

2022
MUNICIPAL
ASSET
MANAGEMENT
PLAN

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Executive Summary

Ontario Regulation 588/17, filed under the Infrastructure for Jobs and Prosperity Act, 2015, sets out requirements for Ontario municipalities related to asset management plans. For July 1, 2022, municipalities are to have an asset management plan for their core infrastructure assets. Core assets include assets used in the water, wastewater, stormwater, roads, and bridges functions. The Municipality has some assets that are used in core services as well as non-core, and when the non-core functions are considered, it made more sense to include all of our assets and then develop next steps designed to have our asset management plan enhanced prior to the July 1, 2025 deadline.

The asset management plan, at this stage, is to include the current level of service, current asset performance, asset inventory including replacement cost, age and condition, estimated lifecycle cost by asset category for the next 10 years that is required to maintain the current level of service and, as the Municipality of Temagami has a population under 25,000, assumptions regarding future changes in population or economic activity and how these will adjust the estimated lifecycle costs to maintain the current level of service.

Using the Asset Management Framework prepared and made available for Member Municipalities by the Municipal Finance Officers' Association, Staff have prepared this document. In addition, use of the BALANCE asset management software as a repository and linking of related assets that was used to inform statements regarding the age, performance, and plans for assets.

In 2013, the Municipality commissioned an Asset Management Plan. This was completed through a combined effort of EXP Engineering and KPMG. While there was some work completed for the condition of assets at that time, the anticipated costs included in the plan were basically based on end of life replacement. The Infrastructure Gap was identified and different options put forth to attempt to reduce this gap. In short, no options were selected by Council of the day and now, in 2021, we continue to budget based on end of life replacement and continue to struggle to replace assets on this schedule due to cost limitations. This has been magnified in the first part of the current term of Council as no large, competition-based infrastructure grants were approved until 2022.

While the cost basis, and revenue comparison may be the same as existed in 2013, there are also different approaches that are being included to ensure the asset management plan for the Municipality of Temagami remains current and relevant into the future. These are summarized as follows.

We are using the BALANCE asset management software which enables Staff to update asset conditions as required, either through repair or as a result of a road patrol or some other asset verification process. Keeping the asset condition continually up to date ensures that decisions can be made based on the most up to date information. Having Staff perform this function also has the benefit of Staff having a better understanding of asset performance and need as well as the benefit of updated condition rating being available quickly for analysis.

Next Steps, that appear at the end of this summary, outline a systematic approach to move the asset management plan from the basic level to a more enhanced level as required in 2025. Some of these steps include consultation with our Public, or considering how assets are managed from the perspective of maximization of the estimated useful life.

Working towards the goal of an enhanced plan in 2025 also provides an opportunity to address issues that will be contained in the Official Plan for the Municipality of Temagami, presently in the process of being updated. The Service Delivery Review, completed in 2020, is in the implementation phase. So too is our Recreation Strategy and Strategic Plan. Ensuring our enhanced Asset Management Plan provides a link between these plans and strategies and the annual municipal budget is important as without this, there will be no changes in the funds available, or the type of infrastructure available to support the vision these plans and strategies have of the Municipality of Temagami.

The population of the Municipality of Temagami, according to the 2021 census, is 869 full-time residents. While we do have considerably more seasonal residents, perhaps an additional 2 to 3 thousand, and although our full-time population has increased by 7.5% between the census periods, having a low population, especially areas with municipal water and wastewater services, does restrict the funds available for these systems. While we are presently taking steps to create capacity through infiltration reduction, the need to increase capacity in our water and wastewater systems, and to acquire/designate lands for future development in our urban centre is evident when comparing the cost of infrastructure to the revenues raised. The cost of maintaining the same level of service in the urban area, on a per household basis will increase significantly in 2024 as debt payments associated with the major repairs and/or enhancements begin.

Next Steps

This is a basic Asset Management Plan that is based on lifecycle replacement. The intent is to use this as a foundational piece that can be built on to move to an enhanced Asset Management Plan prior to the 2025 deadline.

1. Review the Capitalization Policy to ensure the capitalization threshold and expected useful life estimates are still relevant. This policy has not been reviewed since created prior to 2009.
2. Enhance our infrastructure map, especially buried infrastructure, noting the size, type, approximate year of construction, etc.
3. Work with our partners to develop a method to have accurate condition rating for buried infrastructure. While we can recognize where breaks occur, it is not known if there are any cracks about to leak which could alter the condition rating and ranking in the planning process.
4. Using a module of the BALANCE program, review our buildings with the intention of moving from a whole asset approach to a component approach. Assign appropriate condition rating to the various components rather than an age-based condition for the whole building.
5. Establish condition-based rehabilitation project, such as crack sealing and pavement rehabilitation, and enter these appropriately in the BALANCE program.
6. Working with our Public, better determine the Level of Service from an Asset perspective. This will include public meetings, consultation, and an assessment of expectations from our assets.
7. From the Level of Service Review, develop key performance indicators that are entrenched in condition and performance assessments.

8. Development of non-infrastructure metrics, such as water production and usage, to better inform if a possible break has occurred. Consideration of water meters at some point in the future.
9. Modify the BALANCE program with Temagami specific definitions to make better use of the Probability of Failure and Consequence of Failure to establish infrastructure project priorities.
10. Based on the infrastructure project priorities, determine where engineer service may be required to improve the performance of the asset.
11. Continue work to implement the remaining sections of the 2020 Service Delivery Review. This will better inform the future asset needs which can then be included in the enhanced plan.
12. Implement the Recreation Strategy, highlighting future infrastructure needs.
13. When the Official Plan review is completed, summarize infrastructure needs, especially in the area of servicing, which can inform linear asset planning in urban and rural areas.
14. As we move from the lifecycle replacement to lifecycle rehabilitation/repair focus of the asset management plan, continually update the infrastructure gap and highlight possible ways to reduce this gap, or identify structural gaps, for Council's consideration.

In addition to this, the Municipality of Temagami will commence work on enhancements of our infrastructure related to the rise in use of electric vehicles as well as areas designated for development in our updated Official Plan.

Introduction

This Asset Management plan is intended to meet the legislative requirements for Ontario municipalities. The one exception is that this plan includes all of our assets rather than just those deemed to be core assets. The reasoning for this included below.

History

Tangible Capital Assets

Prior to 2009, all Tangible Capital Assets purchased by municipalities were expensed in the year of acquisition. For the 2009 fiscal year, the Public Service Accounting Board's (PSAB) Section 3150 came into effect. This required municipalities to capitalize these assets and amortize them over the expected useful life.

Capitalization Policy

In order to have a systematic approach to capitalization and subsequent amortization, municipalities were required to establish a capitalization policy. Some of the items included in this policy were a capitalization threshold and estimated useful life for each class of asset.

A capitalization threshold arbitrarily establishes a minimum cost of an asset, or group of assets, must reach before it is capitalized. Beyond the notion that capital assets are expected to provide benefit and use to the municipality for a period greater than one year, this also reduces the number of smaller assets which, individually, are not material in the context of the municipality as a whole. For example, while we expect a chainsaw to be used longer than one year, the reality is that at a purchase price of \$750, little additional knowledge about municipal assets is gained by establishing a useful life and amortizing the cost over this period. While different asset classes can have different thresholds, for the Municipality of Temagami, presently all asset classes have a capitalization threshold of \$10,000.

The useful life of an asset is the period of time that the asset is expected to provide service to the municipality. When the Capitalization Policy for the Municipality of Temagami was created, these were established using industry standards and careful judgement. Our present Capitalization Policy has little deviation from the industry standards which may be necessary given Temagami specific uses.

The result of the implementation of the Capitalization Policy was the ability to conform with the accounting policies of PSAB 3150. While the identification of assets is an important foundational piece for asset management planning, the financial statement view of tangible capital assets is historic rather than prospective. Also, there are assets that would not be tracked through the use of the capitalization policy, such as computers, where the cost is below the capitalization threshold.

Legislative and Regulatory requirements.

Ontario “Building Together”

Following the change in PSAB reporting requirements for tangible capital assets, the move for more planning of assets occurred. First, in 2011, the Ontario government released “Building Together – a Guide for Municipal Asset Management Planning”. This provided information and framework to guide the creation of asset management plans. The stated goal was to include municipal asset management planning in the grant approval process to ensure capital investment from other levels of government were in line with these management plans. The guide also included an outline for asset management plans being:

1. Executive Summary
2. Introduction
3. State of Local Infrastructure
4. Expected Levels of Service
5. Asset Management Strategy
6. Financing Strategy

Federal Gas Tax Agreement in Ontario

The Government of Canada provides Federal Gas Tax to Ontario municipalities through an agreement with the Association of Municipalities of Ontario (AMO). There is a component of asset management included in the requirements of this fund. These requirements include:

- The costs to develop asset management plans are considered eligible expenditures for federal gas tax funding;
- Municipalities must have developed an asset management plan by December 31, 2016 to remain eligible for federal gas tax funding;
- Municipalities must provide a report to AMO that an asset management plan is being used to guide infrastructure planning and investment decisions including how federal gas tax dollars are being used.

Infrastructure for Jobs and Prosperity Act, 2015, (IJPA)

The Infrastructure for Jobs and Prosperity Act, 2015, (IJPA) received Royal Assent on June 4, 2015. Section 1 of the IJPA states that the purpose of the Act is to “establish mechanisms to encourage principled, evidence-based and strategic long-term infrastructure planning that supports job creation and training opportunities, economic growth and protection of the environment and incorporate design excellence into infrastructure planning. Municipalities are within the broad sector this Act applies to.

Section 6.1 of the IJPA notes:

“Every broader public-sector entity prescribed for the purposes of this section shall prepare the infrastructure asset management plans that are required by the regulations and that satisfy the prescribed requirements.”

The main regulation filed under the IJPA is O.Reg 588/17. These requirements are:

1. A Strategic Asset Management Policy by July 1, 2019
2. Preparation of asset management plans in three phases:
 - a. Phase I would address core infrastructure needs and required to be completed by July 1, 2022 (as amended during the pandemic);
 - b. Phase II expands on the plan in Phase I to include all infrastructure assets by July 1, 2024;
 - c. Phase III required further details to the asset management plan by July 1, 2025.
3. Phase I and II are to include:
 - a. Current levels of service;
 - b. Current asset performance, using performance measures;
 - c. An asset inventory, including replacement cost, age and condition;
 - d. Estimated lifecycle costs by asset category, to maintain current levels of service for 10 years;
 - e. For municipalities under 25,000: assumptions regarding future changes in population or economic activity, and how they relate to estimated lifecycle costs to maintain current levels of service.
4. Phase III of the asset management implementation is to include:
 - a. Proposed levels of service for the next ten years, using provided metrics for core infrastructure and municipally created metrics for other infrastructure;
 - b. An explanation of why the proposed levels of service are appropriate, including risks, affordability and whether they are achievable;

- c. The proposed performance of each category for each year over 10 years;
 - d. A lifecycle management strategy;
 - e. A financial strategy;
 - f. Document and address available funding as well as funding shortfalls;
 - g. For municipalities under 25,000: a discussion of how assumptions regarding future changes in population and economic activity informed the preparation of the lifecycle management strategy and financial strategy.
5. Updates, approvals and public availability:
- a. Review and update the asset management plan at least every five years;
 - b. The asset management plan or update is to be endorsed by the executive lead of the municipality and approved by Council resolution;
 - c. Municipalities are required to provide Council with annual updates on asset management planning progress by July 1st of each year;
 - d. Municipalities are required to post their strategic asset management policy and the asset management plan on the municipal website and make copies of these documents available to the public upon request.

Other Legislation

Asset management principals are also used in Development Charges and Community Benefit Charges. Neither of these are in use within the Municipality of Temagami.

Overview of Asset Management Planning

What is asset management planning?

Asset management planning is a process to provide the best possible information to support decisions when acquiring, operating, maintaining, renewing, replacing or disposing of infrastructure assets. In general, the purpose of the asset management plan is to maximize benefits, minimize risk and to provide an acceptable and sustainable level of service to the municipality as it works to meet the needs of the user. This is done through combining various strategies (as outlined in the regulation) into one strategic plan that is used to manage infrastructure investment and use.

The asset management plan highlights the planned approach for acquisition, use, lifecycle events of infrastructure used to meet the objectives and goals of service delivery. When following the points outlined in the asset management regulation, the municipality will be able to know the condition of assets, the plans for future use, when replacement or repair should be completed including what and the cost, and the combination of grants from other government, long term debt, and taxation that will allow infrastructure assets to continue to serve the municipality.

What is Included

The regulatory requirement, as noted, only requires municipal asset management plans to include core infrastructure needs at present. Core infrastructure is defined as the water, wastewater, stormwater, roads and bridges functions. Some of our assets, especially in the Public Works area, are multi-functioned and are required both in core and other infrastructure needs, such as waste management or recreation.

For the Municipality of Temagami, once the core infrastructure assets are removed, there are relatively few assets left. As such, rather than develop an asset management plan for core infrastructure assets and then augment later for all assets, this asset management plan will include all infrastructure assets employed by the Municipality.

The starting point for the inventory of assets is the schedules maintained for tangible capital assets included in the annual consolidated financial statements for the Municipality. These will be augmented for assets that have not reached the capitalization threshold or have been in use longer than their expected useful life and no longer appear on these schedules.

Framework and Information

In 2013, there was an asset management plan commissioned by the Municipality and completed through a combined effort of EXP and KPMG. Identification, classification and initial replacement cycles were drawn from there.

The largest obstacle to maintaining an asset management plan in a current state is the ever-changing condition of the assets. While, certainly, assets do degrade over time, from an accounting perspective these are often not recognized and the remaining useful life is not extended. Moving to the BALANCE asset management software to maintain our conditions will provide a systematic approach to updating the remaining useful life based on condition rating and accounting for the rehabilitation measures performed throughout the life of the asset. In essence, one of the main goals of this exercise was to have up to date condition information for our assets and to have the conditions updated after lifecycle events by Municipal Staff. In doing this, the Municipality, in essence, becomes the owner of the Asset Management Plan rather than relying on the expertise and schedule of others. The goal is not only to have better management of our assets but to have better information concerning the state of our assets when applying for infrastructure funds from other levels of government.

Initially, assets were recorded in the Municipal Data Works repository maintained through agreement with the Ontario Good Roads Association (OGRA). In July 2021, the Municipality received notice that OGRA would no longer be maintaining this database. Through an agreement with Marmak, our information was transferred to a database used by the Balance program. Having assets recorded in a form that is accessible allows asset condition and life cycle events to be updated on a continual basis. This is imperative to ensure the most current asset information is available upon which to base decisions.

The Municipal Finance Officers' Association (MFOA) has also provided member municipalities an asset management framework. This is a concise, step by step, approach to developing asset management plans internally. This framework has three levels of maturity, Basic, Intermediate, and Advanced, with each level building on the next.

The intention of this Asset Management Plan is to focus on the basic level for this edition of the asset management plan. From this, next steps, including condition assessments, rehabilitation programs and replacement projects, etc., can be recommended. The next steps would be focused on asset performance and further information to be gathered that when used will move the Asset Management Plan beyond the basic level. This would also provide for opportunities for public comment and consultation, most notably in the level of service conversation, which is a key influence in more mature asset management plan.

On June 27, 2019, Council considered and enacted By-Law 19-1464 which approved the strategic asset management policy. This document contains guiding principals used in the creation of this asset management plan.

Similar to the initial asset management plan prepared in 2013, the assets included are linear (roads, bridges, water, sewer), point (buildings, facilities, bridges, culverts, docks, vehicles and equipment) and land holdings. These will be reviewed from an historical, condition, useful life remaining, replacement costs and lifecycle cost perspective to assess present needs of municipal assets and risks to continuing to provide the levels of service on which our citizens rely.

For the most part, condition of the assets, at this point, are a function of remaining useful life. In cases where the asset is fully amortized but is still in use, or where the condition of the asset is known and is significantly different than the remaining useful life, condition may be substituted for remaining useful life in to the various asset management calculations.

There may also be items added to asset management planning that may not be included as tangible capital assets on our financial statements. An example of this could be computer systems where the unit cost is less than the capitalization threshold.

From the information, useful life, condition, projected needs, etc., replacement and lifecycle cost information for the next decade will be demonstrated. There have already been some decisions made, especially in the area of water and sewer improvements. The costs summaries included in this Asset Management Plan start in 2023 for the ten-year cycle as well as known plans on how these are to be funded. Recommendations, or 'next steps' will be identified in appropriate sections. These may be suggesting changes to level of services, highlighting condition assessments that may be required, or areas where changes to the capitalization policy should be discussed. These will be incorporated into the enhanced assets management plan, as required, by July 1, 2025.

The foundation of a finance strategy includes present level of specific capital reserves, annual budget for capital purposes, grant approvals, and ongoing grants. These will be compared to the need demonstrated over the next decade. From this a Temagami specific infrastructure gap can be identified with several options highlighted.

This first, basic level, edition of the updated Asset Management Plan may not provide decisions but will highlight items to be considered and information gaps that may exist as the Municipality works to taking the Asset Management Plan to a higher level of maturity.

Plan Information

The Asset Management Plan is based on:

1. The State of Local Infrastructure;
2. Levels of Service;
3. Lifecycle Management Strategy; and
4. Financing Strategy.

The State of Local Infrastructure in this basic Asset Management Plan, is mostly related to the age of the assets adjusted for known conditions when required. There is a foundation of risk assessment although as identified in Next Steps, more condition assessment and definitions through the BALANCE asset management software is required before this can be used for prioritization. As the Asset Management Plan evolves, there will be more complete comments concerning how an inventory of assets are maintained including attributes, accounting valuations, condition assessments and replacement costs. There will also be a summary of risk assessments that can inform other areas of the asset management plan. In short, the State of Local Infrastructure is the main foundation piece of the plan.

Levels of Service identifies the expectation how infrastructure assets aids in providing services to the users of municipal systems. This will include highlighting present levels of service including the associated costs.

Lifecycle Management Strategy includes replacement plans, rehabilitation projects, lifecycle maintenance as well as items that may not be directly tied to expenditure on infrastructure that are designed to either lower costs, extend useful life or a combination of the two.

The financing strategy will highlight the needs versus the resources. Again, this will have discussion points that can be used to better inform the required funds for asset management planning or where alterations in the plan may be required based on available funds.

Methodology

State of Local Infrastructure

In the sections that follow, the state of local infrastructure will be discussed. Presently, as noted, we are using the Marmak Balance system as an asset register. This has attributes of linear assets identified separately but relations noted. In this way, for example, a search for 'Spruce Drive' would include the buried infrastructure by size and type (water lines, sewer lines), roadside infrastructure (street lights, road signs) and the road itself.

While, presently, there is much detail for linear assets, this is not the case for buildings. Presently each building is treated as a single asset. Part of the enhanced asset management plan is to use a related software to better describe the needs of building by component. This could lead to a proposed change in the capitalization policy or could simply be used to better direct investment into buildings.

Fleet and equipment have been compared to the tangible capital asset summaries and equipment, whether the threshold has been made or not, to ensure that all equipment in use has been included in the Balance repository.

Linear Assets (Roads, Waterlines, Sewerlines) have aged based condition ratings. The move towards the enhanced asset management plan will include condition assessments similar to the video work that was completed for the Temagami North Sewer in 2021.

Risk Assessments

The state of local infrastructure is also being assessed on the basis of risk. There are three components that combine to create a risk assessment. These are the probability of failure, the consequence of failure, and the redundancy factor.

Probability of Failure

In simple terms, as assets age, the chance that they may not be able to provide an adequate level of service increases. In this basic level asset management plan the predominate measure of the probability the asset will fail to provide the expected level of service is based on age. Council did approve a matrix that included some condition-based assessments and additional condition-based items could be added as the asset management plan moves from a basic level to an advanced one. The approved matrix is:

PoF Value	Rating	Age Based	RCI	Breaks/100m
1	Very Good	0-10% of UL	90-100%	0
2	Good	10-30% of UL	75-90%	2
3	Fair	30%-50% of UL	50-75%	4
4	Poor	50-65% of UL	35-50%	6
5	Very Poor	Over 65% of UL	Less than 35%	8 or more

Where PoF is Probability of Failure; UL is Useful Life remaining; and RCI Is a subjective Ride Condition Factor

Initially, assets will be assigned a PoF value based on the percentage of useful life that has been used. While this measurement could be altered based on condition and also based on use in subsequent plans, starting with an age-based measurement provides a link between the capitalization policy and experience. This could also lead to further discussions regarding expected useful life projections made in this policy.

Consequence of Failure

The is a measurement of the impact on the Municipality if the asset were to fail. Inputs into the measurement include cost or replacement, the potential and severity of injury, impacts to the surrounding environment, interruption of services and the potential for suits and/or regulatory penalties.

While the Probability of Failure could be different for assets within any particular class, the Consequence of Failure would not necessarily change unless the nature of the assets changed. For example, all bridges would start with the same Consequence of Failure based on cost, regulations, environmental impact but where differences may occur is when assessing the level of service interruption should the bridge fail. Those bridges where a reasonable detour exists would have a lower consequence of failure than one where the only access to the other side is the bridge.

Risk Rating (Balance Score)

The Probability of Failure and the Consequence of Failure are combined into a Risk Rating as follows:

First, the weight assigned to Probability of Failure and the Consequence of Failure is assigned. These two weights add to 100% and is a way to promote age/condition or consequence in the overall risk rating. Once this has been determined, the equation for Risk Rating is:

$$\text{BALANCE} = \text{PoF Weight} \times \text{PoF Rating} + \text{CoF Weight} \times \text{CoF Rating}$$

Using BALANCE software, this overall risk rating is called the BALANCE Score.

Initially, the weight is set at 50% for each of the Probability of Failure and the Consequence of Failure. As the Asset Management Plan matures, adjusting the weight factors is an option that can be discussed and considered. Altering the weight so the factor for Probability of Failure is higher than 50% would result in asset age and/or condition being a greater determining factor in replacement or rehabilitation priority setting.

Redundancy Factor

While different than the Consequence of Failure measurement noted above, areas where redundancy exists can alter the risk rating. For example, in the Temagami North Water Treatment Plant there are two treatment trains whereas there is only one in the Temagami South Water Treatment Plant. All things being equal, priority would be given to the Temagami South Water Treatment Plant for asset renewal or rehabilitation given that, presently, there is redundancy built into the water treatment plant in Temagami North.

This can also be extended to solid waste disposal sites given that there are three should issues arise in one of the sites, although cost of transportation could be an issue, the other two sites could be used to accept waste from the other giving a systematic redundancy.

Assessments and Risk Rating

Apart from providing information on replacement and/or rehabilitation of assets, the Risk Rating is also used to guide assessment ratings. While legislatively municipalities are required to conduct bridge assessments biannually, for other assets, the timing of condition assessments can be guided by the level of risk. As the risk associated with the asset increases, the frequency of condition assessments would also increase.

Levels of Service

For the purpose of this initial Asset Management Plan reset, the determination of Levels of Service provided through infrastructure assets are based on the present experience.

For future enhanced plans, additional work will be focused on levels of service including defining and tracking key performance indicators, public consultation for better defining expectations from service

delivery and identifying areas where expectations are exceeded and those where improvements may be required.

Given that future plans are to address levels of service, potential changes, and the associated costs, this process will be a key factor in the formulation of future updates for the asset management plan.

Lifecycle Management Strategy

The starting point in Lifecycle Management Strategy is what we are presently doing and what we are planning to do. Highlighting maintenance activities that extend expected useful life in a different manner, or having culvert or gravel replacement linked to the performance and expected useful life of the asset is a change from the present way business is conducted and recorded. We also have plans in our budget and in the next few years which will be incorporated in this section.

Financing Strategy

The needs will be examined over the next decade and include both capital repair/replacement from the PSAB point of view as well as expenditures that would be included as operating costs. With the basic asset management plan, the first task is to identify the infrastructure gap for the Municipality of Temagami. From this, future editions can provide guidance on how this gap could be reduced.

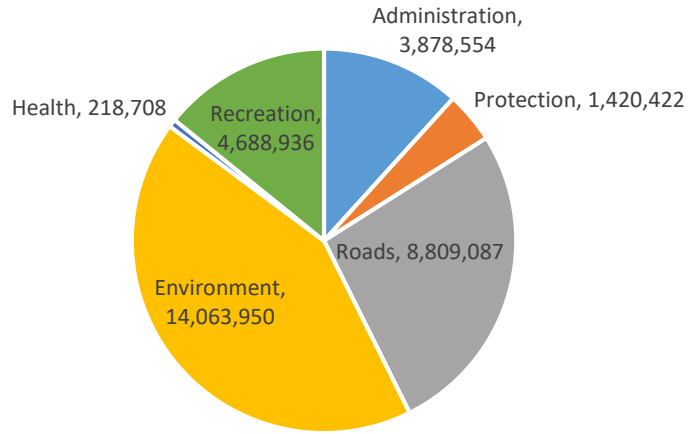
It should also be remembered that as most of our assets were funded, in part, by the other levels of government, having an asset that, when purchased, had funding levels between 75 and 85% now be totally funded from Municipal sources is practically impossible. While the revenue side of the forecast will include approved grants, future potential funding programming will not include expected approvals. This may lead to a systemic infrastructure gap. Measuring, setting expectations and developing contingency plans will form part of the Financing Strategy in the more advanced Asset Management Plan.

State of Local Infrastructure

The 2009 exercise required to report Tangible Capital Assets as required by PSAB provided a good inventory of municipal assets. With the accounting standard that assets be recorded and the lower of cost or market value, a great many assets, especially those with expected useful lives of 50 years, the replacement value and the recorded cost are vastly different. It is also important to remember that during the 2009 exercise there were many estimates made for dated assets where the purchased invoices were not available. This further decreases the reliance the Municipality can place on the values reported in the financial statements regarding the future capital assets needs.

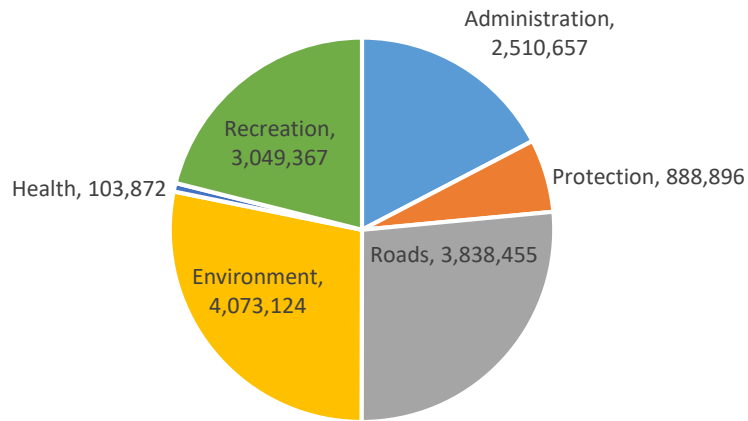
To illustrate this, the tangible asset cost shown in the financial statements is \$35,079,657 and by function is:

TCA Costs, 2021



When accumulated amortization is accounted for, the net book value is \$14,464,371 or, again by function is:

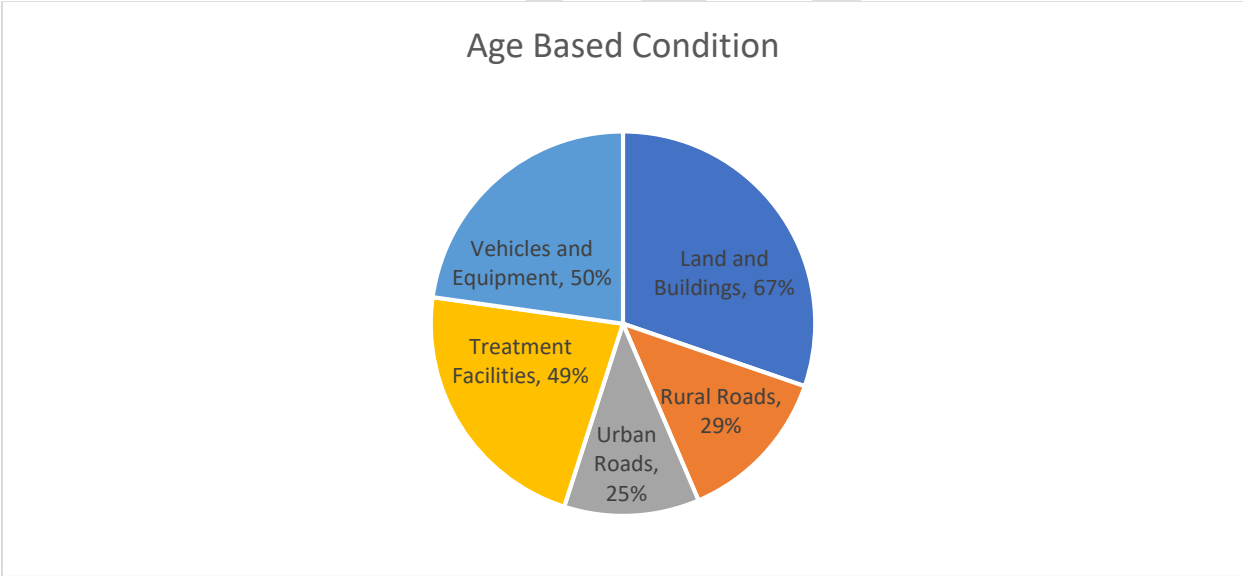
Net Book Value, 2021



If this was the only determiner of asset needs, in total, 44% of the useful life estimates for all assets, in total is all that remains. Also, while the functional classification of assets is required for the financial statements and the financial information return, to better plan for the future of municipal assets, having the assets categorized by type makes more sense. If we restate the 2021 Net Book Value, by asset type, the result is:

Type	Cost	NBV	% UL Remain
Lands and Buildings	\$ 9,035,012	\$ 6,012,754	67%
Rural Roads	\$2,348,761	\$ 686,446	29%
Urban Roads	\$12,060,369	\$ 3,016,693	25%
Treatment Facilities	\$ 6,689,752	\$ 3,272,273	49%
Vehicles and Equipment	\$ 2,945,763	\$ 1,476,205	50%
Total	\$33,079,657	\$14,464,371	44%

Where: NBV is the Net Book Value, December 31, 2021;
 % UL Remaining is the percentage of aged-based useful life that remains;
 Rural Roads are roads with no water or sewer buried in the base;
 Urban Roads are roads with buried municipal utilities.



If we consider Rural Roads as an example, from the basis of age (demonstrated above) there is 29% of the useful life remaining. When completing road patrols, there is a completely objective measure of a Ride Comfort Index (RCI). Items that would score a lower RCI would be potholes, road distortions, heaves in the winter or spring, number of days between grading need, etc. Based on information collected from the road patrols, the average RCI based on the number of rural roads is 70%. As we can see, the aged-based condition (remaining useful life) and the objective condition based on the RCI are significantly different.

On a worst to first basis, the five Rural Roads that are in the greatest need of attention are:

1. White Bear Court;
2. Fox Run Road;
3. Sherman Milne Road;
4. Wilson Tomono Road; and
5. Lake Temagami Access Road.

Urban Roads also differ on a basis of age. Along with the road condition, the condition of the water and waste water services buried in the road also need to be considered. If the road is to be reconstructed, then similar to culverts in the Rural Road, all assets should be replaced. Often there is work completed on the surface of an urban road with as little as possible disruption to the buried infrastructure. This is also important since as urban roads are reconstructed, new regulations, especially in the Clean Water Act become effective and require more separation between water service lines and sewer service lines.

Above you can note that the age-based condition rating for urban roads is 25%. From the RCI measure this number is 62% and when all assets are added 58% of the asset life remains. It is important to note that the condition for water lines and related equipment is a best estimate and still needs to be verified. The one condition metric that is being relied on is the number of breaks in 100 meters of water or sewer line. While there are times, especially during a freeze/thaw cycle, where there are water breaks, typically there are less than five breaks throughout our system annually.

On a worst to first basis, the five (and ties) Urban Roads that are in the greatest need of attention are:

1. Village Lane;
2. Memory Lane;
3. Hillcrest Drive;
4. Harmony Lane;
5. Shoreline Avenue, Ojibway Lane, Goward Avenue and Alder Lane.

In general terms, roads provide the expected level of service in that there are very few times, if any that roads are closed whether by water breaks or not.

Vehicles and equipment, from an aged based perspective, have about half of the useful life remaining. In the Public Works area, our vehicles with less useful life remaining are the smaller trucks. We have been moving to one-ton vehicles or, in a recent purchase, a gently used three ton has proven to be a good fit.

The level of service expected from vehicles and equipment is that they are available to be used with few breakdowns. In the smaller vehicles the number of days they are unavailable is higher than others but still would average less than 10 days per year. In the past year there was a week where the garbage truck was not available and the bull dozer required repairs earlier this year but other than these the equipment is generally providing the level of service expected.

Treatment Facilities are the water treatment plants and the lagoons. From an age-based perspective, just under half of the expected useful life remains. There are annual improvements made that are treated as operating costs so the actual condition could be higher than this. Regarding expected levels of service, there are fewer than five boil water advisories in the typical year and these are mostly due to times where there are either a water break or the pressure was reduced for work such as a hydrant replacement.

Lands and Buildings show about two-thirds of life remaining. Presently, as guided by the capitalization policy, buildings are treated as a single asset with a 50-year life expectancy. There could be components of different buildings that require more attention and the use of the buildings, and various parkland, will be better defined as we work through processes such as the recreation strategy.

Next Steps

To better define the state of municipal infrastructure and move from an age-based approach to a condition-based approach, we need to better understand the condition of our assets. The foundation of this is to have a better definition of what the municipality and the users

For roads, including buried infrastructure, this includes:

1. expanding on the camera work to get a sense of the condition of the water lines without the need to excavate;
2. Better utilization of data from water and wastewater systems to, in general terms, account for water produced and demonstrate infiltration;
3. Consider water meters in the future;
4. Identify areas where additional engineering may be required to improve the performance of the roads;
5. Continue with the biannual bridge inspections;
6. Consider different methods to improve the condition and extend the life of the assets.

Equipment replacement is planned to continue on the basis of age for the most part. This could be altered based on repair costs etc. but, for the most part, the age is a key indicator to continued performance. There are some pieces of equipment that will be in service long beyond the useful life noted in the capitalization policy. The condition of these items will be worked into replacement plans as conditions start to fade.

The one change to be considered with vehicles and equipment is the move to electric vehicles. With the announcements from other levels of government that vehicle sales by 2030 will be mostly electric then planning for this move should start directly. It is not simply the plan for vehicles but the modifications to, or new construction of, facilities, such as the Public Works Yard, that would be required to charge a fleet of vehicles so they are ready to be used as needed.

Presently, there are plans in process to add a UV Filtration to the lagoon in Temagami North as well as repairs, including a second treatment train, funded through the ICIP Green Program. Working with OCWA, assessing the other treatment facilities for non-age conditions is an important step.

The Balance Program's associated modules includes a building assessment module that can take the building components and have component specific conditions and replacement value. This is the next important step for further assessing our buildings.

That being said, the Public Works facility has been in need of replacement for some time. Moving forward with the planning for this facility while at the same time better assessing the condition of our other facilities is the present plan.

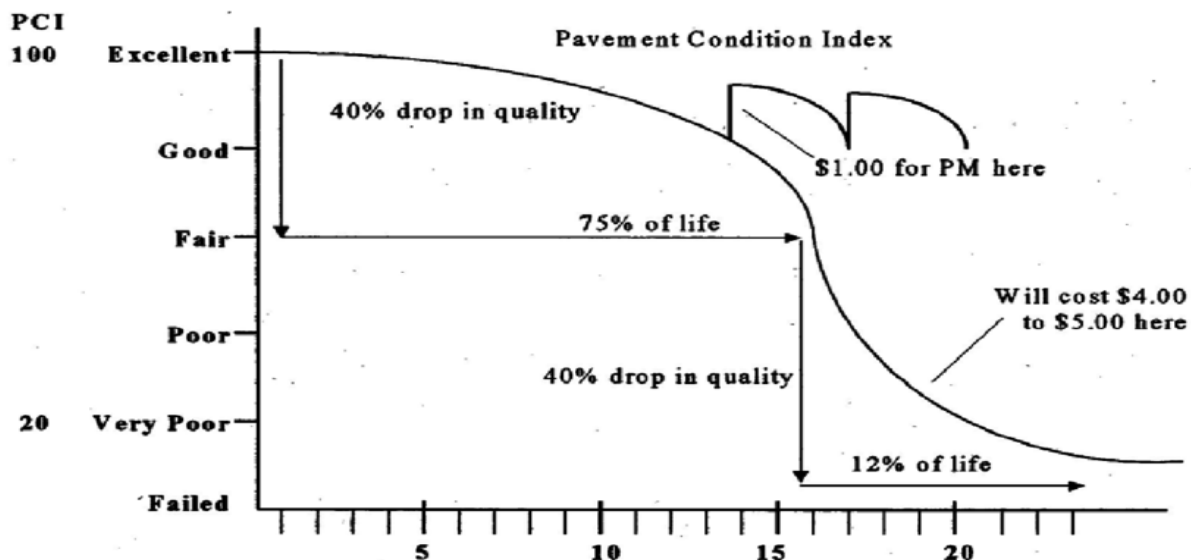
Levels of Service

As noted in the State of Infrastructure, our infrastructure assets typically provide the expected level of service with minimal interruptions. Presently, the levels of service are what we determine with no consultation with our customers. There may be areas where we are exceeding the ratepayer's expectation and others where we are not. In order to refine our levels of service our assets provide through municipal operations, a series of consultation is required. For the purposes of this edition of the asset management plan, in person workshops and similar engagement was not possible due to the pandemic. Instead, for the 'basic' level plan, the reliability of assets was considered such as days equipment is out of service, number of service line breaks per hundred meters, etc.. The next step is to undertake and coordinate dialogue with our various users to ensure that we are meeting expectations.

Some of this is also related to our service delivery review. We are still working through the recommendations of that process and can be used as a foundational piece as we ensure our level of service, and reliability of our infrastructure assets in providing this service is just right.

Lifecycle Management Strategy

While vehicles and equipment are basically replaced on the basis of age, this should not always be the case for other municipal assets. Also, if there are certain repair or rehabilitation events that are completed systematically through the life of an asset the result could be extending the normal useful life. If you consider roads that are paved (hot mix) that typically have a life span of 15 years before reconstruction is necessary, by undertaking life cycle repairs such as crack sealing, 'shave and pave' and other similar activities then the life of the pavement can continue well beyond expectations. These remedial processes are also less costly than total reconstruction. In other words, it is less costly to keep good assets good than it is to turn a poor or very poor asset into good condition. This is illustrated below.



While in a 'perfect' world we would be able to construct once and not have to touch the asset until we want to reconstruct, the reality is that as assets age, by completing life cycle maintenance we can protect the asset.

Other than filling potholes, there has not been a great deal of lifecycle management integrated into our operations. Part of this is due to user expectations and understanding. Consider if Road A is totally reconstructed and, before you get to Road B, there is crack sealing or another life extending remedy applied to Road A, those living on Road B could feel like their road is of no concern. Therefore, as the move is made to strategy that is more focused on managing the lifecycle rather than 'end of life care', there needs to be a communication strategy so the users of the system know why.

As we move to a more advanced asset management plan, part of the process is to incorporate these lifecycle costs into our planning processes. Examples of these are regular sludge removal from the lagoons, ditching programs for rural roads, surface adjustments including sealing cracks and then link these to the condition rating of the asset. While some of these have been incorporated into our expected costs and how our needs will be funded, as our asset management plan becomes more enhanced, so too will our treatment of our assets move from build and replace to build and keep in good repair. We still have some foundational work that needs to be done to get to this point but ensuring our good assets do not fall into the poor category can allow us to achieve efficiencies on the operation of our infrastructure assets. As we move forward, the Balance program can illustrate the different strategies and provide different foundational information on which infrastructure decisions can be based.

Financial Strategy

In this section, proposed expenditures over the next 10 and 20 years will be examined. For equipment, this is based on replacing the asset after useful life as determined by the Capitalization Policy. For Buildings and Facilities the proposed expenditure is based on identified projects. For Linear Assets (roads, water lines and sewer lines) an amount has been included that would reconstruct these roads on a fifteen-year cycle for rural roads and a twenty-year cycle for urban roads.

Anticipated Capital Cost

Cost has been estimated using known values and have been inflated at 2% per year. At the time of the writing inflation is tracking higher but the 2% inflation is being maintained, at least for the present time, to reflect the stated goal of the Government of Canada and its institutions.

The forecast starts in 2023. With the 2022 items approved, while their may be some carry over, especially in the water and lagoon area. The expenses and revenues included in the 2022 budget will not be included in the forecast.

The replacement cycle for equipment is:

25 Years	Fire Vehicles, Heavy Equipment (Grader etc.)
10 Years	Heavy Duty Public Works Trucks, Misc Equipment
7 Years	Medium Duty and Light Duty Trucks

For the purposes of the forecast the replacement values used were: Fire Pumper \$415,000; Heavy Duty Truck - \$300,000; Dozer and Loader - \$200,000; Grader \$420,000; Medium Duty Truck \$125,000; Light Duty Truck (PW) \$90,000; Light Duty Truck (REC) \$80,000; Small Fire Pumpers \$175,000; Fire Equipment Van \$125,000; Lawn and Garden Equipment ranges from \$10,000 to \$25,000.

Rural road reconstruction includes restoring the ditches, replacing cross and driveway culverts, minor base adjustments, gravel, and in most cases, double surface treatment. Presently, the estimate for this work is \$150,000 per kilometer. To reconstruct the roads on a 15 year cycle the annual cost in 2023 would be \$226,050 with annual increases of 2% for the forecast.

Urban road reconstruction includes restoring ditches, replacing cross and driveway culverts, replacing water lines, replacing sewer lines, replacing manholes, base adjustments, gravel and in most cases either a double surface treatment or a hot mix asphalt surface. Replacing water and sewer lines will take a little extra for most roads as since the passage of the Clean Water Act, there is a required separation between water lines and sewer lines. Mostly due to the amount of bedrock in our area, most of our service lines are closer than now required. As such, the when urban roads are reconstructed, there will be extra costs in ensuring the services are appropriately spaced. Based on the Spruce Drive project that was completed in 2017, it is estimated this work would cost \$2,250,000 per kilometer which, based on a reconstruction cycle of 30 years has an annual cost of \$883,800 with annual increases of 2% for the forecast.

We have annual 'capital' lists from OCWA for our water treatment plants, lagoons and the associated service system. For the purpose of the forecast, the assumption is that this would be \$95,000 in 2023 with an annual escalation of 2%.

The expectation of needs for facilities in the next 10 years is:

2023	Wildflower Drain - \$200,000
	Waste Site Capital based on the Waste Management Master Plan - \$20,000
2026	North and South Lagoon Sludge Removal - \$250,000
2028	Possible Bridge rehabilitation - \$150,000
2031	North and South Lagoon Sludge Removal \$275,000

Buildings include:

Public Works	Drawings and Construction – 2023 \$50,000; 2024 \$1,750,000;
Arena	Efficient compressor – 2024 \$1,000,000 (possible FCM Grant);
Welcome Centre	Plan and work for energy efficiencies, repair to inter-locking brick – accessibility updates etc. – 2023 \$50,000; 2024 \$250,000; 2025 \$250,000;
Chalet reconstruction	2023 \$350,000;
MR Community Centre	2024 \$350,000.

While some of these have not yet been approved by Council, or in some cases, the timing of the projects, the projected building needs are based on various discussions held. The Marten River Community Centre would also fill a need that occurs when the Highway is closed for an extended period of time. While the Municipality is able to have the Legion open in Temagami when a closure happens, there is no such facility at the south end of the municipality.

From this, the anticipated capital costs for the next 20 years are:

Year	Rural	Urban	Facilities	Buildings	Equip	Vehicles	Total
2023	\$ 226,050	\$ 883,800	\$ 315,000	\$ 100,000	\$ 67,500	\$ 130,000	\$ 1,722,350
2024	\$ 230,571	\$ 901,476	\$ 96,900	\$3,350,000	\$ 69,960	\$ 940,000	\$ 5,588,907
2025	\$ 235,182	\$ 919,506	\$ 98,838	\$ 600,000	\$ 79,539	\$ 90,000	\$ 2,023,065
2026	\$ 239,886	\$ 937,896	\$ 350,815		\$ 62,287	\$ 185,000	\$ 1,775,884
2027	\$ 244,684	\$ 956,654	\$ 102,831		\$ 35,830	\$ 535,000	\$ 1,874,999
2028	\$ 249,578	\$ 975,787	\$ 279,888		\$ 53,146	\$ 435,000	\$ 1,993,399
2029	\$ 254,570	\$ 995,303	\$ 131,986		\$ 87,599	\$ 100,000	\$ 1,569,458
2030	\$ 259,661	\$ 1,015,209	\$ 109,126		\$ 64,859	\$ 535,000	\$ 1,983,855
2031	\$ 264,854	\$ 1,035,513	\$ 386,309		\$ 74,236	\$ 425,000	\$ 2,185,912
2032	\$ 270,151	\$ 1,056,223	\$ 113,535		\$ 106,631	\$ 290,000	\$ 1,836,540
10 Yr	\$2,475,187	\$ 9,677,367	\$1,985,228	\$4,050,000	\$ 701,587	\$3,665,000	\$22,554,369
33-42	\$3,017,233	\$11,796,650	\$2,643,039		\$ 897,157	\$2,470,000	\$20,824,079
20 Yr	\$5,492,420	\$21,474,017	\$4,628,267	\$4,050,000	\$1,598,744	\$6,135,000	\$43,378,448

Again, these estimates are largely based on useful life expectations contained in the capitalization policy and augmented with known or proposed projects. As work continues to be completed through the service delivery review and enhancing our information into balance to take a more lifecycle approach to capital items the anticipated capital costs will be updated but given the present information and how assets have been maintained in the base this is the best estimate at present.

Capital Revenue

There are a few options for funding capital operations. For the Municipality of Temagami these are Grant Revenue, Utility Rates, and Property Taxation.

Grant Revenue that has been included in the following estimates are grants that have been approved as ongoing contributions, such as Federal Gas Tax. This grant and the Ontario Community Infrastructure Fund have continued throughout the analysis period. For the first few years, Grant Revenue also includes the Northern Ontario Resource Development Subsidy.

Starting in 2019, there was a premium charged on water and sewer rates. The purpose of this premium was to fund capital expenditure through the utility rates rather than having the tax funded programs absorb this cost. In 2023, it is anticipated that this premium will equal \$53,040 and increase by 2% each year.

Council has established a separate capital levy of (in 2022) \$653,348. This amount has been increased by 2% for each year.

Given this, the anticipated revenue for the next 20 years is:

Year	Grants	Utility Rates	Taxation	Total
2023	\$297,656	\$53,040	\$666,415	\$1,017,111
2024	\$297,656	\$54,101	\$679,743	\$1,031,500
2025	\$297,656	\$55,183	\$693,338	\$1,046,177
2026	\$195,216	\$56,287	\$707,205	\$958,708
2027	\$195,216	\$57,413	\$721,39	\$973,978
2028	\$195,216	\$58,561	\$735,776	\$989,553
2029	\$195,216	\$59,732	\$750,492	\$1,005,440
2030	\$195,216	\$60,927	\$765,502	\$1,021,645
2031	\$195,216	\$62,146	\$780,812	\$1,038,174
2032	\$195,216	\$63,389	\$796,428	\$1,055,033
10 Year	\$2,259,480	\$580,779	\$7,297,060	\$10,137,319
2033-2042	\$1,952,160	\$707,971	\$8,895,084	\$16,192,144
20 Year	\$4,211,640	\$1,288,750	\$16,192,144	\$21,952,534

From this, there is an annual infrastructure gap on average of \$1,084,295 over the next 20 years.

Other areas to consider

The Municipality holds funds in reserves. One of the municipal policies is that any operating surplus is transferred to reserves for future projects. While we not able to predict what balance will be placed in reserves as a result of this policy, it is one way where funds are built for future use. The 2022 budget predicts that reserves to be used for future capital projects total \$1,996,692. While the Municipality should not use all of these reserves at once, it is a way where projects can be funded though savings. An example of this is the Marten River Fire Pumper Replacement. The 2022 Budget indicates that this reserve totals \$357,500 which is approaching the amount required to the estimated purchase in 2024.

Use of Debt

The 2022 budget has three areas where the acquisition of debt is expected. These are the UV Filtration Project in Temagami North, the ICIP Green Water Improvement Project and the Repair of the Water Tower in Temagami North. In total, once these projects are completed, it is anticipated that the value of new debt will be \$2,250,000. The 2021 Annual Repayment Limit is just over \$1 million. Allowing for the approved debt not yet acquired, this would leave approximately \$5 million that could be borrowed and remain within the Annual Repayment Limit.

While this is an option, Council should use debt prudently. Having some debt capacity to provide for emergencies or when last minute funding announcements are what we have been waiting for. The other reason for prudent use of debt as a financing tool is that as the annual debt payments increase, there is less flexibility in the municipal budget with debt payments dictating what increases are required.

Increase in Capital Levy

In the 2013 Asset Management Plan, the concept was put forward to increase taxation by 2% of the overall taxation and then maintain that amount over 5 years. At that time, it was estimated that, over 5 years, this step would raise an additional \$340,000 for capital purposes. If the same was put in place the amount

raised over 5 years with a 2% increase, in addition to other possible increases, for the next five years would equal \$432,976.

Grants

As noted previously, the only grants used in the forecast those that have been preapproved (and extended or expected to be). The use of grant programs is vital to the operation of infrastructure assets. Presently, there are no active intakes for infrastructure funding and, our belief, is that a new agreement between the Government of Canada and the Province of Ontario is required for another program similar to the ICIP (which we were approved for use in 2022).

The Municipality has used delegations with Provincial Ministers as a way to promote the need for funding. We have gained momentum in the past few years but with there being 385 municipalities classified as 'small', and a 'share the wealth mentality', it is not plausible to believe that our infrastructure gap could be funded through increased grant activity.

Au Chateau

We have been in a difference of opinion regarding the responsibility the Municipality has towards Au Chateau. Council did provide notice that we were ceasing our relationship as of December 31, 2021 and Au Chateau responded by sending us a bill for the 2022 levy of \$450,000. Once the Ministry of Long-Term Care rules that paying this level of tax dollars to a facility that is never used should never happen, and if Council repurposes this portion of the budget towards capital, this would add \$2,388,655 over the first five years of this being in effect.

Summary

Although the 2013 Asset Management Plan introduced concepts of lifecycle maintenance, rather than build – leave – build, and an increase to the capital levy over and above the standard inflation rate, these have not been put into practice. We have an opportunity over the next three years of plan enhancement to change how we manage our assets, including how we budget for this management, as well as fully implementing our service delivery review which may provide changes to the assets we require. Reviewing our capitalization policy to ensure that the anticipated useful life estimates are still relevant is another important step since a longer useful life will reduce the estimated asset replacement schedule. There are condition assessments, asset mapping, consolidating office (perhaps) and the electrification of vehicles all to be considered as we work to have a more concise Asset Management Plan. These are all key to reducing the infrastructure gap to the point where reserves, grants and other opportunities can make up the difference.