# ASSET MANAGEMENT PLAN

# TOWN OF COLLINGWOOD - CORE ASSETS

# 2022

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# Executive Summary

The performance of a community's infrastructure provides the foundation for its economic development, competitiveness, prosperity, reputation, and the overall quality of life for its residents. Infrastructure assets that are reliable and in good condition are essential for the delivery of critical core services for the citizens of the municipality.

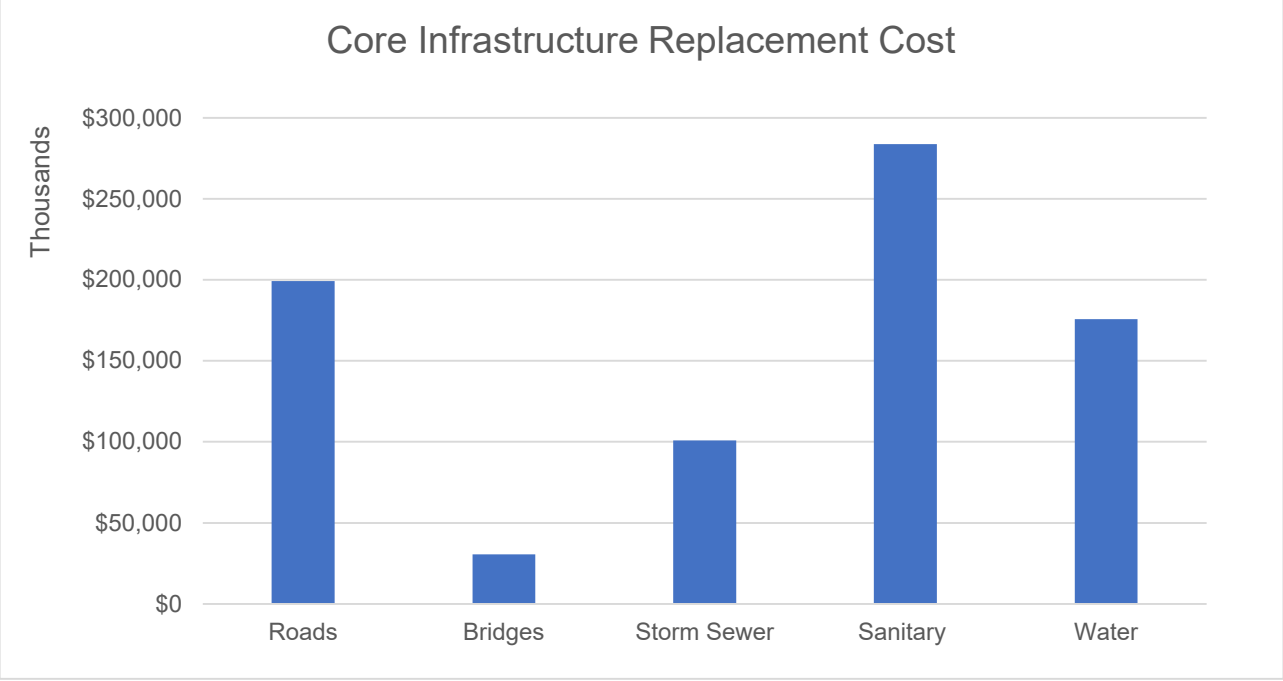
A technically precise and financially rigorous asset management plan diligently implemented will mean that sufficient investments are made to ensure delivery of sustainable infrastructure to current and future residents. The plan will also indicate the respective financial obligations required to maintain this delivery at established levels of service.

This Asset Management Plan (AMP) for the Town of Collingwood complies with the requirements as outlined in the provincial document Building Together Guide for Municipal Asset Management Plans. It will serve as a strategic, tactical, and financial document, ensuring the management of the municipal infrastructure follows sound asset management practices and principles, while optimizing available resources and establishing desired levels of service.

# Total Core Assets Infrastructure Investment

This Asset Management Plan has been prepared for the following asset categories, which are considered the "core" assets in provincial direction to municipalities: road, storm sewer, water and wastewater networks and bridges/culverts. Measured in 2021 dollars, the replacement value of the five major asset categories reported on total $667.3 Million.

Figure 1 - Total Core Assets Infrastructure Replacement Cost



## Financing Strategy

From a financing perspective, it is estimated that an overall annual investment of $10.1 Million is required to fully fund these assets in a sustainable manner. Relative to that amount and our current funding mechanisms, there is approximately an annual funding gap of approximately $380,000 for tax supported assets (Roads, Bridges, Stormwater) and $430,000 for user supported assets (Water, Wastewater). We have proposed this funding gap be addressed via three financial mechanisms outlined below. It is important to recognize that the time value of investments is a very powerful tool and that relatively small changes in funding now can have a significant impact to reserve balances over extended periods of time. This is critical to understand when forecasting asset sustainability over lifecycle timelines of 50 and 75 years (or more). See section 10.0 for full Financing Strategy details.

1. Small increases to current .75% Special Capital Levy over 5 years to 1% - note that the first phase was included in the 2022 Capital Budget.
2. Retirement of debt: Redirect interest/principal expense savings to Lifecycle reserve fund contributions.
3. Increase lifecycle reserve fund contributions over 5 years. Note that a 5% increase to reserve funds over 5 years would have a tax rate impact of 2%.
4. Update and adopt a more strategic investment policy by directing funds to earn higher interest rates with longer terms. Note that a 2% increase in investment earning on the Lifecycle reserves equates to approximately $0.5M of additional interest earned.

## Cost per household

While the Town is responsible for the strategic direction of the municipality, it is the ratepayer that ultimately bears the financial burden. As such a “cost per household" analysis was completed for each of the asset categories to determine the financial obligation of each household in sharing the replacement cost of the Town's assets. For example, based on 13,181 households in 2021, the cost per household for replacement of the Town’s road network is $15,124. A similar analysis was conducted for the other four asset categories. The customer base for water and sewer of 11,343 are used instead of the household count.

Figure 2 - Core Asset Infrastructure Investment by household

| | Replacement Cost | Households | Cost/Household |
|---|---|---|---|
| Roads | $199,350,045 | 13,181 | $15,124 |
| Bridges | $30,482,500 | 13,181 | $2,313 |
| Storms | $100,815,048 | 13,181 | $7,649 |
| Sanitary | $199,191,743 | 11,343 | $17,561 |
| Water | $137,451,858 | 11,343 | $12,118 |
| Total | $667,291,194 | 12,446 | $53,616 |

# Overview

This Asset Management Plan meets all provincial requirements as outlined within the Ontario Building Together Guide for Municipal Asset Management Plans. As such, the following key sections and content are included:

1. Executive Summary and Introduction
2. State of the Current Infrastructure
3. Desired Levels of Service
4. Asset Management Strategy
5. Financial Strategy

The following asset classes are addressed:

1. Road Network: Asphalt, surface treatment, paved road bases, streetlights and traffic signals;
2. Bridges & Culverts: Bridges and large culverts with a span greater than 3 meters.
3. Water: linear network (water mains, hydrants,) and water facilities (treatment plant, booster stations, reservoirs, and water towers);
4. Sanitary Sewer Network: linear network (sanitary sewer mains, ponds, and lagoons) and sanitary facilities (treatment plant, pumping stations, lagoons);
5. Storm: Storm sewer mains and catch basins.

Municipalities are encouraged to cover all asset classes in future iterations of the AMP and the Town of Collingwood is working towards this goal by the end of 2022.

This asset management plan will serve as a strategic, tactical, and financial document ensuring the management of the municipal infrastructure follows sound asset management practices and principles, while optimizing available resources and establishing desired levels of service.

**At a strategic level**, within the State of the Current Infrastructure section, it will identify current and future challenges that should be addressed, in order to maintain sustainable infrastructure services on a long-term, lifecycle basis.

It will outline a Desired Level of Service (LOS) for each asset category to assist the development and tracking of LOS through performance measures across strategic, financial, tactical, operational, and maintenance activities within the organization.

**At a tactical level**, within the Asset Management Strategy section, it will develop an implementation process to be applied to the needs-identification and prioritization of renewal, and rehabilitation resulting in a 10-year plan that will include growth projections.

**At a financial level,** within the Financial Strategy section, a strategy will be developed that fully integrates with other sections of this asset management plan, to ensure an adequate 10-year infrastructure budget.

Through the development of this plan, all data, analysis, life cycle projections, and budget models were provided through the Worktech software product in conjunction with the Town's Geographical Interface software (GIS), Great Plains Diamond Financial software and Questica Budgeting software. The software and plan were synchronized and evolved together, and therefore, will allow for ease of updates, and reporting of performance measure results.

This will allow for improvements of the plan and its projections. It is required that the plan be revisited and updated every 5 years while the details of the inventory, Levels of Service, and potential treatments are continually updated and reviewed annually as part of the budget process. Additionally, there is a requirement that every year on or before July 1 there be a review of the progress and trajectory of the plan.

## Ontario Regulation 588/17

One of the main resources of this document is Ontario Regulation 588/17. Additional information can be obtained on the MFOA website at https://www.ontario.ca/laws/regulation/r17588 on e-laws Ontario. The regulation requires all municipalities to prepare an asset management plan (AMP). An AMP will also be a requirement for the Canada Community-Building Fund (CCBF, formerly known as Federal Gas Tax) which is administered through the Association of Municipalities of Ontario (AMO).

This document on its own will not result in full compliance with the regulation. This is one part of the many activities to be undertaken by the Town.

A summary of key requirements of the Regulation are provided below:

1) Key Dates

   a) July 1, 2019: Strategic Asset Management Policy (Complete for Collingwood)
      i) Outline commitments to best practices and continuous improvement.

   b) July 1, 2022: Asset Management Plan – Phase 1 (this report and supporting materials)
      i) For core assets (roads, bridges & culverts, water, wastewater, and stormwater):
         (1) Inventory of Assets.
         (2) Current levels of service; and
         (3) Costs to maintain levels of service.

   c) July 1, 2023: Asset Management Plan – Phase 2
      i) Builds out the Phase 1 plan to include all assets (facilities, equipment, traffic signals, County forests, and trails).

   d) July 1, 2024: Asset Management Plan – Phase 3
      i) Builds on Phase 1 and 2 by adding:
         (1) Proposed levels of service; and
         (2) Lifecycle management & Financial strategy.

2) Service Levels

   The regulation makes frequent mention of service levels. In phase 1 of the regulation the focus is on describing current levels of service and plans to maintain those levels of service.
   In Phase 3 municipalities will have more latitude to describe the proposed levels of service. For the purpose of this document and the analysis there are two types of indicators for service levels:

   - Physical Condition – or the capacity, defined as the ability for the asset to meet usage demands; and

   - Statistical Information - municipalities must be able to report on key statistics. Those statistics include replacement costs, age, condition, quantities and other service metrics.

3) Plan Requirements

   a) Municipalities must first determine the work (treatments) necessary to maintain current service levels in the most cost-effective manner. This plan must be at an activity level.
   b) Should a municipality be unable to deliver the recommended plan the municipality must define the activities it can fund and how risks associated with unfunded activities will be managed.

4) Endorsement and Approval

Every AMP must be:

a) endorsed by the executive lead of the Municipality; and
b) approved by a resolution passed by Council.

5) Updates and Annual Reviews

a) The AMP is to be updated at least every 5 years after the year the plan is completed.
b) Every year on or before July 1 starting the year after the AMP is completed there should be a review of the progress and trajectory.

6) Communication

a) The Town is to post its Strategic Asset Management Policy and Asset Management Plan on a website available to the public and provide a copy to any person who requests it.

## Importance of Infrastructure

Municipalities throughout Ontario, large and small, own a diverse portfolio of infrastructure assets that in turn provide a varied number of services to their citizens. The infrastructure, in essence, is a conduit for the various public services the municipality provides, e.g., the roads supply a transportation network service; the water infrastructure supplies a clean drinking water service. A community's prosperity, economic development, competitiveness, image, and overall quality of life are inherently and explicitly tied to the performance of its infrastructure.

## Asset Management Plan – Relationship to Strategic Plan

The major benefit of strategic planning is the promotion of strategic thought and action. A strategic plan spells out its Vision of where an organization wants to go, how it's going to get there, and helps decide how and where to allocate resources, ensuring alignment to the strategic priorities and objectives. It will help identify priorities and guide how municipal tax dollars and revenues are spent into the future.

The strategic plan usually includes a vision and mission statement, and key organizational priorities with alignment to objectives and action plans. Given the growing economic and political significance of infrastructure, the asset management plan can be a component of the municipal strategic plan, influencing corporate priorities, objectives, and actions.

The Town of Collingwood's Current Community Based Strategic Plan was approved by Council June 15, 2020. The Vision in the Town of Collingwood's Strategic Plan is "People Thrive Here – Live more Now".

The 5 pillars of the plan are:

1. Transparent and Accountable Local Government
2. Public Connections to a Revitalized Waterfront
3. Support and Manage Growth and Prosperity
4. Enhance Community well Being and Sustainability
5. Encourage Diverse Culture and Arts Offerings

Within the first pillar of the plan: Transparent and Accountable Local Government is the following relative to Asset Management Planning

1. Asset management planning for facilities is complete and the Capital Asset Management Plan for all assets is updated. Timeline: 1 to 3 years.

2. The financial components of all Master Plans (e.g. Transportation, Cycling, Waterfront) and the Capital Asset Management Plan are incorporated into a projection of longer-term capital and operating fund's needs. Timeline: 1 to 3 years. As much of this component relates to the expansion or enhancement of assets, it is not part of the Asset Management Plan, yet forms an expansion plan that will impact future Asset Management plans.

## Relationship to Other Plans

An asset management plan is a key component of the municipality's planning process. This planning process links the asset management plan with multiple other corporate plans and documents. For example:

- The Official Plan – The AMP should both utilize and conversely influence the land use policy directions for long-term growth and development as provided through the Official Plan;
- The Long-Term Financial Plan – The AMP should both utilize and conversely influence the financial forecasts with the long-term financial plan.
- Capital Budget – The decision framework and infrastructure needs identified in the AMP forms a large portion of the basis on which future capital budgets are prepared.
- Infrastructure Master Plans – The AMP will utilize goals and projections from infrastructure master plans and in turn will influence future master plan recommendations.
- By-laws, standards, and policies – The AMP will influence standards, policies and by-laws related to infrastructure management practices and standards, such as the Levels of Service delivered by the Municipality.
- Regulations – The AMP must recognize and abide by industry and senior government regulations; and
- Business Plans – The service levels, policies, processes, and budgets defined in the AMP are incorporated into business plans as activity budgets, management strategies, and performance measures.

## Plan Elements

The approach and methodology consist of the following key components. These components are linked together to form the asset management plan.

### Overarching Municipality Strategic Plan and Directions

- Strategic plan goals
- Community expectations
- Legislated requirements

### State of the Current Infrastructure Reports

- Asset inventory
- Valuations
- Current condition and current performance

### Expected Levels of Service

- Key Performance Indicators
- Performance Measures
- Public Engagement

### Asset Management Strategy

- Lifecycle Analysis
- Growth Requirements
- Risk Management
- Project Prioritization Methodologies

### Financing Strategy

- Available Revenue Analysis
- Developing Optional Scenarios
- Define Optimal Budget
- Financial Plan

### AMP Performance Reporting

- Project Implementation
- Key Performance Measures Tracked
- Progress Reported to Senior Management & Council

A municipality's infrastructure planning starts at the corporate level where it ties to the strategic plan, is aligned to the community's expectations, and complies with industry and government regulations.

Then through the State of the Infrastructure analysis that is completed, the overall asset inventory, asset valuation, asset condition and asset performance are reported.

A life cycle analysis of needs for each infrastructure class will be conducted, over a duration of at least one full life cycle for that asset type. This analysis will yield the sustainable funding level and compare that to actual current funding levels. This analysis will determine whether there is a funding surplus or deficit for each infrastructure type.

From the lifecycle analysis above, the municipality gains an understanding of the current condition-based levels of service provided today for each infrastructure class and the projected level of service for the future (these typically deteriorate over time, and not in a straight line). The next section of the AMP requires a municipality to develop a Desired Level of Service (or target service level) and develops performance measures to track the year-to-year progress towards this established target level of service.

Prior to using the software to analyze potentially millions of options for action on every asset segment in the municipality, for each asset type the potential interventions or treatments that can be used and the costs and potential LOS outcomes of each are set, leveraging best practices and methodologies for each asset type. Depending upon the condition of that asset segment, the typical deterioration curve, and other factors, the interventions which yield the best return on the Town's investments are selected and result in the first draft of the Asset Management Plan. This Plan identifies which asset segments should be addressed when and with what treatment to best apply the municipality's budget to achieve the Levels of Service set by Council.

The Financing Strategy then considers the annual costs of the asset management plan (within and across all the asset types) and staff consider peaks and valleys in funding, integration of work (e.g. aligning under-road pipe work with road surface renewal), and the availability of resources to propose the 10-year infrastructure

budget, and the specific projects anticipated in the first five years or so. All revenue sources available are reviewed, such as tax levy, debt allocation, user fees, reserves, grants, development charges, etc. and necessary budget allocations are analyzed to deliver infrastructure projects.

Finally, in subsequent updates to this AMP, actual project implementation will be reviewed and measured through the established performance metrics to quantify whether the desired level of service is achieved or achievable for each infrastructure type. If shortfalls in performance are observed, these will be discussed, and alternate financial models or service level target adjustments or treatment/intervention options will be presented.

## Worktech, GIS and Software Alignment with AMP

Collingwood's first Asset Management Plan in 2014 was developed in Microsoft Excel initially and while Excel is an extremely useful tool it does have its drawbacks such as potential data integrity and the process of updating is manual and time consuming. For Collingwood's updated 2022 Asset Management Plan initial objectives were:

1) Migrate from Excel model and use software designed specifically for Asset Management
    a) Integrated with other Town software such as:
        i) Great Plains Diamond Financial; and
        ii) ESRI Geographical Information System (GIS).
    b) Integrated data modelling capability, including:
        i) Multi scenarios ("what-ifs"); and
        ii) Project planning optimization.
2) Master inventory is in one database for all assets linked to Worktech:
    a) For Linear asset classes this database is (GIS) which is linked to Worktech; and
    b) For nonlinear asset classes, they are housed directly in Worktech.
3) Database is live:
    a) Data is "live" and up to date. Always reflects the most current data available.
    b) Accessible to multiple users;
    c) Linear assets updated in GIS with construction "As Builts" and synced to Worktech;
    d) Changes are tracked; and
    e) Data sets can be imported from other sources or software.
4) Database is multi use:
    a) Leverages same database for work orders, inspections, budget estimates etc.

## State of the Infrastructure

The Town has a detailed inventory listing of the core assets housed in the Worktech and GIS ESRI software systems and this inventory has been continually refined and enhanced since the Town began Asset Management in 2013. In addition, these same inventories are also used in Water and Wastewater Rate Studies and the Towns Development Charges (DC) studies with the most recent being completed in 2019. Much of this same information is also available in the Town's GIS system (linear). In the past 2 years, in addition to reviewing and updating these inventories, a strategy of centralizing these inventories in one system to have one common source of data and avoid duplication and conflicting data has been pursued. It has been a central accountability of the new Town GIS coordinator role (2017) to be the keeper and overseer of all town linear asset data and extensive effort was expended to review and rationalize the various data sets within GIS.

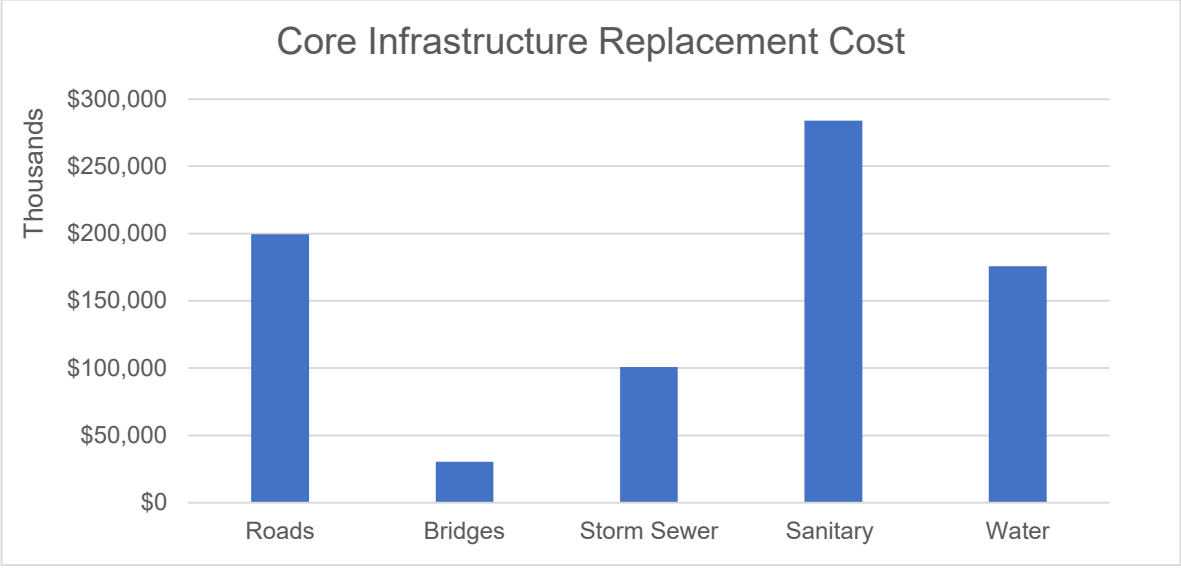
Most recently, these inventories and replacement costs were extensively reviewed and updated through the development and maintenance of many other Town initiated, studies such as:

1) the 2019 DC and Rate study;
2) the Master Servicing studies (all services; Water, Sanitary and Storms)
3) the water department developed internal processes to continually review and update the inventories based on field work inspections and work order history data;
4) during 2020 the GHD Group was engaged to inventory all Wastewater vertical assets[1] as well as review the existing Water vertical assets inventory;
5) Accent Building sciences were engaged in 2021 to inventory all existing Town facility assets[2].
6) bi-annual Bridge (OSIM) mandatory studies (2016, 2018, 2020); and
7) Road Condition Assessment studies completed through Ainley Engineering Group.

## Capital Asset Overview

The Town presently owns and manages tax supported "core" capital assets with a 2021 replacement value of approximately $667.3 Million.

Figure 3 - 2022 Core Infrastructure Assets

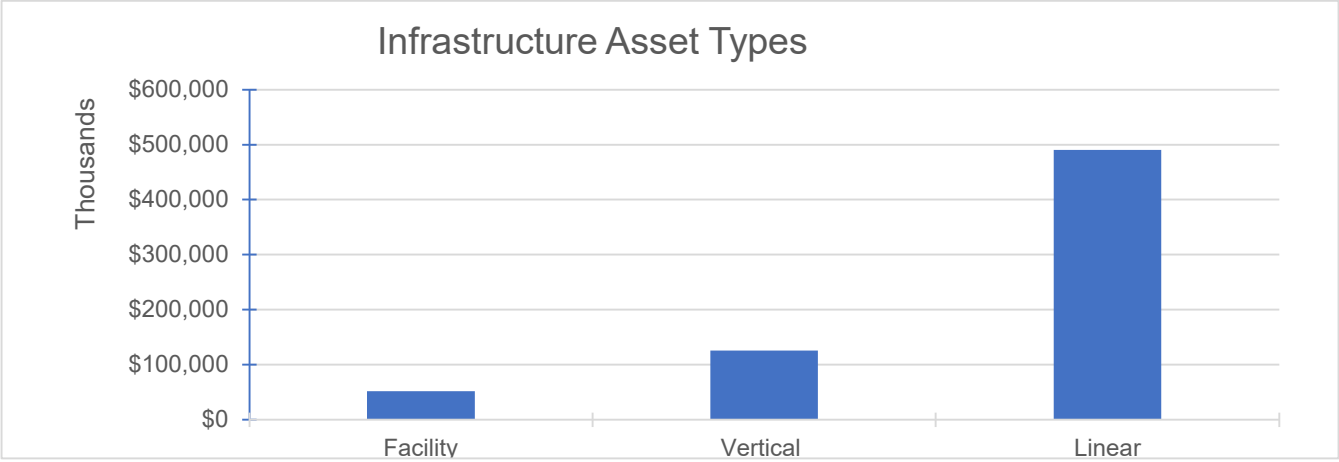



[1] Vertical Asset means an asset within a building or facility often comprised of multiple components, also known as an above-ground asset. In the context of the water industry, this typically refers to assets within pump stations, treatment plants, and may include other facilities, such as storage facilities

[2] Assets related to just the building and structures. Does not include vertical assets in the case of Environmental services.

Linear in-ground and road assets make up the bulk of the core asset value at $491 Million, whereas facility assets and vertical assets make up the remainder at $51.4 Million and $125 Million respectively.

Figure 4 - Asset Types Replacement Cost




## Asset Condition / Age

An asset's condition is a critical element in understanding its potential impact to the Town's near- and long-term capital plans and in turn the potential resulting financial liability. The quickest and easiest indicator of an assets condition is its current age relative to it's expected useful life. However, assets can sometimes exceed their useful life or inversely assets may require replacement earlier then expected as a result of a variety of factors such as volume of usage (i.e. traffic counts in the case of roads), maintenance history (has proper periodic maintenance occurred?), or even environmental considerations such as unusually cold winters or different types of soil conditions which can impact the useful life of underground linear assets. As such, where possible asset condition assessments and inspections are the best indicator of an asset's current status relative to its expected useful life and replacement / rehabilitation time date.

The Town's roads, bridges and facilities data all reflect actual condition assessments whereas linear underground Sanitary, Storm and Water data is largely based on age estimates[3]. The shorter-lived equipment vertical works assets are evaluated based on age primarily due to their shorter lifespan which makes condition assessments less effective and relevant.

Figure 5 - Asset Class Condition Linear Summary

| Asset Type | Asset Replacement Cost | Asset Count | Average Condition | Condition Method | Avg Year Built | Quantity | Unit |
|---|---|---|---|---|---|---|---|
| Bridge | $30,482,500 | 24 | 76.67 | OSIM | 1980 | 4,879 | Meters |
| Road Linear | $193,163,470 | 810 | 81.90 | PCI | 1971 | 147 | Kms |
| Sanitary Sewer | $62,716,265 | 1,495 | 75.35 | Age | 1986 | 117,080 | Meters |
| Storm Sewer | $100,815,048 | 2,121 | 66.73 | Age | 1967 | 79,323 | Meters |
| Watermain | $103,420,629 | 1,786 | 59.33 | Age / Break history | 1989 | 170,578 | Meters |
| | **$490,597,912** | **6,236** | **68.65** | | | | |

[3] The water department augments the age assessment of water distribution assets with known breaks and freeze related issues.

Figure 6 - Facility Summary

| Dept | List Description | Asset Replacement Cost | Sq Ft | Average Condition | Year Built | Age |
|---|---|---|---|---|---|---|
| **Roads** | Public Works Building | $5,353,375 | 18,675 | 85.61 | 1989 | 33 |
| | Public Works Salt Shed | $116,648 | 1,400 | 27.20 | 1990 | 32 |
| | Public Works Sand Dome | $674,892 | 8,100 | 99.50 | 2006 | 16 |
| | Public Works Storage Shed | $41,660 | 500 | 84.76 | 1990 | 32 |
| **Water** | Carmichael Reservoir Building | $2,412,325 | 4,920 | 0.00 | 1991 | 31 |
| | Davey Reservoir Building | $1,397,384 | 2,850 | 95.90 | 2010 | 12 |
| | Elevated Tower | $6,000,000 | 400 | 95.00 | 1950 | 72 |
| | Elevated Tower Building | $400,000 | 490 | 86.50 | 1998 | 24 |
| | Environmental Services Administration | $7,372,374 | 28,290 | 90.75 | 1989 | 33 |
| | Georgian Meadows Booster Stn | $0 | 200 | 0.00 | 0 | 2022 |
| | Osler Booster Station | $213,000 | 130 | 0.00 | 2000 | 22 |
| | R.A.B. Water Filtration Plant | $3,930,609 | 12,875 | 87.60 | 1999 | 23 |
| | RAB Generator Building | $1,250,000 | 1,000 | 98.40 | 1999 | 23 |
| | RAB Industrial Raw Water Building | $1,320,000 | 3,560 | 76.40 | 1950 | 72 |
| **Wastewater** | Black Ash Sewage Pumping Station | $1,480,550 | 1,536 | 97.80 | 2020 | 2 |
| | Boiler and COGEN Building | $330,450 | 550 | 72.80 | 1979 | 43 |
| | Cranberry Sewage Pumping Station | $260,820 | 324 | 87.10 | 2002 | 20 |
| | Digester 1&2 Building | $1,845,478 | 6,045 | 87.40 | 1979 | 43 |
| | Digester 3&4 Building | $1,338,696 | 4,385 | 89.10 | 1979 | 43 |
| | Minnesota Sewage Pumping Station | $633,800 | 1,540 | 0.00 | 1958 | 64 |
| | Paterson St. Sewage Pumping Station | $140,443 | 460 | 0.00 | 1993 | 29 |
| | Pretty River Sewage Pumping Station | $150,000 | 100 | 0.00 | 2010 | 12 |
| | Silver Glen Sewage Pumping Station | $160,850 | 0 | 99.10 | 2006 | 16 |
| | St. Clair Sewage Pumping Station | $755,950 | 1,350 | 0.00 | 2003 | 19 |
| | Tenth Line Sewage Pumping Station | $0 | 0 | 0.00 | 0 | 2022 |
| | Wastewater Treatment Plant (WWTP01) | $0 | 0 | 0.00 | 0 | 2022 |
| | Wastewater Treatment Plant Admin Building | $4,823,582 | 2,800 | 92.10 | 1958 | 64 |
| | Wastewater Treatment Plant Control Room | $2,162,980 | 7,085 | 93.10 | 1968 | 54 |
| | Wastewater Treatment Plant Effluent Building | $337,750 | 600 | 93.50 | 1979 | 43 |

| Dept | List Description | Asset Replacement Cost | Sq Ft | Average Condition | Year Built | Age |
|---|---|---|---|---|---|---|
| | Wastewater Treatment Plant Generator Building | $970,000 | 770 | 97.10 | 1999 | 23 |
| | Wastewater Treatment Plant Headworks Building | $3,700,735 | 8,535 | 82.00 | 1998 | 24 |
| | Wastewater Treatment Plant Raw Sludge Pump Building | $535,710 | 720 | 94.20 | 1968 | 54 |
| | Wastewater Treatment Plant Sludge Thickening Building | $1,282,218 | 4,200 | 93.30 | 1979 | 43 |
| | | **$51,392,279** | **124,390** | **63.82** | **59639** | **-57617** |

Figure 7 - Environmental Treatment Plant Vertical Equipment Assets

| Dept | Asset | Replacement Cost$ | Average of age | Count of Equipment | Average of Year | Average of use life |
|---|---|---|---|---|---|---|
| **Water** | Carmichael Reservoir Building | $7,144,504 | 28 | 64 | 1994 | 28 |
| | Davey Reservoir Building | $1,728,039 | 12 | 98 | 2010 | 23 |
| | Elevated Tower | $205,777 | 14 | 21 | 2008 | 46 |
| | Georgian Meadows Booster Stn | $393,342 | 17 | 29 | 2005 | 21 |
| | Osler Booster Station | $228,559 | 3 | 10 | 2020 | 11 |
| | Environmental Services Administration | $13,145 | 4 | 8 | 2018 | 10 |
| | R.A.B. Water Filtration Plant | $38,268,730 | 19 | 805 | 2003 | 20 |
| **Wastewater** | Black Ash Water Pumping Station | $2,511,730 | 6 | 109 | 2016 | 20 |
| | Cranberry Sewage Pumping Station | $343,487 | 19 | 22 | 2003 | 32 |
| | Minnesota Water Pumping Station | $2,613,283 | 4 | 60 | 2017 | 33 |
| | Paterson St. Water Pumping Station | $1,117,822 | 23 | 74 | 1995 | 28 |
| | Pretty River Water Pumping Station | $1,561,809 | 12 | 38 | 2008 | 23 |
| | Silver Glen Sewage Pumping Station | $268,394 | 14 | 55 | 2007 | 41 |
| | St. Clair Water Pumping Station | $3,045,138 | 17 | 44 | 2005 | 24 |
| | Tenth Line Sewage Pumping Station | $97,830 | 15 | 11 | 2001 | 29 |
| | Wastewater Treatment Plant (WWTP01) | $18,367,255 | 24 | 380 | 1997 | 23 |
| | OSLER BLUFF LAGOON | $684,710 | 37 | 1 | 1985 | NA |
| | Wastewater Treatment Plant (WWTP01) | $46,706,941 | 40 | 35 | 1982 | NA |
| **Grand Total** | | **$125,311,891** | **18** | **1873** | **2003** | **22** |

In general, the Town's linear assets reflect a younger well-maintained system with lower near term replacement and rehabilitation requirements, conversely the long-term costs where assets begin to reach the end of their expected life, funding increases significantly. The Town has benefited from a consistent annual Sanitary replacement program (which also replaces roads and water assets at the same time), an annual road resurfacing program, one time infrastructure grant funding (Hume St, Cogen, SPS) and annual OCIF infrastructure funding. Lastly, it is a growing community where many older assets have been upgraded or replaced through development charge funding.

Facilities in general are unique as they generally have extremely long life spans (with proper maintenance), and they are complicated structures compromised of many different asset types (HVAC systems, roofs, walls, electrical/plumbing and etc.), which also have varying life spans and maintenance needs. So, while we have provided a replacement cost (the cost to completely rebuild a structure of the same specifications) we look to the 10-year work plan as the more relevant indicator of financial liability. Most often, a building is not likely to be replaced if it can still function appropriately and support the programs and services housed within it and in the case of the Town, generally growth drives most facility major rehabilitations. This is the way the Town has approached the level of service for managing facilities as it is felt to be the most cost-effective.

## Levels of Service (LOS)

Performance objectives and measures to monitor and report on these objectives are essential to meeting the corporate goals of the Town. LOS are a means of measuring the achievement of these goals. Levels of Services link an asset's performance to target performance goals and can be broken down into the following categories:

1. Legal Requirements: Statutory, Regulatory, and contractual requirements are the minimum levels of service that must be provided.

2. Community (Customer) Levels of Service: Community Levels of Service define how a service is perceived by the user, often with non-technical measures for service goals.

3. Asset (Technical) Levels of Service: Asset Levels of Service are specific and quantifiable measures for service targets.

Decisions about LOS are important as they establish policies for Work Plans and asset condition responses that ultimately impact the level of funding required.

It is not uncommon that a municipalities' current and historical level of service is largely the result of reactive responses to asset conditions and performance levels (i.e., break/fix approach). This can be driven by financial and budget process pressures whereby seemingly minor reductions in maintenance budgets can unknowingly have significant impacts on the total lifecycle cost of an asset. For example, minor cutbacks in an annual asset maintenance can lead to shorter asset life spans and hence the extensive and expensive rehabilitation or replacement decades earlier then expected. Therefore, as an overall strategy for all core assets, staff have established the Technical Levels of Service whereby we do "the right things at the right time" as a priority with the objective also being the lowest overall lifecycle cost of the asset. This in turns produces the most effective and efficient use of tax dollars.

This can appear at times to conflict with the Community or Customer Level of Service whereby responding to the technical elements of an asset outweighs community concern regarding an asset such as a road that is in poor condition may be a lower priority then proper maintenance on newer roads[4] . The overall driver is the most efficient use of funds towards lifecycle requirements of an asset while still maintaining its Level of Service

[4] Paradoxically, poor condition roads don't degrade as quickly as newer roads that are not maintained. Therefore, the return on investment favours prioritizing maintenance on newer roads.

condition. In such cases, there is also a communication and education role for the Asset Management Plan (and process) to further educate and communicate the priorities of the long-term capital and maintenance plans to the community.

The Town is working on developing strong LOS measures along with a policy and procedure. The current targets will be set to the current state where legislation or other previous set measures are not in place. In the future targets will be set and measured using a formal procedure. The individual asset report sections below will provide the LOS for each category of assets.

# Climate Change

As written in the Strategic Asset Management Policy:

"The Town will leverage new and existing opportunities for reducing greenhouse gas emissions (mitigation) and building resiliency to projected climate change impacts (adaptation) into corporate asset management practices. Applying climate change mitigation and adaptation lenses will be achieved by strategically embedding tactical, operational and reflexive considerations related to climate change into lifecycle management practices. This will reduce vulnerabilities and promote adaptation and resiliency to climate change impacts, incrementally over time." Further details will be incorporated in the Town's Climate Change Action Plan which is currently in progress.

# Roads Linear Assets

## Levels of Service - Roads

Collingwood's roads on average are in good to very good condition which has been demonstrated consistently in the completed road condition assessment studies; the Town has conducted 4 assessments in the last 8 years, with the most recent being completed in 2020. The condition of the assets is strongly tied to the growth that the community has experienced over the last decade, both because of a large inventory of new assets being added and the advancement of older roads redevelopment occurring to make way for growth.

Figure 8 – Rating by PCI

| PCI | Rating |
|---|---|
| 90 - 100 | Very Good |
| 75 - 89 | Good |
| 60 - 74 | Fair |
| 45 - 59 | Poor |
| 30 - 44 | Very Poor |
| 0 - 29 | Failure |

Ontario Regulation 588/17 provides Figure 9 with respect to measuring the LOS for roads. It is a requirement of this regulation for the Town to provide the details as described below in relation to the AMP.

Figure 9 – Ontario Regulation 588/17 – Table 4

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Description, which may include maps, of the road network in the municipality and its level of connectivity. | Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality. |
| Quality | Description or images that illustrate the different levels of road class pavement condition. | 1. For paved roads in the municipality, the average pavement condition index value. |
| | | 2. For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor). |

Figure 10 – Town of Collingwood – Road LOS

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Included in Appendix G - Roads Map by PCI | 147 Lane-Kilometeres / 30 Square Km's of land area in the Town of Collingwood |
| Quality | | See Figure 11 |
| | | N/A |

Figure 11 - Technical Levels of Service Status for Roads

| Road Class | LOS Measure | Quantity (in Kms) | Average Condition |
|---|---|---|---|
| HCB Low volume - Rural | Pavement Condition Index | 28.65 | 83.4 |
| HCB High volume - Urban | | 20.79 | 88.0 |
| HCB Low volume - Semi-urban | | 65.33 | 78.7 |
| HCB Low volume - Urban | | 25.69 | 87.6 |

Figure 12 – Replacement Value & PCI for Roads by Asset Class

| Class name | Asset Replacement Cost | Quantity (in Kms) | Average Condition | Average of Year Built | Average Age (in Yrs) |
|---|---|---|---|---|---|
| HCB Low volume - Rural | $ 34,285,260 | 28.65 | 83.40 | 1990 | 31.59 |
| HCB High volume - Urban | 48,809,979 | 20.79 | 87.96 | 1998 | 23.74 |
| HCB Low volume - Semi-urban | 66,730,468 | 65.46 | 78.74 | 1991 | 30.99 |
| HCB Low volume - Urban | 43,337,763 | 31.92 | 82.71 | 1953 | 69.23 |
| **Total** | **$193,163,470** | **146.82** | | | |

Road Condition assessment studies look at many different variables when assessing a road's condition, however, the overall condition of a road segment is summarized with one number known as the Pavement Condition Index (PCI). This overall rating is a useful tool for tracking road conditions over time and so this is the primary metric that staff are using for a roads level of service policy. However, not all roads are the same and staff propose that in addition, tracking PCI condition by road asset class be adopted as a LOS metric. In

other words, a PCI of 60 (out of 100) for an Urban arterial road would have a different response in terms of refurbishment or renewal then the same score on a non-Urban local road. This is because additional factors such as road volume and financial return on investment would differ greatly by these asset classes. This concept has been applied to the strategy being reviewed. The roads have been maintained in good to very good condition on average due primarily to the following factors:

1) Growth:
   a) Older roads have been reconstructed/rehabilitated (earlier) when they were expanded to accommodate growth.
2) Grant Funding:
   a) Collingwood has been successful over the past 5 years in securing grant funding.
   b) Consistent Federal Gas Tax and OCIF grant funding programs have contributed towards road resurfacing and reconstruction. This is a key factor in the overall funding model for asset management.
3) Lifecycle Capital Reserve Fund:
   a) Beginning in 2014 with a contribution of $1.6M (now > $2M in 2021 Budget), Collingwood has consistently increased contributions to this reserve fund each year.
4) Ongoing Capital Budget programs:
   a) Sanitary Reconstruction Program:
      i) While this ongoing annual program is intended to address ageing linear sanitary infrastructure, it has also contributed to road reconstruction
   b) Annual asphalt resurfacing program:
      i) The town has consistently conducted a resurfacing program of critical roads as part of the annual capital budget.

The LOS strategy staff have developed for roads focuses on the Asset or Technical Level of Service where periodic but consistent maintenance and rehabilitation interventions are included. This approach equates to the lowest lifecycle cost of the asset while maintaining its optimal condition relative to its age. Based on the staff developed plan there are 3 types of treatment applied at optimal times to maintain the condition of the road, these are as follows:

1) Crack Sealing; 2) Resurfacing – 50 mm; and 3) Resurfacing – 100 mm.

For each class of road these treatments are applied at different stages to ensure the Town receives the most effective return on investment and maintains a targeted Technical Level of Service of approximately 73 PCI. Figure 13 shows the average PCI throughout an 80 year lifecycle for each class of road, while Figure 14 provides details of timing for each type of improvement with respect to the PCI rating and what the expected PCI will be once the improvement is complete.

Figure 13 – Average PCI Lifecycle

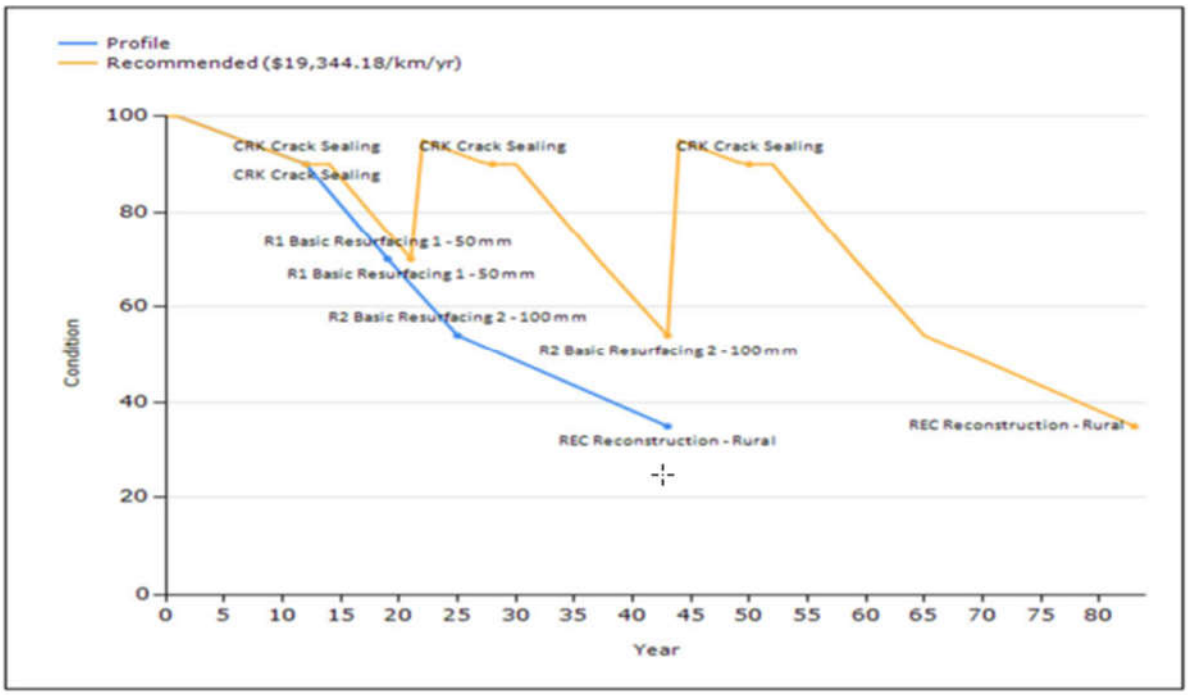
| Asset Class | Average of PCI over 80 Years |
|---|---|
| HCB Low volume - Rural | 73.52 |
| HCB High volume - Urban | 69.85 |
| HCB Low volume - Semi-urban | 73.69 |
| HCB Low volume - Urban | 73.36 |
| **Grand Total** | **72.88** |

Figure 14 – Improvement type by Asset Class and PCI

| Asset Class | Type of Improvement | Average of Start PCI | PCI Post Treatment |
|---|---|---|---|
| HCB Low volume - Rural / Semi-urban | CRK Crack Sealing | 85.1 | 85.1 |
| | R1 Basic Resurfacing 1 - 50mm | 61.7 | 95.0 |
| | R2 Basic Resurfacing 2 - 100mm | 51.9 | 95.0 |
| | R2R Basic Resurfacing - 100mm | 45.0 | 95.0 |
| | REC Reconstruction - Rural | 32.0 | 100.0 |
| | | | |
| HCB High Volume - Urban | CRK Crack Sealing | 85.5 | 85.5 |
| | R1 Basic Resurfacing 1 - 50mm | 61.8 | 95.0 |
| | R2 Basic Resurfacing 2 - 100mm | 50.0 | 95.0 |
| | R2U a) cold mill along curbline (if any)b) remove & replace 5% | 41.0 | 87.0 |
| | RSS Urban Reconstruction (no Storm Sewers) | 35.0 | 100.0 |
| | | | |
| HCB Low volume - Rural / Semi-urban | CRK Crack Sealing | 89.1 | 89.1 |
| | R1 Basic Resurfacing 1 - 50mm | 68.9 | 95.0 |
| | R2 Basic Resurfacing 2 - 100mm | 53.1 | 95.0 |
| | REC Reconstruction - Rural | 34.8 | 100.0 |
| | | | |
| HCB Low Volume - Urban | CRK Crack Sealing | 89.4 | 89.4 |
| | R1 Basic Resurfacing 1 - 50mm | 69.4 | 95.0 |
| | R2 Basic Resurfacing 2 - 100mm | 53.9 | 95.0 |
| | RSS Urban Reconstruction (no Storm Sewers) | 35.0 | 100.0 |

Following this workplan results in roads lasting approximately 80 years and delivers a deterioration curve as follows:

Figure 15 – Deterioration Curve - Roads



## Financing - Roads

Figure 16 provides an overview of the investment amounts required over the next 80 years for the Town's road assets. You will note that the average investment over 80 years equates to $2.72M per year and is detailed in Figure 17 by improvement type.

Figure 16 - Full Road Lifecycle Annual investment

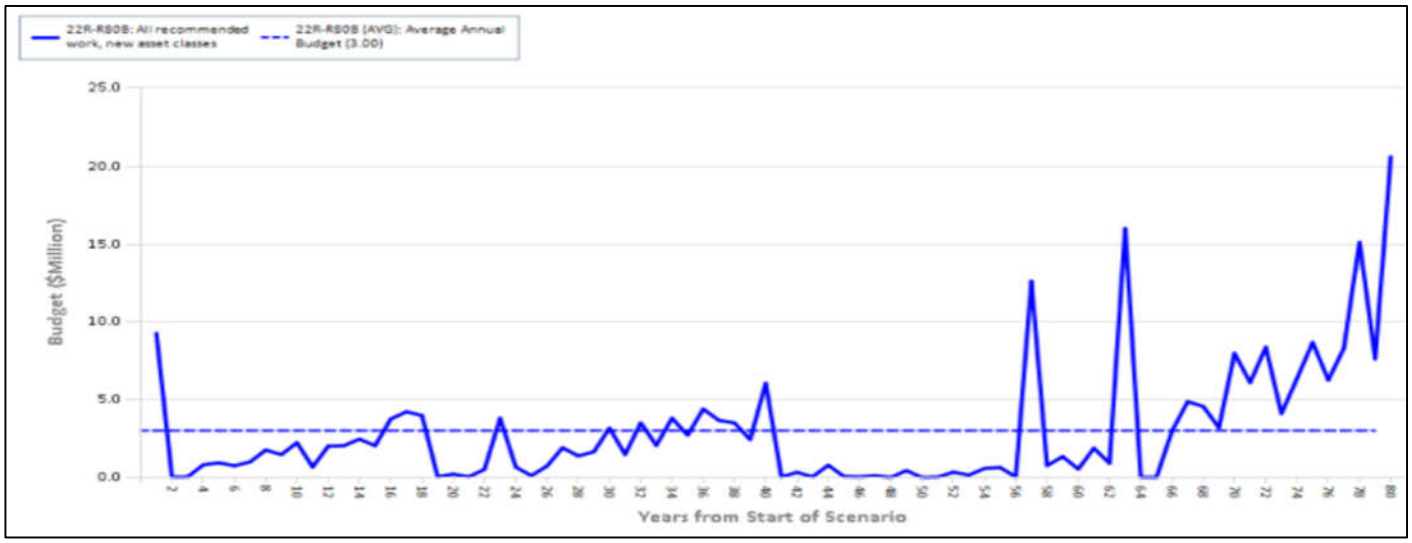



Figure 17 - Annual Roads investment by Improvement

| Improvement | Lifespan Average |
|---|---|
| Crack Sealing | $ 40,032 |
| R1 - 50MM | 421,004 |
| R2- 100MM | 831,261 |
| Reconstruction | 1,423,786 |
| **Grand Total** | **$ 2,716,083** |

You can see that there is a significant backlog showing in 2022 based on the current results, this however will be spread over the next several years to ensure the Town is achieving its' asset management goals while planning for an appropriate average spend. Additionally, some projects that are identified within 2022 can and will be delayed due to other development occurring that will directly affect timing of the rehabilitation.

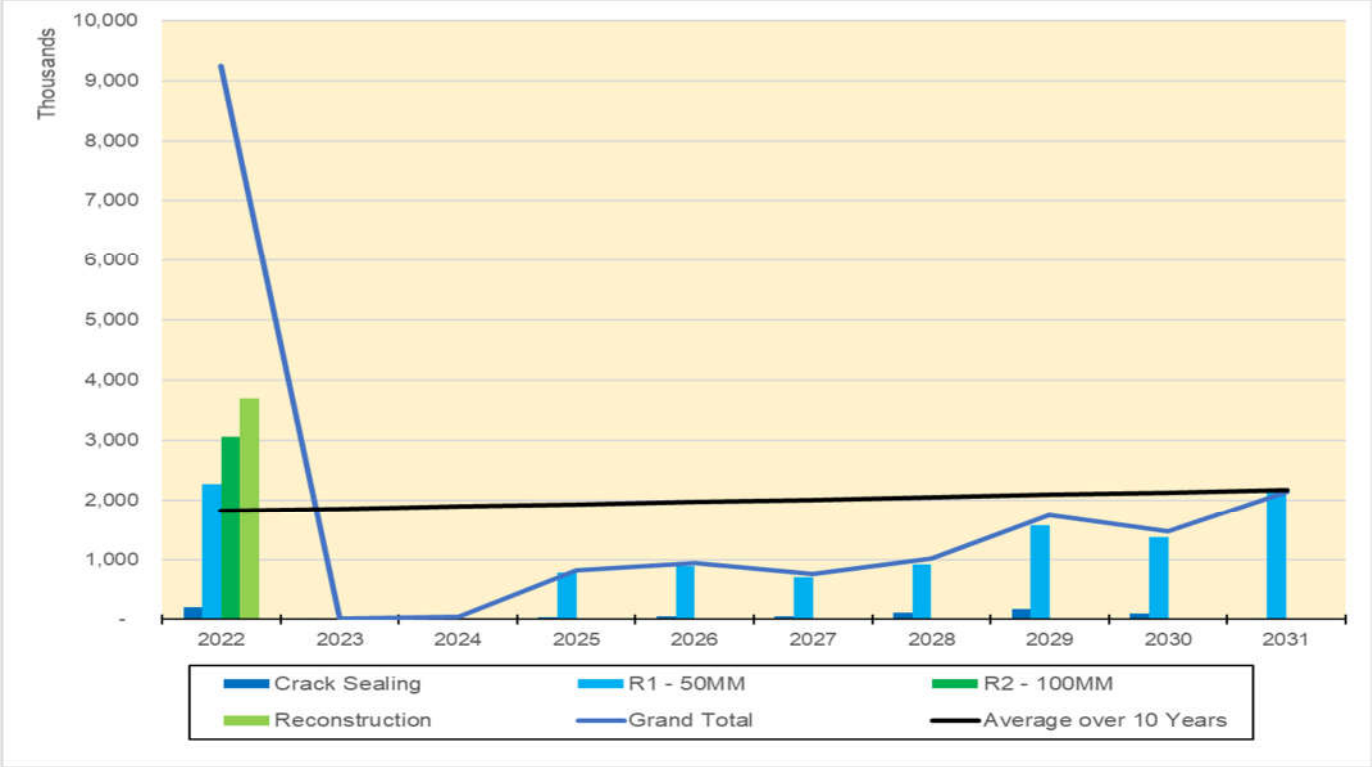
It is important to note that this amount is presented using today's dollars with no inflationary measure, if we add inflationary amounts at 2.0% per year over the next 10-years the results are as follows:

Figure 18 - 10-year Roads Improvement Plan

| Improvement | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|
| Crack Sealing | $ 40,833 | $ 41,649 | $ 42,482 | $ 43,332 | $ 44,199 | $ 45,083 | $ 45,984 | $ 46,904 | $ 47,842 | $ 48,799 |
| R1 - 50MM | 429,424 | 438,013 | 446,773 | 455,708 | 464,822 | 474,119 | 483,601 | 493,273 | 503,139 | 513,202 |
| R2- 100MM | 847,886 | 864,844 | 882,141 | 899,784 | 917,779 | 936,135 | 954,858 | 973,955 | 993,434 | 1,013,303 |
| Reconstruction | 1,452,262 | 1,481,307 | 1,510,933 | 1,541,152 | 1,571,975 | 1,603,414 | 1,635,483 | 1,668,192 | 1,701,556 | 1,735,587 |
| **Grand Total** | **$2,770,405** | **$2,825,813** | **$2,882,329** | **$2,939,976** | **$2,998,775** | **$3,058,751** | **$3,119,926** | **$3,182,324** | **$3,245,971** | **$3,310,890** |

The initial $2.7M is a great start, however we still have to be concerned with inflationary increases. These may be partly offset by appropriate investments with respect to the reserve funds, new treatments and gained efficiencies, however staff want to stress the importance of inflation. As new infrastructure is added due to growth, over time it will also be added to the portfolio being renewed and its lifecycle costs will also affect the annual totals.

Figure 19 – Roads - 10-year Work Plan




While the 10-year Plan costs are reasonable (at ~ $2.0M/year) as shown above and within the means of our current reserves and funding model, it is key that we do start now to ensure our reserves are sufficient for future needs. With a good investment policy and program, the financial impact of **consistent contributions now will ensure financial sustainability is achieved for the full lifecycle of the road assets in the future**.

The modelling results have stayed consistent with an estimated annual investment requirement of just under $2M annually over the next 10-year (see 10-year Work Plan Graph). This is also consistent with staff's expectations and is in-line with current average spending on road refurbishment and reconstruction in the Town's operating and 10-year capital budgets.

Finally, note that the average amount over 10-years has been **inflated by 2% per year, which means that by the end of 2031 the average value has increased to $2.2M.**

## Road Facilities

There are 4 Public Works Road Facilities with a combined replacement cost of $6.2M and all in good condition with the exception of the Salt Shed which is in poor condition (the salt shed is in the 2022 Capital Budget for replacement).

Figure 20 - Roads Facilities - Condition Assessment

| List Description | Asset Replacement Cost | Sq Ft | Average Condition | Year Built | Age |
|---|---|---|---|---|---|
| Public Works Building | $5,353,375 | 18,675 | 85.61 | 1989 | 33 |
| Public Works Salt Shed | 116,648 | 1,400 | 27.20 | 1990 | 32 |
| Public Works Sand Dome | 674,892 | 8,100 | 99.50 | 2006 | 16 |
| Public Works Storage Shed | 41,660 | 500 | 84.76 | 1990 | 32 |
| | **$6,186,575** | **28,675** | **74.27** | 7975 | **28.25** |

Facilities in general are unique with respect to assets in that they can have extremely long-life spans (for example Town Hall built 1860). They are also complicated structures compromised of many different asset types (HVAC, Roof, walls, electrical etc.) with varying life spans and maintenance needs. So, while we have provided a replacement cost (the cost to completing rebuild a structure of same specifications) we look to the 10-year work plan as the more relevant indicator of financial liability. Often, a building is not replaced if it can still function appropriately and support the programs and services it houses. This would be the most cost-efficient level of service approach to managing a facility. The 10-year average cost for the 10-year work plan is $0.127M annually and $1.27 M in total with significant immediate needs ($0.7M; primarily Public Works Head quarters) which would be spread out of several years in order to “catch up “while maintaining and even annual spending amount as much as possible.

Figure 21 - Road Facilities - 10-year workplan

| Description | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|
| Public Works Admin Bldg. | $631,500 | $7,500 | $ - | $31,675 | $28,300 | $1,250 | $25,500 | $81,650 | $132,310 | $15,000 |
| Public Works Salt Shed | 84,900 | - | - | - | - | - | - | 1,500 | - | 103,200 |
| Public Works Sand Dome | - | - | 3,000 | - | - | - | - | 57,600 | - | - |
| Public Works Storage | 6,350 | - | - | - | - | - | - | - | - | 61,100 |
| **Total** | **$722,750** | **$7,500** | **$3,000** | **$31,675** | **$28,300** | **$1,250** | **$25,500** | **$140,750** | **$132,310** | **$179,300** |

# Bridges

The Town owns and maintains 25 bridges and has a legislative requirement to conduct bridge studies every 2 years to assess the condition and renewal or rehabilitation needs. Bridges are complex multi faceted structures with different elements requiring maintenance and renewal programs (deck, concrete, beams) and are assessed according to their own assessment criteria under the Ontario Structure Inspection Manual (OSIM). The level of service for bridges is defined by the results of the town’s OSIM reports which also produces a 10-year plan for rehabilitation and renewal.

## Levels of Service - Bridges

Ontario Regulation 588/17 provides Figure 22 with respect to measuring the LOS for Bridges. It is a requirement of this regulation for the Town to provide the details as described below in relation to the AMP.

Figure 22 - Ontario Regulation 588/17 – Table 5

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists). | Percentage of bridges in the municipality with loading or dimensional restrictions. |
| Quality | 1. Description or images of the condition of bridges and how this would affect use of the bridges. | 1. For bridges in the municipality, the average bridge condition index value. |
| | 2. Description or images of the condition of culverts and how this would affect use of the culverts. | 2. For structural culverts in the municipality, the average bridge condition index value. |

Figure 23 – Town of Collingwood LOS Bridges

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Included in Appendix H - 2020 OSIM Report and Appendix I | There are no bridges in the municipality of Collingwood currently with load or dimensional restrictions |
| Quality | Included in Appendix H - 2020 OSIM Report | BCI = 74 |
| | Included in Appendix H - 2020 OSIM Report | BCI = 74 |

## Financing - Bridges

According to the 2020 OSIM report the town's bridges will require $9.2M in improvements over the next 10-years. This equates to $921K /year. The town has relied heavily on grant funding in the past as the costs exceed the means of our lifecycle reserve funding. One replacement is identified (Ontario Street) and staff are endeavoring to secure grant funding for this. The chart following provides the details of the work plan.

Additional analysis indicated that the full life cycle costs for all structures would result in a similar amount of funding per year being required over the entire life cycle.

Figure 24 - Bridge Study Capital Works Plan

| Name | Subtype | Replacement Cost $ | Average Condition | Average of Age | 10 Year Capital $ |
|---|---|---|---|---|---|
| Highway 26 Bridge | 12 Rectangular Culvert | 1,189,500 | 97 | 59 | - |
| Ontario Street Bridge | 10 Arch Culvert | 4,934,500 | 35 | 79 | 4,934,500 |
| Huron Street Bridge over Station Creek | 12 Rectangular Culvert | 1,115,500 | 70 | 89 | - |

| Name | Subtype | Replacement Cost $ | Average Condition | Average of Age | 10 Year Capital $ |
|---|---|---|---|---|---|
| Hurontario Street Bridge | 12 Rectangular Culvert | 1,076,500 | 75 | 13 | - |
| First Street Bridge over Oak Street Canal | 12 Rectangular Culvert | 6,098,500 | 73 | 49 | 492,000 |
| Second Street Bridge over Oak Street Canal | 12 Rectangular Culvert | 1,061,500 | 65 | 53 | 227,000 |
| Fifth Street Bridge over Oak Street Canal | 12 Rectangular Culvert | 1,042,500 | 92 | 4 | - |
| Sixth Street Bridge over Oak Street Canal | 12 Rectangular Culvert | 821,500 | 70 | 48 | 235,000 |
| First Street Bridge over Hickory Street | 12 Rectangular Culvert | 1,129,500 | 86 | 10 | - |
| Highway 26 West Bridge over Silver Creek | 12 Rectangular Culvert | 2,024,500 | 70 | 35 | - |
| Hwy 26 Cranberry - bridge 23 | 12 Rectangular Culvert | 1,090,500 | 72 | 59 | 145,000 |
| Hume St at Minnesota - bridge 25 | 12 Rectangular Culvert | 654,500 | 88 | 4 | - |
| Total Structural Culvert | | 22,239,000 | 74 | 42 | 6,033,500 |
| Pretty River Bridge - Bridge 1 | 4 Box Beams of Girders | 3,229,500 | 72 | 48 | 435,000 |
| Hume Street Bridge | 4 Box Beams of Girders | 2,194,500 | 81 | 59 | - |
| Third Street Bridge over Oak Street Canal | 15 Rigid Frame Vertical Legs | 1,001,500 | 65 | 59 | 282,000 |
| Fourth Street Bridge over Oak Street Canal | 7 T-Beam | 982,500 | 91 | 5 | - |
| Mountain Road Bridge over Black Ash Creek | 15 Rigid Frame Vertical Legs | 1,962,500 | 72 | 41 | 931,500 |
| Highway 26 Bridge over Black Ash Creek | 15 Rigid Frame Vertical Legs | 3,409,500 | 74 | 23 | - |

| Name | Subtype | Replacement Cost $ | Average Condition | Average of Age | 10 Year Capital $ |
|---|---|---|---|---|---|
| Sixth Street Bridge over Underwood Creek | 15 Rigid Frame Vertical Legs | 1,769,500 | 73 | 19 | 301,500 |
| Mountain Road Bridge over Silver Creek | 15 Rigid Frame Vertical Legs | 1,564,500 | 64 | 36 | 885,000 |
| Highway 26 West Bridge over Silver Creek Ext. | 25 Rectangular Voided Slab | 1,449,500 | 74 | 29 | 344,000 |
| Total Bridge | | 17,563,500 | 74 | 35 | 3,179,000 |
| Grand Total | | 39,802,500 | 74 | 39 | 9,212,500 |

# Environmental Services

## Water Linear Assets

### Levels of Service – Water Linear Assets

With underground linear infrastructure it can be challenging to properly assess the condition and thus AMP plans are often based on the age of the assets. However, there are more factors that can help with the assessment of mains, such as material types, soil conditions or depth of installation, as well as the number of breaks experienced. Taking these additional factors into consideration the water department has developed a water priority weighting tool which assigns a weighted value score to asset segments based on age, number of breaks per 100 meters, main depth, and pressure issues in order to identify the most critical renewal requirements. Using this tool helps to address the level of service we are trying to achieve. The table below illustrates the conditions as well as the age and replacement costs of each asset class. Over 70% of the town's inventory is 28 years or less and has an average condition rating of between 65/100 and 81/100 (fair to very good).

Figure 25 - Water Linear Asset Condition by Asset Class

| Asset ID | Length in Meters | Average Condition | Replacement Cost | Average of age |
|---|---|---|---|---|
| WM-CI-250 | 2,942 | 14.6 | $ 1,672,672 | 65.5 |
| WM-CI-400 | 604 | 26.0 | 481,694 | 59.2 |
| WM-CI-150 | 25,522 | 24.9 | 12,464,731 | 56.9 |
| WM-CI-300 | 11,531 | 27.0 | 7,106,929 | 56.0 |
| WM-CI-200 | 4,357 | 26.3 | 2,190,980 | 55.7 |
| WM-CON-400 | 3,040 | 31.0 | 3,967,753 | 54.2 |
| WM-CON-450 | 893 | 33.8 | 1,502,044 | 53.0 |
| WM-PVC-300 | 107 | 64.6 | 48,986 | 28.3 |
| WM-DI-300 | 25,241 | 66.0 | 15,624,211 | 26.9 |
| WM-DI-250 | 2,393 | 67.3 | 1,385,654 | 25.8 |
| WM-CON-600 | 4,885 | 68.8 | 9,279,545 | 25.0 |
| WM-DI-150 | 56,986 | 69.4 | 27,821,901 | 24.3 |
| WM-DI-200 | 19,739 | 72.7 | 9,865,244 | 21.4 |
| WM-DI-400 | 7,064 | 74.5 | 5,667,405 | 20.4 |
| WM-CU-50 | 531 | 70.9 | 9,920 | 19.3 |
| WM-PVC-150 | 1,453 | 77.6 | 709,515 | 17.9 |
| WM-DI-500 | 3,290 | 81.6 | 3,621,445 | 14.8 |
| Grand Total | 170,578 | 59.3 | $ 103,420,629 | 31.7 |

*WM = Watermain, CON = concrete, CU copper, DI ductile iron, PVC Plastic

In addition, the water department coordinates with the public works sanitary program to match main replacements that correspond with sanitary priorities.

Ontario Regulation 588/17 provides Figure 26 with respect to measuring the LOS for Water Assets. It is a requirement of this regulation for the Town to provide the details as described below in relation to the AMP.

Figure 26 - Ontario Regulation 588/17 – Table 1

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | 1. Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system. | 1. Percentage of properties connected to the municipal water system. |
| | 2. Description, which may include maps, of the user groups or areas of the municipality that have fire flow. | 2. Percentage of properties where fire flow is available. |
| Reliability | Description of boil water advisories and service interruptions. | 1. The number 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. |
| | | 2. The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system. |

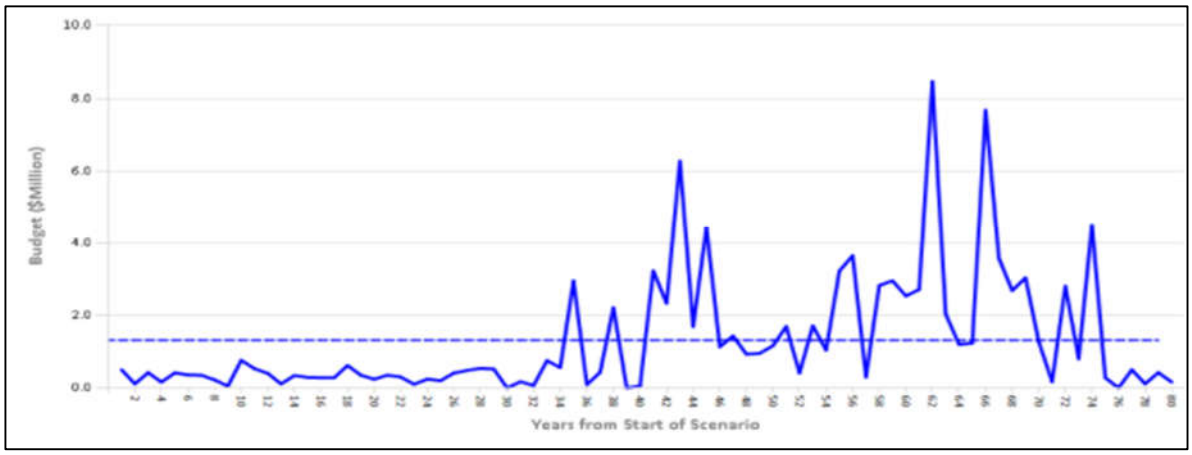
Figure 27 – Town of Collingwood – Water Linear Assets

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Included in Appendix J | 89.0% |
| | Included in Appendix J | 94% Residential with Fire Flow & 85% Other Properties |
| Reliability | NA | 0 |
| | | 0.032% |

## Financing – Water Linear Assets

Over a full lifecycle view, the annual investment requirements have also been consistent with further revisions and refinement of the AMP at approximately $1.34M/year as illustrated in the graph below, in 2021 dollars.

Figure 28 - Water Linear full lifecycle annual investment



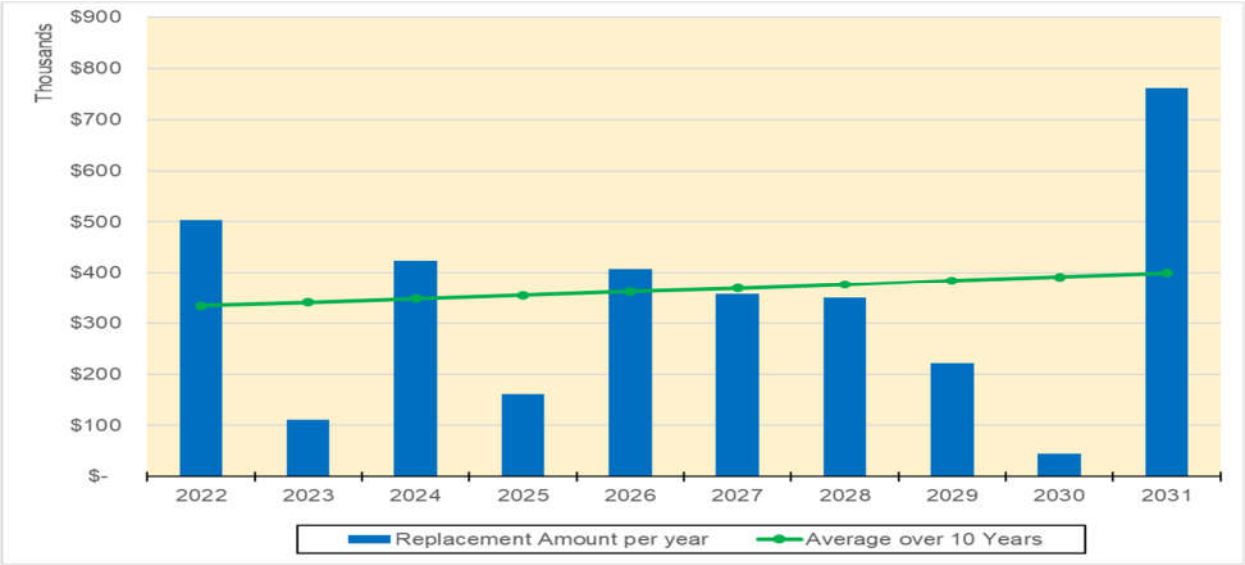

The same concerns for inflationary factors apply here as discussed under the roads section. Adding a 2% inflationary factor over the next 10-years results in the following:

Figure 29 - Water Linear 10-year average investment with inflation ($000s)

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 Yr AVG | $ 1,342 | $ 1,368 | $ 1,396 | $ 1,424 | $ 1,452 | $ 1,481 | $ 1,511 | $ 1,541 | $ 1,572 | $ 1,603 |

However, in spite of known specific issues break tracking, (again based on depth, break and pressure history) the watermain system has a relatively lower short term (10-years) annual investment need of approximately $370K annually which is a significant change from previous AMP update reports. As mentioned above, this is also due to water staff being able to assess some older mains thought to be due for replacement and found them to be in good condition. The 10-year Work plan is illustrated below and includes an inflationary factor each year in the amount of 2%.

Figure 30 - Water Linear Assets - 10-year workplan investment




As mentioned previously in the roads financing strategy, it is critical that the Town start making consistent contributions to the reserve funds for the future growing liability as assets reach their end of useful life. As early as the next update of this AMP, ongoing amounts should be considered for the significant needs emerging in the longer term (30 years or more).

## Water Vertical Assets

The Water Treatment Plant, as well as associated reservoirs and booster stations has a current estimated replacement cost of $72.3M which consists of facility assets at $27.5M and equipment assets at $47.9M. Water vertical assets are comprised primarily of the processing equipment but also include the facility buildings themselves that house the equipment.

Equipment assets, because of there shorter lifespans, are primarily assessed based upon their age as variations in lifespan either shorter or longer tend to not have a significant impact in terms of required investment. There are 1,037 pieces of equipment, the bulk of which are in the Water Filtration Plant building. Overall, the average age relative to useful life is 80% indicating the majority of the assets only have 20% of their useful life remaining. However, this number is skewed due to the impact of the water filtration plant where on average 10% of useful life remains. In the case of the Water Filtration Plant, planning work has already commenced to replace the ageing equipment however the overriding driver of this project will be growth and expansion due to population growth in Collingwood and other communities served by the plant.

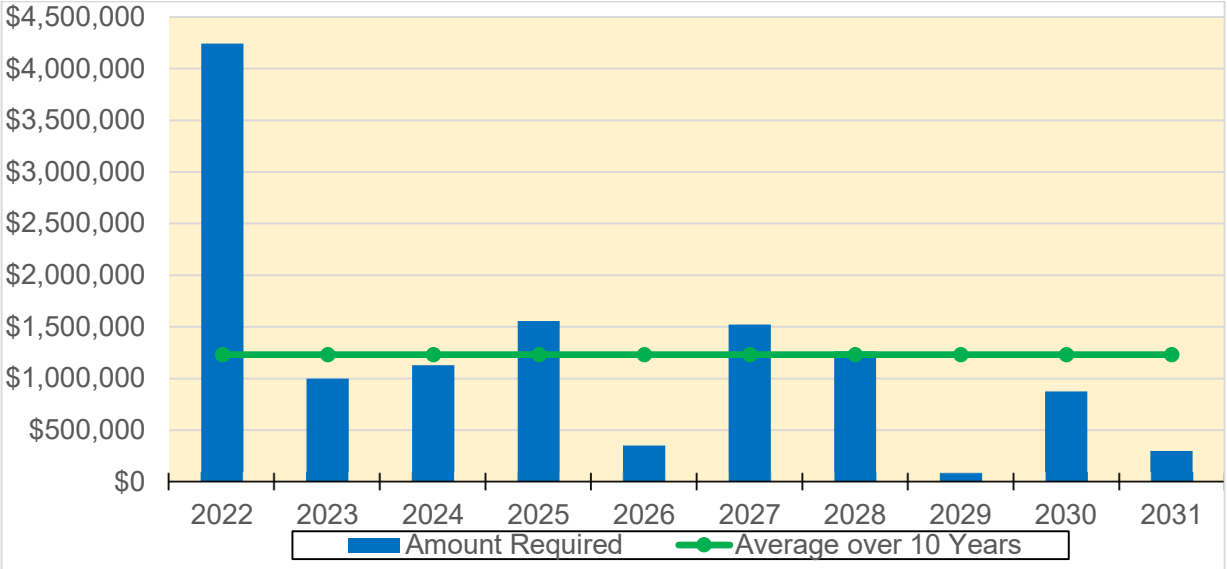
In general equipment assets are replaced when they fail or the cost benefit of repairing or maintaining them justifies replacement. There can also be instances where older equipment is less efficient, and the efficiency of newer equipment could justify replacement. Equipment vertical items require frequent inspection and maintenance by town staff with the history of these interventions captured in the work order system. The overriding policy of replacing only as required also equates to the lowest cost approach to managing these vertical assets which is consistent with the Level of Service approach of the other core asset classes. Water vertical assets are also highly regulated in which case regulatory or legislative requires become the primary factor in rehabilitation and replacement decisions.

Figure 31 - Water Equipment Age & Condition

| Asset | Asset Name | Replace Cost$ | Avg age | Pieces Equip't | Avg Year | % Life Consumed | Avg use life |
|---|---|---|---|---|---|---|---|
| **WDCAR01** | Carmichael Reservoir Building | $7,121,198 | 29 | 60 | 1993 | 121.0% | 29 |
| **WDDAV01** | Davey Reservoir Building | $1,728,039 | 12 | 98 | 2010 | 51.5% | 23 |
| **WDELV01** | Elevated Tower | $198,947 | 16 | 18 | 1894 | 40.7% | 49 |
| **WDGMP01** | Georgian Meadows Booster Stn | $393,342 | 17 | 29 | 2005 | 91.2% | 21 |
| **WDOSL01** | Osler Booster Station | $228,559 | 3 | 10 | 2020 | 15.3% | 11 |
| **WDSRA01** | Environmental Services Administrarion | $13,145 | 4 | 8 | 2018 | 43.3% | 10 |
| **WTRAB01** | R.A.B. Water Filtration Plant | $29,000 | 1 | 4 | 2021 | 11.7% | 11 |
| **WDCAR01** | Carmichael Reservoir Building | $23,306 | 4 | 4 | 2018 | -85.8% | 6 |
| **WDELV01** | Elevated Tower | $10,888 | 4 | 4 | 2019 | 16.3% | 21 |
| **WDOSL01** | Osler Booster Station | $7,337 | 4 | 1 | 2018 | 0.0% | 0 |
| **WTRAB01** | R.A.B. Water Filtration Plant | $38,239,730 | 19 | 801 | 2003 | 91.1% | 20 |
| | | **$47,993,492** | **18** | **1037** | **2002** | **85.7%** | **21** |

Water vertical assets are also highly regulated in which case regulatory or legislative requires become the primary factor in rehabilitation and replacement decisions. The 10-year work plan has an average expenditure of $1.23M annually ($1.25M with 2% increase for inflation by 2030) with significant immediate needs similar to other assets classes which would be mitigated over several years.

Figure 32 - Water Vertical Equipment 10-year Work Plan




The Water facility assets that house the vertical equipment, are on average in relatively good condition (+90 condition rating) despite the age of some of the facilities. With proper maintenance and upkeep, in general a building can be maintained in good condition and rather than a full rebuild being necessary elements of the building can be replaced over the years (roof, windows, brick repointing etc). Typically, the overriding factor in replacing a facility would be that it is unable to provide the intended programs or service or there is a requirement for expansion due to growth. This again is the lowest cost Level of Service approach.

Figure 33 - Water Facility assets condition

| Name | Asset | Asset Replacement Cost | Average Condition | Sq Ft | Year Built | Age |
|---|---|---|---|---|---|---|
| Carmichael Reservoir Building | WDCAR01 | 2,412,325 | 0.00 | 4,920 | 1991 | 30 |
| Davey Reservoir Building | WDDAV01 | 1,397,384 | 95.90 | 2,850 | 2010 | 11 |
| Elevated Tower | WDELV01 | 6,000,000 | 95.00 | 400 | 1950 | 71 |
| Elevated Tower Building | WDELVBL | 400,000 | 86.50 | 490 | 1998 | 23 |
| Environmental Services - Admin Bldg | WDSRA01 | 7,372,374 | 90.75 | 28,290 | 1989 | 32 |
| Georgian Meadows Booster Stn | WDGMP01 | 0 | 0.00 | 200 | 0 | |
| Osler Booster Station | WDOSL01 | 213,000 | 0.00 | 130 | 2000 | 21 |
| R.A.B. Water Filtration Plant | WTRAB01 | 3,930,609 | 87.60 | 12,875 | 1999 | 22 |
| RAB Generator Building | RABGEN | 1,250,000 | 98.40 | 1,000 | 1999 | 22 |
| RAB Industrial Raw Water Building | RABRWB | 1,320,000 | 76.40 | 3,560 | 1950 | 71 |
| | | **24,295,692** | **90.08** | **54,715** | | **33.67** |

*Georgian Meadow Booster station has no actual facility elements (all underground equipment)

There are Water facility assets that were built as far back as 1950 and some of these assets are included in the Water 10-year capital budget for replacement such as the Elevated Water Tower, Osler pumping station and the actual Water Plant facility itself. However, the primary driver for these replacements is growth as the Water Tower will double its capacity and is funded 50% by development charges which again highlights the point that facilities are unique assets that can hold their value for extended periods (decades). Similarly, the Water Plant expansion is growth driven with only 32% of the estimated $121M budget coming from reserves (in the case of Water, these reserves are funded by Water User Fess with user rates set by the Rate Study). As was discussed previously with Public Works facilities, the more relevant estimate of liability is the 10-year work plan for facilities which in the case of Water is $460K annually or $4.6M over 10-years.

Figure 34 - Water Facilities 10-year Work Plan

| Description | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|
| RAB Generator Bldg. | $ 5,000 | $ 2,400 | $ 250 | $ 11,950 | $ - | $ - | $ - | $ - | $ 30,394 | $ - |
| RAB Industrial Raw Water Bldg. | - | 138,650 | 10,500 | 57,000 | - | 160,000 | - | 21,000 | 153 | - |
| Carmichael Reservoir Bldg. | 2,251 | 342,350 | 3,000 | - | - | 20,000 | - | 21,600 | - | - |
| Davey Reservoir Bldg. | - | 45,750 | 2,000 | - | 9,000 | 16,200 | 28,500 | 11,000 | 6,000 | 8,250 |
| Elevated Tower | - | - | 25,000 | - | - | - | - | 25,000 | 95 | 5,000 |
| Elevated Tower Bldg. | - | 43,875 | - | - | - | 10,000 | - | 10,700 | - | 7,500 |
| Osler Booster Station | - | - | - | - | 45,000 | - | - | - | - | - |
| Environmental Services Administration | - | 451,750 | 62,500 | 2,000 | 72,750 | 47,550 | 115,050 | 643,225 | - | 11,400 |
| R.A.B. Water Filtration Plant | 1,500 | 234,200 | 78,000 | 134,300 | 29,500 | 6,400 | - | 78,950 | 1,414,100 | 136,400 |
| | **$ 8,751** | **$1,258,975** | **$181,250** | **$205,250** | **$156,250** | **$260,150** | **$143,550** | **$ 811,475** | **$ 1,450,742** | **$168,550** |

# Sanitary Linear Assets

## Levels of Service – Sanitary Linear Assets

Ontario Regulation 588/17 provides Figure 35 with respect to measuring the LOS for Sanitary Assets. It is a requirement of this regulation for the Town to provide the details as described below in relation to the AMP.

Figure 35 - Ontario Regulation 588/17 – Table 2

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system. | Percentage of properties connected to the municipal wastewater system. |
| Reliability | 1. 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. | 1. The number 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. |
| | 2. Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches. | 2. The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system. |
| | 3. Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes. | 3. The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system. |
| | 4. Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described in paragraph 3. | |
| | 5. Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system. | |

Figure 36 – Town of Collingwood – Sanitary Assets

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Included in Appendix K | 83.0% |
| Reliability | NA | NA |
| | NA | 0 |
| | 3. Combination of legal/illegal non-conforming roof lead connections and leaking manholes, inflows and infiltrations into the mains, catchbasins that feed those systems | 0.020% |
| | 4. Updated standards with no longer allowing Roof leads and future grout / inspect manholes, including design standards with testing of new pipes | |
| | NA | |

Consistent with other linear assets classes, the linear sanitary network is in relatively young network (average 34 years) and in good condition which again reflects the impacts of rehabilitation and replacement due to growth and having benefited from recent significant grant funding programs. The good condition is also a reflection of a proactive Level of Service approach begun in the last 10-year when it became apparent some sections of the sanitary network were in critical need of repair as breaks and backups were occurring. A video condition assessment in 2009 identified the most critical areas and a consistent annual sanitary replacement program was launched which continues to this day. This program is also coordinated with roads and water linear asset management programs as well as growth expansion requirements. Main breaks per 100 km and sewer backups are tracked as well as bypass events at the treatment facilities with targets established for intervention. This proactive Level of Service approach avoids costly unplanned repairs which can be

inconvenient to the taxpayer and may not be optimally coordinated with other linear asset requirements and therefore ultimately be more costly as per the total Lifecycle of the assets.

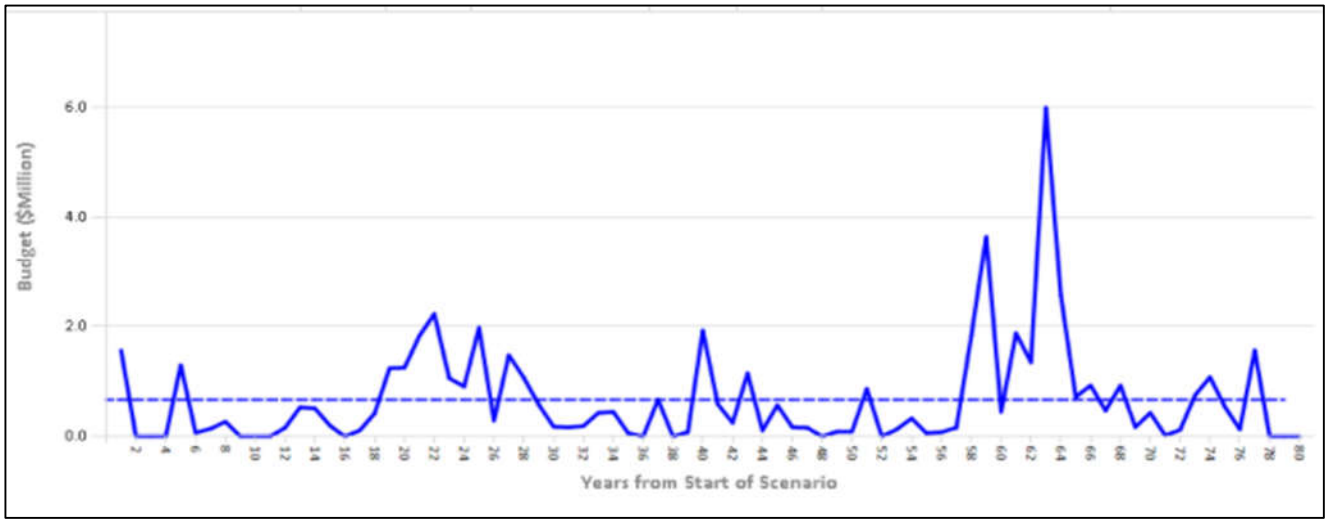
Figure 37 – Sanitary Linear Assets - Condition by Asset class

| Asset Class | Asset Replacement Cost | Count of Asset | Length Meters | Average Condition | Average of Year Built | Age |
|---|---|---|---|---|---|---|
| SAN-150 | $507,158 | 8 | 1,151 | 88.92 | 2000 | 22 |
| SAN-200 | $14,133,914 | 534 | 37,442 | 80.42 | 1992 | 29 |
| SAN-250 | $15,479,200 | 411 | 30,669 | 69.22 | 1979 | 42 |
| SAN-300 | $6,077,214 | 144 | 11,384 | 74.27 | 1985 | 36 |
| SAN-375 | $5,501,710 | 122 | 9,912 | 76.14 | 1988 | 33 |
| SAN-450 | $10,686,027 | 146 | 16,440 | 77.04 | 1988 | 33 |
| SAN-525 | $2,658,134 | 53 | 3,556 | 67.71 | 1975 | 46 |
| SAN-600 | $687,082 | 10 | 783 | 75.62 | 1984 | 37 |
| SAN-675 | $561,338 | 9 | 540 | 88.36 | 2002 | 19 |
| SAN-750 | $6,424,488 | 58 | 5,202 | 72.01 | 1980 | 41 |
| | **$62,716,265** | **1495** | **117,080** | **75.35** | **1986** | **34** |

## Financing – Sanitary Linear Assets

The average annual cost to maintain the system in 2021 dollars is just under $700K. The graph below illustrates over the lifecycle of these assets (80 years) the amounts required.

Figure 38 – Sanitary Linear Assets - Full lifecycle annual investment



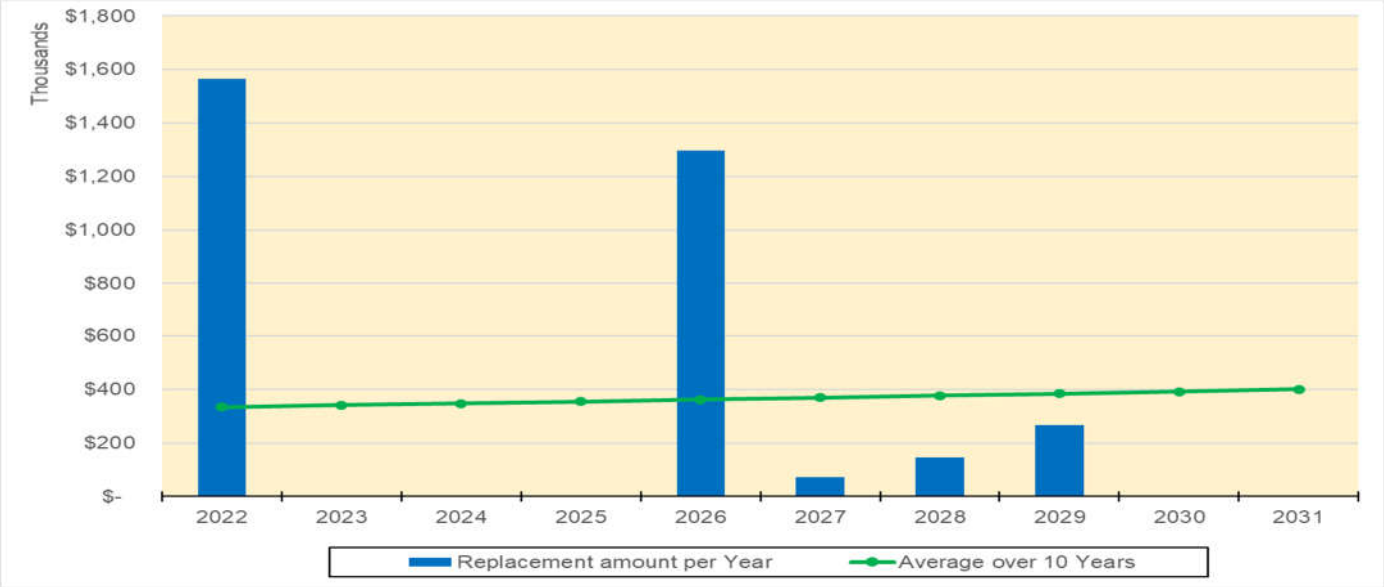

The same concerns for inflationary factors apply here and adding a 2% inflationary factor over the next 10-years results in the following:

Figure 39 – Sanitary Linear 10-year average investment with inflation (in '000's)

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 Year AVG | $671.8 | $685.2 | $698.9 | $712.9 | $727.2 | $741.7 | $756.5 | $771.7 | $787.1 | $802.8 |

As discussed previously a concerted effort has been placed on reviewing and understanding the projects over the next 10-years and will continue to be the focus for planning of projects, to ensure optimal capital expenditures. The chart below details the work required over the next 10-years and provides an average amount of $335K/year.

Figure 40 – Sanitary Linear Assets 10-year work plan




## Vertical Sanitary Assets

The updated data (2021) for Sanitary vertical works are like the Water vertical assets in that the treatment plant is very much at the end of its life, while much of the other assets, such as pumping stations are relatively young in comparison. The wastewater treatment facility however is being impacted by growth as well, with a major expansion project already being planned to start in 2026. In addition, a program is already underway to replace the ageing pumping stations. Additionally, a proactive Level of Service approach to managing the equipment using a Work Order system for maintenance and repair ensures equipment will reach its optimal expected life and interventions can occur before they become too costly.

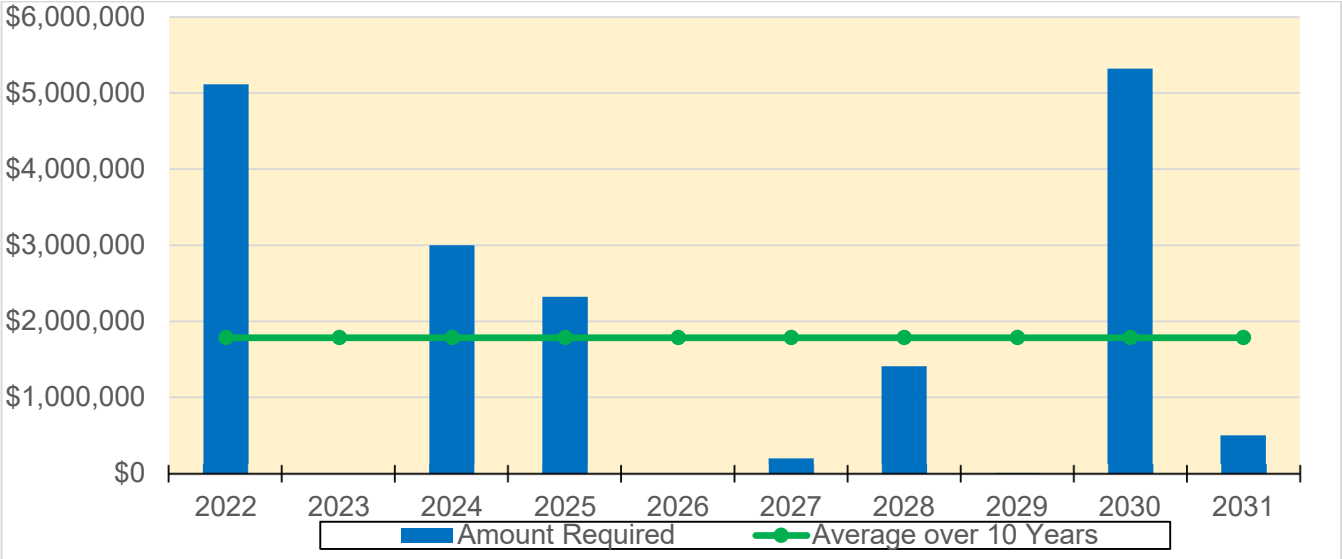
Figure 41 - Sanitary equipment condition age

| | Asset | Replacement Cost | Count Equipment | Avg of age | % Life Consumed | Avg of use life |
|---|---|---|---|---|---|---|
| BLACSPS | Black Ash Water Pumping Station | 1,243,133 | 84 | 2.35 | 9.0% | 11.43 |
| CRANSPS | Cranberry Sewage Pumping Station | 166,665 | 23 | 12.91 | 38.0% | 11.09 |
| | | | | | | |

| | Asset | Replacement Cost | Count Equipment | Avg of age | % Life Consumed | Avg of use life |
|---|---|---|---|---|---|---|
| MINNSPS | Minnesota Water Pumping Station | 1,282,115 | 48 | 4.31 | 8.0% | 14.48 |
| PATTSPS | Paterson St. Water Pumping Station | 557,830 | 64 | 22.53 | 86.0% | 20.78 |
| PRRVSPS | Pretty River Water Pumping Station | 780,632 | 34 | 11.94 | 45.0% | 17.06 |
| SLGLWPS | Silver Glen Sewage Pumping Station | 129,868 | 31 | 12.48 | 43.0% | 15.16 |
| STCLSPS | St. Clair Water Pumping Station | 1,507,168 | 42 | 17.00 | 66.0% | 21.43 |
| THLNSPS | Tenth Line Sewage Pumping Station | 48,915 | 8 | 8.25 | 17.0% | 11.88 |
| WWTP | Wastewater Treatment Plant (WWTP01) | 8,985,321 | 378 | 24.42 | 97.0% | 22.99 |
| | | **14,701,649** | **712** | **18.18** | **0.70** | **19.63** |

Based on the current replacement costs and useful life of the equipment as shown above the average amount that will need to be maintained is $890K/year and when a 2% inflationary factor is included this amount grows to $1.07M/year by 2031.

Figure 42 - 10-year Sanitary Equipment replacement program




## Sanitary Facilities

The Sanitary facilities are in relatively good condition reflecting the fact that buildings can last quite a long time with proper maintenance, and are often more likely to be replaced due to loss of functionality then age. The recent facility assessment data will be leveraged in a proactive manner to most cost effectively manage maintenance and repairs.

Figure 43 - Sanitary Facilities Age & Condition

| Name | Asset | Asset Replacement Cost | Average Condition | Sq Ft | Year Built | Age |
|---|---|---|---|---|---|---|
| Black Ash Water Pumping Station | BLACSPS | 1,480,550 | 97.80 | 1,536 | 2020 | 1 |
| Boiler and COGEN Building | BOILSFB | 330,450 | 72.80 | 550 | 1979 | 42 |
| Cranberry Sewage Pumping Station | CRANSPS | 260,820 | 87.10 | 324 | 2002 | 19 |
| Digester 1&2 Building | DI12SFB | 1,845,478 | 87.40 | 6,045 | 1979 | 42 |
| Digester 3&4 Building | DI34SFB | 1,338,696 | 89.10 | 4,385 | 1979 | 42 |
| Minnesota Water Pumping Station | MINNSPS | 633,800 | 0.00 | 1,540 | 1958 | 63 |
| Paterson St. Water Pumping Station | PATTSPS | 140,443 | 0.00 | 460 | 1993 | 28 |
| Pretty River Water Pumping Station | PRRVSPS | 150,000 | 0.00 | 100 | 2010 | 11 |
| Silver Glen Sewage Pumping Station | SLGLWPS | 160,850 | 99.10 | 0 | 2006 | 15 |
| St. Clair Water Pumping Station | STCLSPS | 755,950 | 0.00 | 1,350 | 2003 | 18 |
| Tenth Line Sewage Pumping Station | THLNSPS | 0 | 0.00 | 0 | 0 | 0 |
| Wastewater Treatment Plant Admin Building | WWTPBLD | 4,823,582 | 92.10 | 2,800 | 1958 | 63 |
| Wastewater Treatment Plant Control Room | WWTPCTL | 2,162,980 | 93.10 | 7,085 | 1968 | 53 |
| Wastewater Treatment Plant Effluent Building | WWTPEFF | 337,750 | 93.50 | 600 | 1979 | 42 |
| Wastewater Treatment Plant Generator Building | WWTPGEN | 970,000 | 97.10 | 770 | 1999 | 22 |
| Wastewater Treatment Plant Headworks Building | WWTPHDW | 3,700,735 | 82.00 | 8,535 | 1998 | 23 |
| Wastewater Treatment Plant Raw Sludge Pump Building | WWTPRSP | 535,710 | 94.20 | 720 | 1968 | 53 |
| Wastewater Treatment Plant Sludge Thickening Building | WWTPSLT | 1,282,218 | 93.30 | 4,200 | 1979 | 42 |
| | | **20,910,012** | **62.03** | **41,000** | **1986** | **34** |

As is the case with the Roads and Water facility assets, we look to the 10-year work plan as the best indicator of financial liability over the immediate outlook. The average annual expenditure for Sanitary Sewer facility assets is $2.2M.

Figure 44 - Sanitary Facilities 10-year work plan

| Description | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|
| Black Ash Sew. Pump Stn. | $ 11,550 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 1,250 |
| Boiler and COGEN | - | 10,500 | - | 22,150 | 67,000 | 350 | - | - | 200 | 11,000 |
| Cranberry Sewage Pump Stn. | 3,900 | 750 | - | - | - | 3,750 | - | 4,000 | - | - |
| Digester 1&2 Building | - | 44,500 | - | 178,200 | - | 49,550 | - | - | 13,190 | 4,500 |
| Digester 3&4 Building | - | 80,360 | - | 57,500 | - | 8,500 | - | - | 8,114 | - |
| Minnesota Sew. Pump Stn. | - | 7,750 | 8,000 | - | - | 7,500 | - | 24,050 | - | - |
| Paterson St. Sew. Pump Stn. | - | 1,700 | 1,500 | 1,650 | - | 3,000 | - | 8,700 | - | 500 |
| Pretty River Sew. Pump Stn. | - | 1,400 | - | - | 600 | 1,500 | - | - | - | 2,750 |
| Silver Glen Sew. Pump Stn. | - | - | - | 1,500 | - | - | - | - | - | - |
| St. Clair Sew. Pump Stn. | - | - | 8,750 | 9,750 | 4,000 | 1,000 | - | 3,600 | - | - |
| WWTP Admin Building | - | 219,001 | 24,700 | 87,000 | 7,500 | 43,100 | - | 20,500 | 5,750 | - |
| WWTP Control Room | - | 63,400 | - | 14,000 | 1,500 | 79,850 | - | 23,100 | - | - |
| WWTP Effluent Building | - | 9,000 | - | 10,000 | - | - | - | - | - | - |
| WWTP Generator Bldg. | - | 5,000 | 22,750 | - | - | - | - | 25,000 | - | - |
| WWTP Headworks Building | - | 112,390 | 520,170 | 9,000 | 19,500 | 7,750 | - | 52,000 | - | - |
| WWTP Raw Sludge Pump | - | 30,950 | - | - | - | - | - | 16,250 | - | - |
| WWTP Sludge Thickening | - | 11,100 | - | 68,850 | 1,000 | 5,250 | - | 3,500 | 1,000 | 18,750 |
| | $ 15,450 | $ 597,801 | $585,870 | $459,600 | $101,100 | $211,100 | $ - | $180,700 | $ 28,254 | $ 38,750 |

# Stormwater

In addition to the facilities and vertical environmental equipment assets, the linear stormwater system has benefited significantly from relatively recent efforts to update and reassess the system inventory which was done as part of the Master Serving Plan currently underway. With fewer regulatory requirements in comparison to environmental services and road assets, stormwater assets have the lowest average condition rating and will benefit from the more proactive Technical Level of Service approach as taken with the other core assets classes. As will be demonstrated in this section, timely maintenance and repair is typically a minor expense relative to the return on investment and savings from maximizing the asset life span and hence is the lowest lifecycle cost approach.

## Levels of Service – Stormwater Assets

Ontario Regulation 588/17 provides Figure 45 with respect to measuring the LOS for Stormwater Assets. It is a requirement of this regulation for the Town to provide the details as described below in relation to the AMP.

Figure 45 - Ontario Regulation 588/17 – Table 3

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system. | 1. Percentage of properties in municipality resilient to a 100-year storm. |
| | | 2. Percentage of the municipal stormwater management |

Figure 46 – Town of Collingwood – Stormwater Assets

| Service attribute | Community levels of service (qualitative descriptions) | Technical levels of service (technical metrics) |
|---|---|---|
| Scope | The Municipal Stormwater Management (SWM) System serving the Town of Collingwood drainage areas, is a separate system for stormwater (i.e. designed not to convey sanitary sewage or combined sewage) within areas that drain to the Batteaux Creek, Black Ash Creek, Silver Creek, Pretty River, Townline Creek, and Cranberry Creek watersheds. There are also urban drainage areas that include the Oak Street Canal Drain, the Minnesota Street Drain and several smaller drainage areas. The Municipal SWM System consists of storm sewers, culverts, ditches, conveyance structures (catch basins, manholes), Stormwater Management Facilities (Ponds and Oil Grit Separators) and outlet structures. The Town of Collingwood has approximately 113km (check this with lindsay) of storm sewers maintained by the municipality. Additionally there are 17 stormwater management ponds that provide storage of stormwater and reduce the flow of stormwater into the surrounding streams and rivers. There are additionally 10 Oil-Grit separators providing treatment and removal of sediments from stormwater, prior to entering the surrounding watercourses | 17% of manhole structures are at capacity during a 100-year storm, 83% of structures are resilient (Urban Town Centre Only) |
| | See Stormwater Master Plan Appendix L and Appendix M for Stormwater Mapping | 5% of structures are at capacity during a 5-year storm, 95% of structures are resilient (Urban Town Centre Only) |

Figure 47 - Percentage of Nodes Experiencing Flooding, Urban Town Centres

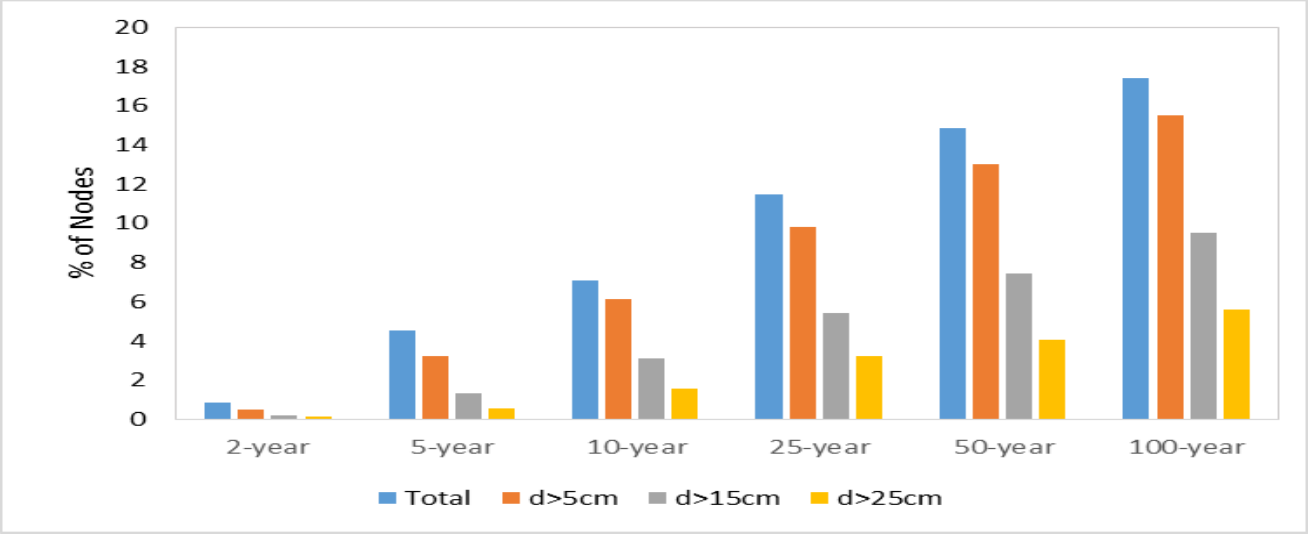


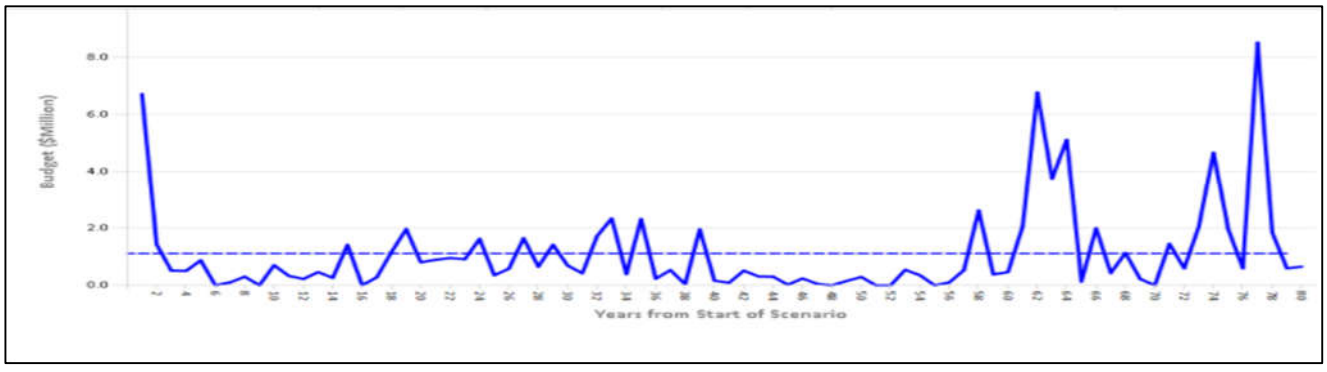
Figure 48 - Stormwater Asset Condition by class

| Asset Class | Asset Replacement Cost | Count of Asset | Length Meters | Average Condition | Average of Year Built | Age |
|---|---|---|---|---|---|---|
| STS-1050 | $5,556,368 | 38 | 2,727.62 | 74.83 | 1983 | 38 |
| STS-1050-CSP | $208,880 | 3 | 102.53 | 1.00 | 1964 | 57 |
| STS-1200 | $2,174,094 | 12 | 861.60 | 84.86 | 2000 | 22 |
| STS-1350 | $5,981,137 | 32 | 2,102.78 | 81.23 | 1993 | 28 |
| STS-1500 | $2,199,899 | 7 | 672.05 | 51.56 | 1964 | 57 |
| STS-1500-CSP | $1,995,841 | 4 | 609.72 | 24.24 | 1982 | 40 |
| STS-300 | $12,359,987 | 619 | 13,054.58 | 85.67 | 1988 | 33 |
| STS-300-CSP | $4,252,063 | 239 | 4,885.13 | 16.93 | 1925 | 96 |
| STS-375 | $6,502,750 | 168 | 6,323.86 | 87.79 | 2000 | 21 |
| STS-375-CSP | $4,943,091 | 109 | 4,905.99 | 15.68 | 1956 | 65 |
| STS-450 | $7,809,078 | 159 | 7,334.64 | 88.67 | 2002 | 19 |
| STS-450-CSP | $6,857,865 | 165 | 6,519.82 | 19.87 | 1881 | 140 |
| STS-525 | $6,922,913 | 127 | 6,294.73 | 82.67 | 1993 | 28 |
| STS-525-CSP | $356,392 | 10 | 324.07 | 5.65 | 1380 | 641 |
| STS-600 | $10,986,719 | 161 | 8,519.55 | 85.15 | 1997 | 24 |
| STS-600-CSP | $1,356,942 | 27 | 1,052.21 | 27.49 | 1765 | 256 |
| STS-750 | $10,862,638 | 134 | 7,222.11 | 79.35 | 1992 | 29 |
| STS-750-CSP | $824,852 | 11 | 548.42 | 49.67 | 1816 | 205 |
| STS-900 | $7,196,676 | 79 | 4,390.71 | 82.08 | 1970 | 51 |
| STS-900-CSP | $1,059,309 | 11 | 643.14 | 43.06 | 1992 | 29 |
| STS-975 | $407,554 | 6 | 228.17 | 92.16 | 2006 | 16 |
| | **$100,815,048** | **2121** | **79,323.43** | **66.73** | **1967** | **54** |

## Financing – Stormwater Assets

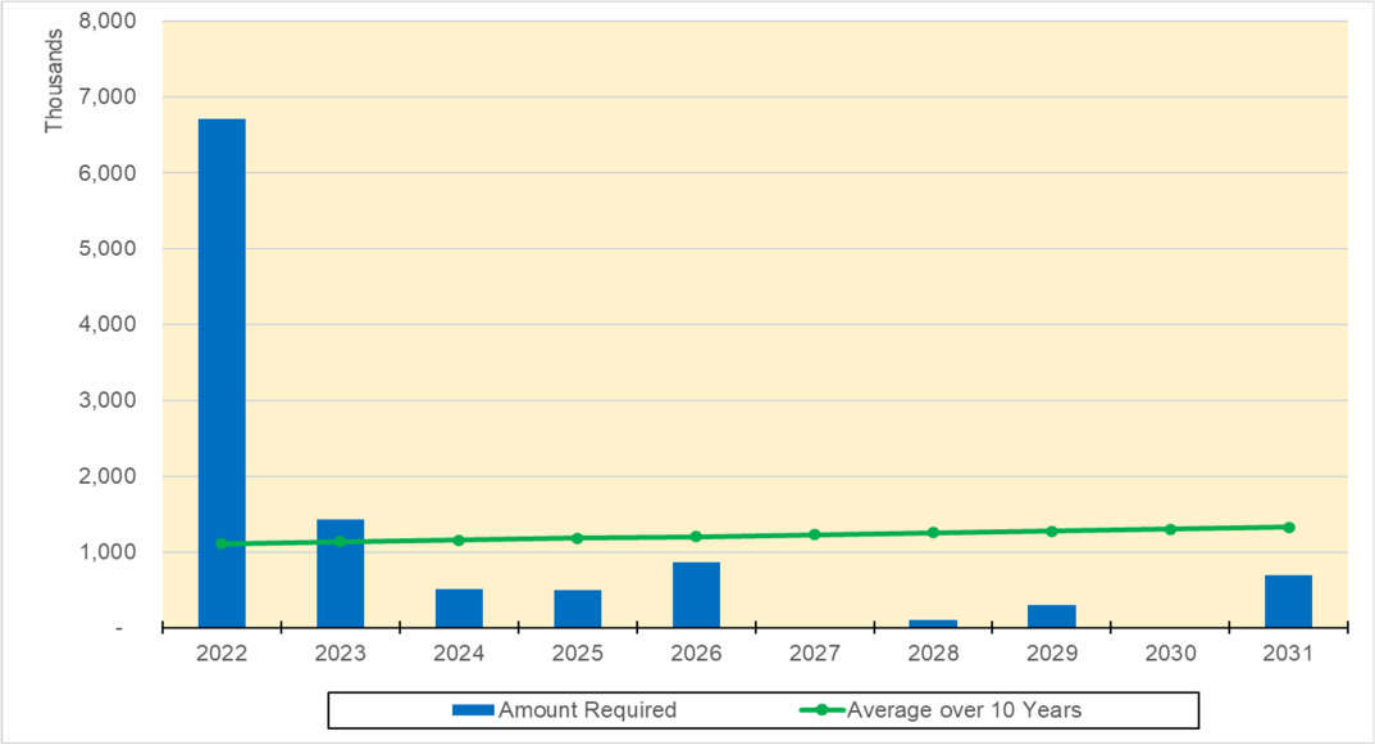
The stormwater network has the highest annual average estimated cost of any of the underground linear systems at $1.1M. The graph below illustrates the average amount as well as the high contributory years. You will note that the 2022 amount is quite high and reflects a backlog of works, however the projects will continue to be monitored and the focus will be on the total lifecycle of works, rather than a particular year.

Figure 49 - Stormwater full lifecycle annual investment



Once again inflationary factors apply by adding a 2% inflationary factor resulting in the10-year Work Plan provided below, note again that because of the backlog showing in 2022 there is not a great difference between the required amounts here versus the 80-year full lifecycle.

Figure 50 - Stormwater 10-year Work plan




## Overall Financing Strategy

For an Asset Management Plan to be effectively put into action, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow the Town of Collingwood to identify the financial resources required for sustainable asset management based on the existing asset inventories, desired levels of service and projected growth requirements.

As we have reviewed each individual asset category on its own the final step of understanding the needs of the AMP is to combine the information and review the different available financing options. The chart below summarizes the discussions held above, and totals nearly $10.1M.

Figure 51 - Total funding requirement

| Asset Group | Annual Lifecycle Amount - 2021$ |
|---|---|
| Roads | $2,118,347 |
| Bridges | 921,250 |
| Water - Linear/ Vertical | 3,339,285 |
| Wastewater - Linear Vertical | 2,545,251 |
| Stormwater | 1,216,061 |
| **Total** | **$10,140,194** |

Although $10.1M is a large amount of funds to manage and comprehend, it is crucial that we recognize the multiple sources of funding and then clearly define the gap between what is needed and what we currently spend/generate each year. There are multiple sources of funding and they include:

- Reserves/Reserve Funds
- Grants
- Debt Financing – both internal and external
- Tax Levy
- User Fees
- Operational Sources (maintenance budgets)

## Tax-Supported Assets (Roads/Bridges and Stormwater)

The town has primarily used contributions to reserves, grants, debt financing and the tax levy to fund or support capital projects. The total required amount for these assets equates to $4.3M. The current reserve funds that are applicable to this include: the Special Capital Levy and Lifecycle Replacement Reserve Fund. On an annual basis the amounts that are added to both of these funds (on average over the last 2 years) is $2.2M, additionally the town has used both the Ontario Community Infrastructure Fund (OCIF) and the Canada Community-Building Fund (CCBF, formerly known as the Federal Gas Tax) to supplement projects. Additionally, the Town has used funds within the operational budget such as paving and asphalt spray and patch that contribute as well. The chart below details the net funding gap for these assets, note however this is based on the $2.2M continuing for reserve funding each year:

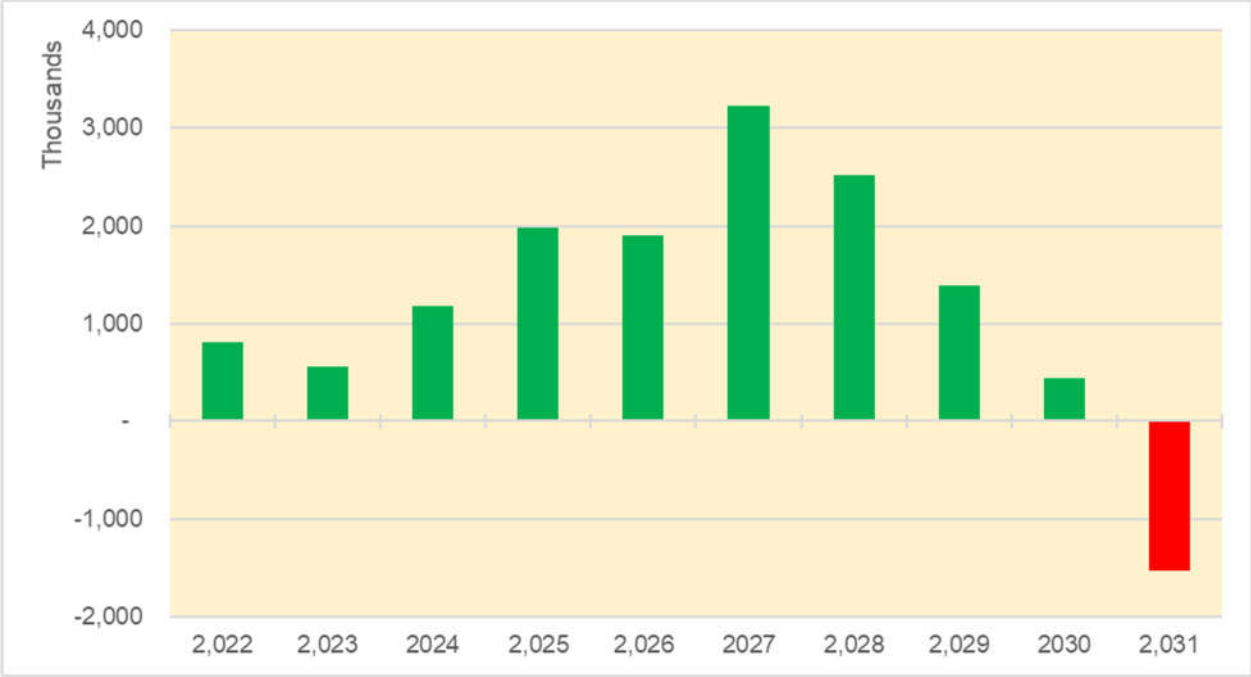
Figure 52 - Tax Supported Annual Funding gap

| Roads/Bridges/Stormwater | Amount |
|---|---|
| Annual Lifecycle Amount-2022$ | $4,255,658 |
| Less: | |
| Reserve Contributions | 2,200,000 |
| OCIF Funding * | 952,007 |
| Federal Gas Tax (50%) | 315,000 |
| Amounts in Operational Budget | 356,785 |
| **Financing Gap** | **$431,867** |

*OCIF Funding $1.9M ( 100% increase Sept 2021) split 50/50 with User Supported

This amount is excluding inflation and is reported in 2021 dollars. Using this information and holding the current contributions as detailed above, a graphical presentation of the reserve funds balance is shown below.

Figure 53 - 10-year Reserve Forecast




You will note that beginning in year 2030 if we do not increase the contributions (and exclude debt) we begin to see a deficit in the reserves.

The town is fortunate that there have been sound financial decisions over the last several years and have been able to build a balance in the reserve funds to begin the AMP program, however, as can be seen these amounts can become quickly depleted if we do not increase the contributions. Additionally, there is some element of risk as grants are not guaranteed and may at some time either go away altogether or decrease significantly. Note again that this does not include any debt being issued, however for simplicity purposes they have been excluded.

Given all the information and the understanding of how vitally important it is that we continue to invest today to protect the future sustainability of the town. It is also important to understand that there are ways to assist in closing the gap of $374K going forward to ensure that it is not overly burdensome to the taxpayer for example:

1) Add small increases to the Special Capital Levy over the next 5 – 10-years:

Figure 54 - Estimated Reserve increase with increase to Special Capital Levy

| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | Difference from 2021 |
|---|---|---|---|---|---|---|---|---|
| Rate as % of Tax Rate | 0.75% | 0.79% | 0.83% | 0.87% | 0.91% | 0.96% | 1.01% | |
| Amount $ | $ 264,000 | $ 277,200 | $ 291,060 | $ 305,613 | $ 320,894 | $ 336,938 | $ 353,785 | |
| Estimated Change Amount $ | $ - | $ 13,200 | $ 13,860 | $ 14,553 | $ 15,281 | $ 16,045 | $ 16,847 | $ 89,786 |
| **Estimated Change %** | | **5.00%** | **5.00%** | **5.00%** | **5.00%** | **5.00%** | **5.00%** | **34.01%** |

2) As old debt expires use the tax levy component to create a future Debt Reserve (to assist in Asset Management). More details will come forward as the Debt Policy is reviewed however to provide some

context – the current debt levy requirement is approximately $1.5M over time this will deteriorate by about 15% per year which would mean the following:

Figure 55 - Decreasing Debt Levy Requirement

| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | Difference from 2021 |
|---|---|---|---|---|---|---|---|---|
| Amount $ | $1,500,000 | $1,275,000 | $1,083,750 | $ 921,188 | $ 783,009 | $ 665,558 | $ 565,724 | |
| **Estimated Change Amount $** | | **($225,000)** | **($191,250)** | **($162,563)** | **($138,178)** | **($117,451)** | **($99,834)** | **($934,276)** |

This assumes that no new debt is issued however, even if 50% was available it would bring the Town to approximately $500K available for Asset Management. Moreover, given that the internal debt requirements have been completed through the Asset Sale Proceeds this frees up an additional $150K per year previously included in the tax levy.

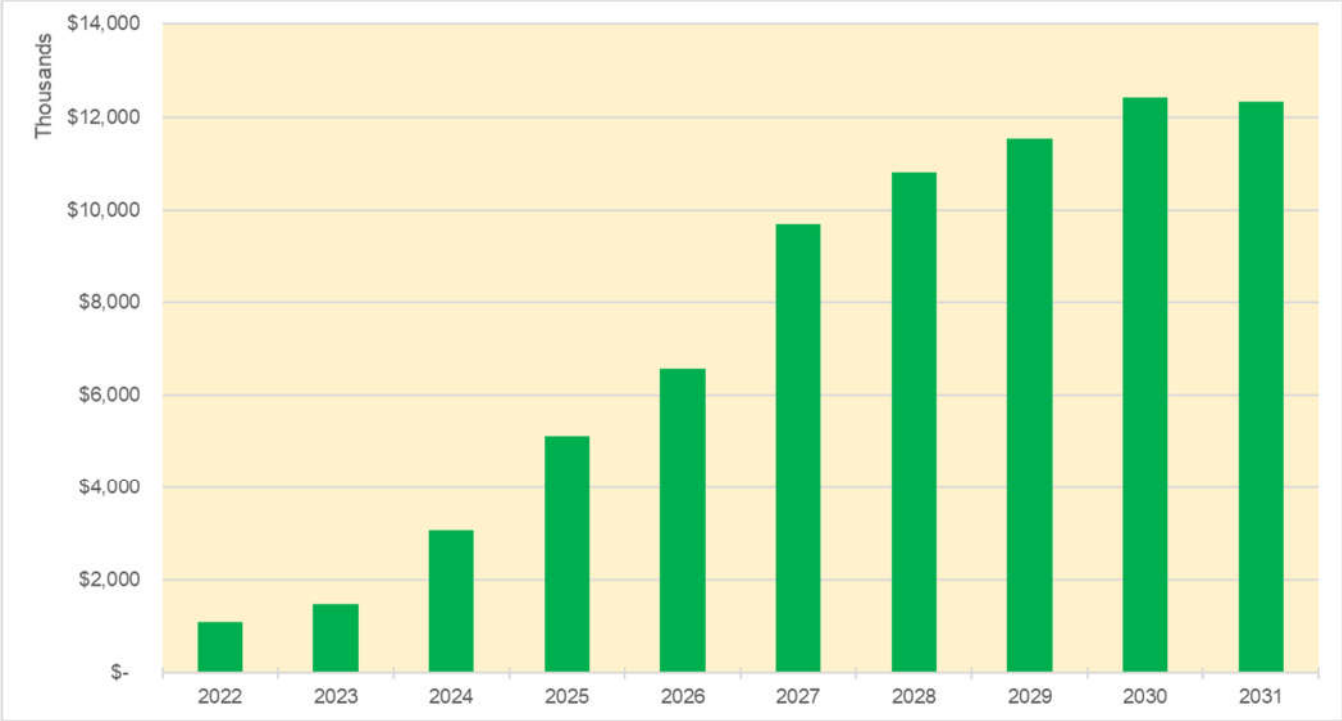
3) Slowly raise the contribution to Reserve Funds over time. Today 1% point increase of the tax rate equates to approximately $350K, if we exclude growth and we increase the reserve contribution by 5% over the next 6 years this would mean a total tax rate impact of approximately 2%. However, if we include growth as part of the contribution, it is possible that the tax rate is not impacted. Figure 39, below shows the values of the contribution over time.

Figure 53 - Increasing Annual contributions to Reserve Funds

| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | Difference from 2021 |
|---|---|---|---|---|---|---|---|---|
| Amount $ | $ 2,000,000 | $ 2,100,000 | $ 2,205,000 | $ 2,315,250 | $ 2,431,013 | $ 2,552,563 | $ 2,680,191 | |
| Change Amount $ | $ - | $ 100,000 | $ 105,000 | $ 110,250 | $ 115,763 | $ 121,551 | $ 127,628 | $ 680,191 |
| **Est. Impact on Tax Rate (excl. Growth)** | | **0.28%** | **0.30%** | **0.31%** | **0.33%** | **0.35%** | **0.36%** | **1.94%** |

These examples demonstrate that small changes each year can accumulate to large payoffs in the future. Using all three methods described above would have an enormous impact as illustrated in the graph below.

Figure 57 - Increase to Reserves with combined 3 approaches




## User Fee supported assets (Water/Sanitary)

Similar to tax-supported assets the town has used a combination of contributions to reserves (through user-fees), grants and debt financing to fund or support capital projects. The total required for these assets equates to $5.9M, the current reserve funds that are applicable to this include: the Water and Sanitary Reserve Funds. On an annual basis the amounts that are added to both of these funds (on average over the last 2 years) is $4.1 M, additionally the town has used grant funding to support this as well. The chart below details the net funding gap for these assets, note however this is based on the $4.1M continuing for reserve funding each year:

Figure 58 - User Supported Assets Annual Funding gap

| Water / Wastewater | Amount |
|---|---|
| Annual Lifecycle Amount-2022$ | $5,884,536 |
| Less: | |
| Reserve Contributions | 4,184,682 |
| OCIF Funding * | 952,007 |
| Federal Gas Tax (50%) | 315,000 |
| **Financing Gap** | **$ 432,848** |

*OCIF Funding $1.9M ( 100% increase Dec 2021) split 50/50 with User Supported

You will note that the reserves continue to build over the next 10-years which is positive, since spending for these areas really builds in the next 20 – 30 years where amounts required increase dramatically. However, again given that the average gap is $433K, it is in the later years (2050 and beyond) where financial sustainability would be difficult to maintain. Increasing the total amount contributed slightly over the next 5-10-years through user fee increases will help establish financial stability greatly in the future.

# Conclusion and Recommendation

The following recommendations have been provided for consideration:

- That the Town of Collingwood Asset Management Plan be received and approved by Council;
- That consideration of this Asset Management Plan (including the financing options) be made as part of the annual budgeting process to ensure sufficient capital funds are available to fund capital requirements;
- That this Asset Management plan be updated on an annual basis to reflect the current assets held by the Town; and
- The Asset Management plan report be updated every five years and presented to Council for endorsement.

As described in the financing strategy section, the current level of funding for asset replacement and renewal at the Town will not sufficiently fund capital needs or close the infrastructure funding gap. However, the gaps as described for Tax Supported ($375k) and User Supported Assets ($432k) are not insurmountable and in fact are likely achievable through the mechanisms described in the financing section. Therefore, it is recommended that as part of the annual budget process, the AMP and its funding requirements be updated, and consideration be made to increase funding of the applicable reserve funds. The status of the funding gap and reserve balances will potentially fluctuate annually because of changes in investment earnings, inflationary impacts of project costs, changing project work plans and priorities and even unplanned and unexpected capital projects (emergency). However, in terms of the budget process, the AMP funding requirements need to be given priority consideration.

As part of this updated AMP, staff now manage the Asset Plan using the Worktech software model into which amendments and revisions will be made in real time as changes occur. This improvement is important as staff and Council will be able to rely on current and up to date data for the annual budget process and at any time that the status of the Towns assets needs to be considered for decision making.