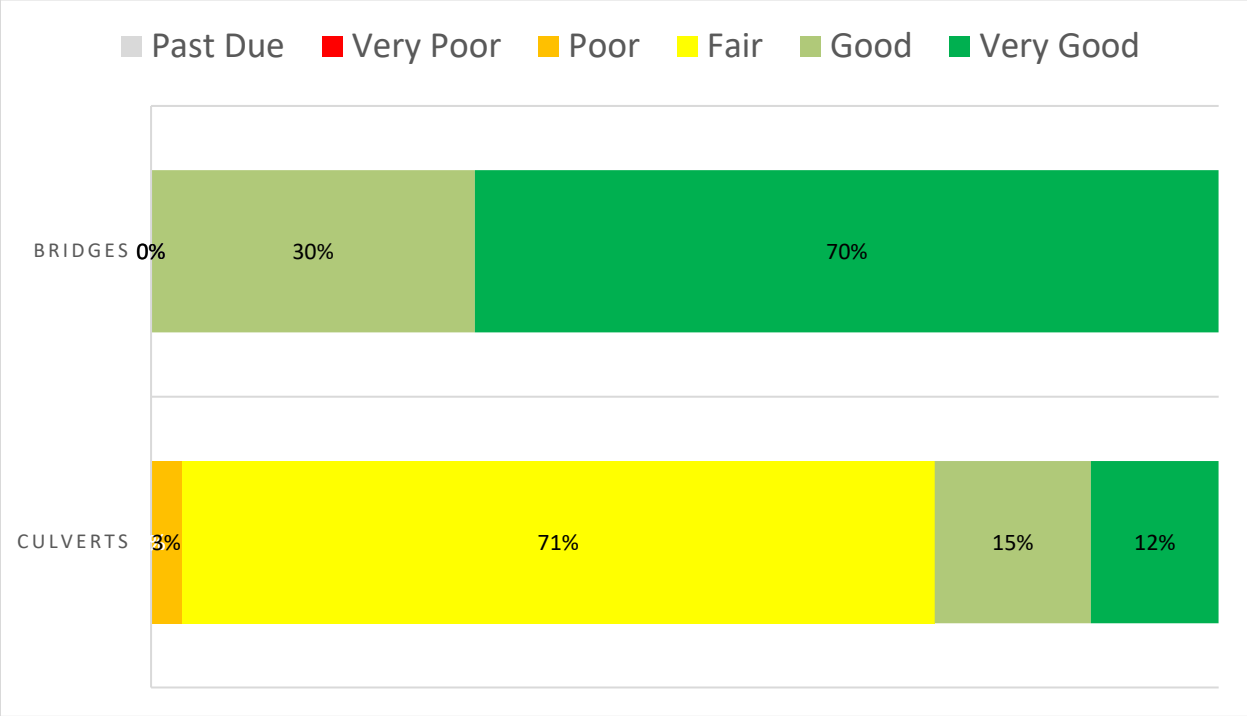
Figure 10: Bridges & Culverts Asset Replacement Cost



Asset Condition

The table below identifies the current average condition of available condition data for each asset segment.

Figure 11: Bridges & Culverts Asset Condition



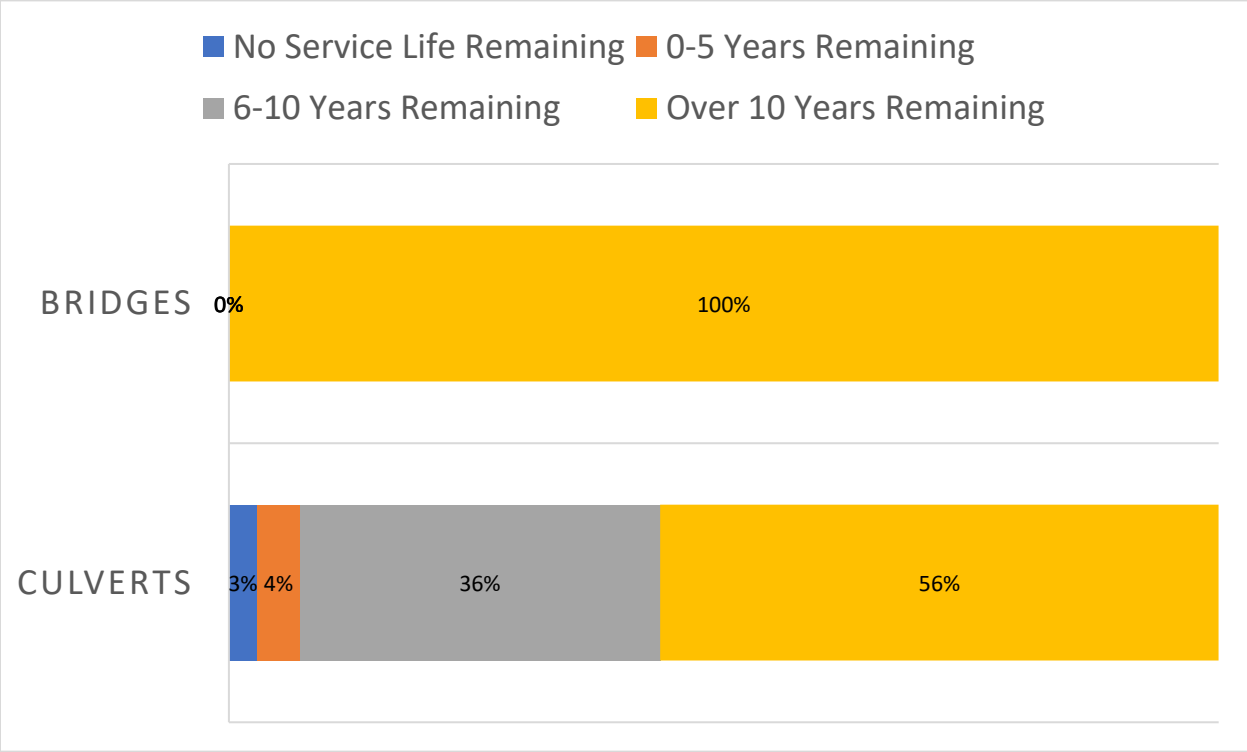
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The *Public Transportation and Highway Improvement Act* requires that all provincial and municipal bridges be inspected every two years under the direction of a professional engineer using the Ministry's Ontario Structure Inspection Manual. The Inspection Manual requires these biennial inspections to be a "close-up" visual assessment of each element of a bridge as well as its material defects, performance deficiencies, and maintenance and rehabilitation needs. Municipalities are responsible for the bridges in their jurisdictions.

Estimated Useful Life & Average Age

The Estimated Useful Life for bridge and culvert assets have been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Finally, the Average Remaining Service Life represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Figure 12: Bridges & Culverts Asset Estimated Useful Life



Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with observed length of service life for each asset type.

Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of

customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township's current lifecycle management strategy:

Table 11: Bridges & Culverts Asset Management

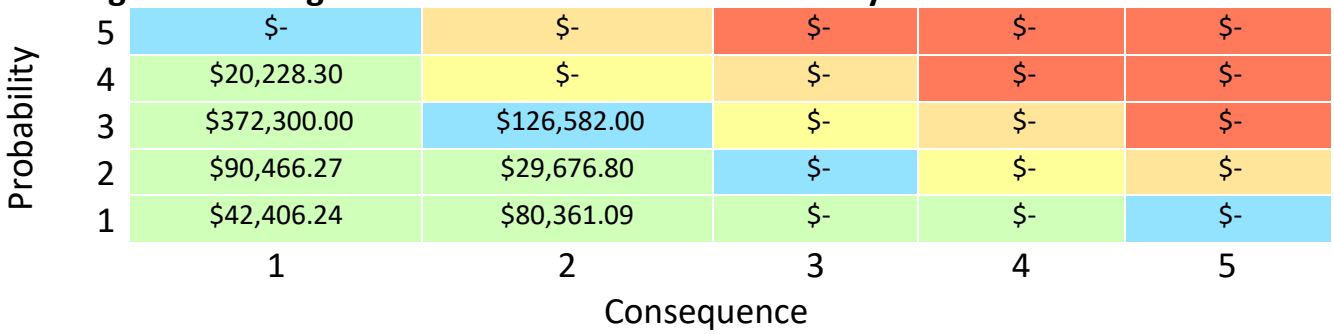
Activity Type	Description of Current Strategy
Maintenance	Annual operating budgets include maintenance allocations for bridges and culverts (Acct#1-4-2300-2060) as well as for culvert thawing (Acct#1-4-2300-2068).
	The annual operating budget amounts for culvert maintenance changes from year to year, depending on the current annual needs, as determined by the Public Works department.
Rehabilitation	The Old-Hydro Road Bridge in Spragge and the Lauzon Creek Bridge in Algoma Mills have both recently been repaired (2017).
	Health & safety issues are address immediately.
Replacement	Existing bridges are relatively new and no reconstruction projects are expected in the near future.
	The Township expects to replace a set amount of culverts every year. Whenever there are road repairs, culverts are assessed for potential replacement.

<u>Risk & Criticality</u>

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets

within this asset category. See Appendix A for the criteria used to determine the risk rating of each asset.

Figure 13: Bridges & Culverts Asset Risk & Criticality



Critical Assets

The identification of critical assets will allow the Municipality to determine appropriate risk mitigation strategies and treatment options. This may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The above matrix provides a high-level overview of the level of risk present according to the criteria outlined in Appendix A. This is a high-level model developed for the purposes of this AMP and Municipality staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Municipality's current level of service for the bridges & culverts. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

Table 12: Bridges & Culverts Asset Levels of Service

Service Attribute	Condition Rating Score	Probability of Failure Score
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport,	The bridge on Old Hydro Road in Spragge is a one-lane bridge with a weight capacity of 5 tonnes for

	vehicles, motor vehicles, emergency vehicles pedestrians, cyclists)	local, light traffic. The Lauzon Creek bridge in Algoma Mills is meant for pedestrians, cyclists, snow machines, trail groomer and ATVs. The weight capacity is 5 tonnes.
Quality	Description of images of the condition of bridges and how this would affect use of the bridges	See Appendix B
	Description or images of the condition of culverts and how this would affect use of the culverts	See Appendix B

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Bridges & Culverts

Table 13: Bridges & Culverts Asset Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of bridges and structural culverts in the municipality with loading or dimensional restrictions	100% of Bridges 0% of Culverts
Quality	Average bridge condition index value for bridges in the municipality	5 - Very Good
	Average culvert condition index value for structural culverts in the municipality	3.26 - Fair

Water Network

The Township of the North Shore operates and maintains 2 small water networks that services approximately 50 households. The water treatment plant has a rated capacity of 80m^3/day for Pronto East subdivision, and 243 m^3/day for Serpent River. The water network is subject to numerous Acts and Regulations and is regularly subjected to compliance-based certification processes.

The Water Network is operated and maintained throughout the year by PUC.

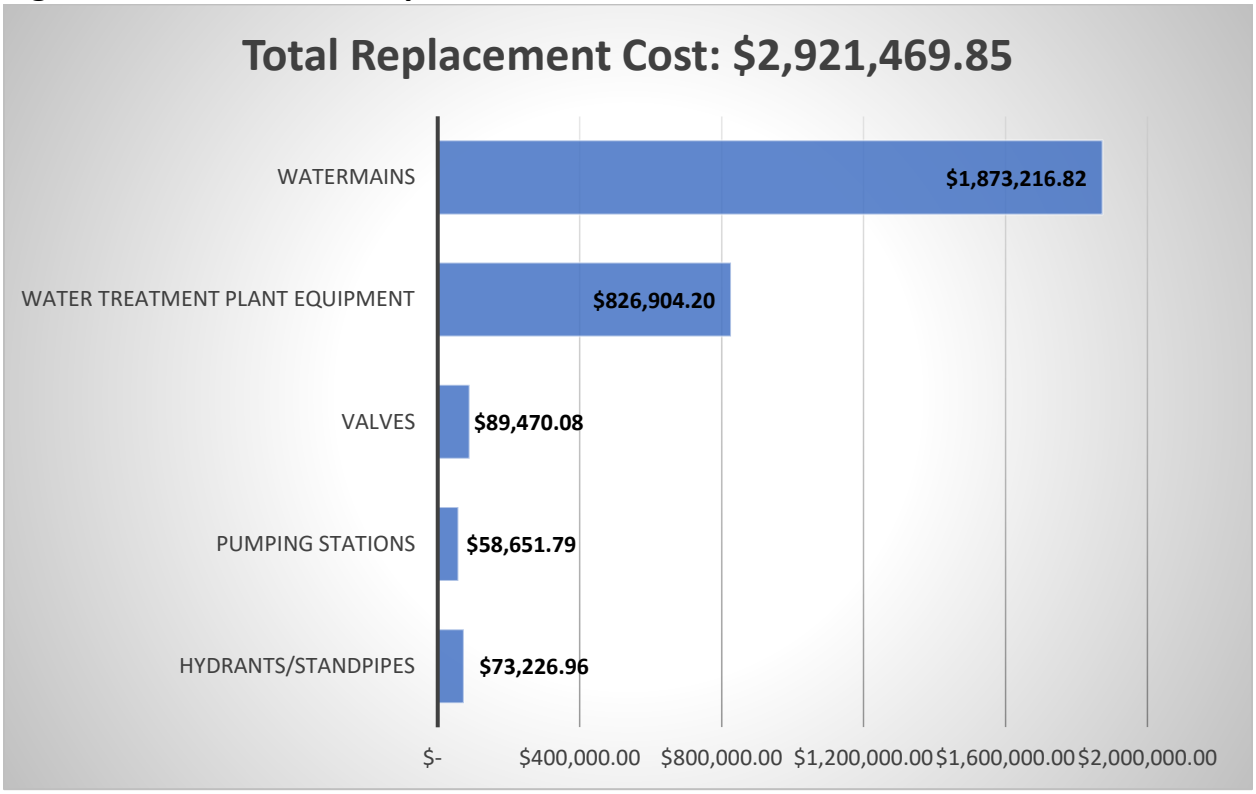
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Water Network inventory. The Water treatment plant buildings are included in the "Building" asset category.

Table 14: Water Asset Inventory

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hydrants/Standpipes	10	Estimates/Operating Reports/Actual	$73,226.96
Pumping Stations	2	Estimates/Operating Reports/Actual	$58,651.79
Valves	>50	Estimates/Operating Reports/Actual	$89,470.08
Water Treatment Plant Equipment		Estimates/Operating Reports/Actual	$826,904.20
Watermains		Estimates/Operating Reports/Actual	$1,873,216.82
			$2,921,469.85

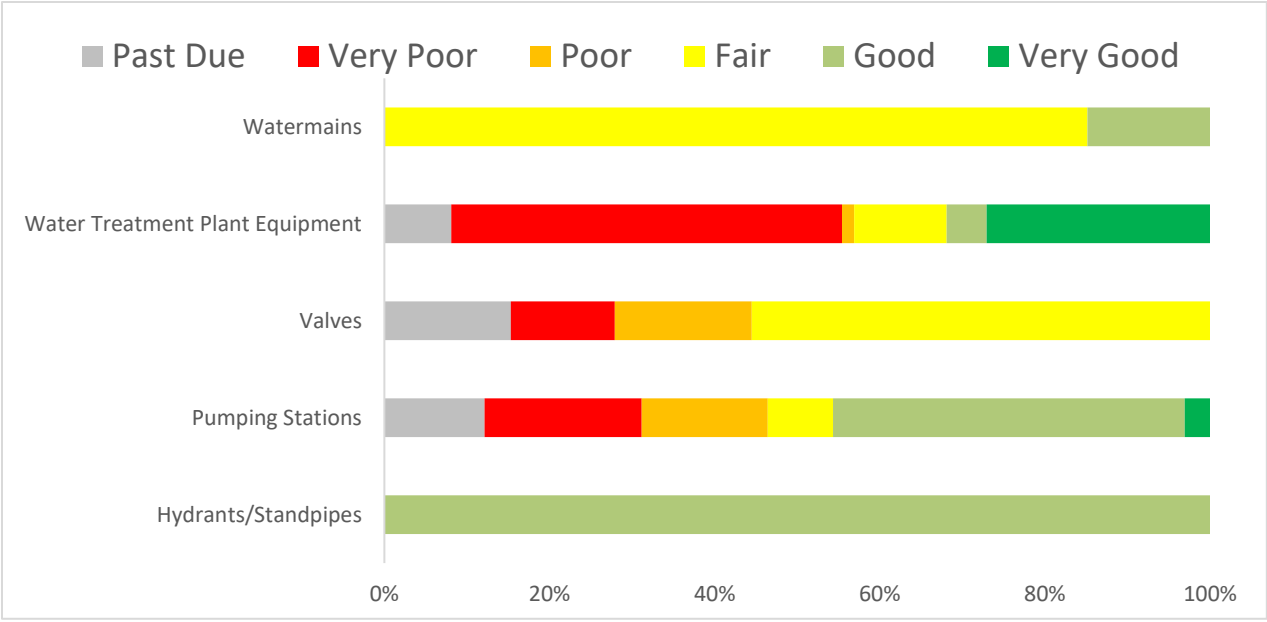
Figure 14: Water Asset Replacement Cost



Asset Condition

The table below identifies the current average condition of available condition data for each asset segment.

Figure 15: Water Asset Condition



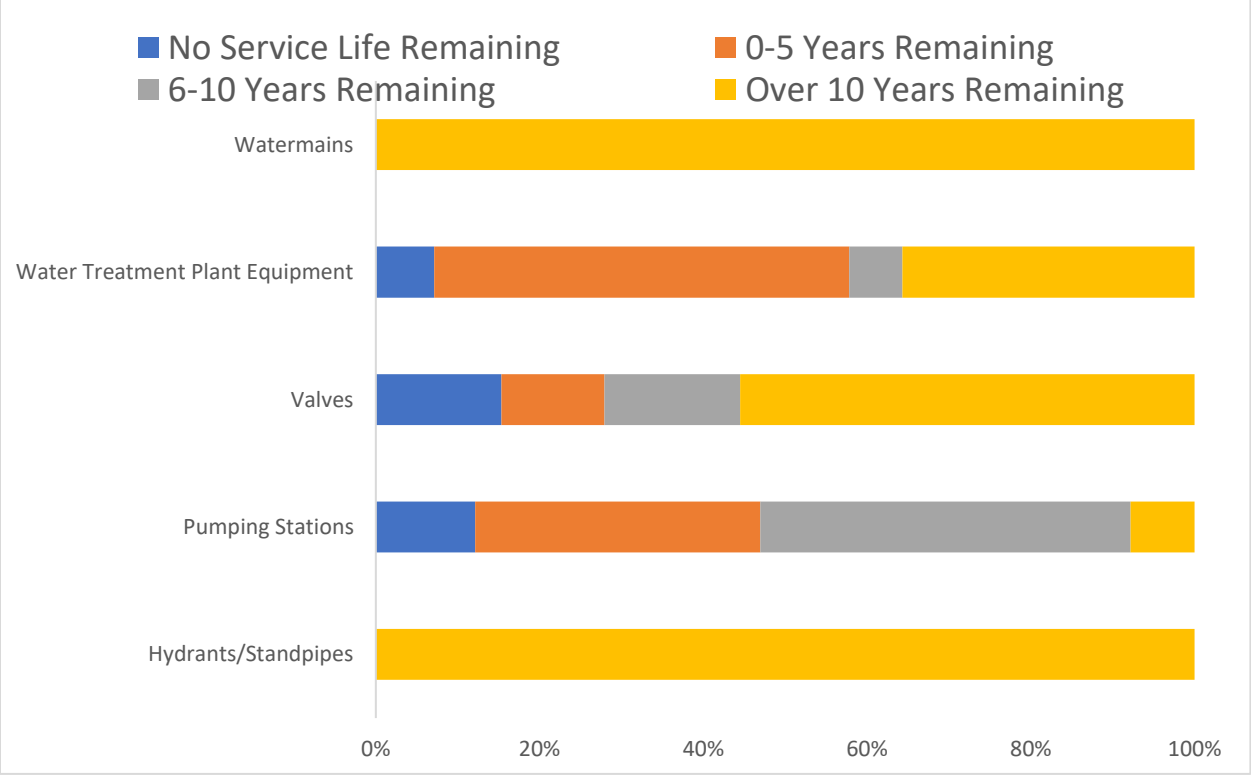
To ensure that the Municipality's Water Network continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Water Network.

Estimated Useful Life & Average Age

The Estimated Useful Life for Water Network assets have been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Finally, the Average Remaining Service Life represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Figure 16: Water Asset estimated Useful Life



Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with observed length of service life for each asset type.

Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township's current lifecycle management strategy:

Table 15: Water Asset Management

Activity Type	Description of Current Strategy
Maintenance	Water sampling is conducted weekly for the DWS at the frequencies and locations identified by Schedule 11 of O. Reg. 170/03 for Small Municipal Residential Systems.
	Pronto East's raw and treated water samples are collected from WTP sample sink that is equipped with pump from the raw water header. Distribution samples are collected from either of the two sampling stations and from residential dwellings during the winter months. Distribution samples are collected more frequently (weekly) than required by regulation.
	The Serpent River water treatment plant uses a slow sand filtration process and chlorination to achieve the primary treatment requirements. Two slow sand filters operate at a combined rate of 243 cubic meters/day. Alkalinity is adjusted by flowing the filtered water through crushed dolomite limestone. Water is disinfected using sodium hypochlorite in the clear well. Chlorine residual is measured at the end of the treatment process, at the high lift discharge at the end of the clear well. Chemicals utilized at the Serpent River Treatment plant include sodium Hypochlorite for primary and secondary disinfection. Serpent River's raw water samples are collected from the raw water header. Treated samples are collected

	from a sample tap from the treated discharge header prior to distribution. Distribution samples are collected from the furthest point in the distribution system at the Firehall. Other locations may be sampled as required.
	Operational testing is completed as per Schedule 6 & 7 of O. Reg. 170/03 for Small Municipal Residential Systems. These check s and testing are completed on site at the water treatment facility by licensed operators. Continuous monitoring analyzers (collecting 5 minute readings) are utilized for measurement of filter turbidity and chlorine residuals.
Rehabilitation/ Replacement	Both water treatment plants need part replacements in order to be compliant with changing regulations. Lack of funding is creating a large back-log for both Water Treatment Plant systems.
	Replacing components of water distribution system is more reactive and depends on the identification of breaks, leaks, or other operational concern.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. See Appendix A for the criteria used to determine the risk rating of each asset.

Figure 17: Water Asset Risk & Criticality

Probability					
5	$128,660.23	$28,137.72	$-	$-	$345,000.00
4	$35,735.50	$-	$-	$-	$-
3	$47,860.37	$99,280.00	$-	$-	$1,595,232.82
2	$64,930.11	$-	$73,226.96	$-	$277,984.00
1	$43,404.53	$88,000.00	$-	$94,017.60	$-
	1	2	3	4	5

Consequence

Critical Assets

The identification of critical assets will allow the Municipality to determine appropriate risk mitigation strategies and treatment options. This may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The above matrix provides a high-level overview of the level of risk present according to the criteria outlined in Appendix A. This is a high-level model developed for the purposes of this AMP and Municipality staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Municipality's current level of service for the water network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

Table 16: Water Asset Levels of Service

Service Attribute	Condition Rating Score	Probability of Failure Score
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system.	See Appendix B
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	See Appendix B
Reliability	Description of boil water advisories and service interruptions.	Maintenance and rehabilitation of our water systems can lead to temporary disruptions. The length of the interruption would

		depend on the nature of the maintenance or rehabilitation. Water main breaks may require several blocks to be turned off during the time of repair, and sufficient notice is provided to all directly affected.

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Water Network.

Table 17: Water Asset Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of properties connected to the municipal water system.	8%
	% of properties where fire flow is available.	0%
Reliability	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system.	0.1
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system.	0.1

This AMP includes the newly installed back-up generator located at the Serpent River Water Treatment Plant, as required by the Province since 2018 due to numerous potential hazards and poor condition & poor reliability.

The Township of the North Shore continues to fail compliance in order to meet amended Ontario regulations with respect to the level of HAAs. The Township has finally received funding approval in 2022 in order to fix this time sensitive problem. Engineering proposals are currently being reviewed.

Sanitary Sewer Network

The Township of the North Shore operates and maintains a very small sewage system, consisting of a sewage pumping station, forcemain, settling tanks, recirculating tank, recirculating gravel filter, de-nitrification filters, pump tank, and subsurface disposal systems.

The Sanitary Sewer Network is operated and maintained throughout the year by PUC.

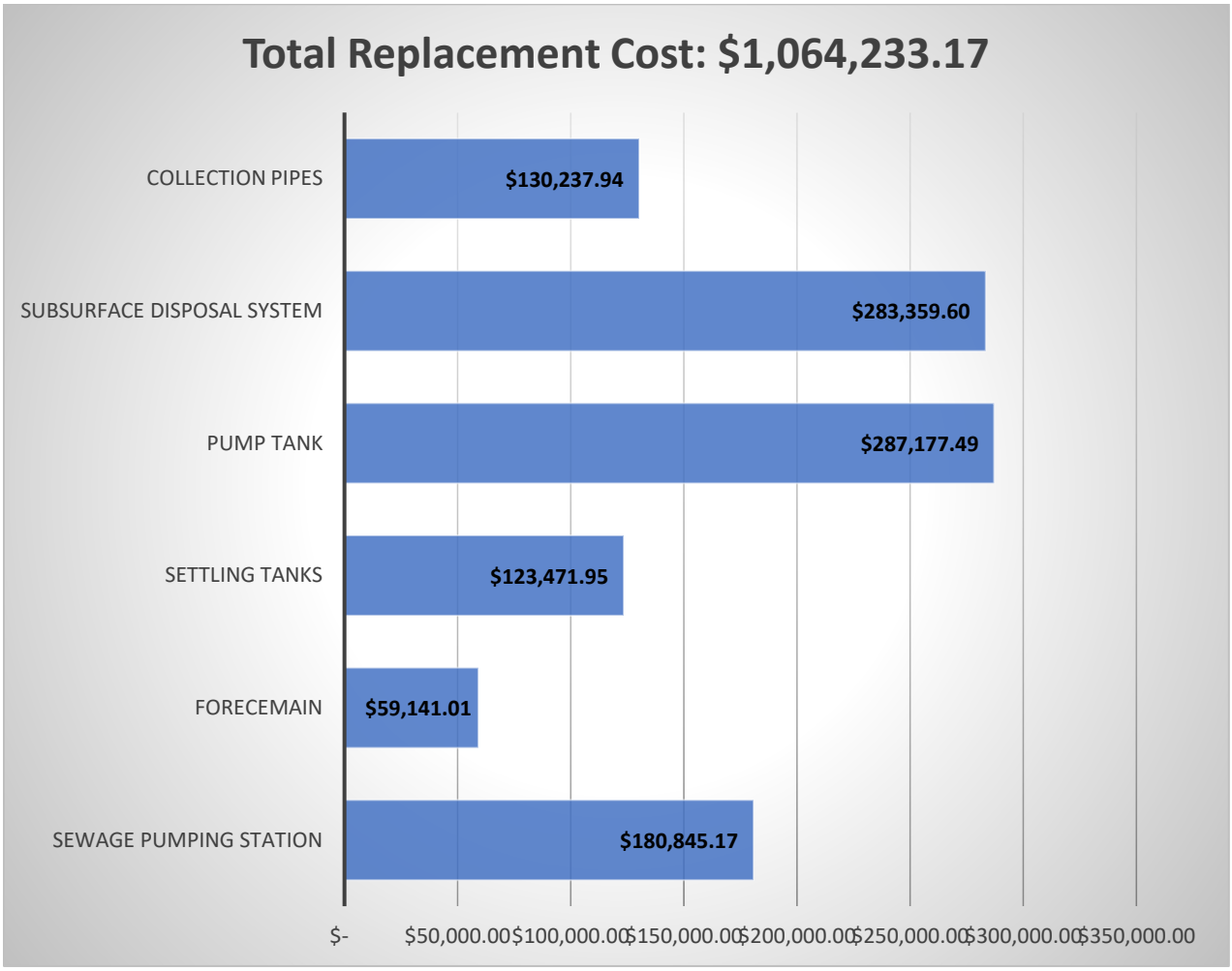
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Sanitary Sewer Network inventory.

Table 18: Sanitary Sewer Asset Inventory

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Sewage Pumping Station	1 – with 2 submersible grinder sewage pumps, each rated at 2.27 L/s	Engineer Report/Estimates	$180,845.18
Forecemain	50 mm diameter forcemain, 370 m long, running from the pumping station to the settling tanks.	Engineer Report/Estimates	$59,141.01
Settling Tanks	Three (3) 40,000 Litres each. Equipped with a 20 cm diameter effluent filter at the outlet.	Engineer Report/Estimates	$123,471.95
Pump Tank	One (1) 9000 L Capacity pump chamber	Engineer Report/Estimates	$287,177.49
Subsurface Disposal System	Eight (8) subsurface filter beds for effluent disposal ($45m^2$ each and rated at 4,500L/day each)	Engineer Report/Estimates	$283,359.60
Collection Pipes		Engineer Report/Estimates	$130,237.94
			$1,064,233.17

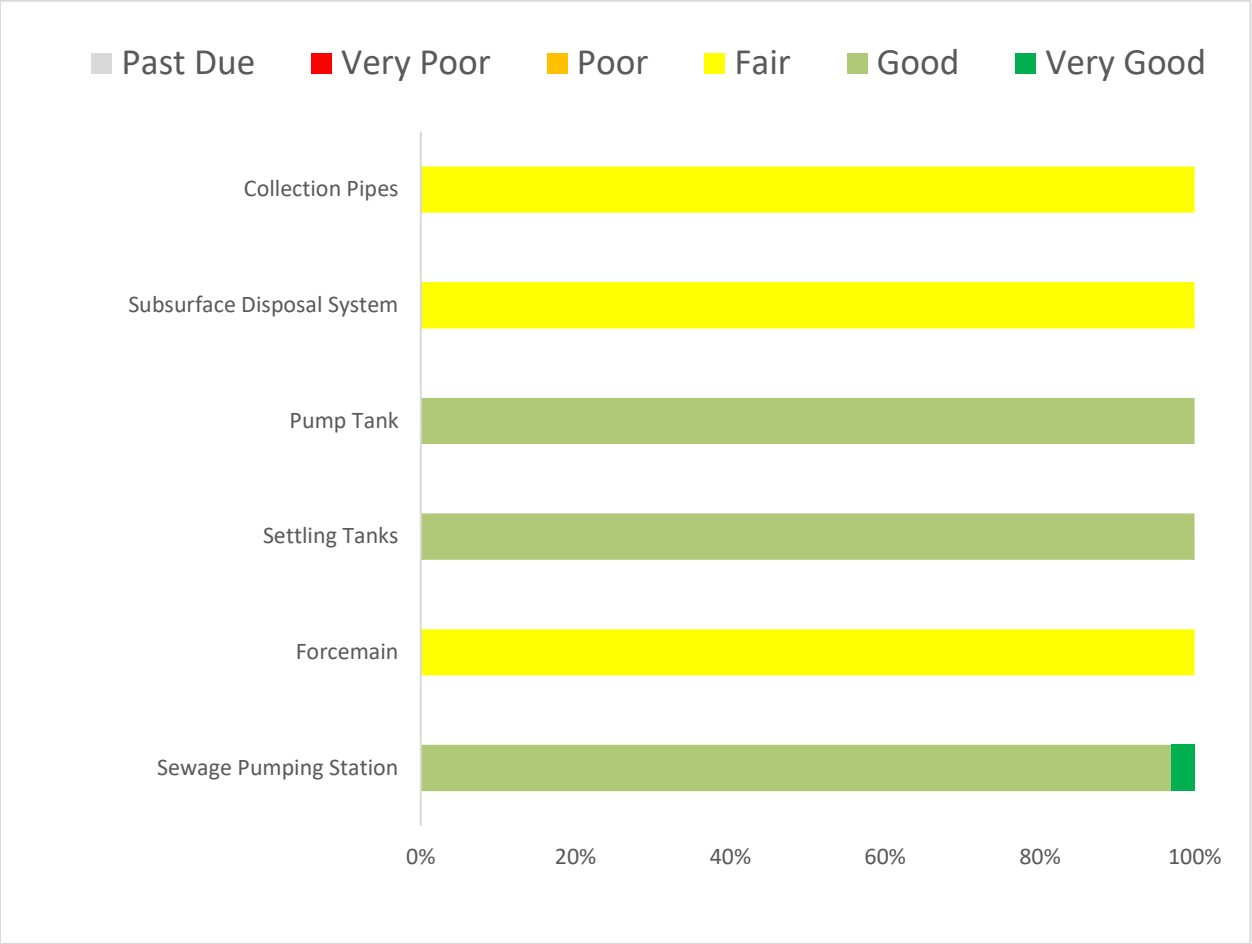
Figure 18: Sanitary Sewer Asset Replacement Cost



Asset Condition

The table below identifies the current average condition of available condition data for each asset segment.

Figure 18: Sanitary Sewer Asset Condition



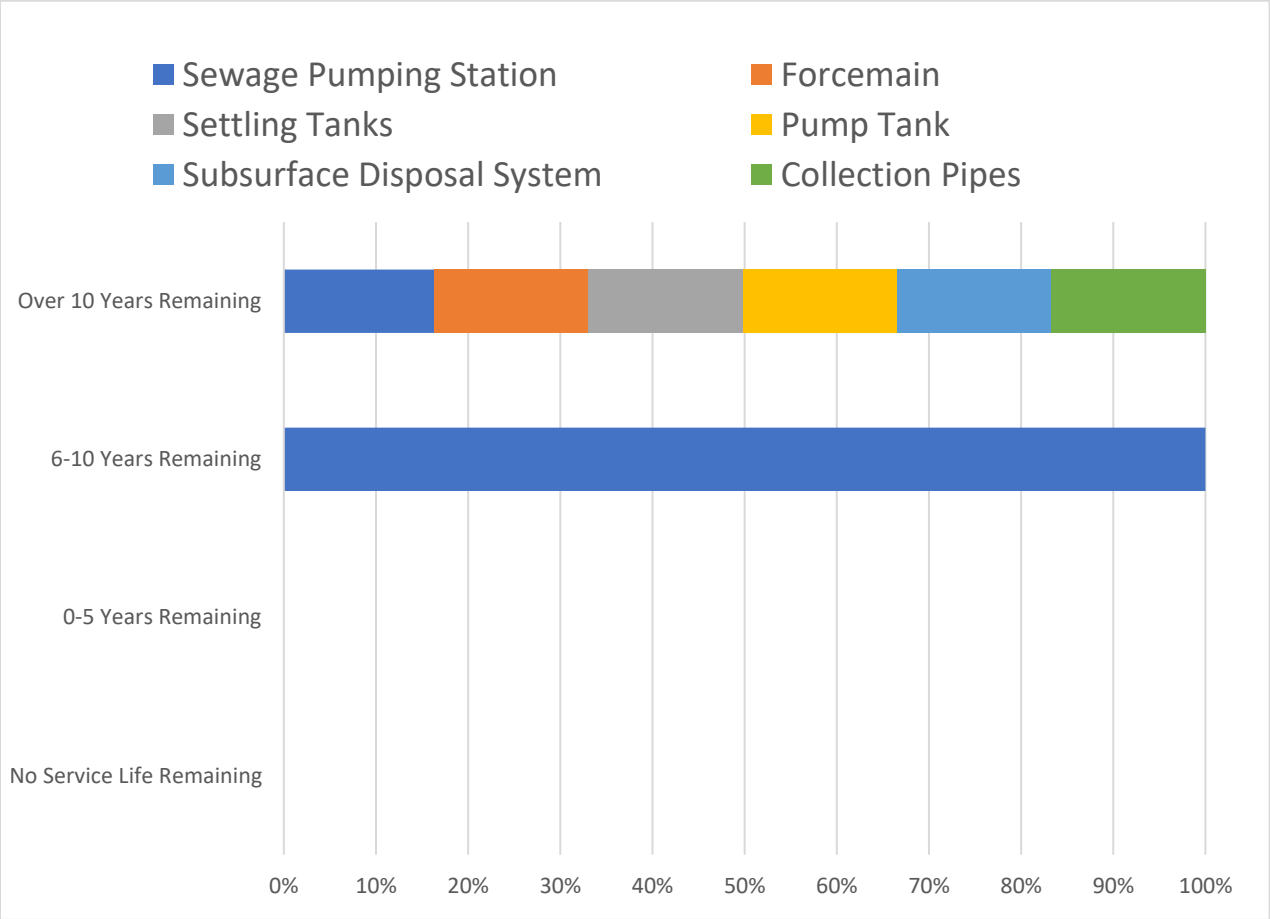
To ensure that the Municipality's Sanitary Sewer Network continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Sanitary Sewer Network.

<u>Estimated Useful Life & Average Age</u>

The Estimated Useful Life for sanitary Sewer Network assets have been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Finally, the Average Remaining Service Life represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Figure 19: Sanitary Sewer Asset Estimated Useful Life



Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with observed length of service life for each asset type.

Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township's current lifecycle management strategy:

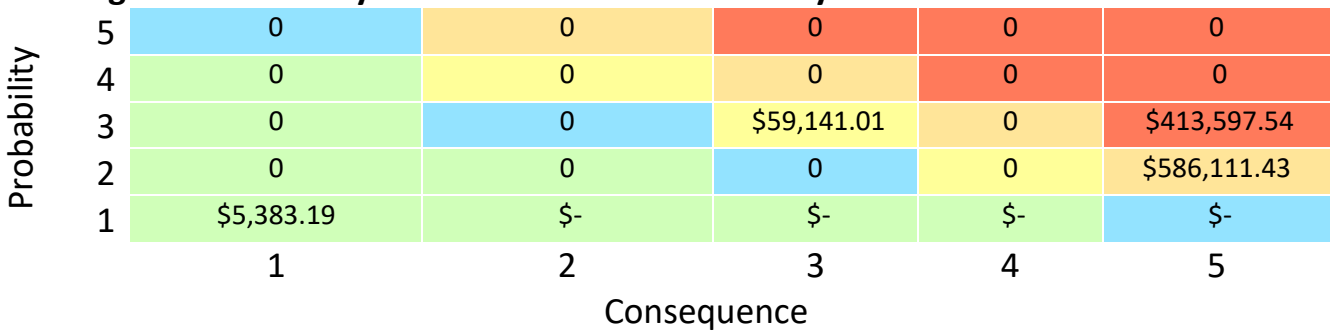
Table 19: Sanitary Sewer Asset Management

Activity Type	Description of Current Strategy
Maintenance	Operating & Maintenance strategies are primarily reactive and based on issue identification (such as blockages).
Rehabilitation/ Replacement	Future replacements will be coordinated with road/water projects.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. See Appendix A for the criteria used to determine the risk rating of each asset.

Figure 20: Sanitary Sewer Asset Risk & Criticality



Critical Assets

The identification of critical assets will allow the Municipality to determine appropriate risk mitigation strategies and treatment options. This may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The above matrix provides a high-level overview of the level of risk present according to the criteria outlined in Appendix A. This is a high-level model developed for the purposes of this AMP and Municipality staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Municipality's current level of service for the sanitary sewer network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

Table 20: Sanitary Sewer Asset Levels of Service

Service Attribute	Condition Rating Score	Probability of Failure Score
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system.	See Appendix B
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes.	No combined sewers.
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable arears or beaches.	No combined sewers.
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections, such as possible weeping tiles for

	to overflow into street or backup into homes.	example. In the case of heavy rainfall events, sanitary sewers may perhaps experience a volume of water and sewage that exceeds its designed capacity. The overflow backup into homes is very unlikely.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to stormwater infiltration.	The municipality follows a series of design standards that integrate servicing requirements and land use considerations when constructing or replacing sanitary sewers. These standards have been determined with consideration of the minimization of sewage overflows and backups.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	Drawn out with “vac truck” when/if problems occur. Otherwise, it seeps in the septic field. Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for

	municipal wastewater treatment plants.

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Sanitary Sewer Network.

Table 21: Sanitary Sewer Asset Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of properties connected to the municipal wastewater system.	3.3%
Reliability	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system.	0.6
	# of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater system.	N/A
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0

Storm Water Network

The Township is responsible for owning and maintaining the Storm Water Network in Pronto East, consisting of storm sewer mains, manholes, and drainage culverts.

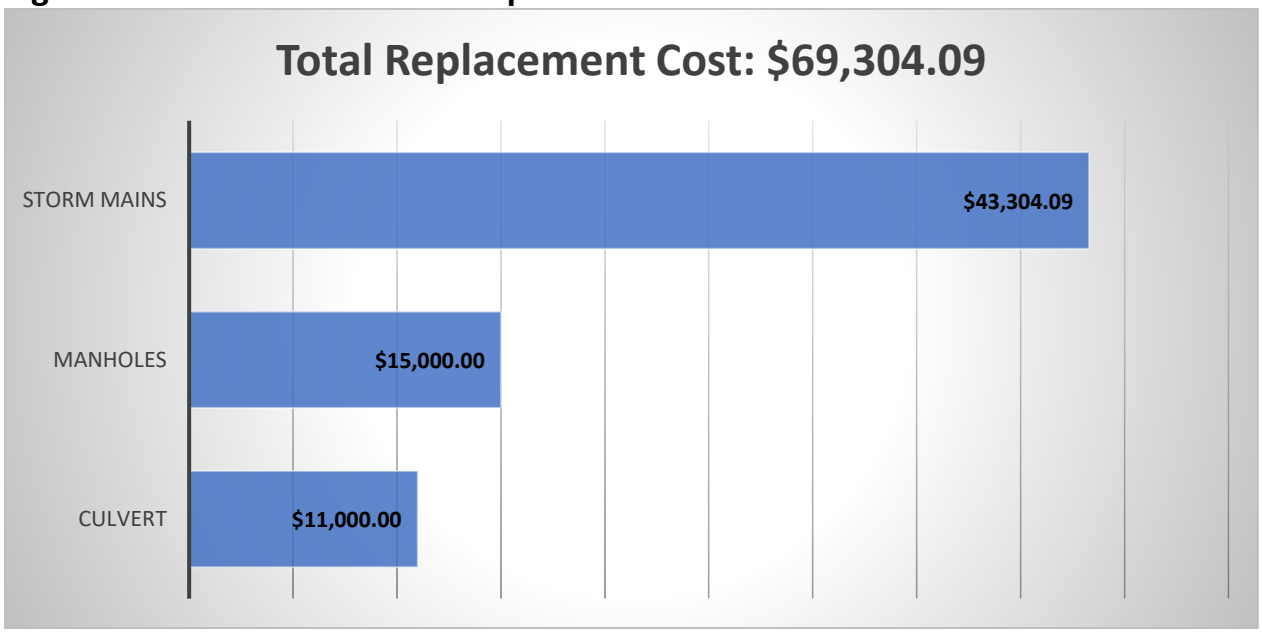
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Storm Water Network inventory.

Table 21: Storm Water Asset Inventory

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Culvert	1	Estimated/ Engineer Report	$11,000.00
Manholes	6	Estimated/ Engineer Report	$15,000.00
Storm Mains	450 meters (0.45km)	Estimated/ Engineer Report	$43,304.09
			$69,304.09

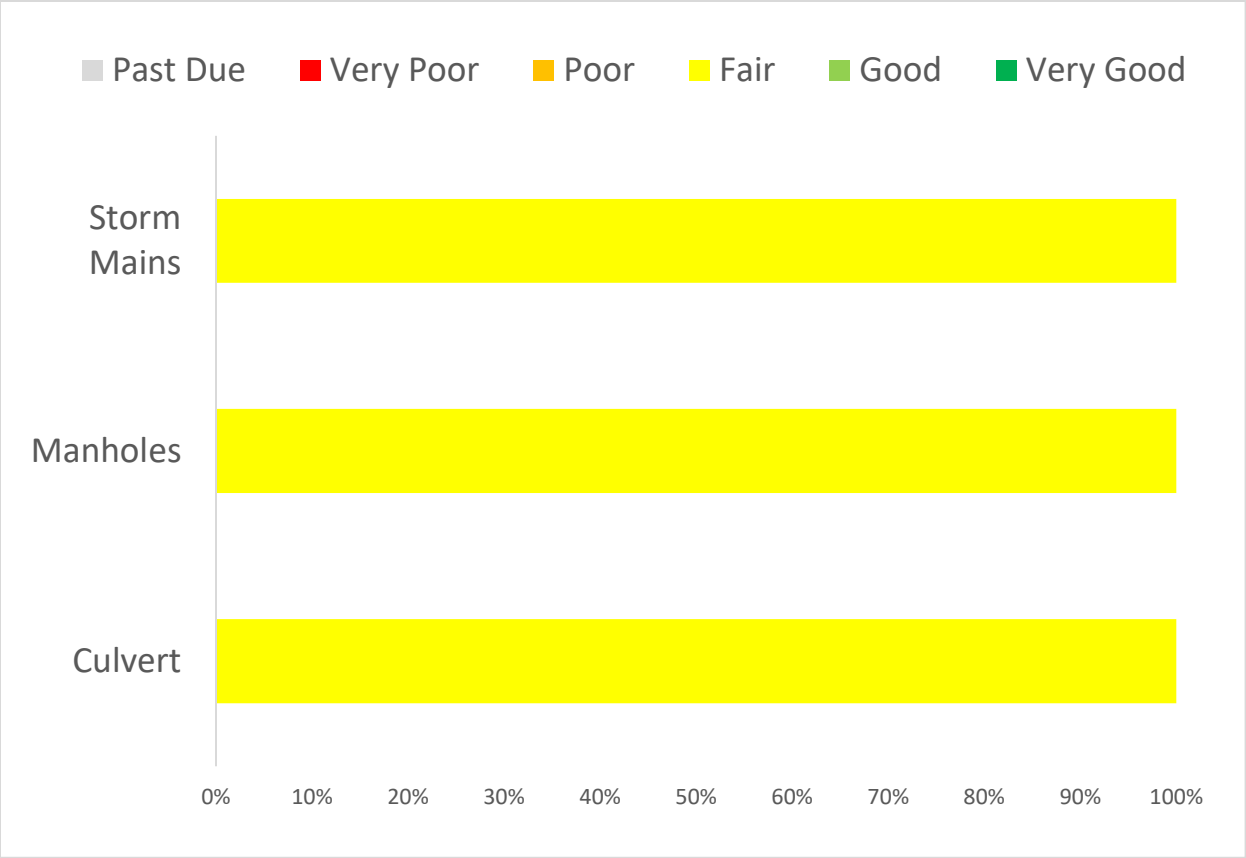
Figure 21: Storm Water Asset Replacement Cost



Asset Condition

The table below identifies the current average condition of available condition data for each asset segment.

Figure 22: Storm Water Asset Condition



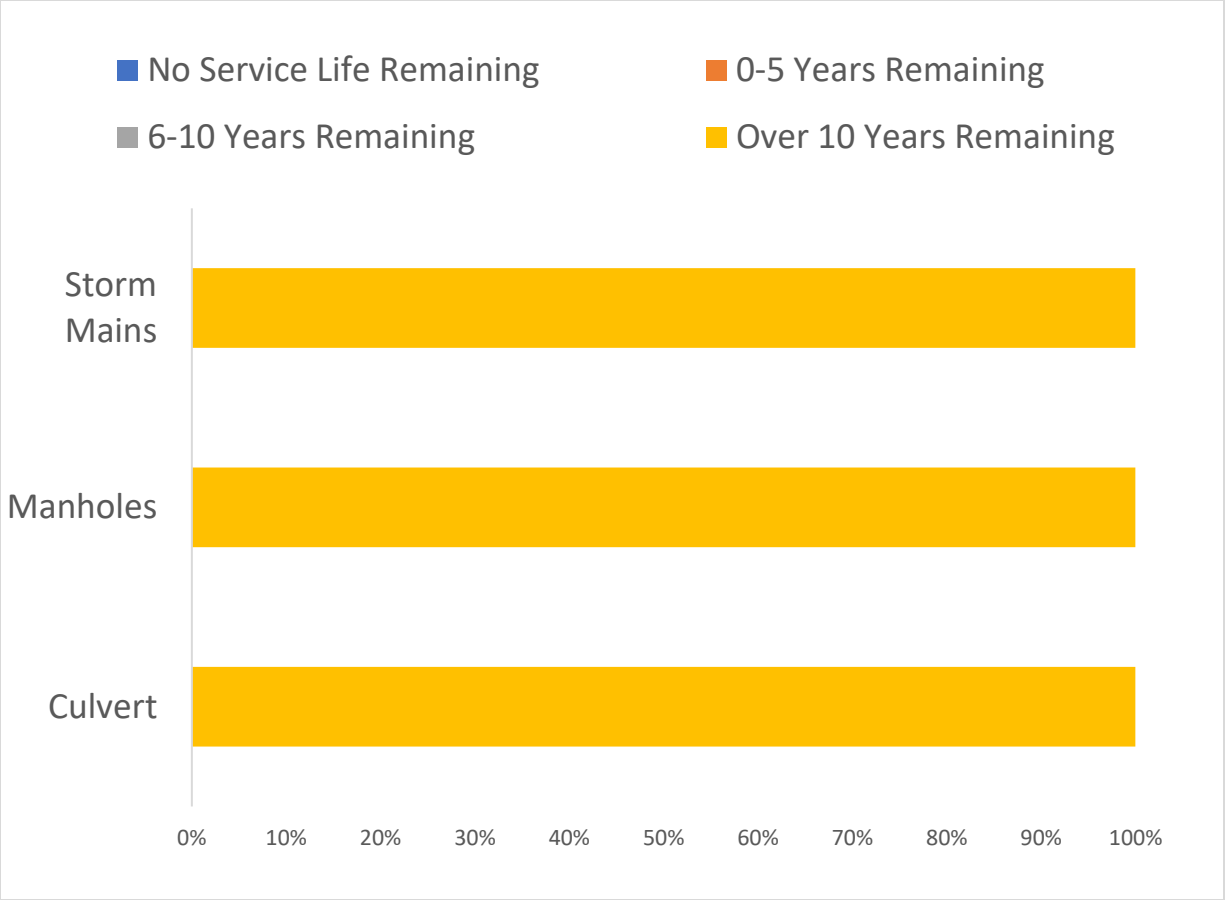
To ensure that the Township's Storm Water Network continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is requires to increase the overall condition of the Storm Water Network.

Estimated Useful Life & Average Age

The Estimated Useful Life for Storm Water Network assets have been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Finally, the Average Remaining Service Life represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Figure 23: Storm Water Asset Estimated Useful Life



Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with observed length of service life for each asset type.

Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township's current lifecycle management strategy:

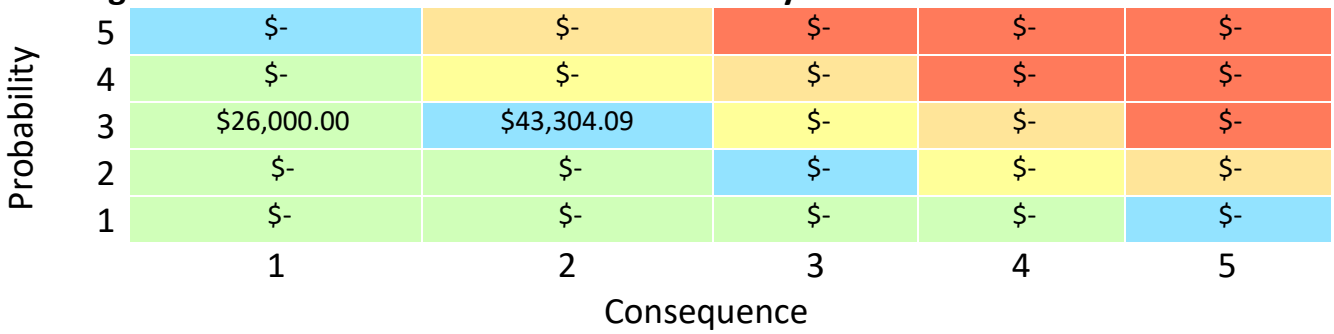
Table 22: Storm Water Asset Management

Activity Type	Description of Current Strategy
Maintenance	Any blockages or obstructions are removed from storm sewer mains as identified.
	Freeze/thaw can pose some risks.
	Fairly minimal operating and maintenance costs for the storm sewer network.
Replacement	Replacement of storm sewer infrastructure is not very common.
	Any replacement projects would be based on condition any capacity concerns and the availability of funding.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. See Appendix A for the criteria used to determine the risk rating of each asset.

Figure 24: Storm Water Asset Risk & Criticality



Critical Assets

The identification of critical assets will allow the Municipality to determine appropriate risk mitigation strategies and treatment options. This may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The above matrix provides a high-level overview of the level of risk present according to the criteria outlined in Appendix A. This is a high-level model developed for the purposes of this AMP and Municipality staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following tables identify the Municipality's current level of service for the Storm Sewer Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

Table 23: Storm Water Asset Levels of Service

Service Attribute	Condition Rating Score	Probability of Failure Score
Scope	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system.	See Appendix B

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Storm Sewer Assets.

Table 24: Storm Water Asset Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of properties in municipality resilient to a 100-year storm.	0% – Insufficient data to confidently determine.
	% of the municipal stormwater management system resilient to a 5-year storm.	100%

APPENDIX "A": Risk Rating Criteria

Probability of Failure:

Asset Category Rated
Roads
Bridges & Culverts
Storm Water
Water
Wastewater

Risk Criteria	Condition Rating Score	Probability of Failure Score
Condition	5	1
	4	2
	3	3
	2	4
	1	5

Consequence of Failure:

Asset Category	Risk Criteria	Value/Range	Consequence of Failure Score
Roads	Replacement Cost	$110,000 +	5
		$80,000 - $110,000	4
		$50,000 - $80,000	3
		$20,000 - $50,000	2
		$0 - $20,000	1
Bridges & Culverts	Replacement Cost	$110,000 +	5
		$80,000 - $110,000	4
		$50,000 - $80,000	3
		$20,000 - $50,000	2
		$0 - $20,000	1
Storm Water	Replacement Cost	$110,000 +	5
		$80,000 - $110,000	4
		$50,000 - $80,000	3
		$20,000 - $50,000	2
		$0 - $20,000	1
Water	Replacement Cost	$110,000 +	5
		$80,000 - $110,000	4
		$50,000 - $80,000	3
		$20,000 - $50,000	2
		$0 - $20,000	1
Wastewater	Replacement Cost	$110,000 +	5
		$80,000 - $110,000	4
		$50,000 - $80,000	3
		$20,000 - $50,000	2
		$0 - $20,000	1

APPENDIX “B”: Level of Service Maps & Images

ROADS:

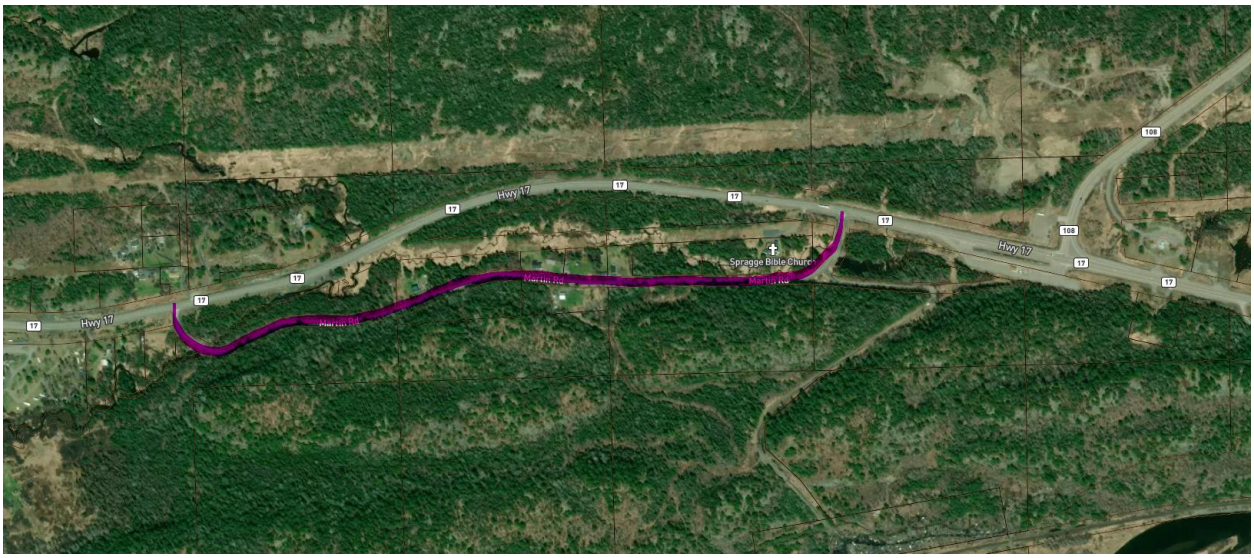
Air Service Road, Holiday Lane, Lauzon Avenue, Miranda Blvd, Vivian Blvd.

Sunview Drive (Cedar Point Drive), Lauzon Village Road, Lau Camp Road (1st Km).

Long Street, Short Street

Pronto Road

Old Hydro Road, Old Mill Road, Wagoosh Lake Road, Yacht Club Road (Pater Boat Launch Road)



Martin Road

Riverview Road, Whalen Lane, Handi-spot Road

Lookout Road

“VERY GOOD” PAVEMENT ROAD CONDITION:

EXAMPLE OF WHAT A "POOR" <u>PAVEMENT</u> ROAD CONDITION WOULD LOOK LIKE:

“VERY GOOD” LCB ROAD CONDITION:

“GOOD” LCB ROAD CONDITION:

“POOR” <u>LCB</u> ROAD CONDITION:

“VERY POOR” LCB ROAD CONDITION:

“GOOD” GRAVEL ROAD CONDITION:

“VERY GOOD” GRAVEL ROAD CONDITION:

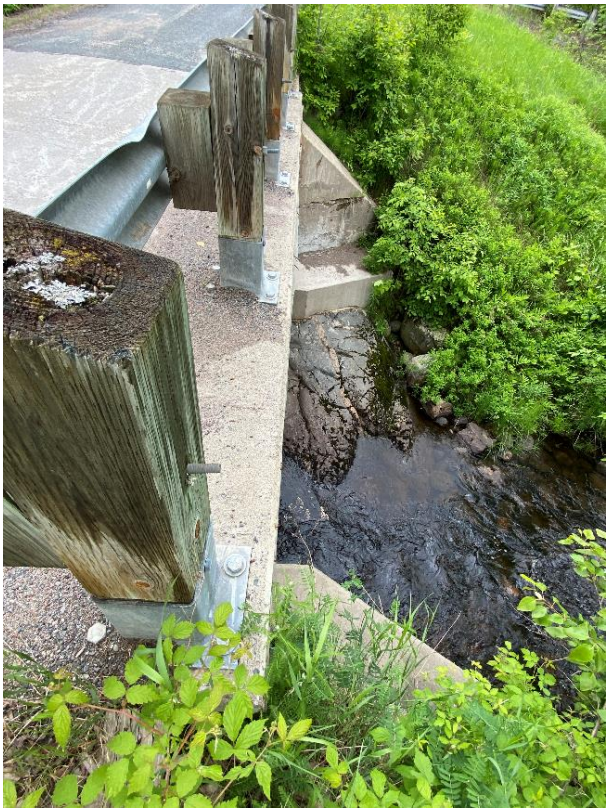
BRIDGES & CULVERTS:

“VERY GOOD” CULVERT CONDITION (Usually Plastic Culverts):

“GOOD” CULVERT CONDITION:

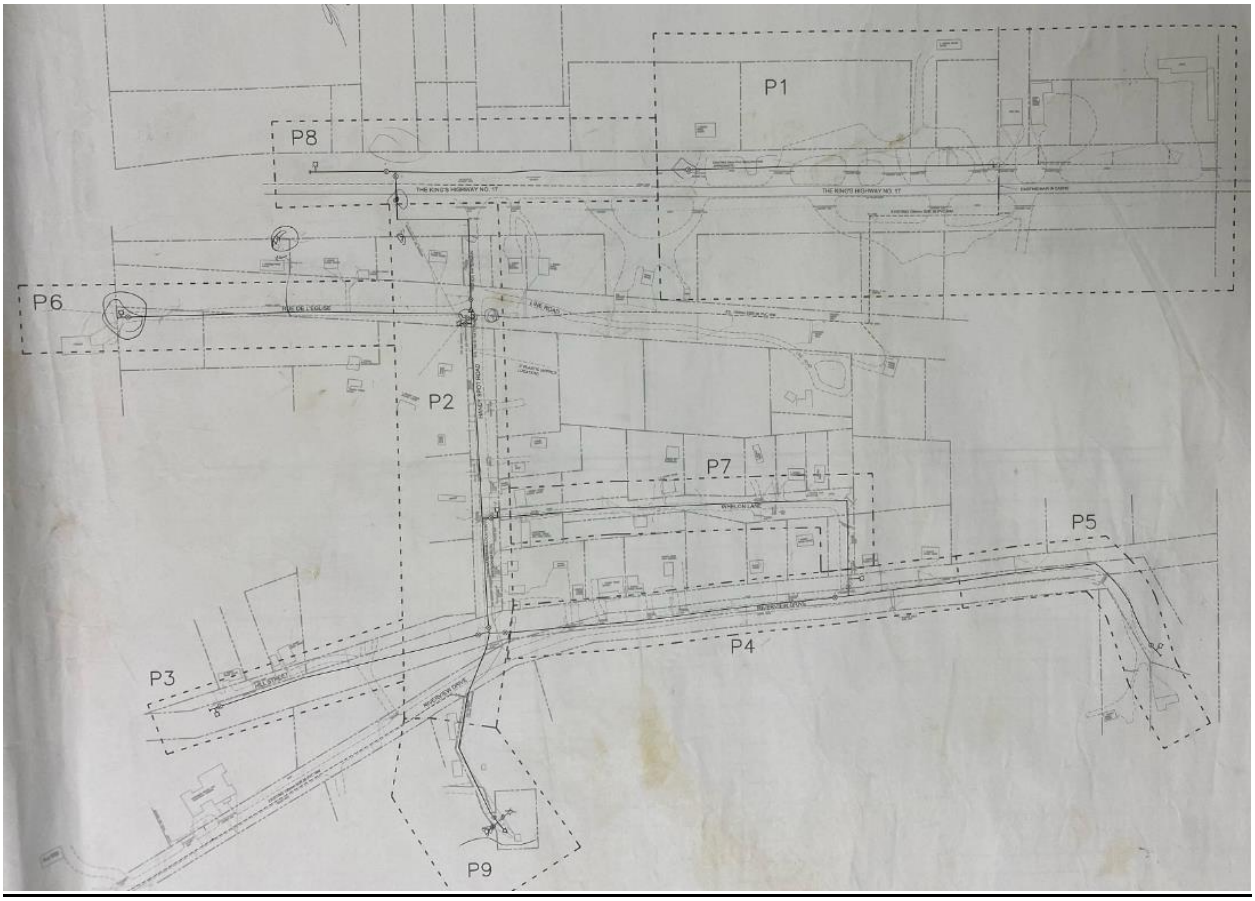
“POOR” CULVERT CONDITION:

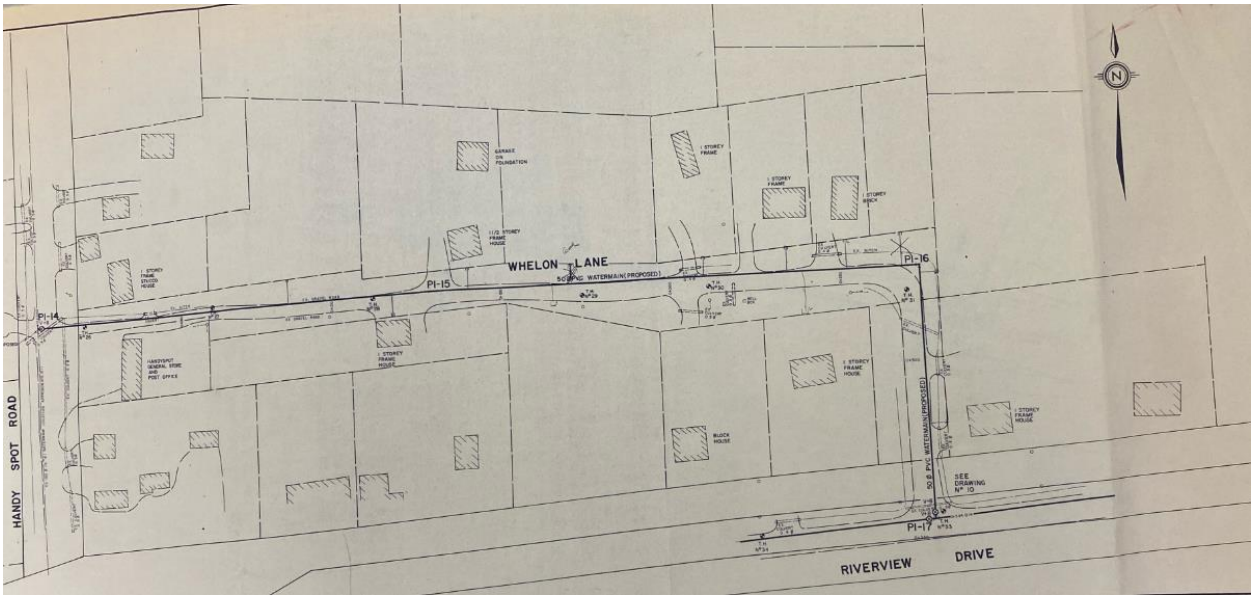
“VERY GOOD” BRIDGE CONDITION:

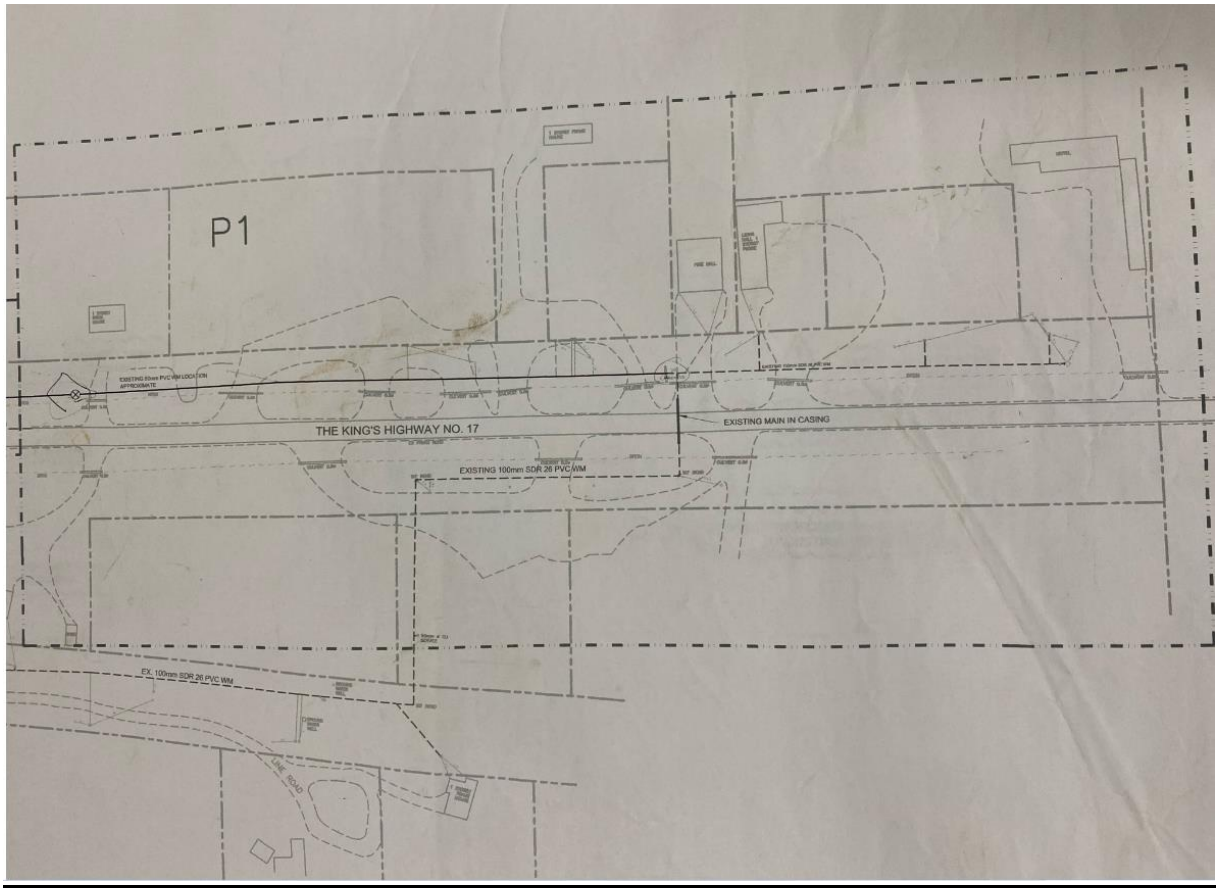


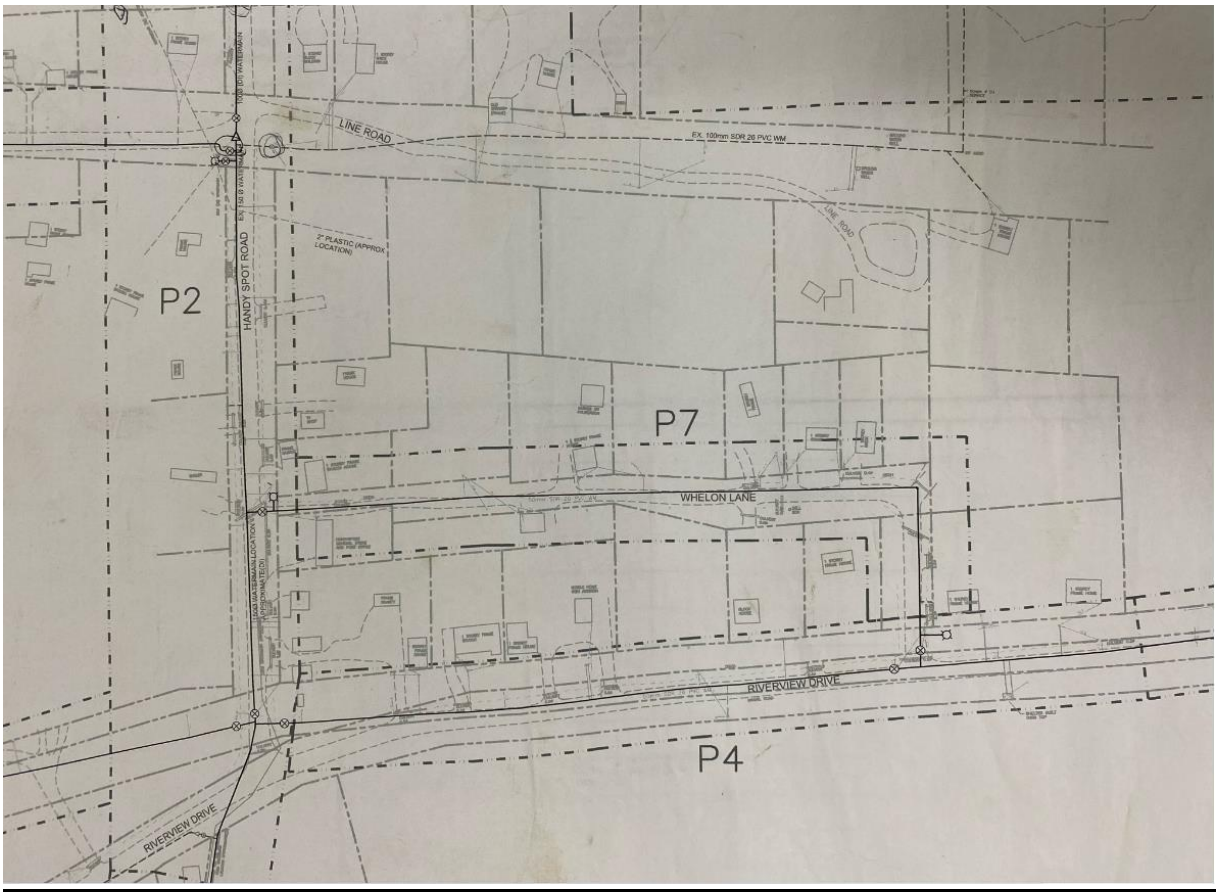
WATER NETWORK:

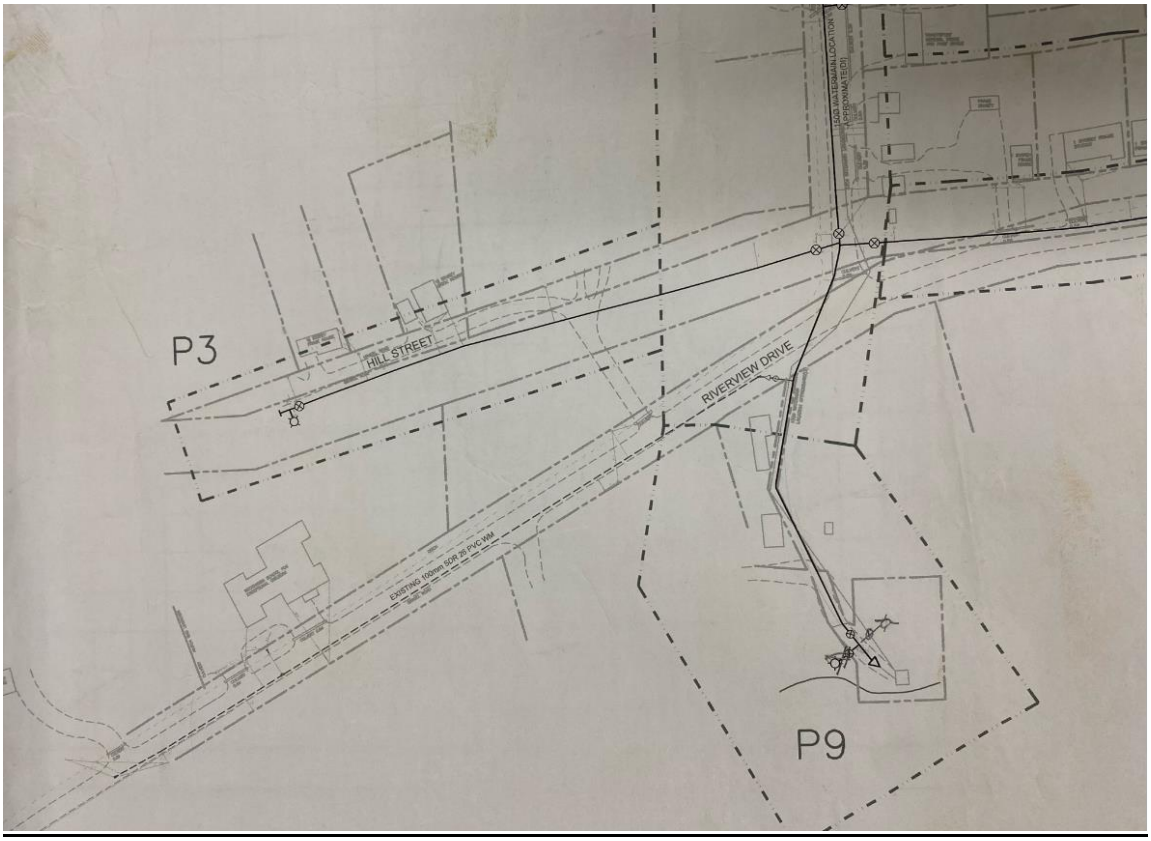
Serpent River Water

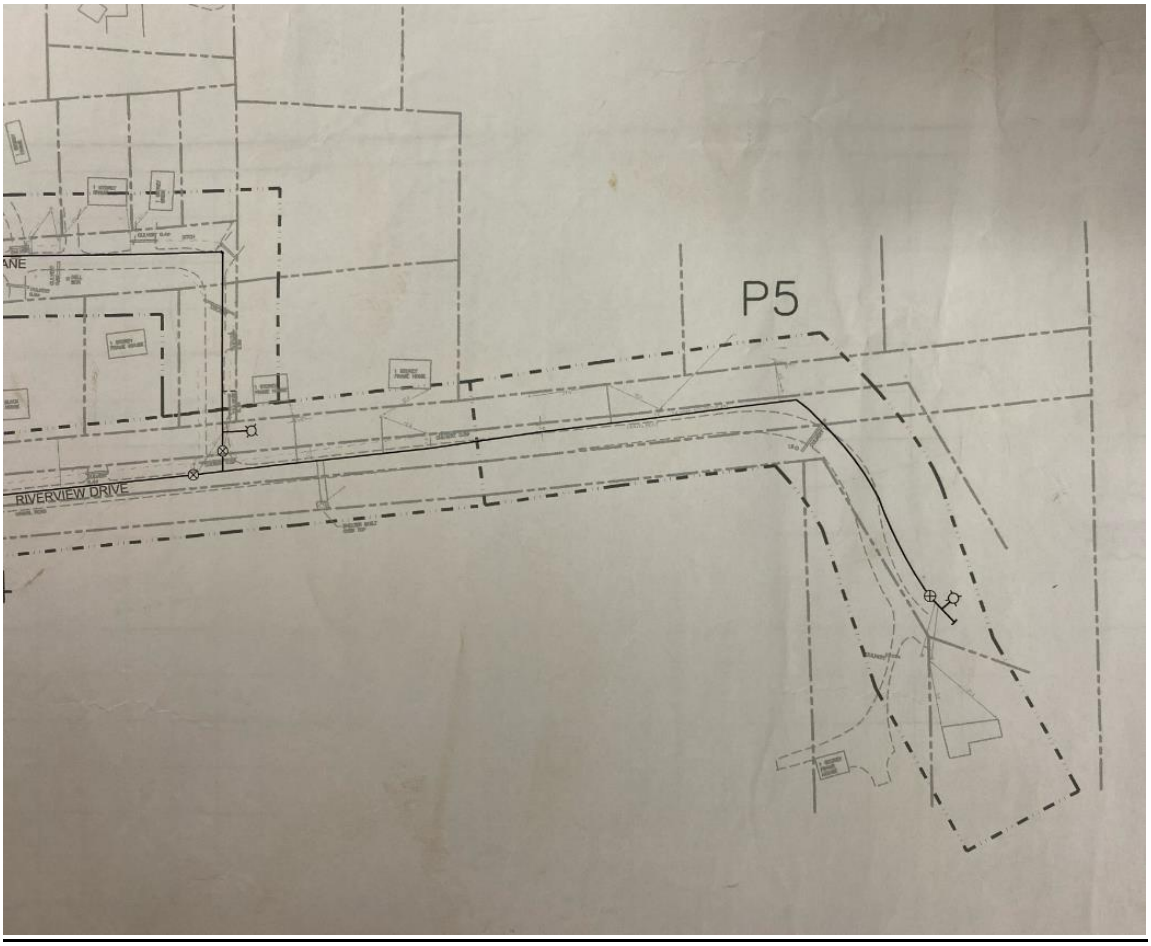


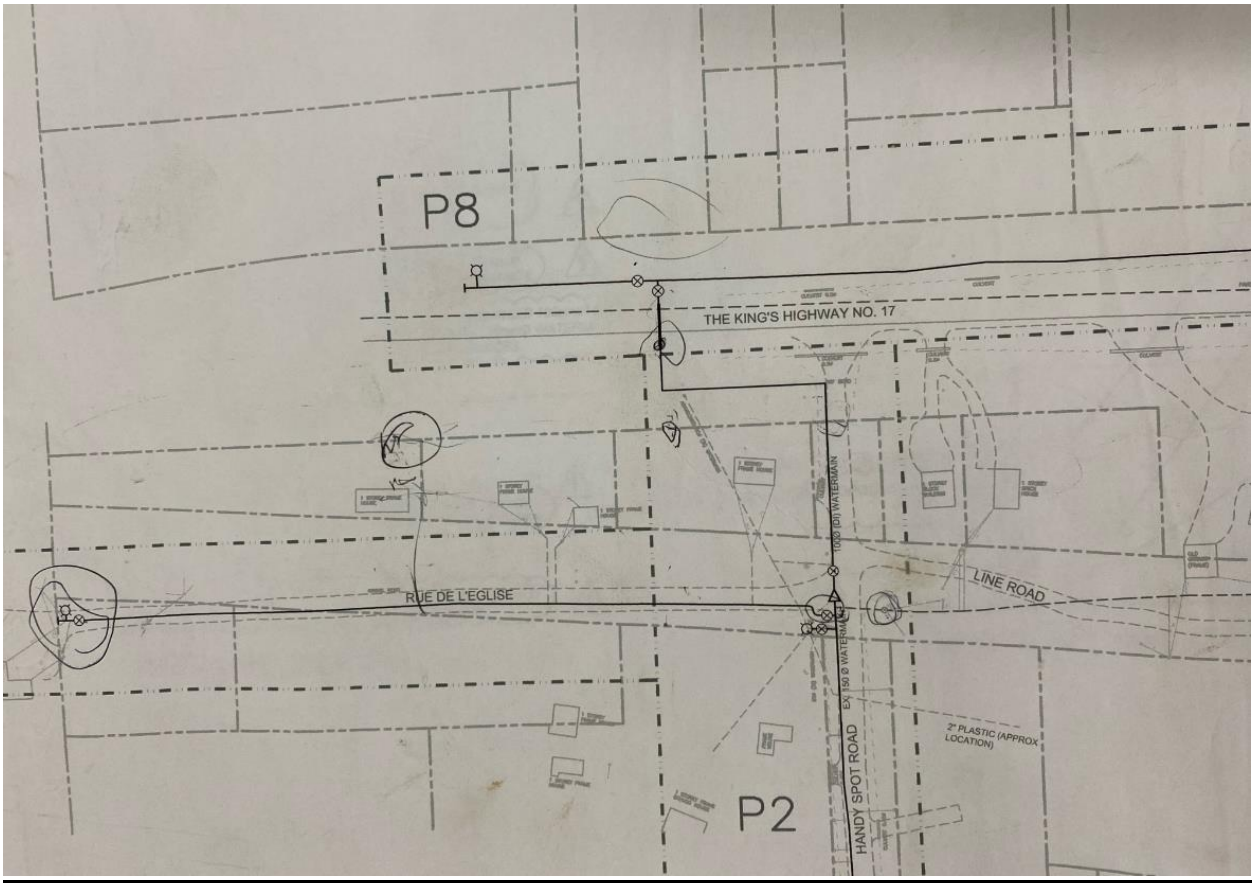


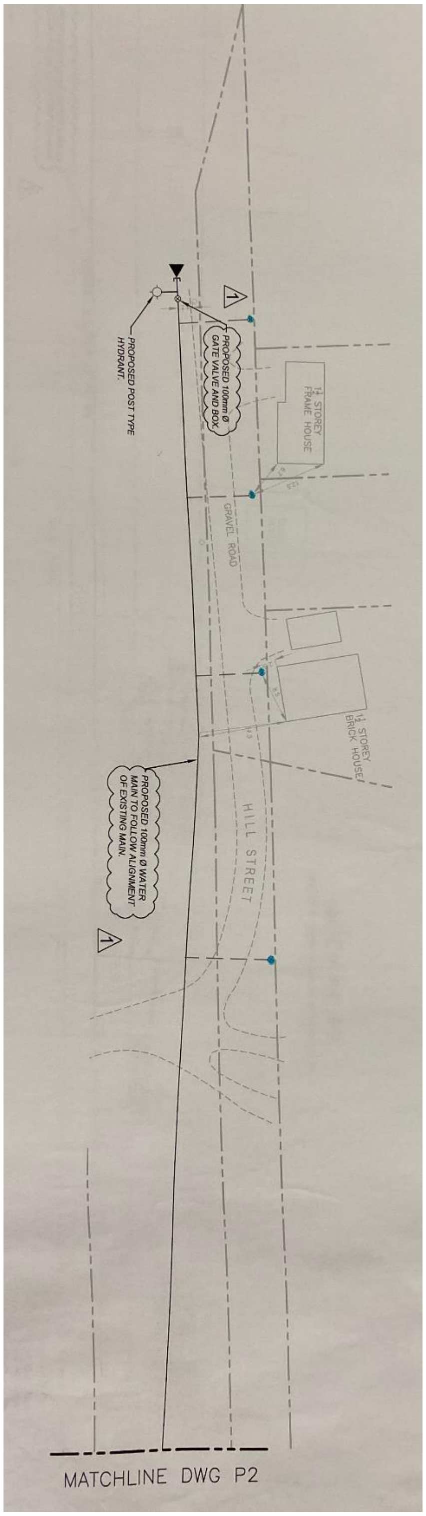

P1
THE KING'S HIGHWAY NO. 17
EXISTING MAIN IN CASING
EXISTING 100mm SDR 26 PVC WM
EX. 100mm SDR 26 PVC WM
LINE ROAD

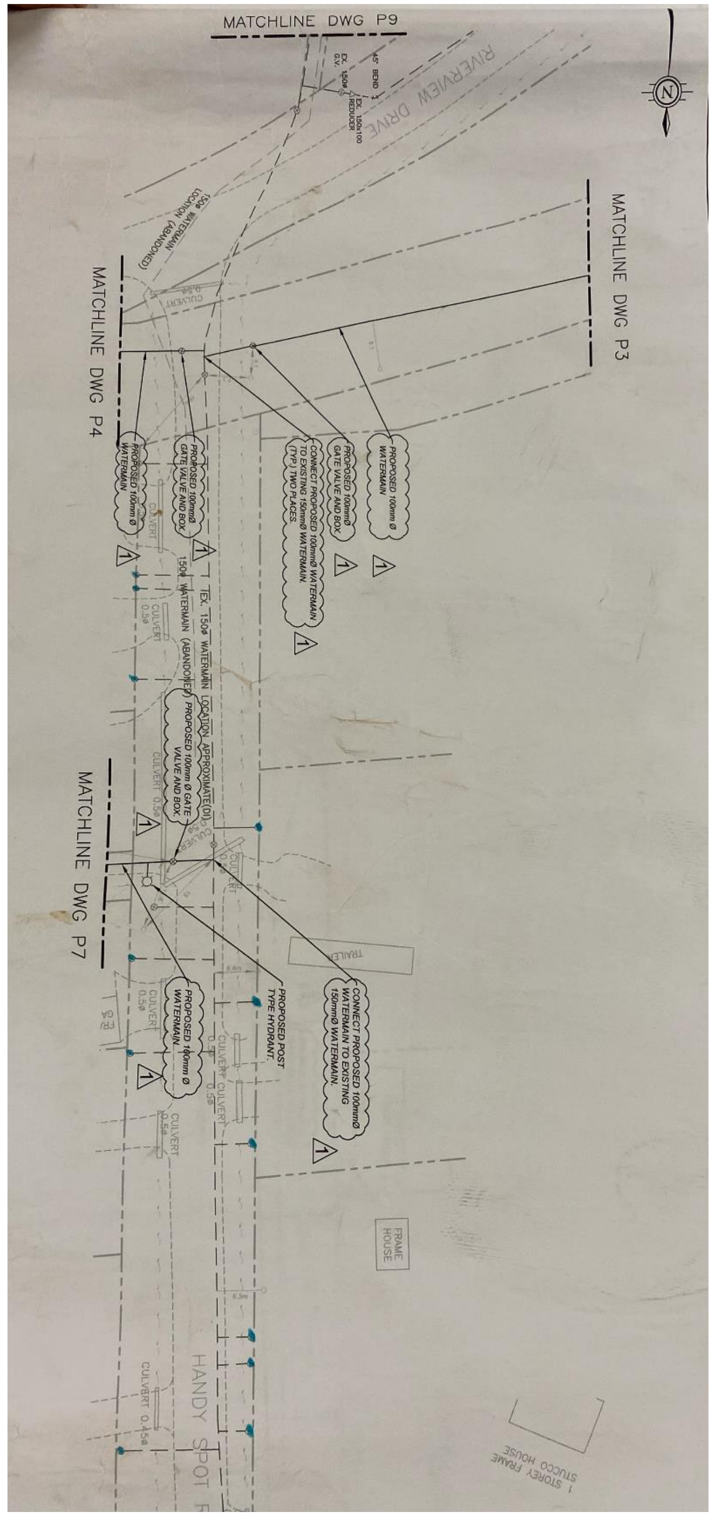

LINE ROAD
EX. 100mm SDR 26 PVC WM
LINE ROAD
P2
HANDY SPOT ROAD
2" PLASTIC (APPROX LOCATION)
P7
WHELON LANE
RIVERVIEW DRIVE
P4
RIVERVIEW DRIVE


P3
HILL STREET
RIVERVIEW DRIVE
P9


P5
RIVERVIEW DRIVE


P8
THE KING'S HIGHWAY NO. 17
100Ø DI WATERMAIN
RUE DE L'EGLISE
LINE ROAD
HANDY SPOT ROAD
6X 150 Ø WATERMAIN
2" PLASTIC (APPROX LOCATION)
P2


MATCHLINE DWG P2
PROPOSED 100mm Ø GATE VALVE AND BOX.
PROPOSED POST TYPE HYDRANT.
PROPOSED 100mm Ø WATER MAIN TO FOLLOW ALIGNMENT OF EXISTING MAIN.
GRAVEL ROAD
HILL STREET

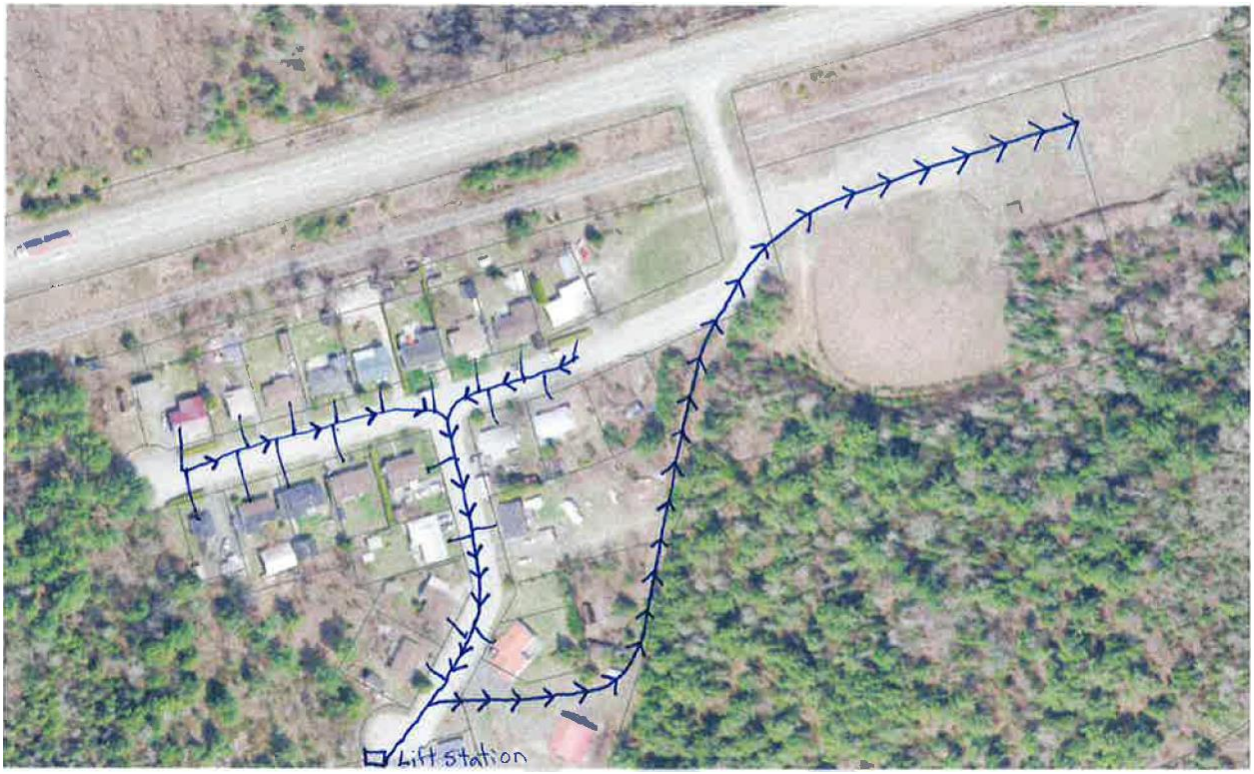

MATCHLINE DWG P9
MATCHLINE DWG P3
MATCHLINE DWG P4
MATCHLINE DWG P7
RIVERVIEW DRIVE
PROPOSED 100mm Ø WATERMAIN
PROPOSED 100mm Ø GATE VALVE AND BOX.
PROPOSED POST TYPE HYDRANT.
HANDY SPOT
FRAME HOUSE
TRAILER

Pronto East Water

● Curb Stops (orange)

● Watermain Shut Off (blue)

SANITARY SEWER NETWORK:



STORM SEWER NETWORK: