

2021

CENTRAL ELCIN

# WASTEWATER

DETAILED ASSET MANAGEMENT PLAN

AUGUST 2021

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REV NO.	DATE	REVISION DETAILS	AUTHOR	REVIEWER	APPROVER
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V1.0	August 2021	1st Detailed Asset Management Plan	Cindy Vermeer	Lloyd Perrin	Council
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# WASTEWATER ASSET REPORT CARD

## Description

The wastewater management system collects and conveys wastewater from private property where it can be treated before returning it to the natural watercourse. The service objective is to provide a reliable wastewater network to customers 24 hours a day 7 days a week. Assets include:



CONVEYANCE  
PIPES



PERSONAL DRAIN  
CONNECTION



SYSTEMS CONTROL &  
DATA ACQUISITIONS



PUMP STATIONS



MANHOLES



WASTEWATER  
TREATMENT PLANT



WASTEWATER  
LAGOON

# 90.1 M



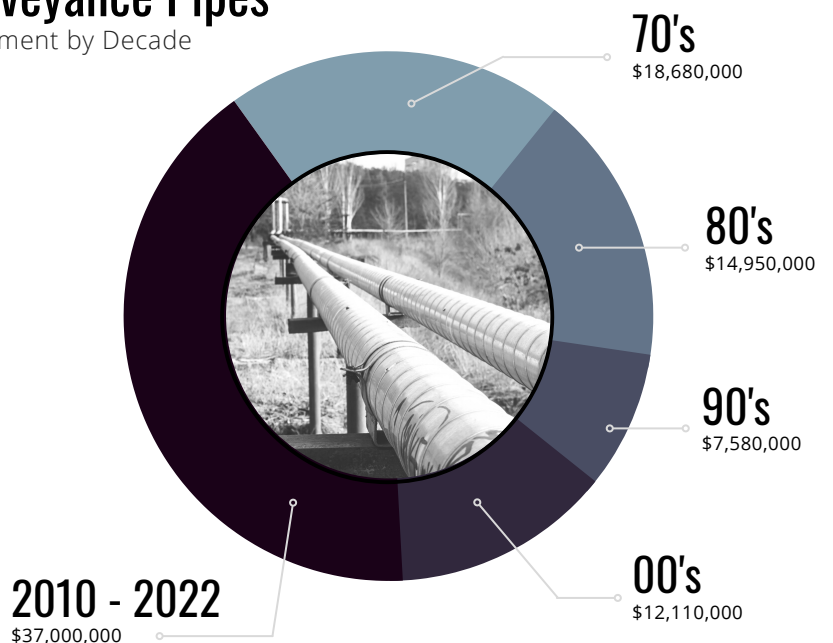
total replacement costs

medium

data quality index

## Conveyance Pipes

Investment by Decade



# EXECUTIVE SUMMARY

## *1.1 The Purpose Of The Plan*

This plan details information about infrastructure assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide service over the 2022-2031 year planning period. The Detailed Asset Management Plan will link to a future Long Term Financial Plan which considers a 10 year planning period.

## *1.2 Asset Description*

This plan covers the infrastructure assets that provide wastewater services.

The wastewater network comprises:

- Conveyance Pipe (67.7 km)
- Manholes (942)
- Personal Drain Connections (3,673)
- Pump Stations (14)
- Port Stanley Wastewater Treatment Plant (1)
- Belmont Wastewater Lagoon (1)
- Systems Control and Data Acquisitions (SCADA) (1)

The above assets have a replacement value estimated at **\$90,060,000.**





### *1.3 Levels of Service*

The approved rate structure to 2031 will allow the system to be operated and maintained at current levels. However, the proposed rate structure may not be sufficient to be able to provide proactive maintenance to the system.

The main service consequences of the planned budget are:

- Unable to maintain assets at current level of service
- Increased risk and cost of reactive maintenance
- Unable to proactively maintain mechanical systems in pumping stations

### *1.4 Future Demand*

The factors influencing future demand and the impacts they have on service delivery are created by:

- Population growth – acquiring more assets
- Existing customers on septic desire to connect to municipal service – acquiring more assets
- Existing customers on septic to connect to municipal services when a road rehabilitation project triggers the installation of sanitary sewers in an area that is not currently serviced with sanitary sewers. – acquiring more assets
- Globally, COVID 19 has affected both the supply chain and costs for services since February 2020. The pandemic has increased both the scarcity of materials and the financial costs to operate, maintain and renew assets at these levels and is anticipated to continue.

Demand will be addressed through a combination of managing existing assets, upgrading existing assets and providing new assets. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

- Add additional assets to accommodate increased growth
- Capacity upgrades to existing infrastructure due to growth increases
- Add additional assets when road rehabilitation opportunities arise

## *1.5 Lifecycle Management Plan*

### *1.5.1 What Does It Cost*

The forecast lifecycle costs necessary to provide the services covered by this plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the Detailed Asset Management Plan may be prepared for a range of time periods, it typically informs a long term financial planning period of 10 years.

A summary output from the Detailed Asset Management Plan is the forecast of 10 year total outlays, which for the wastewater network is estimated as **\$49,534,000 or \$4,953,400** on average per year.

## 1.6 Financial Summary

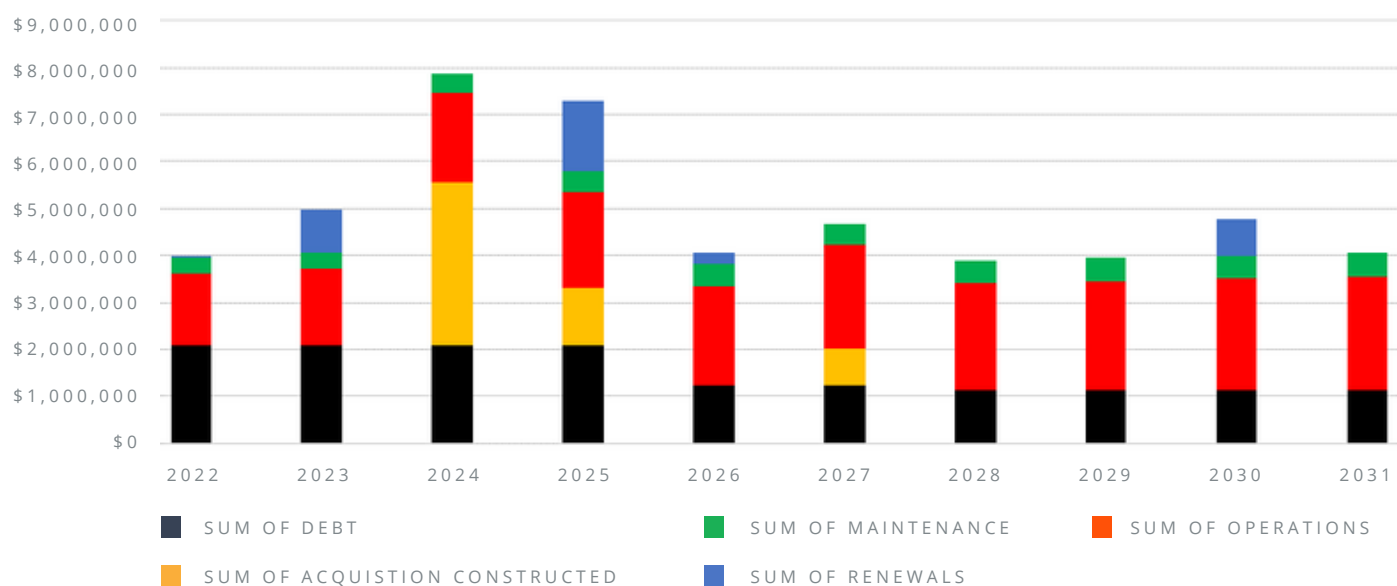
### 1.6.1 What Will It Do

Estimated available funding for the 10 year period is **\$39,860,872** or **\$3,986,087** on average per year as per the planned budget. This is **71.64%** of the costs required to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the budget can be provided. Informed decision making depends on the Detailed Asset Management Plan emphasising the impacts and consequences of planned budgets on risks and the service levels provided.

Without the projected rate increases to 2031, the anticipated planned budget for the wastewater network leaves a projected shortfall of **\$1,577,717** on average per year of the 10 year planned lifecycle costs required to provide services.

GRAPH 1.6.1 - FORECAST LIFECYCLE COSTS AND PLANNED BUDGETS



Graph values are in current dollars, 2021.

Central Elgin will provide wastewater services for the following:

- Operation, maintenance, renewal and acquisition of conveyance pipe network, manholes, personal drain connections, pump stations, wastewater treatment plant, wastewater lagoon and SCADA system to meet service levels set by Central Elgin within its annual budgets.
- Some of the major renewals and acquisition projects are, a new pump station and forcemain from Union to Port Stanley within the 10 year planning period. Within the 10 year period we will be adding approximately 650 residences to our current infrastructure through donated acquisitions.

### 1.6.2 What Cannot Be Done

Central Elgin currently does **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- 2025 going forward there may not be sufficient funding to complete planned maintenance
- 2026 going forward some cuts may have to be made to the current level of service as Central Elgin may not be able to do all operational activities to stay within the current budget allocation

### 1.6.3 Managing the Risks

The present budget levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Reactive maintenance spending will increase
- Increased risk of property damage – more sewer backups into private property
- Reduce current level of service to customer

Central Elgin will endeavor to manage these risks within available funding by:

- Increase wastewater rates in conformity to By-law 2559
- Disposal of surplus assets
- Ensure that full cost recovery occurs from benefitting landowners immediately upon service extension

## *1.7 Asset Management Planning Practices*

Key assumptions made in this Detailed Asset Management Plan are:

- Central Elgin has field verified 80% of the data and utilized GIS mapping to model the remaining 20%
- Assumed growth – adding 650 new homes
- Assumed some of the fair market pricing as Central Elgin did not have pricing for all asset categories
- Currently, renewal timing is based on age of asset not condition

Assets requiring renewal are identified through subject matter expert opinion and capital plan.

- An estimation of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

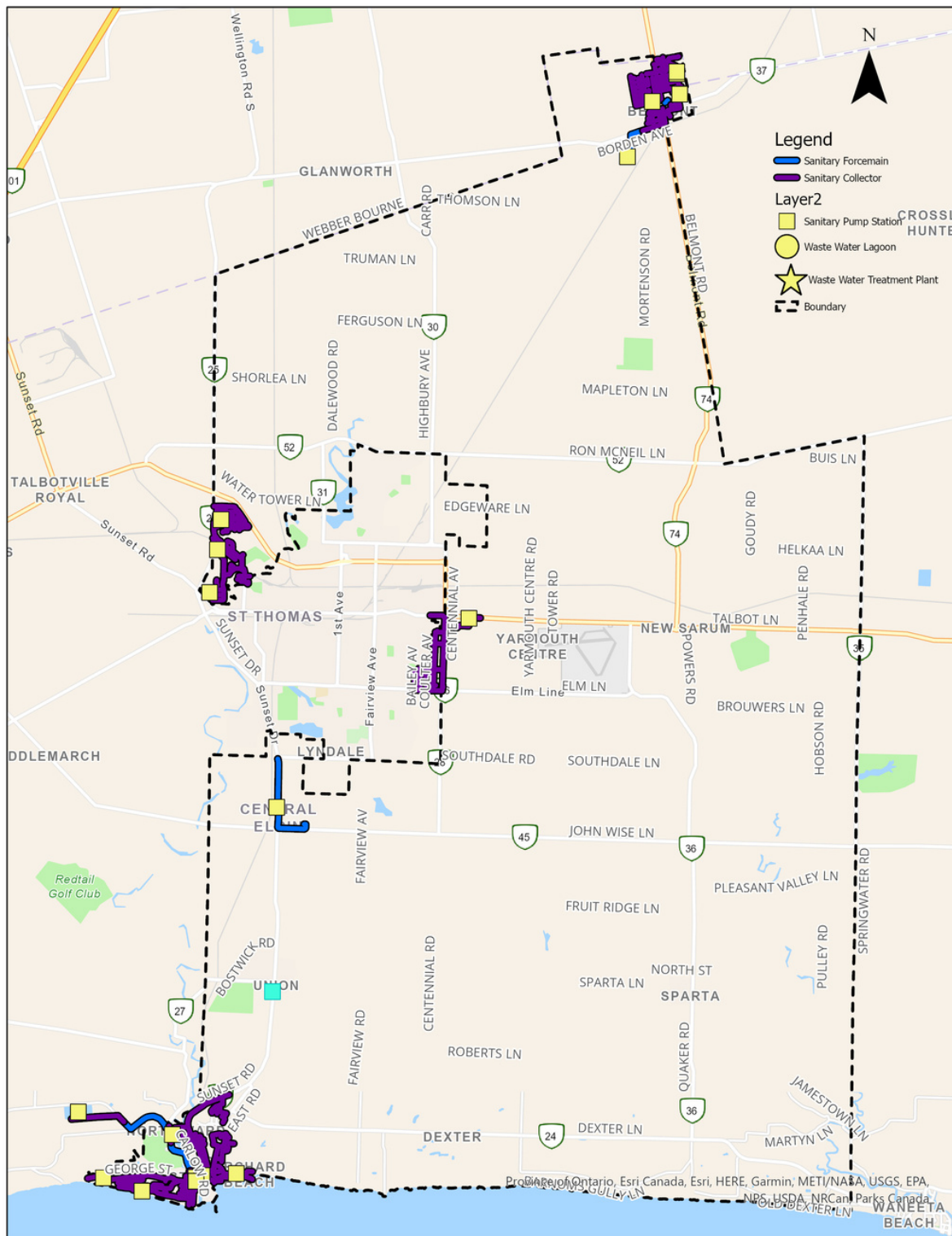
The Asset Register was used to forecast the renewal lifecycle costs for this Detailed Asset Management Plan. This plan is based on a medium level of confidence information.

## *1.8 Monitoring and Improvement Program*

To improve Central Elgins asset management practices the municipality will:

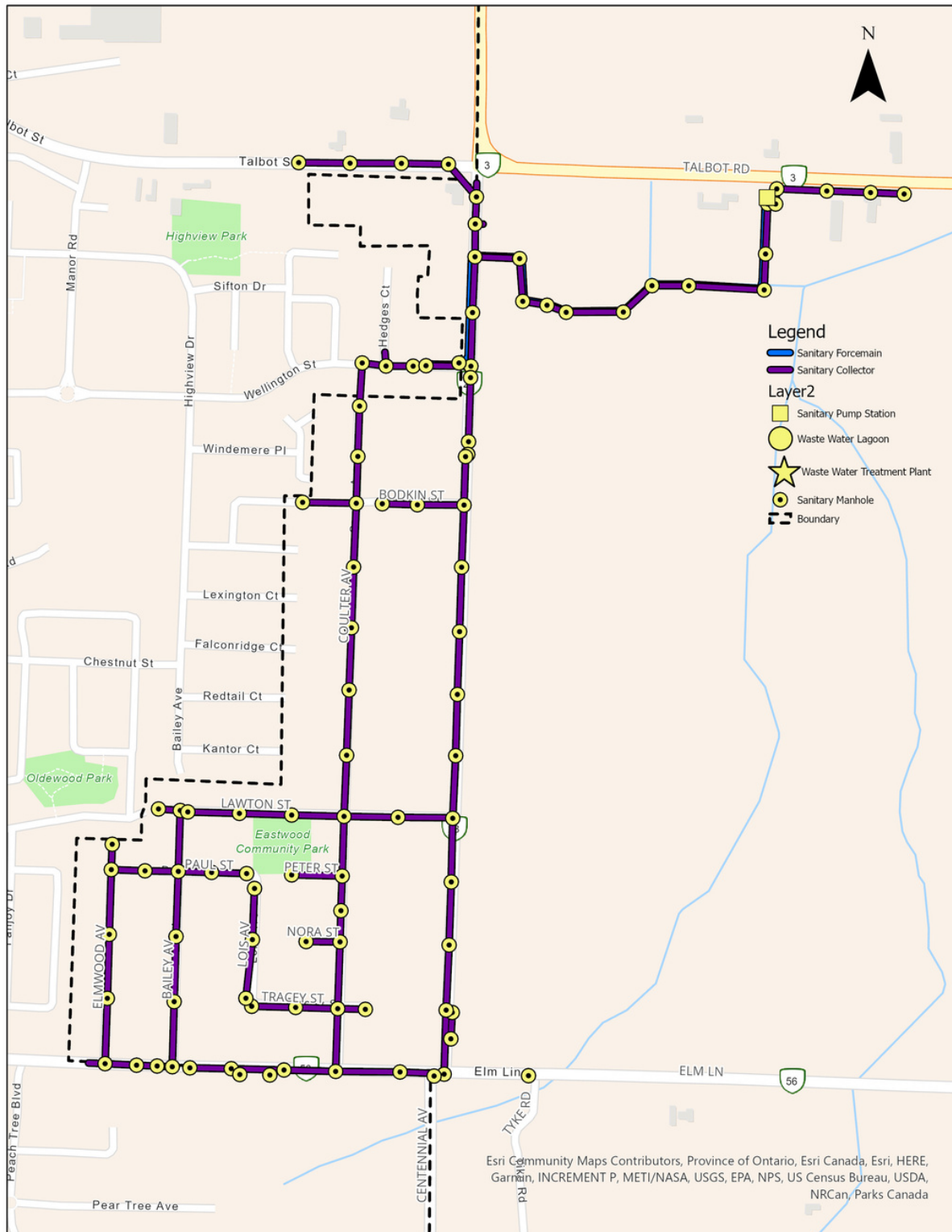
- Update lifecycle costing
- Implement condition assessment for pipe network
- Develop condition rating scale
- Develop/update pre-assumption checklists

## 1.9 Central Elgin's Full Wastewater System

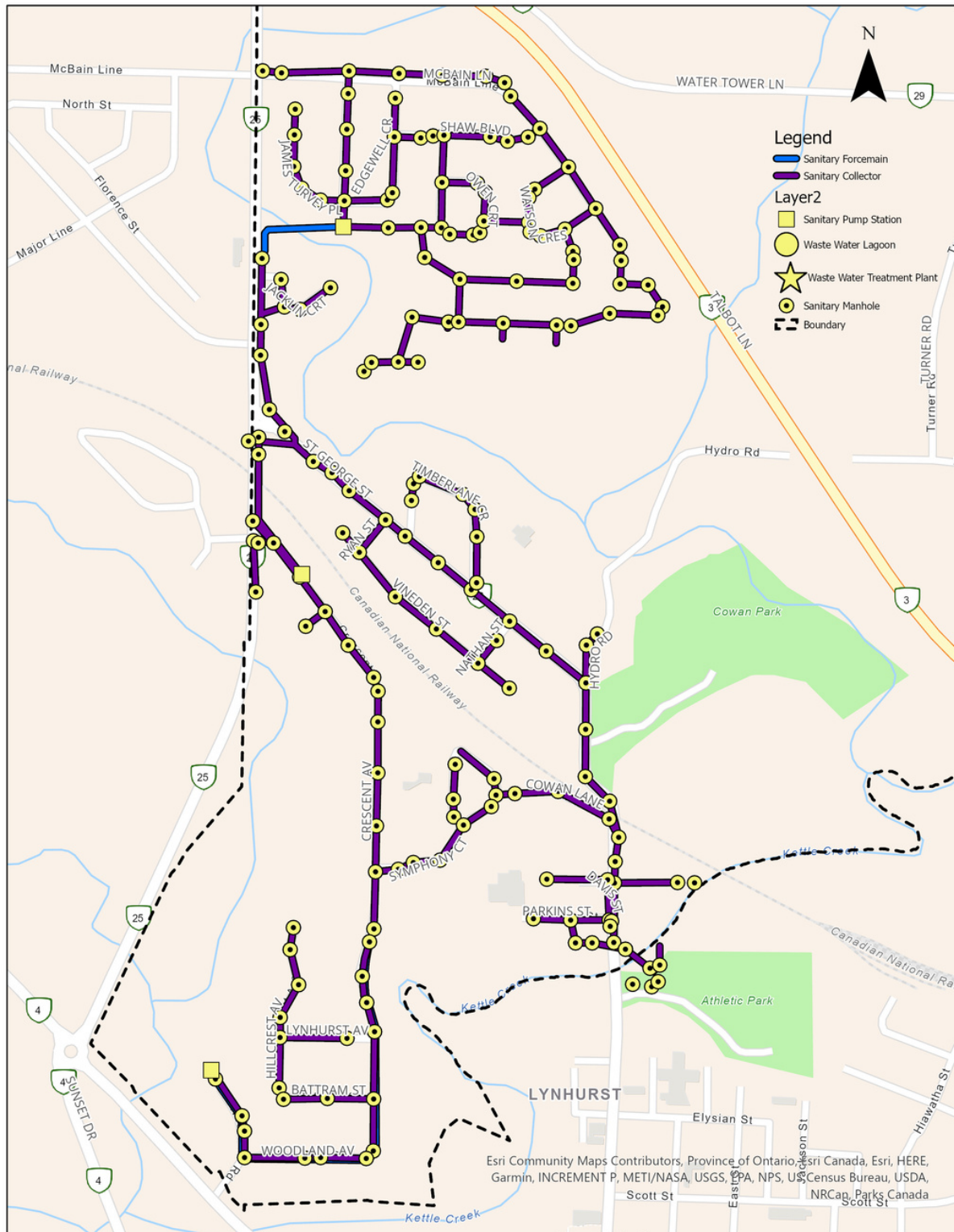




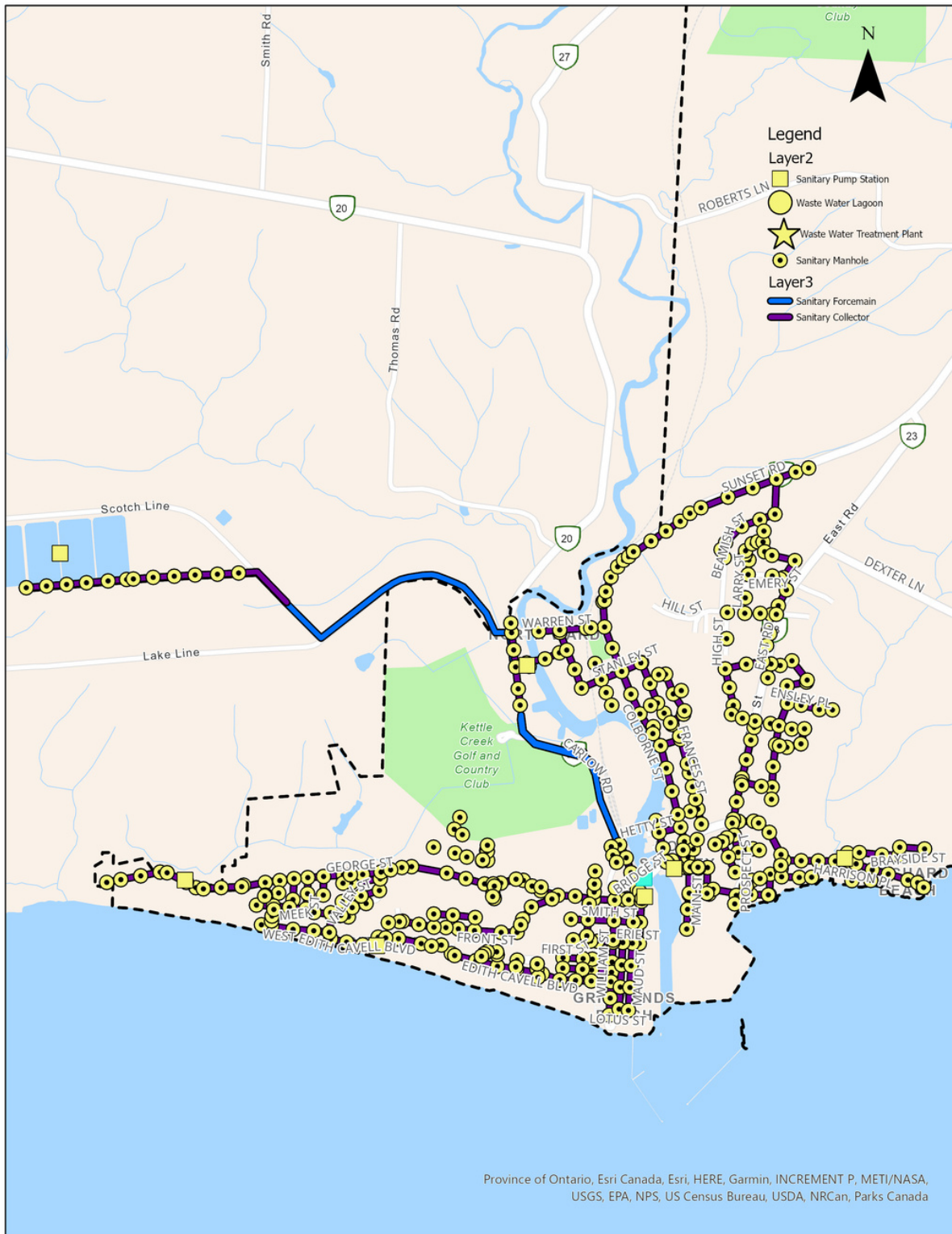
## *Eastwood Wastewater System*



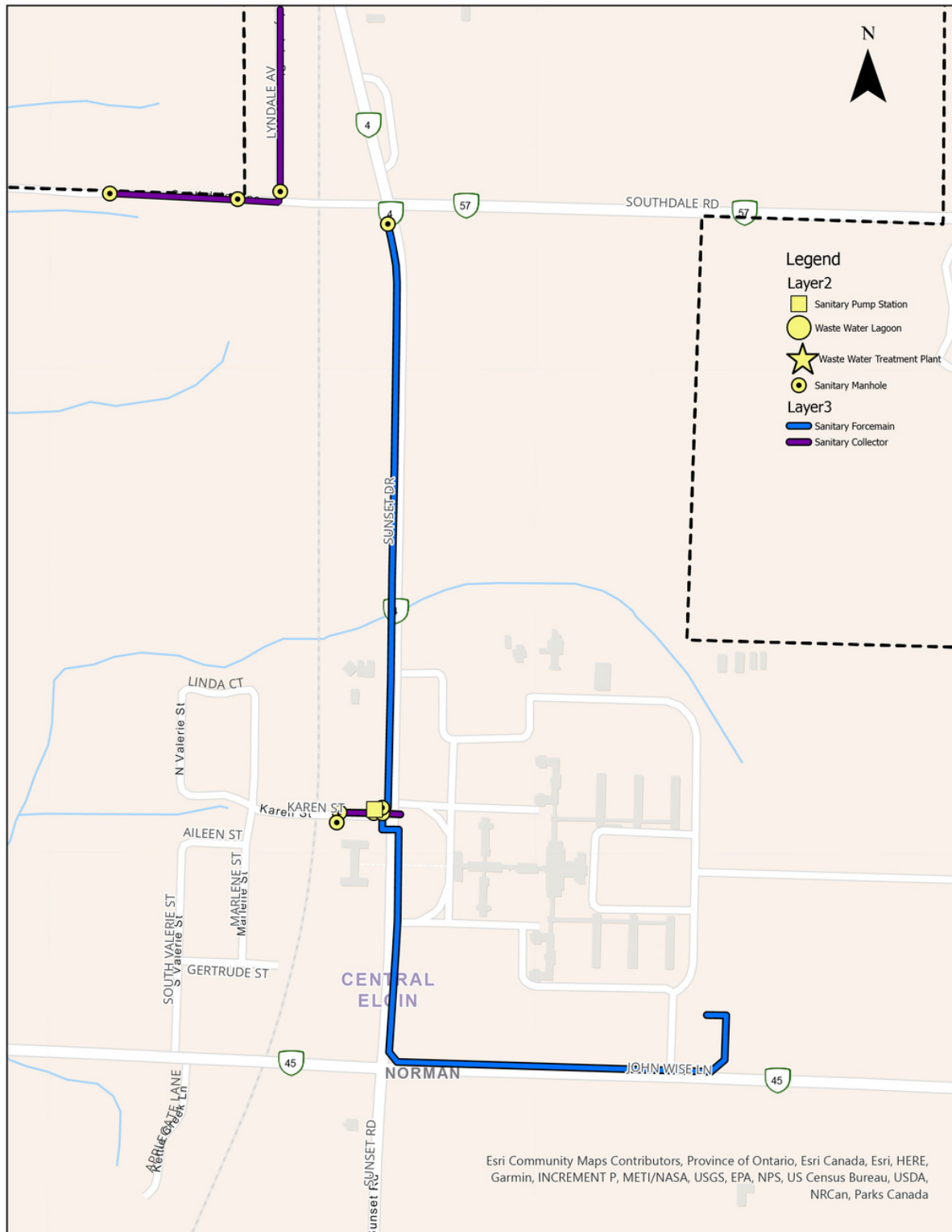
## Lynhurst Wastewater System



## Port Stanley Wastewater System

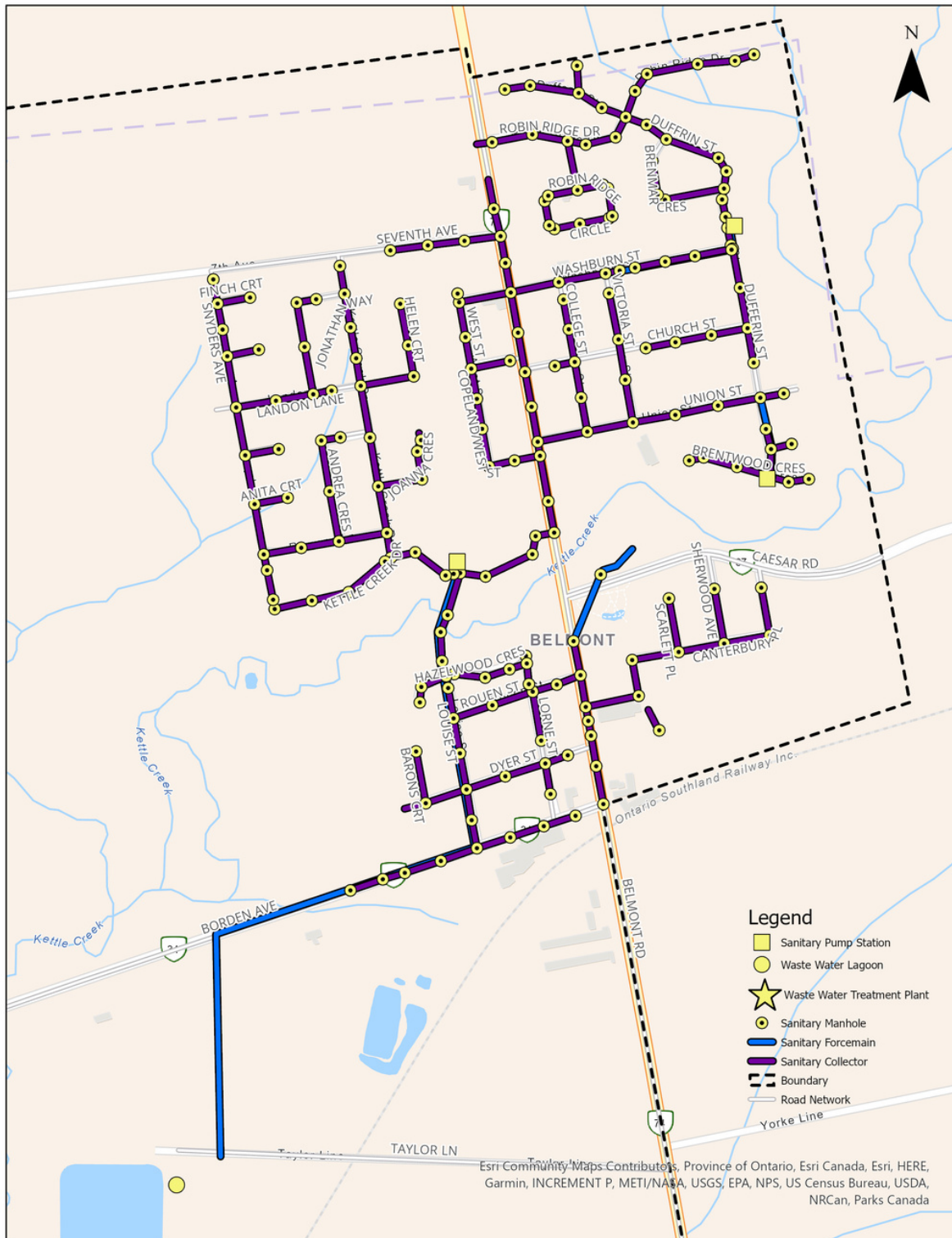


## Sunset Wastewater System





## Belmont Wastewater System





# INTRODUCTION

## 2.1 *Background*

This Detailed Asset Management Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The Detailed Asset Management Plan is to be read with Central Elgin planning documents. This includes the Strategic Asset Management Policy (2021), along with:

- Municipality of Central Elgin Official Plan (March 2013)
- Municipality of Central Elgin 2019 State of Infrastructure
- Municipality of Central Elgin Water and Wastewater Rate Study Update (January 2021)

The Municipality has undertaken needs and rate studies for water and wastewater since 2002, these studies have guided the municipality's infrastructure renewal projects since that time. The implementation of formal Detailed Asset Management Plan will be the next logical progression to overall asset management of the Municipality's wastewater assets.

The infrastructure assets covered by this Detailed Asset Management Plan includes the major components required to deliver effective wastewater services for Central Elgin customers. The majority of the network is located in the urban areas such as Port Stanley, Lynhurst, Eastwood subdivision and Belmont. These areas contain conveyance piping, manholes, and pump stations. The wastewater treatment plant is located just outside of Port Stanley, while the wastewater Lagoon is located outside of Belmont. Lynhurst and Eastwood subdivision conveys sewage to the St. Thomas wastewater treatment plant through an agreement with the City of St. Thomas

For a detailed summary of the wastewater assets refer to the table in Section 5.

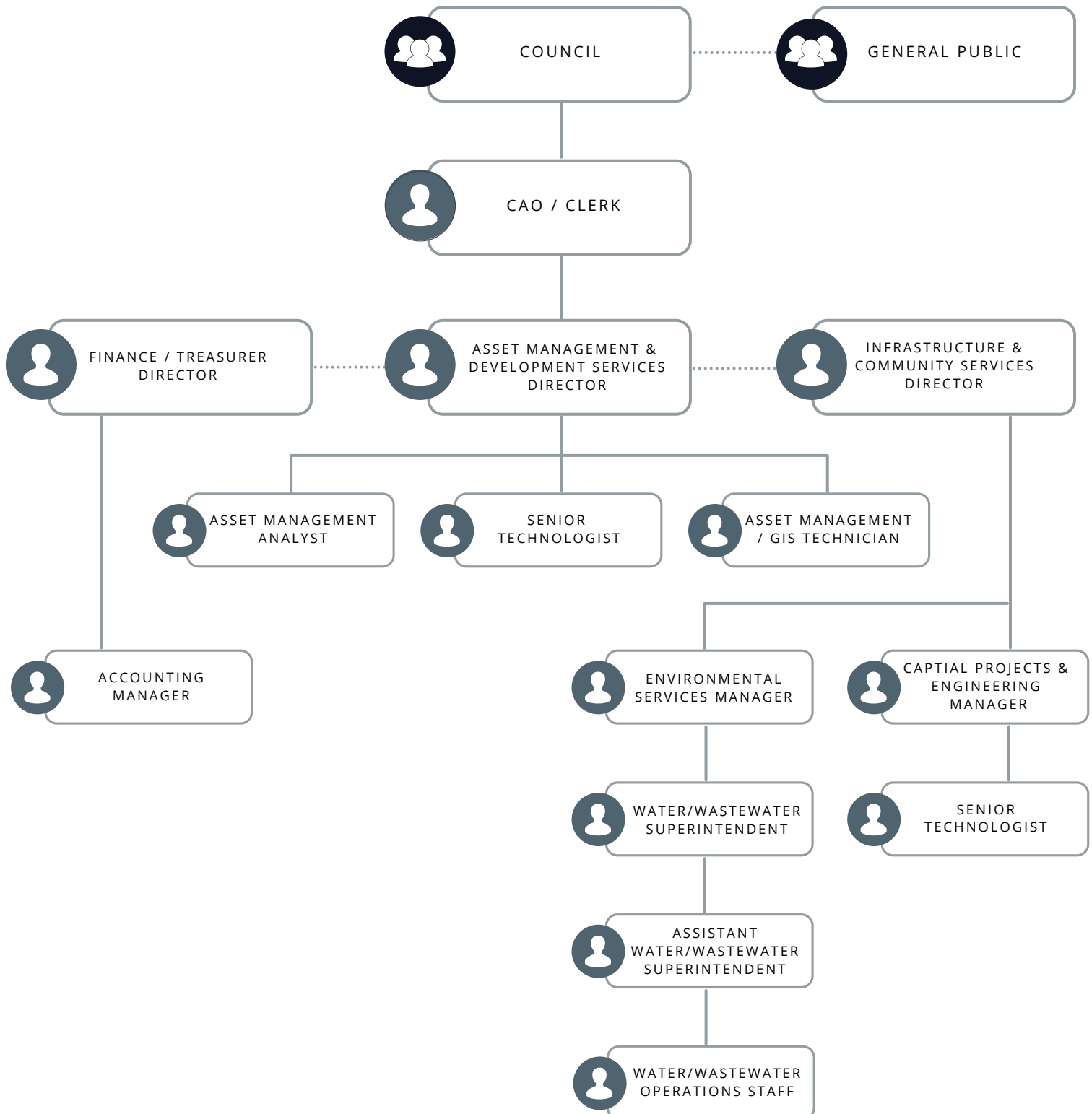
The infrastructure assets included in this plan have a total replacement value of **\$90,060,000**.

TABLE 2.1 - KEY STAKEHOLDERS IN THE ASSET MANAGEMENT PLAN

KEY STAKEHOLDER	ROLE IN ASSET MANAGEMENT PLAN
CENTRAL ELGIN COUNCIL	<ul style="list-style-type: none"> <li>• Allocate resources to meet planning objectives in providing services while managing risks</li> <li>• Support asset management initiatives necessary to improve knowledge and inform choices</li> <li>• Fund the level of service desired over the whole-life</li> </ul>
CAO/CLERK	<ul style="list-style-type: none"> <li>• Champion of supporting asset management principles for the organization</li> <li>• Ensure that adequate resources are available to develop staff knowledge and skills to aid the implementation and continuous improvement of asset management practices</li> </ul>
SENIOR MANAGEMENT	<ul style="list-style-type: none"> <li>• Set high level priorities for asset management development and raise awareness of this function with staff and outside contractors</li> <li>• Support the actions required in the Detailed Asset Management Plan to better manage assets and deliver service</li> <li>• Support the Asset Management Driven budget and Long Term Financial Plan (10 year horizon)</li> </ul>
FIELD STAFF/ OPERATIONAL STAFF	<ul style="list-style-type: none"> <li>• Verify location and condition of assets</li> <li>• Provide operational and maintenance services to assets</li> <li>• Report to senior management any progress, deficiencies and effectiveness of operations and maintenance activities</li> </ul>
PROVINCE OF ONTARIO	<ul style="list-style-type: none"> <li>• Sets policy for wastewater through legislation which outlines mandatory standards and practices</li> </ul>
EXTERNAL PARTIES	<ul style="list-style-type: none"> <li>• Participate in facilitated conversation to allow the municipality to understand the communities' desired level of service</li> <li>• Be supportive of the Detailed Asset Management Plan that may reduce levels of service for the communities desire to reduce taxation</li> </ul>

Central Elgin's organization structure for service delivery is detailed below:

FIGURE 2.1 - SERVICE DELIVERY ORGANIZATIONAL STRUCTURE



## 2.2 *Goals and Objectives of Asset Ownership*

Central Elgin's goal is to deliver safe and effective wastewater services while meeting all applicable legislation and regulation. Consideration will be given to the defined level of service when maintaining and renewing assets in the most cost effective manner for present and future consumers.

The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance
- Managing the impact of growth through demand management and infrastructure investment
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service
- Identifying, assessing and appropriately controlling risks
- Align the Detailed Asset Management Plans and the future Long Term Financial Plan to plan for present and future costs and provide alternatives for funding
- Ensure legislative compliance

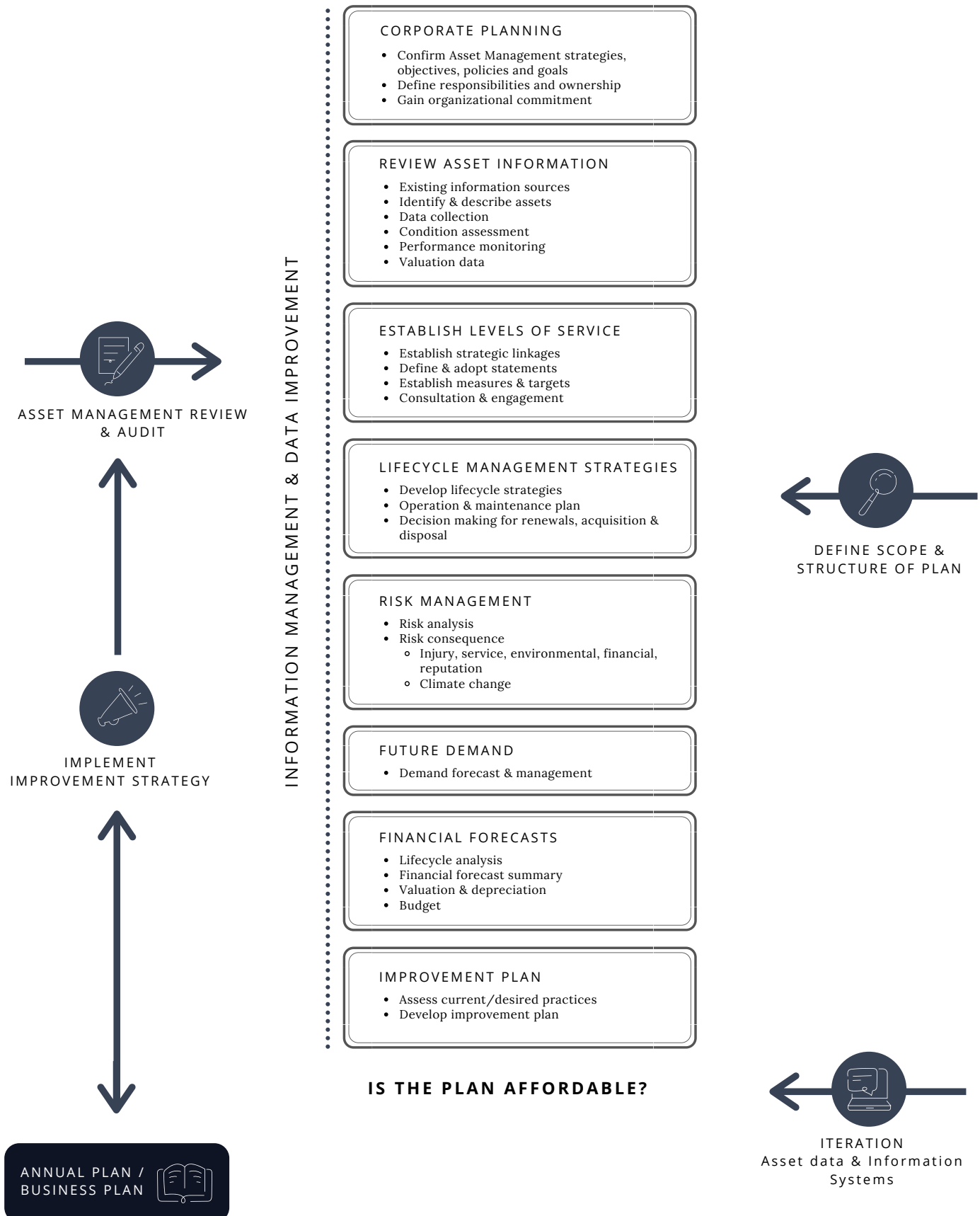
Key elements of the planning framework are:

- Levels of Service – specifies the services and agreed upon Levels of Service to be provided
- Risk Management – Resiliency, Environmental, Climate, Human Safety, Financial, Reputation and Functional
- Future Demand – how this will impact on future service delivery and how this is to be met
- Lifecycle Management – Taking a lifecycle approach to developing cost effective management strategies for the long term that meet the defined level of service
- Financial Summary – what funds are required to provide the defined services
- Asset Management Practices – how Central Elgin manages provision of services
- Monitoring – how the plan will be monitored to ensure objectives are met
- Asset Management Improvement Plan – how to increase asset management maturity

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015
- ISO 55000

FIGURE 2.2 - ROAD MAP FOR PREPARING AN ASSET MANAGEMENT PLAN





# LEVELS OF SERVICE

## 3.1 Customer Research and Expectations

Central Elgin is committed to conducting an annual Level of Service survey to engage with its customers to determine their satisfaction with the services provided.

This Detailed Asset Management Plan is prepared to facilitate consultation prior to adoption of Levels of Service by the Municipality of Central Elgin. This Detailed Asset Management Plan is informed by a Level of Service survey that was published on the municipal website, [www.centralelgin.org](http://www.centralelgin.org) and the municipality's Community Engagement Website, [www.letstalkcentralelgin.org](http://www.letstalkcentralelgin.org). The 2020 survey was also posted on the municipality's social media platforms including Facebook and Twitter. The survey was posted on these platforms for a 6 week period in December 2020 and January 2021.

The survey had a total of 504 respondents, and assuming that the survey was completed by one member of a household, this represents approximately **8%** of the municipality's households. A summary of the results of the Level of Service Survey can be found on the community engagement website. This Level of Service survey is used to determine the public's general satisfaction with the current Level of Service that is being provided for the wastewater assets. Identifying the customers desired Level of Service assists Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

Table 3.1 summarizes the results from the Central Elgin Customer Satisfaction Survey.

TABLE 3.1 - CUSTOMER SATISFACTION SURVEY LEVELS

PERFORMANCE MEASURE	VERY SATISFIED	FAIRLY SATISFIED	SATISFIED	SOMEWHAT SATISFIED	NOT SATISFIED
Overall satisfaction with wastewater network	✓				
Reliability of service (sewer backups into home)	✓				

## 3.2 Strategic and Corporate Goals

This Detailed Asset Management Plan is prepared under the direction of the Central Elgin Strategic Asset Management Policy which outlines Council's asset management vision, goals and objectives.

Central Elgin's mission is:

*"To develop our municipality through responsible management and long range planning, while having regard for our urban, agricultural, tourist and recreational communities with a vision of economic stability."*

Strategic goals have been set by the Municipality. The relevant goals and objectives and how these are addressed in this Detailed Asset Management Plan are summarized in Table 3.2.

TABLE 3.2 - GOALS AND HOW THEY ARE ADDRESSED IN THIS PLAN

GOAL	OBJECTIVE	HOW GOAL AND OBJECTIVES ARE ADDRESS IN THE DETAILED ASSET MANAGEMENT PLAN
SAFE COMMUNITIES	<ul style="list-style-type: none"> <li>Reduce risk to Central Elgin communities including people, property and infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that municipal wastewater system are adequately maintained and renewed to prevent sewage backups which could compromise public health</li> </ul>
ADEQUATE, SUSTAINABLE & AFFORDABLE INFRASTRUCTURE	<ul style="list-style-type: none"> <li>Ensure service is adequately sized for both current and future use</li> <li>Understanding network whole life costs</li> </ul>	<ul style="list-style-type: none"> <li>Identify underserved areas and consider servicing capacity of the wastewater system when extension of services are undertaken</li> <li>Lifecycle cost will be considered with the goal of reducing whole life costs</li> </ul>
STRONG LOCAL ECONOMY & SUSTAINABLE COMMUNITY	<ul style="list-style-type: none"> <li>Ensure system capacity is available to support industrial, commercial, institutional, residential and agricultural development</li> </ul>	<ul style="list-style-type: none"> <li>Ensure network is adequately maintained, operated, and renewed as identified in our Detailed Asset Management Plan and generally accepted engineering and maintenance principles</li> </ul>
CONSERVATION & APPRECIATION OF OUR NATURAL ENVIRONMENT	<ul style="list-style-type: none"> <li>Ensure all wastewater is treated before returning to natural watercourse and ensure adequate system capacity to minimize discharge of raw sewage to natural environment</li> </ul>	<ul style="list-style-type: none"> <li>Expansion of the network will be conducted under the Municipal Class Environmental Assessment process or other applicable legislation</li> </ul>
GOOD GOVERNANCE	<ul style="list-style-type: none"> <li>Engage regularly with customers to identify the desired level of service</li> </ul>	<ul style="list-style-type: none"> <li>Perform an annual level of service survey with customers and report back to the customers</li> </ul>

### 3.3 Legislative Requirements

There are many legislative requirements related to the management of assets and these requirements also impact the delivery of wastewater services. These are outlined in Table 3.3.

TABLE 3.3 - LEGISLATIVE REQUIREMENTS

LEGISLATIVE	REQUIREMENT
PROVINCIAL POLICY STATEMENT	Prioritization of new development on full urban services
WATER RESOURCES ACT	Regulates sewage disposal and prohibits discharge of polluting materials that may impair water quality
ASSET MANAGEMENT PLANNING ACT <u>O.REG 588/17</u>	Identifies the requirements for municipal asset management planning to assist municipalities to better understand their infrastructure needs and inform infrastructure planning and investment decisions

### 3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer values indicate:

- What aspects of the service is important to the customer
- Whether they see value in what is currently provided and
- The likely trend over time based on the current available funding

TABLE 3.4 - CUSTOMER VALUES

CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET
RELIABLE WASTEWATER NETWORK THAT PREVENTS PROPERTY DAMAGE (SEWER BACKUPS)	<ul style="list-style-type: none"> <li>• Annual Level of Service survey</li> <li>• Annual number of customer complaints</li> </ul>	Very Satisfied	Maintain current level of service
PROTECT THE ENVIRONMENT	<ul style="list-style-type: none"> <li>• Customer complaints as a result of sewage overflows/bypass</li> </ul>	Very Satisfied	Maintain current level of service

### 3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

<i>Condition</i>	How good is the service? ... What is the condition or quality of the service?
<i>Function</i>	Is it suitable for its intended purpose? ... Is it the right service?
<i>Capacity/ Use</i>	Is the service over or under used? ... Does Central Elgin need more or less of these assets?

In Table 3.5 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

TABLE 3.5 - CUSTOMERS LEVEL OF SERVICE MEASURES

MEASURE TYPE	LEVEL OF SERVICE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED BUDGET TREND ON PLANNED BUDGET
<b>CONDITION</b>	Customers expect system to be in good condition	<ul style="list-style-type: none"> <li>Annual Level of Service Survey</li> <li># Customer complaints per year</li> </ul>	<b>VERY SATISFIED</b> ( $< 2/1000$ households/year)	<b>MAINTAIN - VERY SATISFIED</b> ( $< 2/1000$ households/year)
	Confidence levels		<b>HIGH</b>	<b>HIGH</b>
<b>FUNCTION</b>	Customers expect system to function properly with minimal sewer backups	<ul style="list-style-type: none"> <li>Annual Level of Service Survey</li> <li>Customer complaints per year</li> </ul>	<b>VERY SATISFIED</b> ( $< 2/1000$ households/year)	<b>MAINTAIN - VERY SATISFIED</b> ( $< 2/1000$ households/year)
	Confidence levels		<b>HIGH</b>	<b>HIGH</b>
<b>CAPACITY</b>	Treatment facilities have sufficient capacity for current customers and future growth	Annual monitoring of storage capacity of treatment facilities	<b>VERY SATISFIED</b>	<b>MAINTAIN - FAIRLY SATISFIED</b>
	Confidence levels		<b>HIGH</b>	<b>HIGH</b>

### 3.6 *Technical Levels of Service*

Operational or technical performance measures are used to deliver customer values and effectively achieve Customer Levels of Service. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

#### *Acquisition*

The activities to provide a higher level of service (i.e. Assumption of new developments, upsizing wastewater lagoon to treatment plant, connecting customers on private septic to sanitary network)

#### *Operation*

The regular activities to provide services (i.e. manhole condition inspection, treating wastewater, energy costs, flushing and camera inspections)

#### *Maintenance*

The planned and reactive activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (i.e. rebuilding pumps at facilities, repair or reline conveyance pipes, manhole repairs, and facility structure repairs)

#### *Renewal*

The activities that return the service capability of an asset up to that which it had originally provided (e.g. replacement of existing infrastructure that has reached the end of its useful life)

Service and Asset Managers plan, implement and control technical service levels to influence the service outcomes.



Table 3.6 shows the activities expected to be provided under the current 10 year planned budget allocation, and the forecast activity requirements being recommended in this Detailed Asset Management Plan.

TABLE 3.6 - TECHNICAL LEVELS OF SERVICE

LIFECYCLE	PURPOSE OF ACTIVITY	ACTIVITY MEASURE	CURRENT PERFORMANCE *	RECOMMENDED PERFORMANCE **
<b>ACQUISITION</b>	Extension of new services into existing urban areas with private septic due to customer petition or environmental concerns	# of urban customers on private septic		
		Budget	\$ owner paid	\$ owner paid
	Ensure donated assets conform to expected standards for condition, quality, resiliency and function	Staff inspections of donated completed prior to assumption	<b>100%</b>	<b>100%</b>
		Budget	\$ 12, 000	\$ 12, 000
<b>OPERATION</b>	Inspect manhole condition and function	Manholes inspected every 2 years (50% annually)	<b>50%</b>	<b>100%</b>
		Budget	\$ 5, 000	\$ 10, 000
	Inspect conveyance pipe condition and function	Entire system inspected every 5 years (20% Annually)	Not currently being done	20% completion annually
		Budget	\$	\$ 22, 600/annum
<b>MAINTENANCE</b>	Clean out debris in manholes to ensure flow not impeded	# of cleanouts per year needed vs completed	<b>100%</b>	<b>100%</b>
		Budget	\$ 10, 000	\$ 20, 000
	Facility preventative maintenance program to ensure mechanical equipment functions as expected	1 pump / 5 years reactively	<b>Reactive - Becomes a renewal cost (Run to Failure)</b>	<b>Planned program for mechanical systems</b>
		Budget	\$0	\$ 25, 000
<b>RENEWAL</b>	Update aging infrastructure based on recommendation within Detailed Asset Management Plan	Based on Age/ Repairs cost	<b>Reactive</b>	<b>100%</b>
		Budget	\$0	\$0

\* Current activities related to planned budget

\*\* Expected performance related to forecast lifecycle costs.



It is important to monitor the service levels regularly as circumstances change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged that changing circumstances such as technology and customer priorities, will evolve over time.

## FUTURE DEMAND

### 4.1 Demand Drivers

Drivers affecting demand include things such as changes in population, regulations, demographics, seasonal factors, consumer preferences and expectations, technology, economics, and environmental awareness.

### 4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

### 4.3 Demand Impact and Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand. These practices will include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are also shown in Table 4.3. Further opportunities will be developed in future revisions of this Detailed Asset Management Plan.

TABLE 4.3 - DEMAND MANAGEMENT PLAN

DEMAND DRIVER	CURRENT POSITION	PROJECTION	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
POPULATION (FUTURE DEVELOPMENT)	14, 000	15,700	Increased population leads to a need to acquire new assets	Requires extension to existing collection system for new development Improve system capacity for high density development
GROWTH - CONNECTING NEW CUSTOMERS TO EXISTING SERVICE	# of customers not on system	650 customers - 5 year forecast	Additional connections require operation, maintenance and renewal	Future development will be required to ensure pipe capacity aligns with growth projection needs
GROWTH - ALIGN SERVICE EXTENSION TIMING WITH ROAD RECONSTRUCTION	# of customers not on system	65 Customers	Additional connections require operation, maintenance and renewal	Future development will be required to ensure pipe capacity aligns with growth projection needs

## 4.4 *Asset Programs To Meet Demand*

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 5.4.

Acquiring new assets will commit Central Elgin to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the future long-term financial plan (Refer to Section 5).

## 4.5 *Climate Change Adaptation*

Climate change will have a significant impact on the assets and services provided by Central Elgin. In the context of the detailed asset management planning process climate change can be considered as both a future demand and a risk.

How climate change impacts assets will vary depending on the location and the type of services provided, as will the way in which impacts are managed and responded to.

As a minimum Central Elgin considers how to manage the existing assets given the potential climate change impacts for the region.

Risk and opportunities identified to date are shown in Table 4.5.1

TABLE 4.5.1 - MANAGING THE IMPACT OF CLIMATE CHANGE ON ASSETS & SERVICES

CLIMATE CHANGE DESCRIPTION	PROJECTED CHANGE	POTENTIAL IMPACT ON ASSETS & SERVICES	MANAGEMENT
INCREASED LAKE WATER LEVELS	Increase frequency of surface flooding	Flood water could infiltrate into the wastewater system impacting capacity of the collection system	Installation of water tight bladders on certain manholes to mitigate infiltration
WATER INFILTRATION INTO WASTEWATER COLLECTION SYSTEM	Excess water could temporarily cause micro biological failure in wastewater treatment plant	Wastewater could bypass treatment facility and discharge into natural water course.  Increased utility costs to pump and treat clean excess water entering the system	Install water tight bladders in manholes to mitigate infiltration into manholes  Inspect conveyance pipe condition and repair any areas that have infiltration into pipe network

The way in which Central Elgin constructs new assets should recognize that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change
- Services can be sustained
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

Table 4.5.2 summarizes some asset climate change resilience opportunities

TABLE 4.5.2 - BUILDING ASSET RESILIENCE TO CLIMATE CHANGE

NEW ASSET DESCRIPTION	CLIMATE CHANGE IMPACT ON THESE ASSETS	BUILD RESILIENCE IN NEW WORKS
PUMP STATION	Flooding - Infiltration into wastewater network	Ensure pump stations are not constructed in low lying areas and are constructed to prevent surface flooding from entering the system
WASTEWATER TREATMENT FACILITY	Flooding - Infiltration into wastewater network	Utilize engineering and construction best practices to prevent surface water infiltration into wastewater system
MANHOLES AT LAKE LEVEL	Flooding - Infiltration into wastewater network	Install water tight bladders on at risk manholes to mitigate infiltration into manholes

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this Detailed Asset Management Plan.



# LIFECYCLE MANAGEMENT PLAN

The Lifecycle Management Plan details how Central Elgin plans to manage and operate the assets at the agreed levels of service (Refer to Section 3) while managing lifecycle costs.

## 5.1 *Background Data*

### 5.1.1 Physical Parameters

The assets covered by this Detailed Asset Management Plan are shown in Figure 5.1.1.

The Municipality of Central Elgin is a geographically large municipality comprised of approximately 39,350 hectares. Central Elgin borders the City of London, St. Thomas and the North shore of Lake Erie. Wastewater assets consist of approximately 68 km's of conveyance pipes which are mostly located in urban areas such as Belmont, Eastwood subdivision, Lynhurst, Port Stanley. Within these urban areas you will find wastewater piping, manholes, and pump stations. The wastewater treatment plant is located west of Port Stanley, while the wastewater Lagoon is located south-west of Belmont.

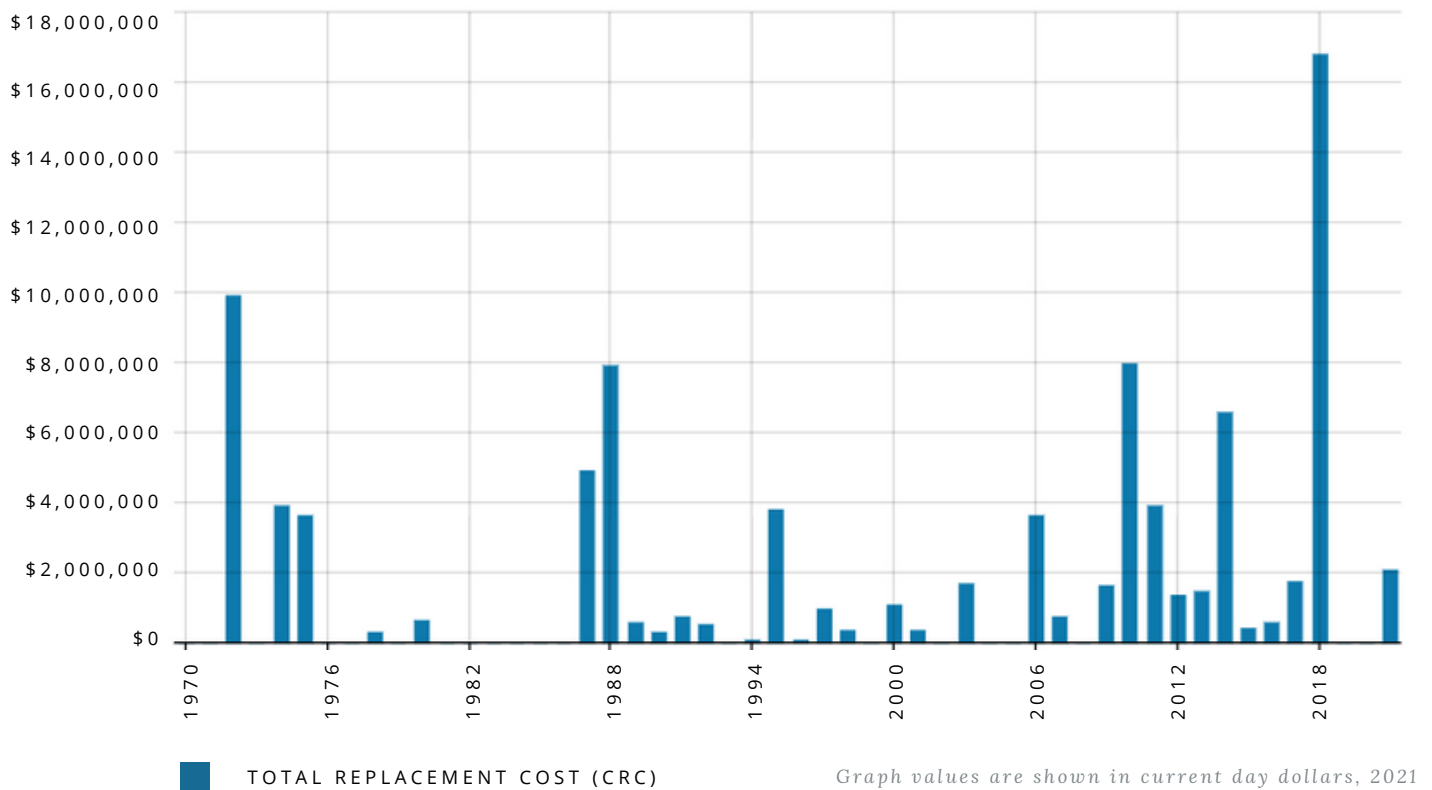
The age profile of the assets included in the Detailed Asset Management Plan are shown in Table 5.1.1.

TABLE 5.1.1 - ASSETS COVERED BY THIS PLAN

ASSET CATEGORY	DIMENSION	REPLACEMENT VALUE
WASTEWATER PIPE NETWORK	67.7 KM	\$ 36,296,000
WASTEWATER MANHOLES	942	\$ 11,304,000
PUMP STATIONS	14	\$ 4,700,000
WASTEWATER PERSONAL DRAIN CONNECTIONS	3,600	\$16,560,000
WASTEWATER TREATMENT PLANT	1	\$16,800,000
WASTEWATER LAGOON	1	\$ 3,600,000
SCADA - QUALITY MONITORING SOFTWARE AND HARDWARE	1	\$ 800,000
<b>TOTAL</b>		<b>\$ 90,060,000</b>

*All figure values are shown in current day dollars, 2021*

GRAPH 5.1.1 - ASSET AGE PROFILE



Due to a Province wide connection initiative in the 1970's Central Elgin had a significant amount of services installed. There is a massive spike because all of old Lynhurst was added to the network after public health issued an order requiring the installation of a municipal wastewater sewer system to deal with failure of private onsite septic systems in 1987 and 1988. In 2014 Central Elgin experienced another large acquisition of assets when 100% of Eastwood subdivision was serviced due to wide spread failure of private septic systems.

### 5.1.2 Asset Capacity and Performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed in Table 5.1.2.



TABLE 5.1.2 - KNOWN SERVICE PERFORMANCE DEFICIENCIES

LOCATION	SERVICE DEFICIENCY
FORCEMAIN FROM PS 71 (BELMONT) TO BELMONT LAGOON	Forcemain will require twinning/upgrading due to capacity constraints within 20 years
PUMP STATION 54 (HARRISON PLACE)	Renewal of aging pumps are required

The above service deficiencies were identified by the Director of Asset Management and Development.

### 5.1.3 Asset Condition

Condition is not currently monitored and age is the default parameter. A combination of age based data and professional opinion will be utilized until condition assessments have been completed.

Condition is measured using a 1 – 5 rating system as detailed in Table 5.1.3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer rating system will be used at a more specific level, however, for reporting in the Detailed Asset Management Plan results are translated to a 1 – 5 rating scale for ease of communication.

TABLE 5.1.3 - CONDITION RATING SYSTEM

CONDITION RATING	DESCRIPTION RATING SYSTEM
1	VERY GOOD Free of defects, only planned and/or routine maintenance required.
2	GOOD Minor defects, increasing maintenance required plus planned maintenance
3	FAIR Defects requiring regular and/or significant maintenance to reinstate service
4	POOR Significant defects, higher order cost intervention likely.
5	VERY POOR Physically unsound and/or beyond rehabilitation, immediate action required

Condition is not consistently monitored in a formal way. Central Elgin intends to develop a formal condition rating system for wastewater assets in 2022.

### 5.1.4 Asset Hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

The service hierarchy is shown in Table 5.2.2.

TABLE 5.1.4 - ASSET SERVICE HIERARCHY

SERVICE HIERARCHY	SERVICE LEVEL OBJECTIVE
ASSET CLASS - WASTEWATER NETWORK	Asset network to provide wastewater services for customers
ASSET SUB CLASS - MANHOLES, FACILITIES, CONVEYANCE PIPE, PERSONAL DRAIN CONNECTIONS	Specific components of infrastructure that enables main asset class to deliver its service

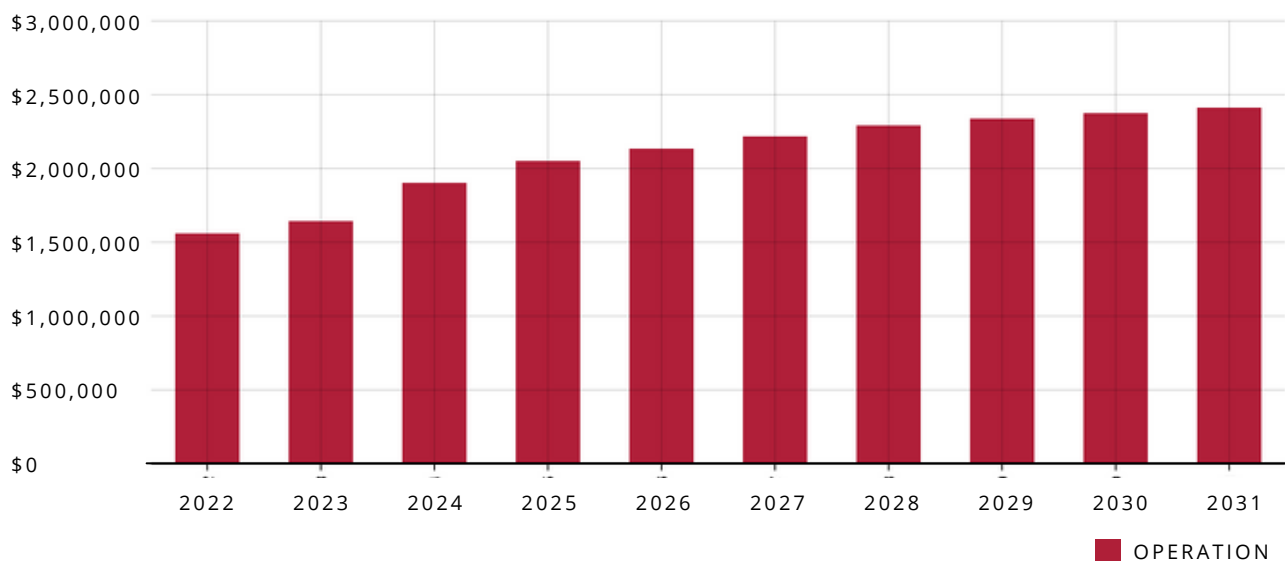
## 5.2 Operations Plan

Operations includes regular activities to provide services. Examples of typical operational activities include, continuous monitoring and testing of treatment plant, asset inspection, and utility costs.

TABLE 5.2 - OPERATIONAL BUDGET TRENDS

YEAR	OPERATIONS BUDGET
2020	\$ 1,559,794
2021	\$ 1,559,794
2022	\$ 1,559,794

GRAPH 5.2 - OPERATIONS PLAN



Graph values are shown in current day dollars, 20201

### 5.2.1 Maintenance Plan

Planned and reactive actions necessary for retaining an asset as near as practicable to an appropriate service condition. Examples of typical maintenance activities include conveyance pipe repairs, facility upkeep, and equipment repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

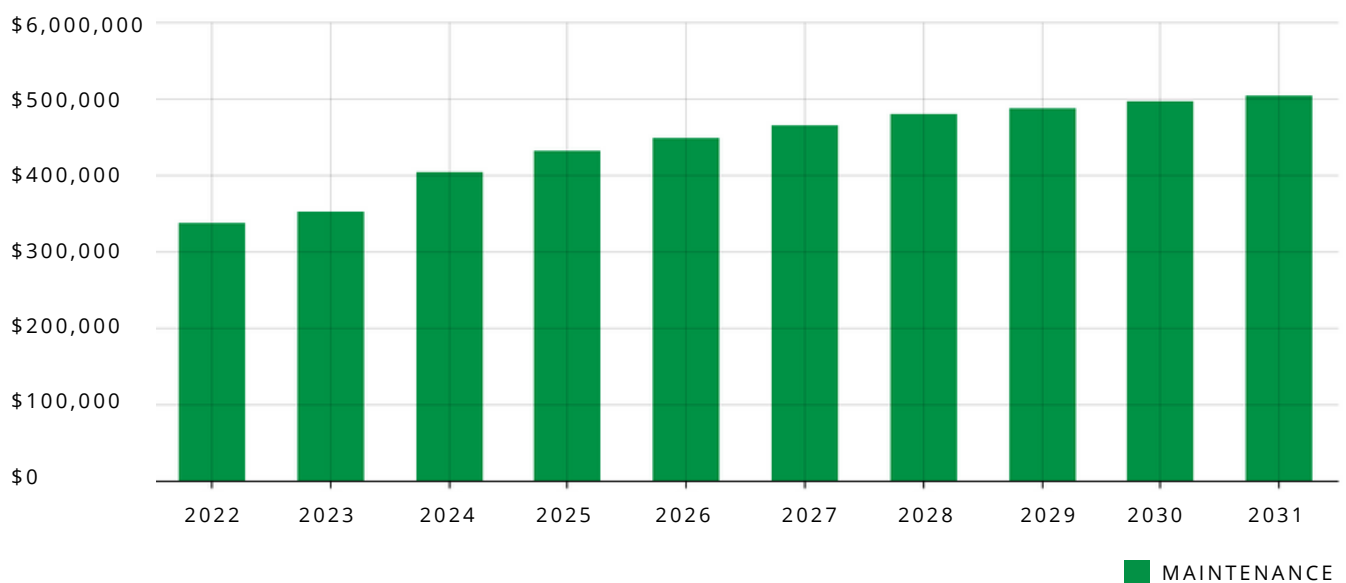
TABLE 5.2.1 - MAINTENANCE BUDGET TRENDS

YEAR	MAINTENANCE BUDGET
2020	\$ 329,000
2021	\$ 329,000
2022	\$ 329,000

Maintenance budget levels are considered to be inadequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this Detailed Asset Management Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

GRAPH 5.2.1 - MAINTENANCE PLAN



Graph values are shown in current day dollars, 20201

### 5.2.2 Summary of Forecast Operations and Maintenance Costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset inventory. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease.

Graph 5.2.2 shows the forecast operations and maintenance costs.

GRAPH 5.2.2 - OPERATION AND MAINTENANCE SUMMARY



At the current funding level there is enough funding to cover both operations and maintenance. In the future the Municipality may not have sufficient budget to also operate and maintain all of the upcoming acquisitions. The funding gap means there may be a delay to some upcoming planned maintenance activities to possibly close the funding gap. By deferring maintenance Central Elgin is incurring the higher risk and cost of reactive maintenance.

### 5.3 *Renewal Plan*

Renewals are defined as major works which do not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered an acquisition resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified by using the asset register data to project the renewal costs (current replacement costs) and renewal timing (acquisition years plus updated useful life to determine the renewal year).

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3  
Asset useful lives were last reviewed in 2009.

TABLE 5.3 - USEFUL LIVES OF ASSETS

ASSET SUB CATEGORY	USEFUL LIFE
WASTEWATER CONVEYANCE PIPE NETWORK	100 Years
WASTEWATER MANHOLES	100 Years
PUMP STATIONS	75 Years - Station 30 Years - Pumps
WASTEWATER PERSONAL DRAIN CONNECTIONS	100 Years
WASTEWATER TREATMENT PLANT	75 Years
WASTEWATER LAGOON	75 Years
SCADA	25 Years

The estimates for renewals in this Detailed Asset Management Plan were based on the Tangible Capital Asset Policy, 2009. These will be reviewed in 2021.

#### 5.3.1. *Renewal Ranking Criteria*

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate
- or
- Ensure the infrastructure is of sufficient quality to meet the service requirements

Central Elgin prioritizes renewals by identifying assets or asset groups that:

- Have a high consequence of failure
- Have high use and subsequent impact on users would be significant
- Have higher than expected operational or maintenance costs
- Have potential to reduce lifecycle costs by replacement with a modern equivalent asset that would provide the equivalent service

The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5.3.1.

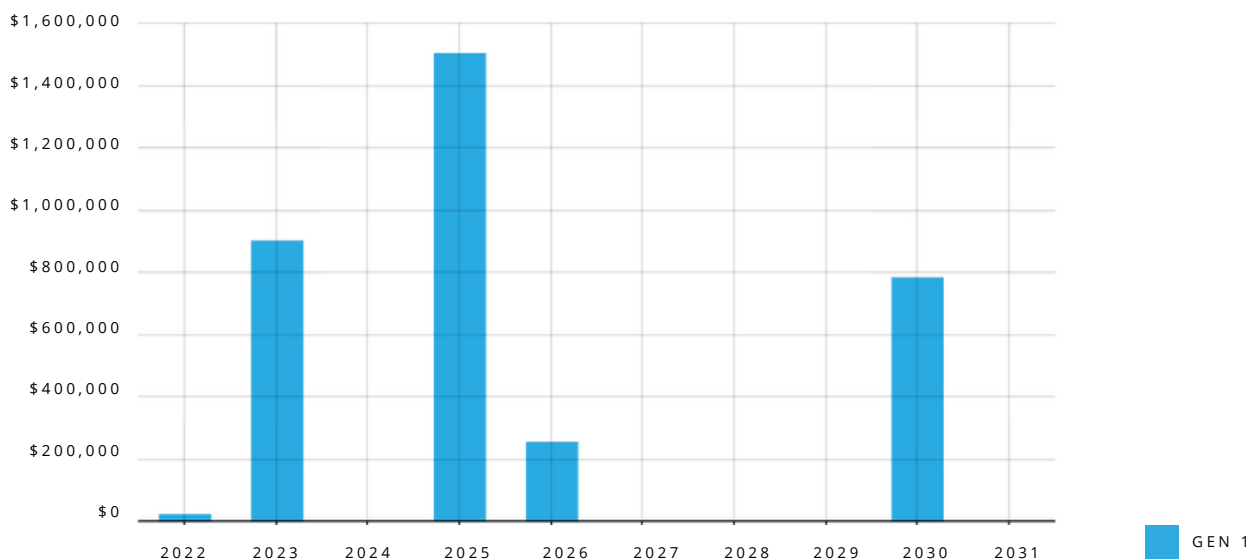
TABLE 5.3.1 - RENEWAL PRIORITY RANKING CRITERIA

CRITERIA	WEIGHING
ASSET FAILURE	40%
COORDINATED WITH OTHER ASSET REPLACEMENT	30%
CONDITION IS 4 OR LESS (GRADING SCALE 5.1.3)	20%
CAPACITY IMPROVEMENTS	10%
<b>TOTAL</b>	<b>100%</b>

## 5.4 Summary Of Future Renewal Costs

Forecast renewal costs are projected to increase over time if the asset inventory increases. The forecast costs associated with renewals are shown in graph 5.4

GRAPH 5.4 - RENEWAL SUMMARY



Graph values are shown in current day dollars, 2021.

Forecasted renewals for 2023 include mechanical replacements for Pump Station 55. George street sewer replacements and kettle creek sanitary crossing are also anticipated in 2023. In 2025 Central Elgin anticipates renewing Colborne street trunk sewers. Belmont Lagoon renewals are currently planned for 2026 and the Belmont Sewage Forecmain is planned for 2030.

## 5.5 *Acquisition Plan*

Acquisitions are defined as the addition of assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. Acquisitions may result from growth, demand, social or environmental needs. Assets may also be donated to the Municipality of Central Elgin such as works constructed in new development.

### 5.5.1 Selection Criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs. The priority ranking criteria is detailed in Table 5.5.1.

TABLE 5.5.1 - ACQUIRED ASSETS PRIORITY RANKING CRITERIA

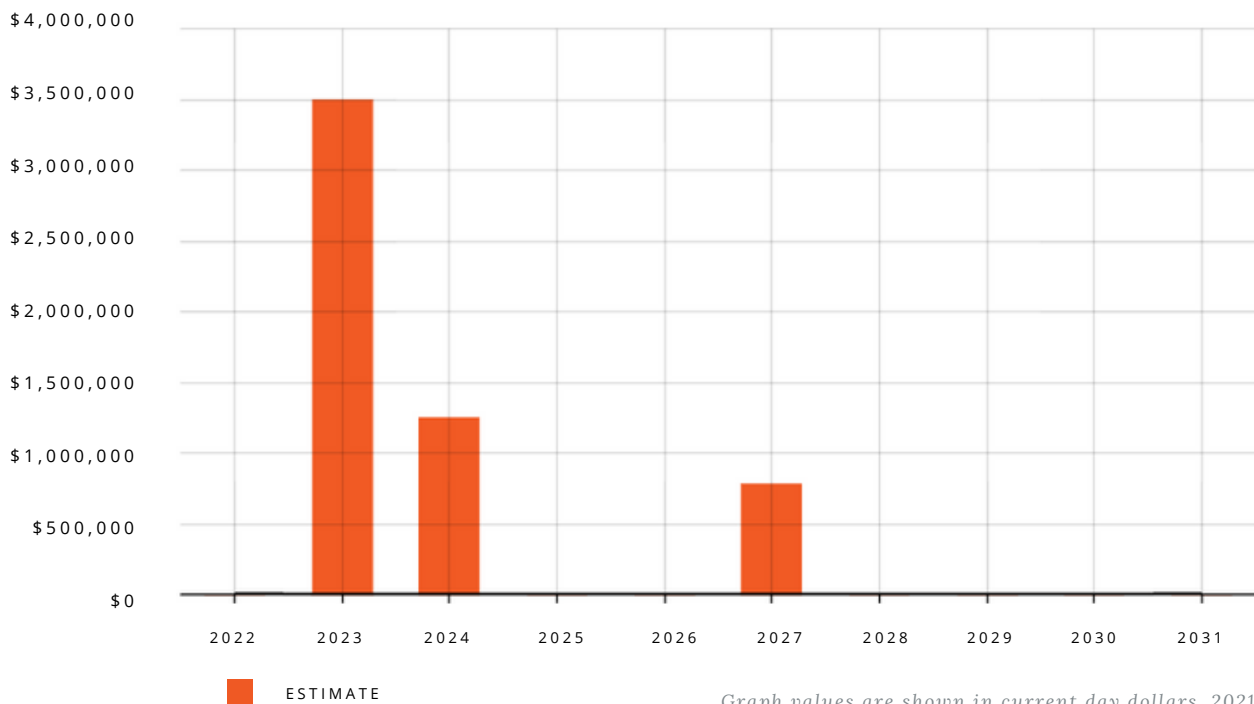
CRITERIA	WEIGHTING
GROWTH DONATED ASSETS	80%
NEW SERVICE REQUESTS	20%
<b>TOTAL</b>	<b>100%</b>



### 5.5.2 Summary of Future Asset Acquisition Costs

Forecast acquisition costs are summarized in Graph 5.5.2.

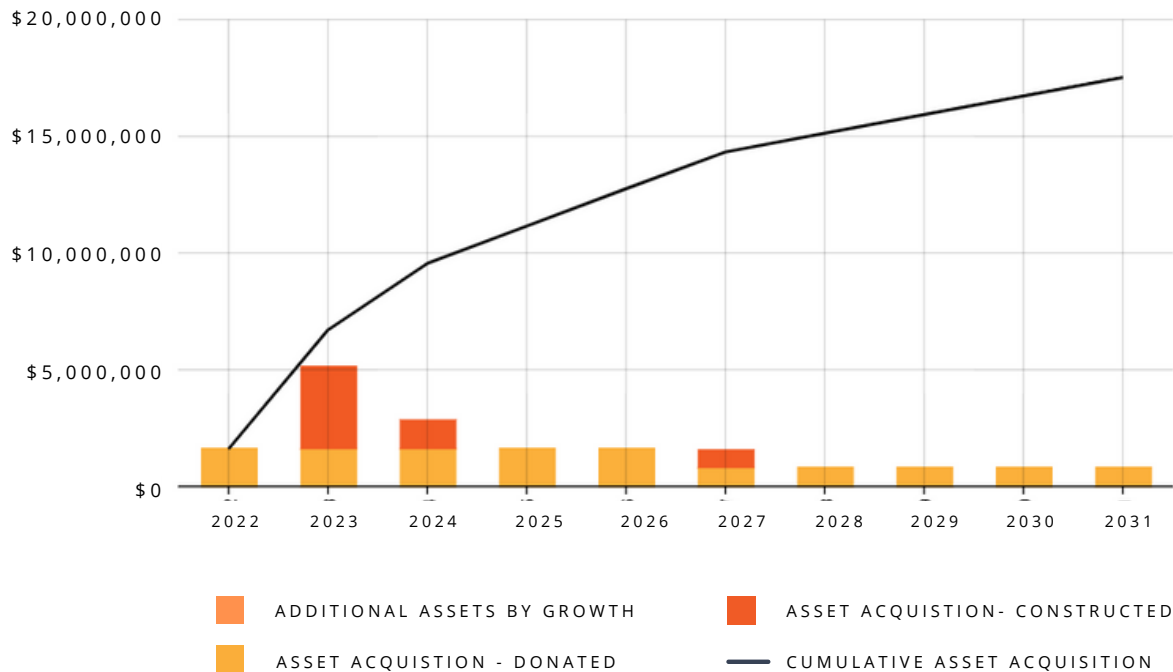
GRAPH 5.5.2- ACQUISITION SUMMARY



*Graph values are shown in current day dollars, 2021.*

When Central Elgin commits to acquiring new assets, the municipality must be prepared to afford the future costs of operation, maintenance and possible future renewals of the asset. Central Elgin must also account for future depreciation when reviewing long term sustainability. When reviewing the long term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by Central Elgin. The cumulative value of all acquisition work, including assets that are constructed and contributed are identified in Graph 5.5.3.

GRAPH 5.5.3 - AQUISITION SUMMARY



*Graph values are shown in current day dollars, 2021.*

Expenditure on new assets and services will be accommodated in the budget and in the future long term financial plan, but only to the extent that there is available funding.

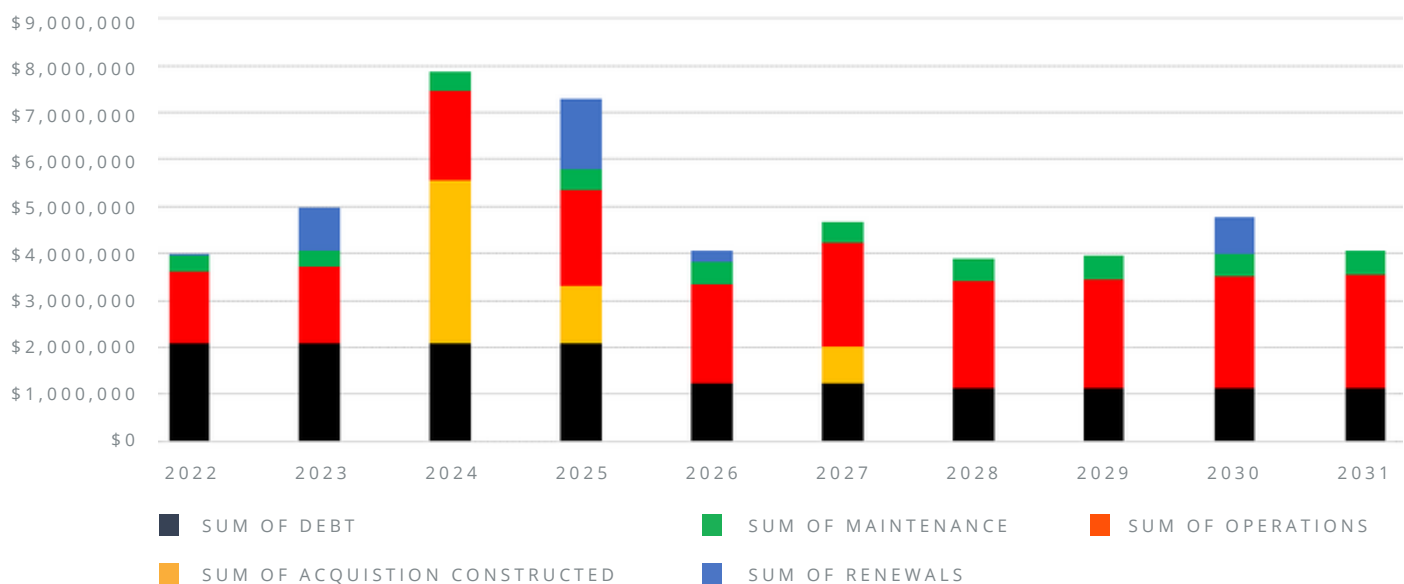
Central Elgin is anticipating an additional 650 homes to be added to the wastewater network in the near term. These donated assets are estimated to be valued at **\$12 million** and will require additional operational and maintenance resources to ensure level of service can be maintained. Continued asset acquisition without sustainable funding allocation for operations and maintenance will require Central Elgin to lower its level of service and increase the likelihood of high cost reactive maintenance and the need for premature renewals.

### 5.5.3 Summary of Asset Forecast Costs

The financial projections from this asset plan are shown in Graph 5.5.4. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimize the lifecycle costs associated with the service provision.

GRAPH 5.5.4 - LIFECYCLE SUMMARY



Graph values are in current dollars, 2021.

In 2022, Central Elgin has sufficient funding to continue operating the wastewater network. Decreasing the current level of service is not an option as all the regulatory provincial compliances are being met, and if decreased; the Level of Service may not be attainable. If current budget is maintained

- Risk of reactive maintenance will increase
- Risk of discharge of untreated sewage to the natural environment

All of which are not acceptable based on the municipality's goals and strategic plan.



## 5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in Table 5.6. Any costs or revenue gained from asset disposals is included in the future financial plan.

TABLE 5.6 - ASSETS IDENTIFIED FOR DISPOSAL

ASSET	None Anticipated
REASON FOR DISPOSAL	None
TIMING	N/A
DISPOSAL COSTS	N/A
OPERATIONS & MAINTENANCE ANNUAL SAVINGS	N/A

# RISK MANAGEMENT PLANNING

The purpose of risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk Management – Principles and Guidelines.

Risk Management is defined as the effects of uncertainty on wastewater assets and the networks service objectives.

Central Elgin will develop and implement a formalized risk assessment process to identify risks associated with service delivery and to implement proactive strategies to mitigate risks to tolerable levels. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

## 6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarized in Table 6.1. Failure modes may include physical failure, or essential service interruption.

TABLE 6.1 - CRITICAL ASSETS

CRITICAL ASSET(S)	FAILURE MODE	IMPACT
Wastewater Treatment Plant	Physical Failure	Environmental spill, human safety and service interruption
Pump Stations	Physical Failure	Environmental spill, human safety and service interruption
Forcemain	Physical Failure	Environmental spill, human safety and service interruption
Gravity Pipe Creek Crossing (PS 51)	Physical Failure	Environmental spill, human safety and service interruption

By identifying critical assets and failure modes Central Elgin can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

## 6.2 Risk Assessment

The risk management process used is shown in Figure 6.2 below.

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

FIGURE 6.2 - RISK MANAGEMENT PROCESS - ABRIDGED



The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified within the Detailed Asset Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Figure 6.2. It is essential that these critical risks and costs are reported to management and the Council of the Municipality of Central Elgin.

TABLE 6.2 - RISKS AND TREATMENT PLANS

SERVICE OF ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING (VH, H)	RISK TREATMENT PLAN	RESIDUAL RISK	TREATMENT COSTS
WASTEWATER NETWORK	Pump station failure causes property damage or environmental damage	H	Preventative maintenance plan for pumps	L	\$ 75, 000
			Regular pump station condition assessment	L	\$ 10, 000 Annually
WASTEWATER NETWORK	Groundwater infiltration – reduces capacity of the collection system and increases costs to pump and treat	H	Annual camera and flushing inspection	M	\$ 50, 000
			Localized relining	L	\$ 300,000
			Sufficient funding of renewals	L	\$ 1,000,000
WASTEWATER NETWORK	Intensification of development will impact collection system capacity	L	Undertake sanitary sewer capacity analysis	L	\$ 125,000

Note: The residual risk is the risk remaining after the selected risk treatment plan is implemented.

### 6.3 Infrastructure Resilience Approach

The resilience of critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions Central Elgin needs to understand the capacity to ‘withstand a given level of stress or demand’, as well as its responsibility to respond to possible disruptions to ensure continuity of service.

Central Elgin will monitor and report upon its resiliency stewardship measures that include recovery planning, financial capacity, asset planning, climate change and crisis leadership.

Central Elgins current measures of resiliency are show in Table 6.3 which includes the type of threats and hazards and the current measures that the organization takes to ensure service delivery resilience.

TABLE 6.3 - RESILIENCE ASSESSMENT

THREAT/HAZARD	ASSESSMENT METHOD	CURRENT RESILIENCE APPROACH
CAPACITY CONSTRAINT	Flow monitoring	High
ENVIRONMENTAL CONTAMINATION	Flow monitoring at treatment plant	Medium
CLIMATE CHANGE	Annual climate monitoring	Low



## 6.4 *Service and Risk Trade-Offs*

The decisions made in adopting this Detailed Asset Management Plan are based on the objective to achieve the optimum benefits from the available resources.

### 6.4.1 What Cannot Be Done

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years based on the current available budget. These include:

- Planned maintenance programs for pump stations mechanical systems
- Not checking manholes to ensure condition is satisfactory

### 6.4.2 Service Trade-Off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for customers. These service consequences include:

- Risk of service interruption
- Reputation
- Customer complaints increased

### 6.4.3 Risk Trade-Off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- Municipal liability if sewage backs up into customer homes
- Financial Shock of asset failure (i.e. tornado through wastewater plant. We have no debt limit to handle this)

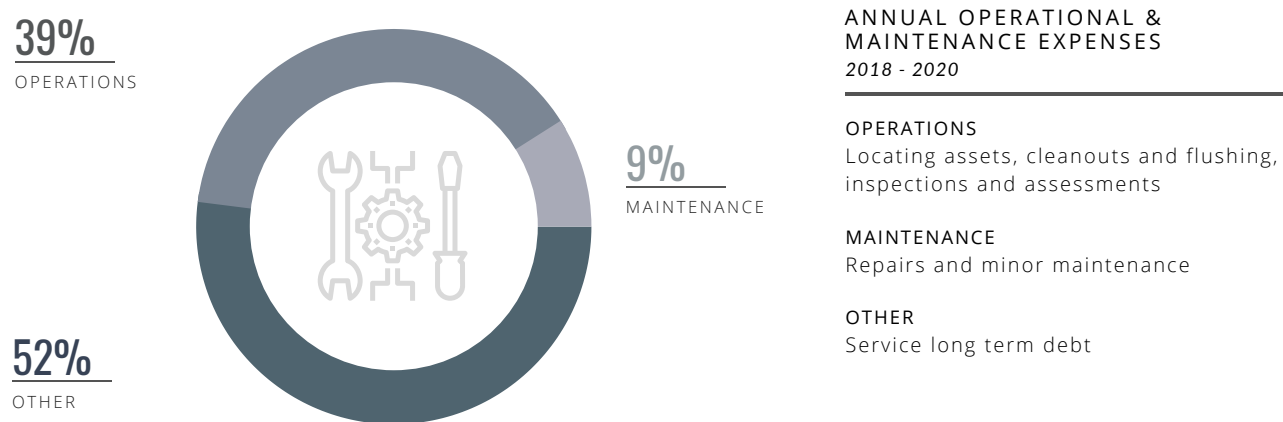
These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

# FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this Detailed Asset Management Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

## 7.1 *Financial Sustainability and Projections*

FIGURE 7.1 - ANNUAL OPERATING AND MAINTENANCE EXPENDITURES



### 7.1.1 Sustainability of Service Delivery

Key indicators of sustainable service delivery are:

1. Asset Renewal Funding Ratio (Proposed renewal budget for the next 10 years/ forecast renewal costs for the next 10 years)
2. Medium Term Forecast Costs/Proposed Budget (Over 10 years of the planning period)

### *Asset Renewal Funding Ratio*

Asset Renewal Funding Ratio 1%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years Central Elgin can expect to have 1% of the funds required for the optimal renewal of assets.

### *Medium Term - 10 Year Financial Planning Period*

This Detailed Asset Management Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10 year period. These measurements provide input for the future 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance and renewal costs over the 10 year planning period is **\$2,873,741** on average per year. The forecast debt repayment over the next ten years is **\$1,527,208** on average per year.

The proposed (budget) operations, maintenance and renewal funding is **\$2,873,741** on average per year. The proposed budget that includes operations, maintenance, renewal funding and debt repayment is **\$4,400,949** on average over a ten year period. giving a 10 year funding shortfall of **\$1,025,217** per year. This indicates that **79.54%** of the forecast costs needed to provide the services documented in this Detailed Asset Management Plan are accommodated in the proposed budget. (Note, these calculations exclude acquired assets.) To manage this shortfall it will be imperative to proceed with projected rate increases as per By-law 2559 and to monitor revenue and expenses year over year.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the Detailed Asset Management Plan and ideally over the 10 year life of the Planned Budget.

#### **7.1.2 Forecast Costs (Outlays) for Long Term Financial Plan**

Table 7.1.2 shows the forecast costs (outlays) required for consideration in the 10 year long term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the Detailed Asset Management Plan.

Central Elgin will manage the funding gap by developing this Detailed Asset Management Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

TABLE 7.1.2 - FORECAST COSTS

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2022	\$ 0	\$ 1,559,794	\$ 336,500	\$ 20,000	\$ 0
2023	\$ 3,500,000	\$ 1,641,234	\$ 352,500	\$ 900,000	\$ 0
2024	\$ 1,250,000	\$ 1,900,824	\$ 403,500	\$ 0	\$ 0
2025	\$ 0	\$ 2,045,889	\$ 432,000	\$ 1,500,000	\$ 0
2026	\$ 0	\$ 2,127,329	\$ 448,000	\$ 250,000	\$ 0
2027	\$ 775,000	\$ 2,208,769	\$ 464,000	\$ 0	\$ 0
2028	\$ 0	\$ 2,288,937	\$ 479,750	\$ 0	\$ 0
2029	\$ 0	\$ 2,329,657	\$ 487,750	\$ 0	\$ 0
2030	\$ 0	\$ 2,370,377	\$ 495,750	\$ 780,000	\$ 0
2031	\$ 0	\$ 2,411,097	\$ 503,750	\$ 0	\$ 0

*Graph values are shown in current day dollars, 2021.*

## 7.2 Funding Strategy

The proposed funding for assets is outlined in the Water/ Wastewater Financial Plan. The financial strategy of the Municipality determines how funding will be provided, whereas the Detailed Asset Management Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

## 7.3 Valuation Forecasts

Asset values are forecast to increase as additional asset are added to the wastewater network. Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

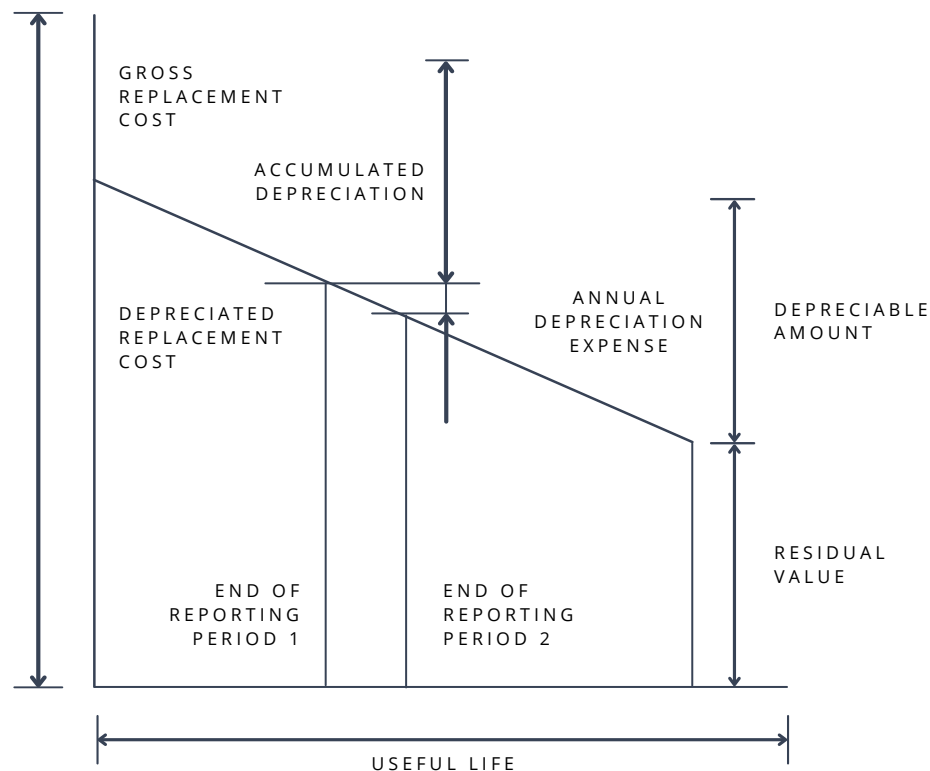
With the significant increase to wastewater services being acquired over the next 10 years there is a need to ensure the Water/Wastewater Financial Plan rates incorporate the additional assets.

### 7.3.1 Asset Valuations

The best available estimate of the value of assets included in this Detailed Asset Management Plan are shown below. The assets are valued at market rate prices based on 2020 construction values:

Replacement Cost (Current/Gross)	\$ 90,060,000
Depreciable Amount	\$ 90,060,000
Depreciated Replacement Cost	\$ 66,853,636
Depreciation	\$ 1,101,143

FIGURE 7.3.1 - ASSET VALUATION



### 7.3.2 Valuation Forecast

Asset values are forecast to increase as additional assets are added to the service. Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

With the significant increase of wastewater services being acquired over the next 10 years there is a need to increase funding to ensure operational activities such as inspections and planned maintenance can be performed to ensure assets function as intended.

## 7.4 Key Assumptions Made In Financial Forecasts

In compiling this Detailed Asset Management Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this Detailed Asset Management Plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this Detailed Asset Management Plan are:

- 20% of total asset data is derived from GIS to supplement incomplete data within the Asset Registry
- Some unit prices were not available and estimates were based on subject matter expert opinion

## 7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this Detailed Asset Management Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on an A - E level scale in accordance with Table 7.5.1.

TABLE 7.5.1 - DATA CONFIDENCE GRADING SYSTEM

CONFIDENCE GRADE	DESCRIPTION
A - VERY HIGH	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B - HIGH	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C - MEDIUM	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D - LOW	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E - VERY LOW	None or very little data held

The estimated confidence level for and reliability of data used in this Detailed Asset Management Plan is shown in Table 7.5.2.

TABLE 7.5.2 - DATA CONFIDENCE ASSESSMENT FOR DATA USED IN ASSET MANAGEMENT PLAN

DATA	CONFIDENCE ASSESSMENT	COMMENT
DEMAND DRIVERS	LOW	No formal process for driver identification and prioritization (regulatory change, technological change, urban development)
GROWTH PROJECTIONS	HIGH	Population based growth data is very high, other drivers require further development
ACQUISITION FORECAST	MEDIUM	Based on population growth projections and identified planned development applications
OPERATION FORECAST	MEDIUM	Future costs are extrapolated from existing budget allocations and are projected out by system growth modelling
MAINTENANCE FORECAST	MEDIUM	Future costs are extrapolated from existing budget allocations and are projected out by system growth modelling
RENEWAL FORECAST (ASSET VALUES)	MEDIUM	Market prices are used for asset values and updated annually. Not all information is available at this time
ASSET USEFUL LIVES	MEDIUM	Subject matter expert opinion based on Tangible Capital Assets
CONDITION MODELING	LOW	No current formal method to determine condition
DISPOSAL FORECAST	LOW	Formal process is currently being developed

The estimated confidence level for and reliability of data used in this Detailed Asset Management Plan is considered to be a **medium** confidence level.



# PLAN IMPROVEMENT AND MONITORING

## 8.1 *Status of Asset Management Practices*

### 8.1.1 Accounting and Financial Data Sources

This Detailed Asset Management Plan utilizes accounting and financial data. The source of the data is the 2021 budget and actuals from the previous two years (2019-2020).

### 8.1.2 Asset Management Data Sources

This Detailed Asset Management Plan also utilizes asset management data. The source of the data is;

- Projected replacement costs based on current market prices from 2019-2021
- Market Price listings from 2019-2021
- Asset registry data from asset management system (Worktech, GIS, Tangible Capital Assets)

## 8.2 *Improvement Plan*

It is important that Central Elgin recognizes areas of the Detailed Asset Management Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this Detailed Asset Management Plan is shown in Table 8.2.



TABLE 8.2 - IMPROVEMENT PLAN

TASK NUMBER	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1	<ul style="list-style-type: none"> <li>Update/confirm asset inventory</li> </ul>	Asset Management & Development Services	\$ 40,000	2021
2	<ul style="list-style-type: none"> <li>Develop Condition Rating Model</li> </ul>	Asset Management & Development Services & Infrastructure Services	Staff Time	2022
3	<ul style="list-style-type: none"> <li>Asset Pre-assumption checklists</li> </ul>	Asset Management & Development Services	Staff Time	2022
4	<ul style="list-style-type: none"> <li>Update Level of Service survey (Yearly)</li> </ul>	Asset Management & Development Services	\$ 2,500/Year	2022
5	<ul style="list-style-type: none"> <li>Lifecycle cost analysis for network subclasses</li> </ul>	Asset Management & Development Services	\$ 4,000/Year Staff Time	2023
6	<ul style="list-style-type: none"> <li>Mature demand driver data and implement prioritization scale</li> </ul>	Asset Management & Development Services	Staff Time	2023
7	<ul style="list-style-type: none"> <li>Mechanical pump condition assessments</li> <li>Implement preventative maintenance plan</li> </ul>	Asset Management & Development Services	\$ 20,000	2023
8	<ul style="list-style-type: none"> <li>Wastewater network condition assessments</li> </ul>	Infrastructure & Community Services	\$ 50,000/Year	2025

### ***8.3 Monitoring and Review Procedures***

This Detailed Asset Management Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The Detailed Asset Management Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and planned budget are incorporated into the future Long Term Financial Plan once completed. The Detailed Asset Management Plan has a maximum life of 1 year and is due for complete revision and update updating by July 1st each year.

### ***8.4 Performance Measures***

The effectiveness of this Detailed Asset Management Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this Detailed Asset Management Plan are incorporated into the long-term financial plan,
- The degree to which the 1-10 year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the Detailed Asset Management Plan ,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the organizational target (this target is often 90 – 100%).