Asset Management Plan

Part 2: General Capital

March 20, 2017

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Executive Summary

Existing capital assets in the Town of Essex are aging while demand grows for higher levels of service. This demand is in response to higher standards of safety, health, environmental protection, regulations and to some degree growth. The solution to this issue is to examine the way the Town plans, designs and manages its capital asset portfolio to meet changing demands.

This Asset Management Plan (Part 2) was developed using the requirements outlined within the provincial *Building Together Guide for Municipal Asset Management Plans* and is in addition to Part 1: Infrastructure Assets, of the Towns Asset Management Plan as adopted in 2015. Part 2: General Capital accounts for general capital asset classes as identified under the Financial Information Return (FIR), and includes: buildings, vehicles, machinery and equipment, and land improvements.

The Asset Management Plan as presented in this report is a systematic process that provides direction in determining the allocation of funds for maintaining, upgrading and operating the Town's physical assets in a cost-effective manner, in order to meet current and on-going asset needs.

By implementing an Asset Management Plan for general capital assets, the Town of Essex can meet its capital asset demands in a fiscally responsible and environmentally sustainable framework while preserving the Town's high quality of life.

The asset management strategies attached have been compiled with the intent of being revised from time to time according to changes in best management practices, advances in technology, financial constraints, or changes to the condition assessments.

Attached Appendices

The following appendices are attached to this plan:

- **Appendix A**– Asset Management Strategy
- **Appendix B**– State of Infrastructure Report
- **Appendix C**– Financial Strategy of Assets
- **Appendix D**– Recommendations to Council

Asset Management Strategy

Appendix A

Asset Management Strategy

Introduction

An Asset Management Strategy is the set of planned actions that will enable an asset(s) to provide the desired levels of service in a sustainable way, while managing risk, at the lowest possible life cycle cost.

The Town of Essex manages a complex portfolio of capital assets. This plan covers four asset classes: buildings, machinery and equipment, vehicles and land improvements. The remainder of the Town's asset portfolio, including roads, bridges, water and waste water, was covered in the Town's previous Asset Management Plans.

In order for the Town to fulfill its obligation of service delivery to the community, the Town must ensure that the assets supporting these services are managed in a way that balances service level, risk and affordability. The assets owned by the Town have various useful lives that range from a few years up to multiple decades. All assets require strategically planned operating, maintenance and renewal activities to ensure they are safe, structurally sound and fit-for-purpose to support the delivery of services.

Purpose

Effective asset management requires support and guidance from top management. The strategy outlined in this document sets out the long-term systematic approach to the management of the Town's assets. This document is presented at a point in time, and is continuously evolving as its intent is to respond to internal and external changes and challenges faced by the Town. Essentially, it is a set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Desired Levels of Service

It is important to determine a level of service that the Town will provide to its citizens. The level of service is the key business driver and influences all asset management decisions.

The desired level of service is referred to as the "Desired Rating" in the State of Infrastructure Strategy section of this document, and is based solely on an assets condition rating.

Desired levels of service are used to:

- Inform the community of the proposed level of services to be offered;
- Show the costs associated with each level of service offered;
- Measure the effectiveness and accuracy of the Asset Management Plan;
- Determine the level at which the level of service is affordable; and
- Inform citizens of the Town's (councils) intentions regarding future desired levels.

When determining level of service, various factors must be considered. These factors are:

- Legislative requirements;
- Technical requirements; and
- Citizen requirements (council direction).

In addition to the factors above, there are external trends and issues that can affect the Town's ability to meet its desired level of service. These factors are:

- Funding restrictions;
- Climate changes that may affect the asset;
- Delays in procurement process;
- Emergency situations;
- Sustainability;
- Growth in the Town with additional assets; and
- Technology improvements.

By determining a desired level of service, we are able to identify potential funding gaps. Once any gaps are identified, staff can provide council with various methods of reducing and potentially removing the gaps.

Level of Service Analysis

Buildings		
Asset Class	Level of Service Description	
	Current	Expected
Buildings	Meet legislative requirements such as the Building Code, Fire Code, and Occupational Health and Safety Act.	Meet legislative requirements such as the Building Code, Fire Code, and Occupational Health and Safety Act.
	Condition assessments performed upon request.	Annual condition assessments to ensure accurate ratings.
	Funds allocated for future replacement.	Proactive full-cost recovery program for future replacement.
Vehicles		
Asset Class	Level of Service Description	
	Current	Expected
Vehicles	Meet legislative requirements.	Meet legislative requirements.
	Condition assessments performed upon request.	Annual condition assessments to ensure accurate ratings.
	Funds allocated for future replacement.	Proactive full-cost recovery program for future replacement.
Machinery and Equipment		
Asset Class	Level of Service Description	
	Current	Expected
Machinery and Equipment	Meet legislative requirements.	Meet legislative requirements.
	Condition assessments performed upon request.	Annual condition assessments to ensure accurate ratings.
	Funds allocated for future replacement.	Proactive full-cost recovery program for future replacement.
Land Improvements		
Asset Class	Level of Service Description	
	Current	Expected
Land Improvements	Meet legislative requirements.	Meet legislative requirements.
	Condition assessments performed upon request.	Annual condition assessments to ensure accurate ratings.
	Funds allocated for future replacement.	Proactive full-cost recovery program for future replacement.

Condition Assessments

The success of any Asset Management Plan hinges on having comprehensive and reliable information on its assets' current condition. Decisions regarding future replacement, rehabilitation or upgrade of assets are based on condition assessments making those assessments an invaluable resource for future infrastructure planning as it can help to prevent future failures, reduce the Town's liability, lower costs relating to failure and maintenance, and extend the useful life of an asset. Assessments are annual, recurring events.

Building Inspections

The most popular and practical type of buildings and facility assessment involves qualified groups of trained industry professionals (engineers or architects) performing an analysis of the condition of a group of facilities, and their components, that may vary in terms of age, design, construction methods, and materials. This analysis can be done by walk-through inspection, mathematical modeling, or a combination of both. But the most accurate way of determining the condition requires a walk-through to collect baseline data. The following asset classifications are typically inspected:

- Site Components – property around the facility and includes the outdoor components such as utilities, signs, stairways, walkways, parking lots, fencing, courtyards and landscaping.
- Structural Components – physical components such as the foundations, walls, doors, windows, roofs.
- Electrical Components – all components that use or conduct electricity such as wiring, lighting, electric heaters, and fire alarm systems.
- Mechanical Components – components that convey and utilize all non-electrical utilities within a facility such as gas pipes, furnaces, boilers, plumbing, ventilation, and fire extinguishing systems.
- Vertical Movement – components used for moving people between floors of buildings such as elevators.

Once collected, this type of information can be uploaded into CityWide® Tangible Assets software, the municipality's asset management and asset registry software database in order for short- and long-term repair, rehabilitation and replacement reports to be generated to assist with programming the short- and long-term maintenance and capital budgets.

It was identified by that consultant that the municipality expand its condition assessment program and assess the remaining components of facilities already under inspection protocols. It is also recommended that a portion of capital funding is dedicated to this.

Machinery and Equipment, and Vehicles

The typical approach to optimizing the maintenance expenditures of a corporate fleet of vehicles and machinery and equipment assets is through routine inspections, routine servicing, and an established preventative maintenance program. Most, if not all, makes and models of vehicles are supplied with maintenance manuals that define the appropriate schedules and routines for typical maintenance and servicing and also more detailed restoration or rehabilitation protocols.

The primary goal of good maintenance is to avoid or mitigate the consequence of failure of equipment or parts. An established preventative maintenance program serves to ensure this, as it will consist of scheduled inspections and follow up repairs of vehicles and equipment in order to decrease breakdowns and excessive downtimes.

A good preventative maintenance program will include partial or complete overhauls of equipment at specific periods, including oil changes, lubrications, fluid changes and so on. In addition, workers can record equipment or part deterioration so they can schedule to replace or repair worn parts before they fail. The ideal preventative maintenance program would move further and further away from reactive repairs and instead towards the prevention of all equipment failure before it occurs.

It was identified by the consultant that a preventative maintenance routine is defined and established for all fleet and machinery and equipment assets, and that a software application is utilized for the overall management of the program.

Life Cycle Activities

Life cycle activities are specific activities applied at the appropriate time in an asset's life to provide the optimal additional life at the lowest cost.

Buildings

The best approach to develop a 10-year needs list for the Town's facilities portfolio would be to have the engineers, operational staff or architects who perform the facility inspections to also develop a complete portfolio maintenance requirements report and rehabilitation and replacement requirements report, and also identify additional detailed inspections and follow up studies as

required. This may be performed as a separate assignment once all individual facility audits/inspections are complete. Of course, if the inspection data is housed or uploaded into the CityWide software, then these reports can be produced automatically from the system.

The above reports could be considered the beginning of a 10-year maintenance and capital plan, however, within the facilities industry there are other key factors that should be considered to determine over all priorities and future expenditures. Some examples would be functional / legislative requirements, energy conservation programs and upgrades, customer complaints and health and safety concerns, and also customer expectations balanced with willingness to pay initiatives.

It was identified by the consultant that the municipality establish a prioritization framework for the facilities asset class that incorporates the key components outlined above.

Vehicles

The best approach to develop a 10-year needs list for the municipality's fleet and vehicle portfolio would first be through a defined preventative maintenance program, and secondly, through an optimized life cycle vehicle replacement schedule. The preventative maintenance program would serve to determine budget requirements for operating and minor capital expenditures for part renewal and major refurbishments and rehabilitations. An optimized vehicle replacement program will ensure a vehicle is replaced at the correct point in time in order to minimize overall cost of ownership, minimize costly repairs and downtime, while maximizing potential re-sale value. There is significant benchmarking information available within the fleet industry in regards to vehicle life cycles which can be used to assist in this process. Once appropriate replacement schedules are established the short and long term budgets can be funded accordingly.

There are, of course, functional aspects of fleet management that should also be examined in further detail as part of the long-term management plan, such as fleet utilization and incorporating green fleet, et cetera. It was identified by the consultant that the municipality establish a prioritization framework for the fleet asset class that incorporates the key components outlined above

Asset Useful Life in Years

Asset useful lives are summarized below with the full listing found under the Town's Policy Manual, Policy Number 007 – Tangible Capital Asset Accounting. Asset useful lives play an important role in determining amortization and condition rating of each asset where age based conditions are utilized.

Asset Useful Life in Years		
Asset Class	Asset Group	Estimated Useful Life in Years
Building	Structure	15 – 75
	Electrical	25
	Heating and Cooling	25
	Mechanical	25
	Roof	20
Machinery and Equipment	Communication Equipment	10 - 25
	Computer Systems (Hardware and Software)	4 - 20
	Heavy Equipment	10 - 25
	Office Furniture and Equipment	10 - 30
	Outdoor Lighting and Signage	10 - 25
	Playground Equipment	5 - 50
Vehicles	Fire Trucks	25
	Heavy Duty (Greater than 8,500 kilograms)	10 - 25
	Light Duty (Less than 8,500 kilograms)	8 - 20
Land Improvements	Land Improvements	20 - Infinite

Risks Rating and Scoring Methodology

Risks rating and scoring can be used to identify the importance of different assets in supporting the delivery of services, providing the ability to take into account the probability of asset failure and the associated consequences on residents.

The level of risk can be calculated as the product of the probability that harm occurs multiplied by the severity of that harm.

Risk = Probability of failure (condition based) **x** Consequence of failure (scoring based)

When assessing the probability of failure, consideration is given to the current condition of the asset. The consequence of failure relates to the overall effect an asset's failure will have. This information can be utilized during the capital budget process to determine which assets will be given priority over others. In general, a score of 5 assumes that the risk is high while a score of 1 assumes the risk is low.

The Town's tangible capital asset system calculates the risk based on an asset's probability of failure (condition-based) and consequence of failure (based on scoring chart). The sum of these two numbers produces the overall risk rating as identified below.

The following scoring system can be a valuable tool when prioritizing capital projects and assist staff when assessing risks. In many cases, capital needs will exceed the funding available, making it essential that the right projects be brought forward for review during the budget process.

Each asset will be scored based on the following charts and entered into the Town's asset management software to determine its overall risk.

Buildings are scored based upon the replacement value of the assets. The higher the value, the larger and more important the overall function of the facility and therefore, the higher the consequential risk of failure.

Consequence of Failure: Buildings	
Replacement Value	**Consequence of Failure**
Up to $50k	1
$51k to $100k	2
$101k to $300k	3
$301k to $1 million	4
Over $1 million	5

Vehicles are scored based upon the replacement value of the assets. The higher the value, the larger and more important the overall function of the facility and therefore, the higher the consequential risk of failure.

Consequence of Failure: Vehicles	
Replacement Value	**Consequence of Failure**
Up to $30k	1
$31k to $60k	2
$61k to $200k	3
$201k to $400k	4
Over $400k	5

Machinery and Equipment are scored based upon the replacement value of the assets. The higher the value, the larger and more important the overall function of the facility and therefore, the higher the consequential risk of failure.

Consequence of Failure: Machinery and Equipment	
Replacement Value	**Consequence of Failure**
Up to $10k	1
$11k to $30k	2
$31k to $80k	3
$81k to $150k	4
Over $150k	5

Land Improvements are scored based upon the replacement value of the assets. The higher the value, the larger and more important the overall function of the facility and therefore, the higher the consequential risk of failure.

Consequence of Failure: Land Improvements	
Replacement Value	**Consequence of Failure**
Up to $10k	1
$11k to $50k	2
$51k to $100k	3
$101k to $200k	4
Over $200k	5

State of Infrastructure Report

Part 2: General Capital

Appendix B

State of Infrastructure Report

The State of Infrastructure Report addresses the inventory and value of the Town's assets that are needed to support the delivery of services and includes asset condition, desired condition, replacement cost in 2016 dollars, and the expected useful life of each asset.

The Town of Essex is responsible for managing physical public assets that are included in this plan of more than $71 million. This represents an average of approximately $3,640 per person or $8,041 per household[1]. These assets deliver services to the residents of Essex both directly and indirectly.

Asset value included in plan $71 million

$3,640 per person

$8,041 per household

State of Infrastructure Report Components

Condition Ratings

The physical conditions of the Town's assets are assessed at a point in time using various methods for condition assessment, depending on the type of asset. The municipality is working towards conducting internal annual or biannual condition assessments for all asset classes. In the absence of such field observations, an asset's age is used to estimate its condition rating.

[1] Per 2015 Financial Information Return (Population 19,600 / Household 8,872) and based on asset replacement values.

Rating	Range	Description
A	80-100	**Excellent Condition** – Fit for the future. Well maintained, good condition, new or recently rehabilitated.
B	60-79	**Good Condition** – Adequate. Acceptable, generally approaching mid stage of expected service life.
C	40-59	**Fair Condition** – Requires attention. Signs of deterioration, some elements exhibit deficiencies.
D	20-39	**Poor Condition** – At risk of affecting service. Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration.
E	0-19	**Critical Condition** – Unfit for sustained service. Beyond expected useful life, widespread signs of advanced deterioration, some assets may be unusable.

Average Annual Requirement

The annual requirement as presented is calculated based on the following formula:

Average Annual Requirement = 2016 Replacement Cost / Estimated Useful Life

The annual requirement is calculated individually for each asset within each asset category. The average annual requirement for the asset category is then calculated by summing the annual requirement for each asset within that category.

Average Annual Funding Available

The average annual funding available was calculated based on the following parameters:

Information Source:	Year end capital report and Budget 2014 to 2016 + (Reserve contributions 2014 to 2016 – revenue from reserve)	Used for All Categories
Costing Basis:	Actual costs	All

These parameters allow the Town to show the average annual funding available based on historical audited actuals for 2014, 2015 and unaudited actuals for 2016. Capturing the contributions to reserves and including these amounts into revenue provides consideration to reserve contributions that are not reflected under the capital budget.

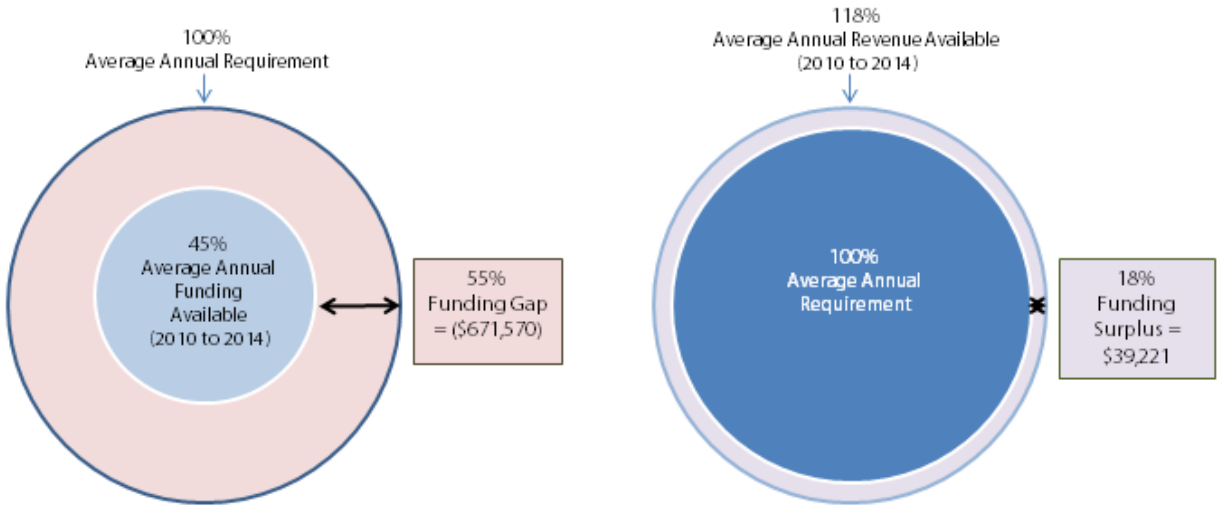
In addition, capturing the contributions to reserves and including these amounts into revenue provides consideration to reserve contributions that are not reflected under the capital budget.

Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Revenue - Average Annual Requirement

The funding (gap)/surplus is the difference between the average annual funding available versus the average annual capital requirement required to maintain our assets in a reasonable state of repair.

A funding gap represents a funding shortfall and a funding surplus represents funding above the annual required amount. In situations where a funding surplus occurs it does not necessarily mean that the Town is over funding those assets, but could indicate that over the five year average, replacements have trended higher than the annual average.



The asset classes discussed in this asset management plan are supported by tax levies.

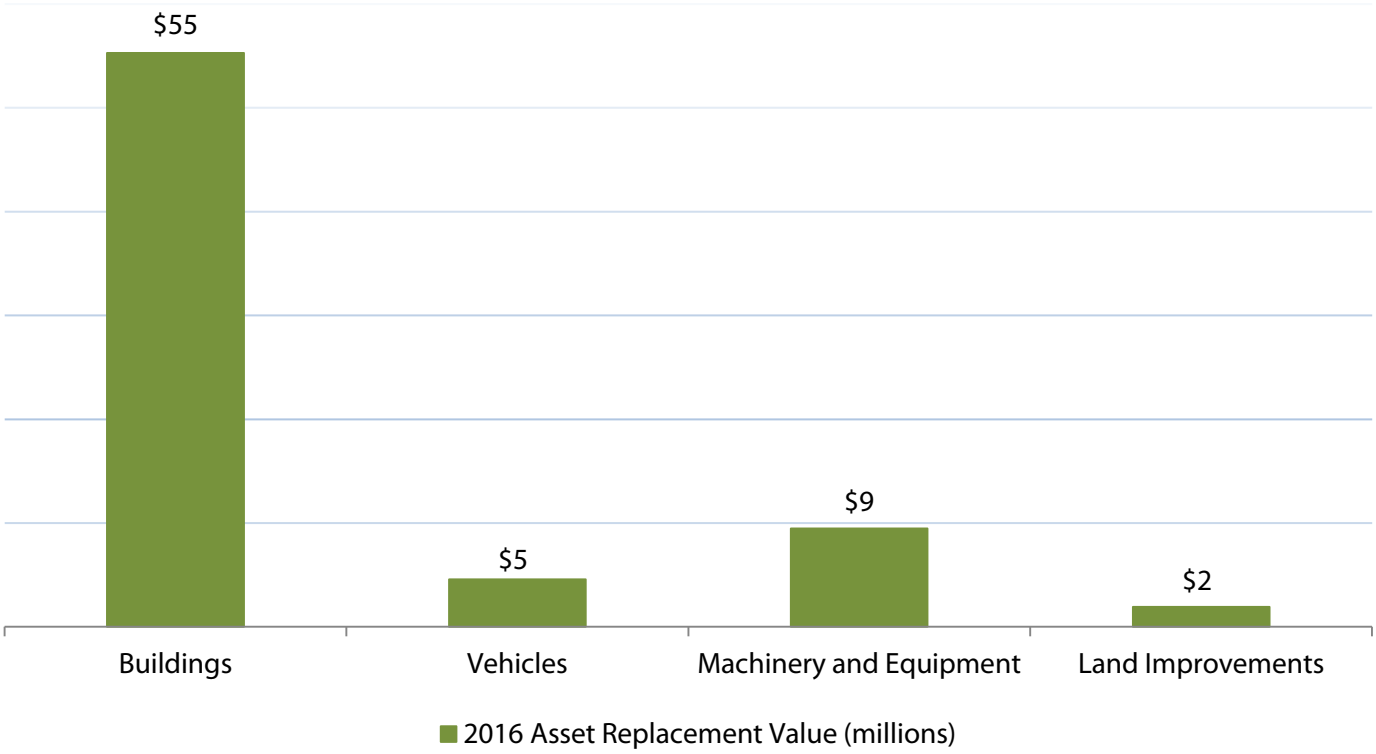
Funding Score

Funding Score = Available Funding / Average Annual Requirement

The funding score is presented for each asset management category. The funding score is the total average annual funding divided by the average annual capital requirement. The funding score calculated is presented as a percentage to more accurately reflect the Town's status as it pertains to funding assets.

Funding Score
80% to 100% or greater of annual requirement
60% to 79% of annual requirement
40% to 59% of annual requirement
20% to 39% of annual requirement
0% to 19% of annual requirement

Part 2: General Capital



Part 2: General Capital – Infrastructure Report Card

Overall 2016 Rating C	Infrastructure Report Card Town of Essex – General Capital			
Asset Type	**Desired Rating**	**2016 Rating**	**Funding Score**	**Comments**
Buildings	NA	C	21%	Based on a combination of age data and internal assessments, 42% of the buildings with a valuation of $25 million, are in very poor condition. The Town is funding only 21% of its annual requirements.
Vehicles	NA	D	75%	Based on a combination of age data and internal assessments, 52% of vehicles assets, with a valuation of $4 million, are in poor to very poor condition. The Town is funding 75% of its annual requirements.
Machinery and Equipment	NA	C	104%	Based on a combination of age data and internal assessments, 56% of machinery and equipment with a valuation of $5.4 million, are in poor to very poor condition. The Town is funding 104% of its annual requirements.
Land Improvements	NA	B	148%	Based on a combination of age data and internal assessments, 68% of land improvement assets, with a valuation of $1.6 million, are in good to very good condition. The Town is funding 148% of its annual requirements.

Purpose

The Asset Management Plan for General Capital serves four main purposes, namely:

- To allow management to make the best possible decisions regarding the planning, construction, operation, maintenance, renewal, replacement, expansion, and disposal of general capital assets;
- Minimize risk and cost to the municipality and its taxpayers;
- Maximize service delivery; and
- To form the basis of the municipality's capital budget.

Introduction to General Capital

Part 2: General Capital consists of Town divisions that are structured based on the programs and services they provide. General Capital assets are funded through property-tax supported programming with the exception of the Building Department which is only funded 20% through property taxation. The divisions and associated departments are summarized below.

General Capital	
Division	Department
Community Services	Accessibility
	Administration
	Arenas
	Arts, Culture and Tourism
	Concessions
	Essex Recreation Complex
	Events and Tourism
	Harbour
	Libraries
	Miscellaneous Recreation Programs
	Parks
	Urban Centre Revitalization
General Government	Corporate Services
	Council
	Office of the Chief Administrative Officer
Health Services	Cemeteries
	Nurse Practitioner
	Public Health
Planning and Development	Agriculture and Reforestation
	Business Improvement Area
	Planning and Zoning
Protection to Persons and Property	Building Department
	Fire
	Police

Assets Included in this Plan

The General Capital section of the municipality's Asset Management Plan covers all major assets as summarized below. These assets are key resources used to provide services to the public and are funded through property-tax supported programming.

Property-Tax Support (Base Municipal Levy)

Buildings

- Community Services: 16 Structures
- General Government: 1 Structure
- Health Services: 1 Structure
- Protection to Persons and Property: 4 Structure

Vehicles

- Community Services: 12 Vehicles
- Protection to Persons and Property: 17 Vehicles
-

Machinery and Equipment

- Community Services: 903 Units
- General Government: 276 Units
- Health Services: 4 Units
- Planning and Development: 41 Units
- Protection to Persons and Property: 1,715 Units

Land Improvements

- Community Services: 21 Units
- Protection to Persons and Property: 1 Unit

Property-Tax Supported (Base Municipal Levy)

Buildings

Condition Rating

C

Funding Score

21%

2016 Replacement Value

$55.3 Million

Includes

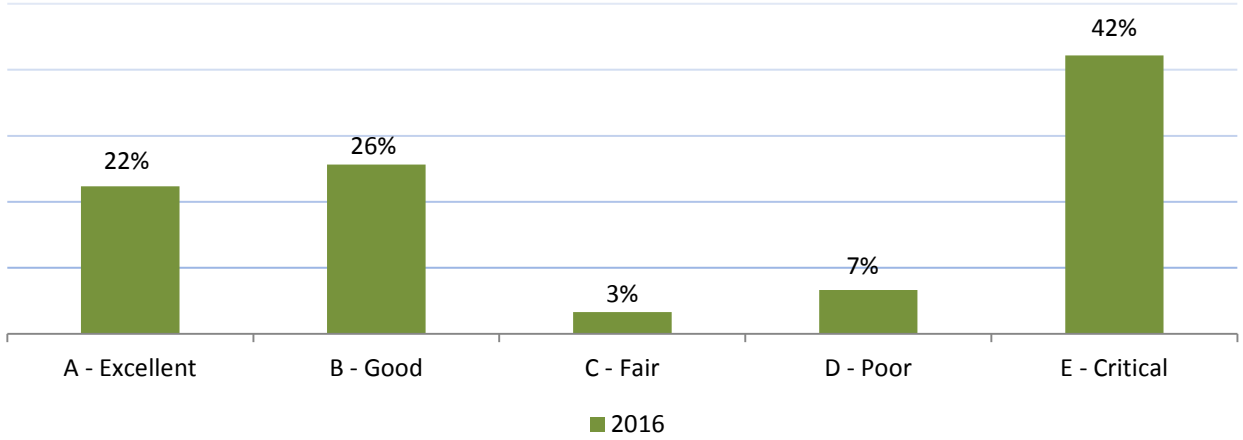
16 Structures in Community Services

1 Structure in General Government

1 Structure in Health Services

4 Structures in Protection to Persons and Property

The overall condition rating of Buildings is a C (Fair). This rating is based on a blend of age data and internal assessment data as provided by the municipality.

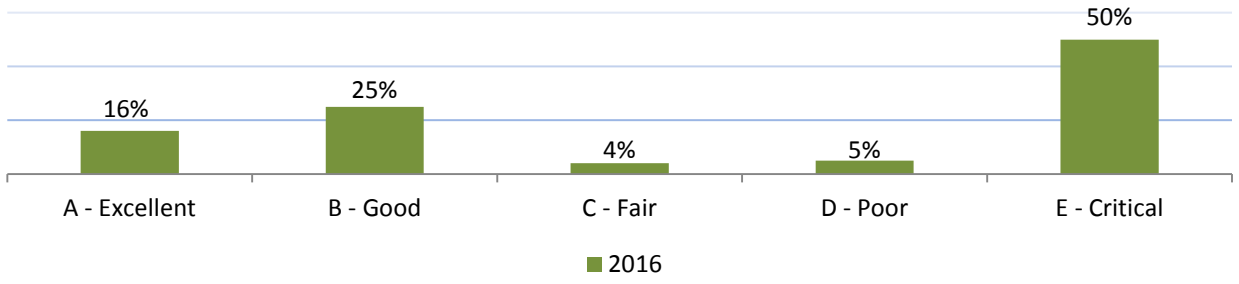


Buildings (continued)

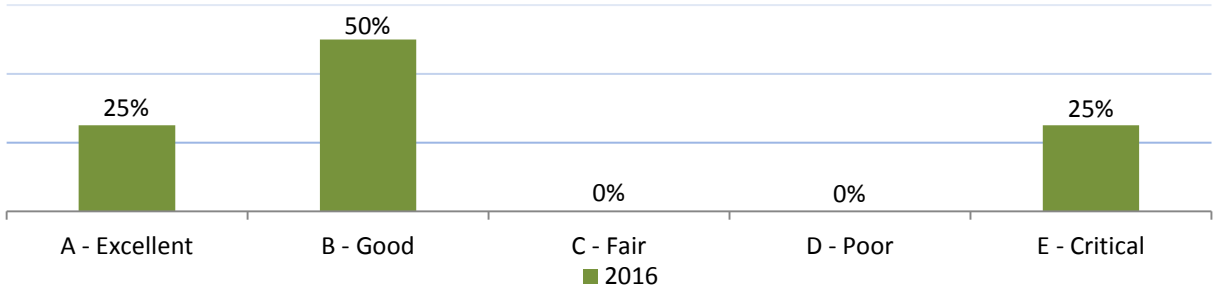
Condition Rating

Department	Replacement Value	Units	Desired Rating	N/A	2016 Rating	Trend
Community Services	$44,024,929	16	N/A	-	B	N/A
General Government	$2,390,288	1	N/A	-	D	N/A
Health Services	$122,394	1	N/A	-	D	N/A
Protection to Persons and Property	$8,364,870	4	N/A	-	B	N/A
Total	$55,266,481	22	-	-	**C**	-

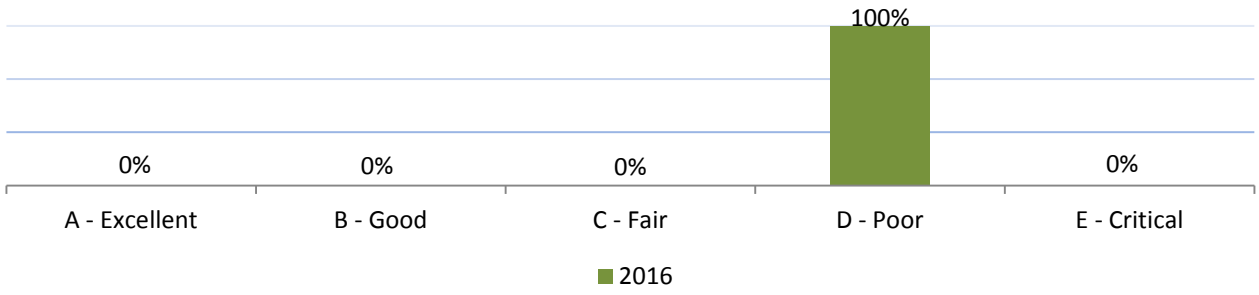
Community Services



General Government

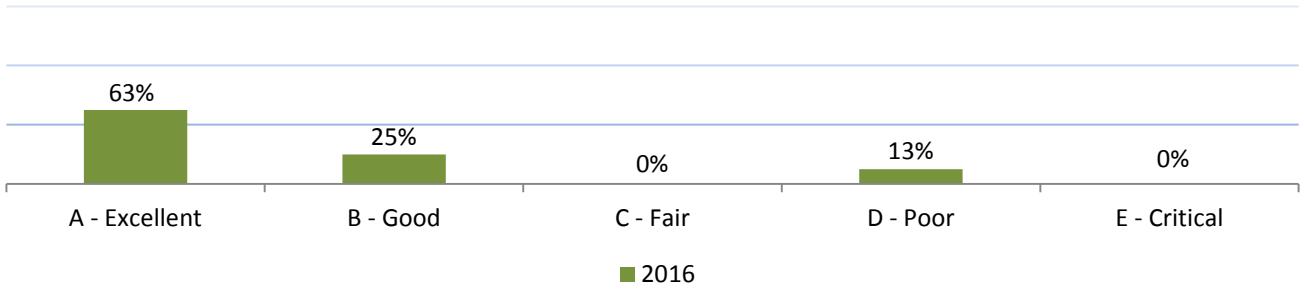


Health Services



Buildings (continued)

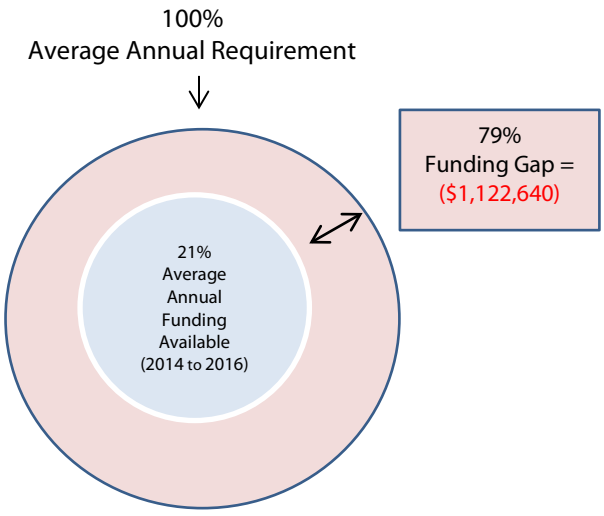
Protection to Persons and Property

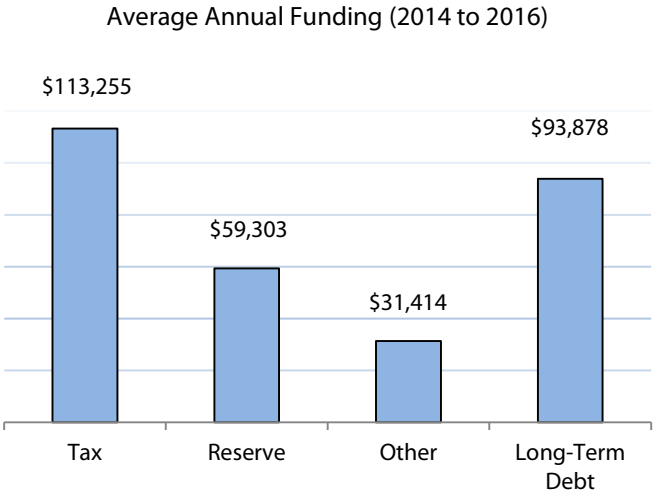


Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement		Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
		Tax	Reserve	Other	Long-Term Debt	Total	
Community Services	$1,173,941	$103,081	$46,918	$31,118	$53,888	$235,005	($938,936)
General Government	$48,572	$4,302	$8,260	$0	$0	$12,562	($36,010)
Health Services	$2,448	$0	$0	$0	$0	$0	($2,448)
Protection to Persons and Property	$195,529	$5,872	$4,125	$296	$39,990	$50,283	($145,246)
All	$1,420,490	$113,255	$59,303	$31,414	$93,878	$297,850	($1,122,640)





Buildings (continued)

Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

21%

Buildings have a funding score of 21%, with a funding deficit of ($1,122,640). Based on the 2016 condition rating of C, it would appear that nearly 50% of buildings are in the latter stages of their expected useful lives.

Property-Tax Supported (Base Municipal Levy)

Condition Rating

D

Funding Score

75%

Vehicles

2016 Replacement Value

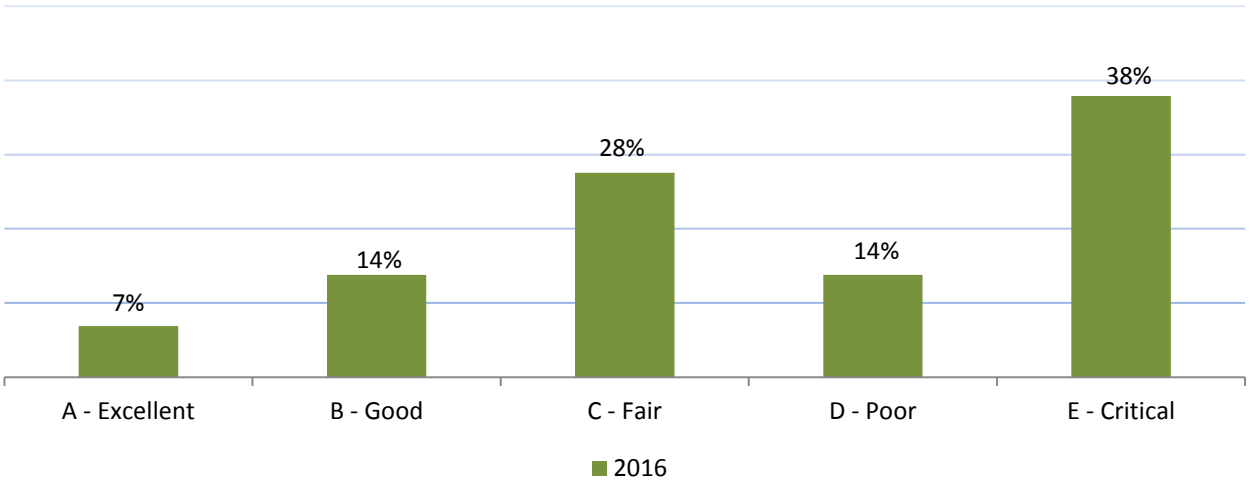
$4.6 Million

Includes

12 Vehicles in Community Services

17 Vehicles in Protection to Persons and Property

The overall condition of vehicles is D (Poor). This rating is based on a blend of age data and internal assessments.

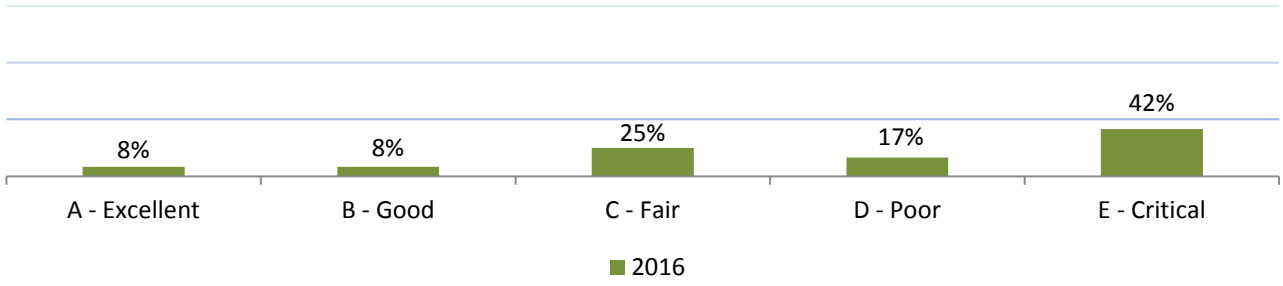


Vehicles (continued)

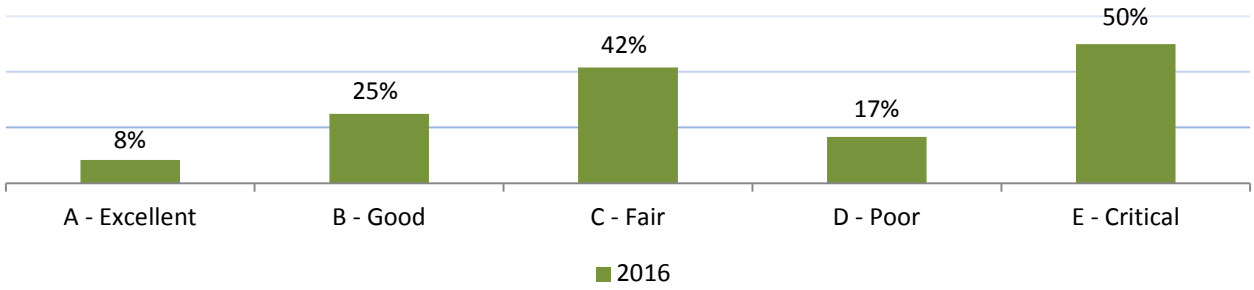
Condition Rating

Department	Replacement Value	Units	Desired Rating	N/A	2016 Rating	Trend
Community Services	$418,185	12	N/A	-	D	N/A
Protection to Persons and Property	$4,129,137	17	N/A	-	D	N/A
Total	$4,547,322	29	-	-	**D**	-

Community Services



Protection to Persons and Property

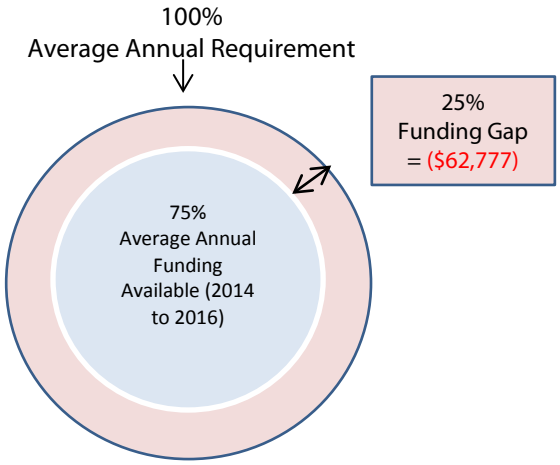


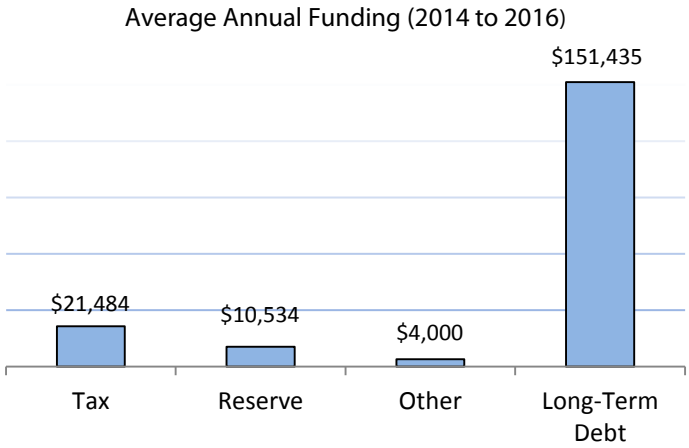
Vehicles (continued)

Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement		Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
		Tax	Reserve	Other	Long-Term Debt	Total	
Community Services	$39,084	$8,744	$4,188	$1,667	$11,028	$25,627	($13,457)
Protection to Persons and Property	$211,146	$12,740	$6,346	$2,333	$140,407	$161,826	($49,320)
All	$250,230	$21,484	$10,534	$4,000	$151,435	$187,453	($62,777)





Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

75%

Vehicles have a funding score of 75%, with a funding gap of ($62,777). Based on the 2016 condition rating of D, it would appear as if the majority of vehicles are in the latter stages of their expected useful lives and will come due for replacement in the next 10 years.

Property-Tax Supported (Base Municipal Levy)

Machinery and Equipment	Condition Rating: C	Funding Score: 104%

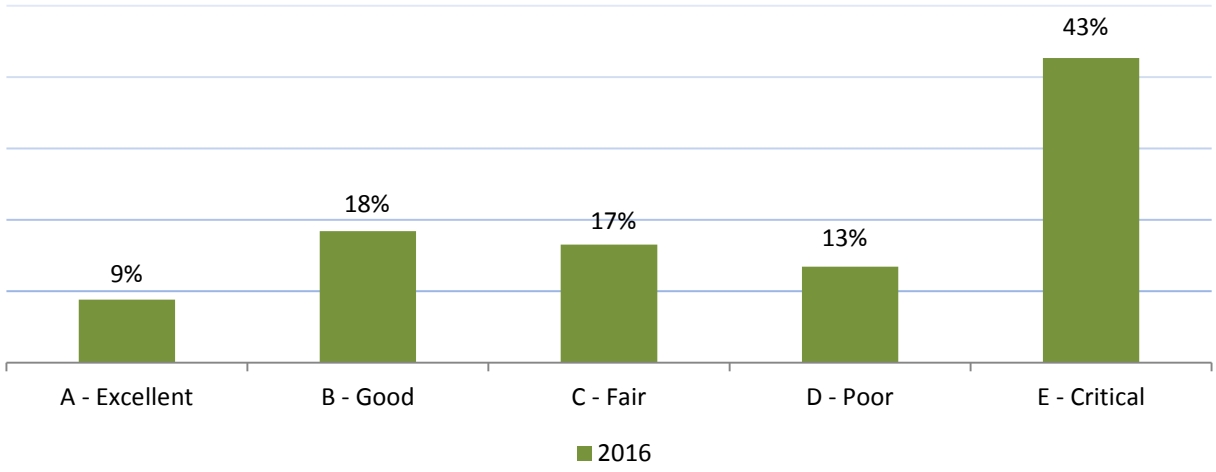
2016 Replacement Value

$9.5 Million

Includes

903 Units in Community Services
276 Units in General Government
4 Units in Health Services
41 Units in Planning and Development
1,715 Units in Protection to Persons and Property

The overall condition of machinery and equipment is C (Fair). This is based on a blend of age data and internal assessments conducted by the municipality.

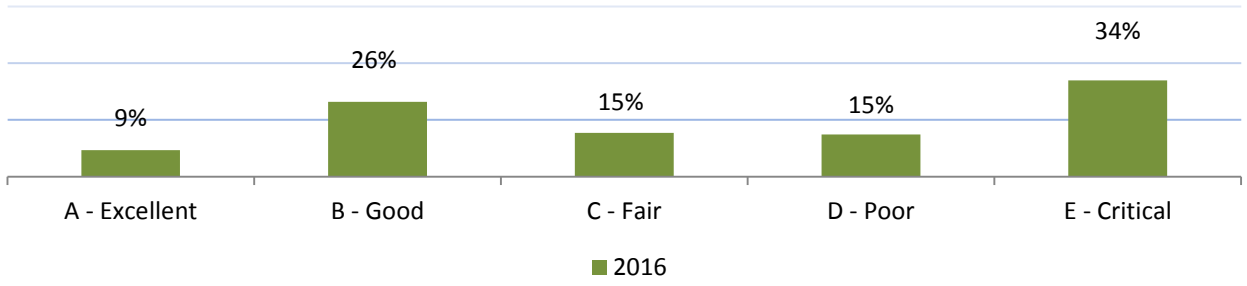


Machinery and Equipment (continued)

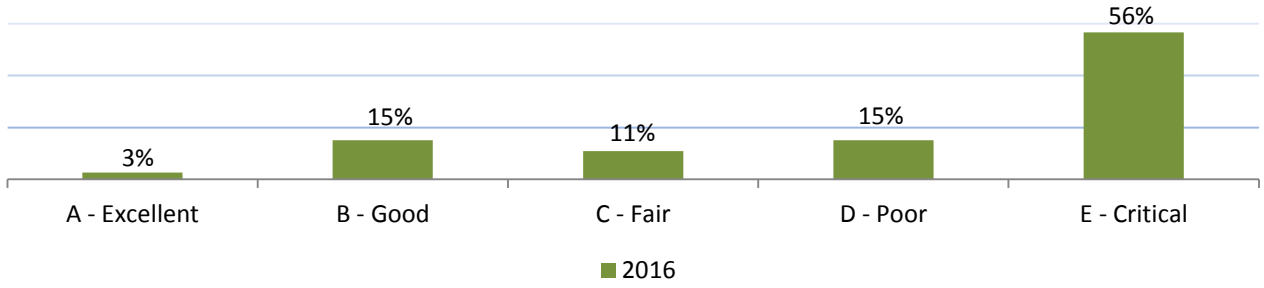
Condition Rating

Department	Replacement Value	Units	Desired Rating	N/A	2016 Rating	Trend
Community Services	$6,064,124	903	N/A	-	C	N/A
General Government	$937,078	276	N/A	-	D	N/A
Health Services	$51,497	4	N/A	-	C	N/A
Planning and Development	$65,911	41	N/A	-	C	N/A
Protection to Persons and Property	$2,334,287	1,715	N/A	-	C	N/A
Total	$9,452,897	2,939	-	-	**C**	-

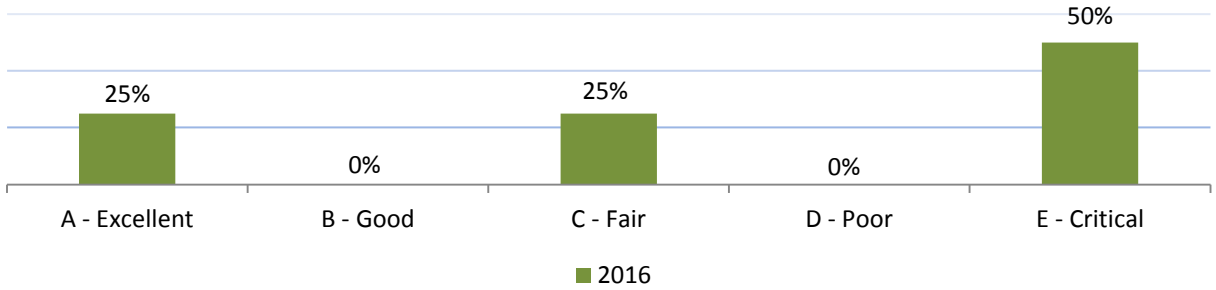
Community Services



General Government

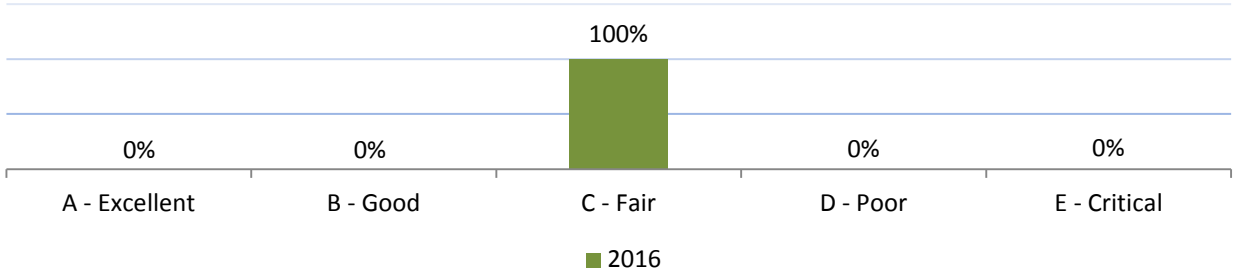


Health Services

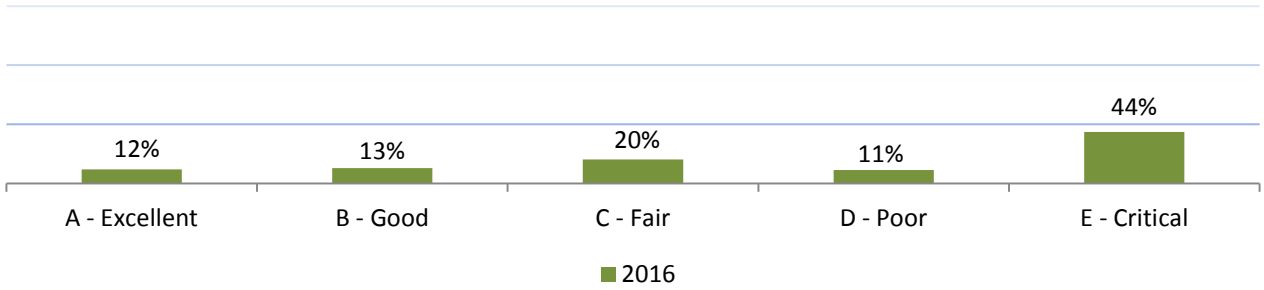


Machinery and Equipment (continued)

Planning and Development



Protection to Persons and Property

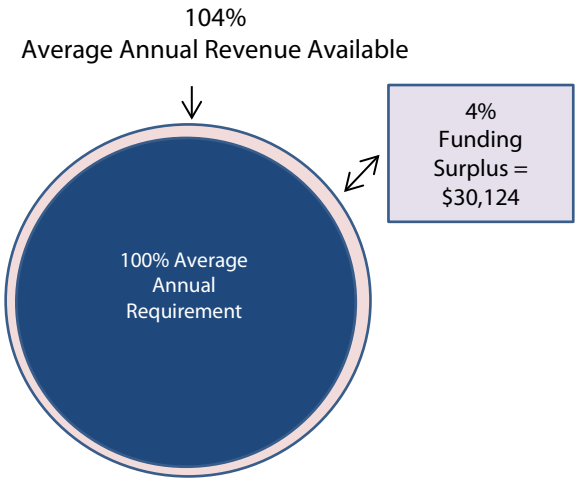


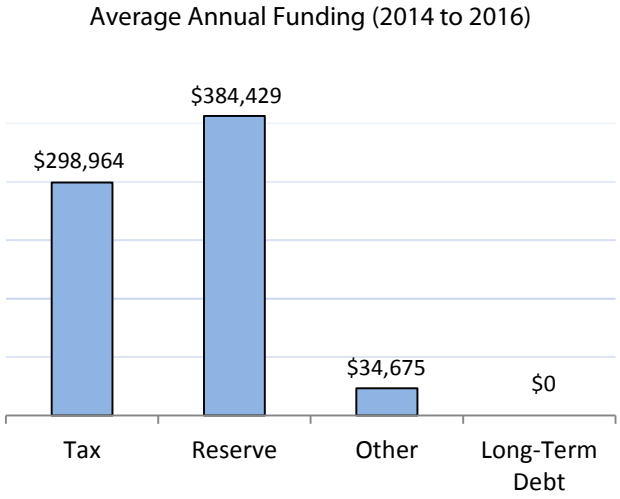
Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement		Average Annual Funding Available (2010 to 2014)					Funding (Gap) / Surplus
		Tax	Reserve	Other	Long-Term Debt	Total	
Community Services	$395,863	$199,933	$209,949	$24,004	$0	$433,886	$38,023
General Government	$119,972	$15,150	$31,638	$0	$0	$46,788	($73,184)
Health Services	$3,472	$0	$0	$0	$0	$0	($3,472)
Planning and Development	$4,977	$0	$0	$0	$0	$0	($4,977)
Protection to Persons and Property	$163,660	$83,881	$142,842	$10,671	$0	$273,394	$109,734
All	$687,944	$298,694	$384,429	$34,675	$0	$718,068	$30,124

Machinery and Equipment (continued)





Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

104%

Machinery and equipment have a funding score of 104%, with a funding surplus of $30,124. Based on the 2016 condition rating of C, the Town's assets have deterioration evident. However, assets remain functional. Further, this rating is based on a blend of age data and internal assessments.

Property-Tax Supported (Base Municipal Levy)

Condition Rating	Funding Score
B	148%

Land Improvements

2016 Replacement Value

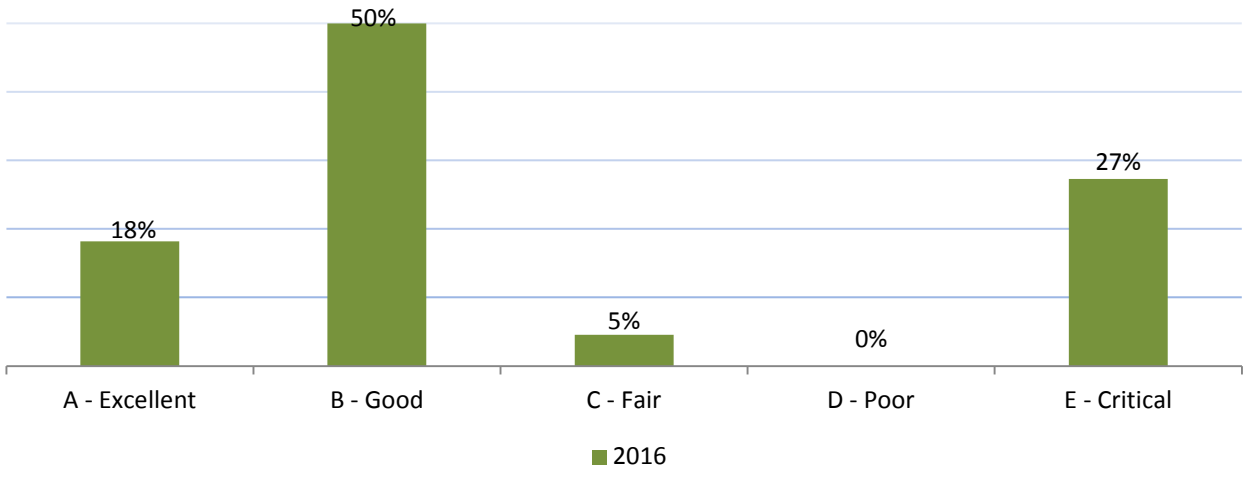
$2 Million

Includes

21 Units in Community Services

1 Unit in Protection to Persons and Property

The overall condition of Land Improvements is a B (Good). This rating is based on a blend of age data and internal assessment data.

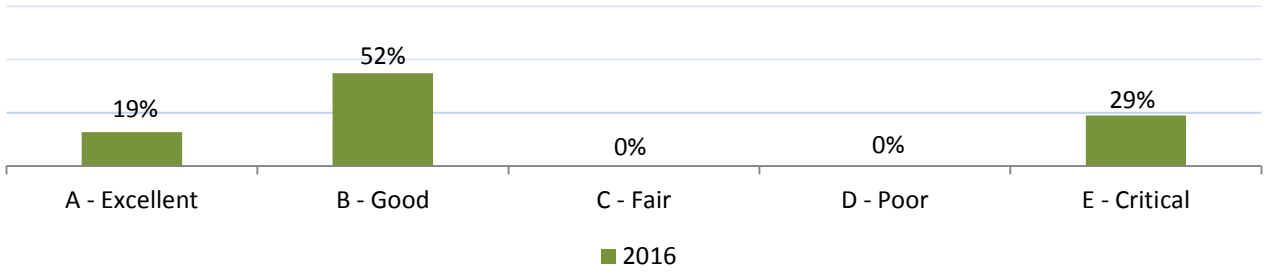


Land Improvement (continued)

Condition Rating

Department	Replacement Value	Units	Desired Rating	N/A	2016 Rating	Trend
Community Services	$1,887,871	21	N/A	-	B	N/A
Protection to Persons and Property	$50,219	1	N/A	-	B	N/A
Total	$1,938,090	22	-	-	**B**	-

Community Services



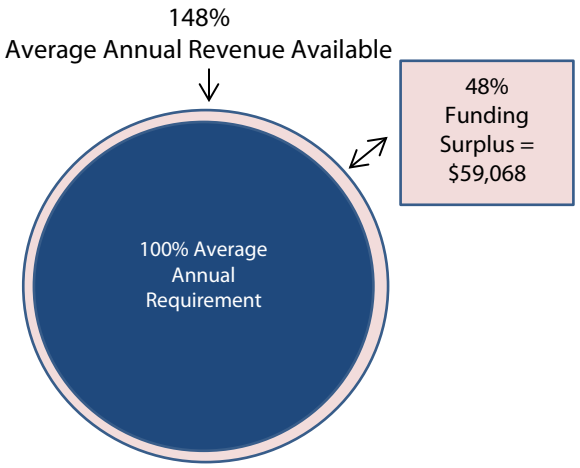
Protection to Persons and Property

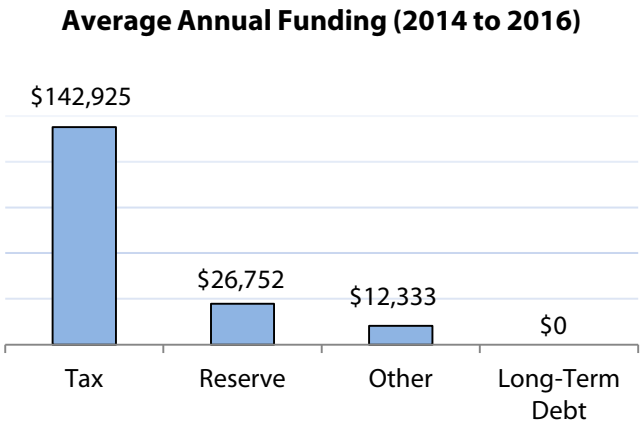
Land Improvement (continued)

Funding (Gap)/Surplus

Funding (Gap)/Surplus = Total Average Annual Funding Available - Average Annual Requirement

Average Annual Requirement		Average Annual Funding Available (2010 to 2014)					Funding (Gap) / Surplus
		Tax	Reserve	Other	Long-Term Debt	Total	
Community Services	$121,576	$92,269	$26,752	$0	$0	$119,021	($2,555)
General Government	$0	$50,656	$0	$12,333	$0	$62,989	$62,989
Protection to Persons and Property	$1,366	$0	$0	$0	$0	$0	($1,366)
All	$122,942	$142,925	$26,752	$12,333	$0	$182,010	$59,068





Funding Score

Funding Score = Total Average Annual Funding Available / Average Annual Requirement

148%

Land Improvements have a funding score of 148%, with a funding surplus of $59,068. With an overall condition rating of B, it shows that the majority of assets are in the first half of their lifecycle. Land Improvements condition ratings are based on a blend of age data and internal assessments.

Financial Strategy

Appendix C

Financial Strategy

Overview

The 'building block' approach as identified and recommended in the Provinces 'Building Together: Guide for Municipal Asset Management Plans' is being utilized for assets within the Town of Essex. This approach depicts the various cost elements and resulting funding levels that should be incorporated into Asset Management Plans based on best practices.

The required funding levels are progressive, with the next level including the funding levels and assumptions of the previous level. The levels are broken down as follows and further illustrated in Table 1.

Level 0	Funded from operations and covers all operational costs and principal and interest payments. This level would include any maintenance costs associated with tangible capital assets.
Level 1	Only contributes enough funding to offset the amortization of tangible capital assets in current dollars. Does not account for inflationary increases or earning potential of built up reserves. Provides funding at the current replacement cost of assets.
Level 2	Builds off of level 1 by adding funding for inflation. This level provides funding for the replacement cost of tangible capital assets at the end of their life. Provides funding for the estimated future replacement cost of assets.
Level 3	Includes additional funding for growth requirements and service enhancements. This level is not addressed.

Where a funding gap has been identified, it is a requirement of the Province that a specific plan be developed and to identify how this gap will be managed.

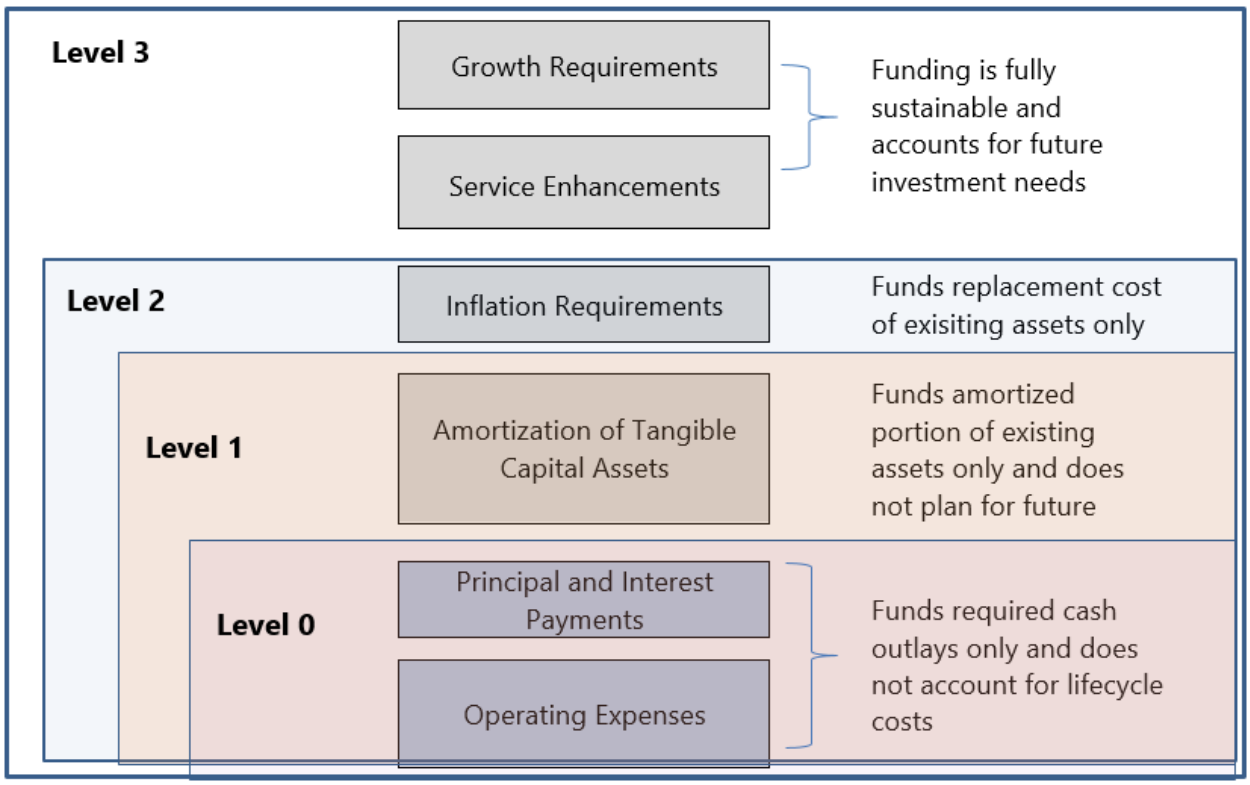
The Province at any-time may evaluate a municipality's approach to eliminating the funding gap, by ensuring that service levels are appropriate and policy is functional yet flexible in allowing municipalities to utilize all available tools to eliminate the gap.

The average annual requirement as reported in this document is equivalent to funding level 1. The average annual requirement as presented for 2016 will constitute the base year requirement. A funding level of 1 will allow the Town to achieve a funding score of 100% for the base year, however the funding score will decrease for year 2 to 50 if the base year requirement is not adjusted by inflationary factors. The Town's intent is to upate the Asset Management Plan as required to accommodate any changes in estimate, additions to the inventory, writedowns, and to reset the base year. For the purposes of this report the base year will be fixed for a three year period with average annual funding available that exceeds yearly expenditures being placed into reserve, where interest will be earned.

Presenting the annual requirement in today's dollars will allow the Town to invest its reserves, earning interest to offset inflationary impacts, and ultimately achieving a funding level 2 for the base year at the beginning of year 2, that provides funding for the estimated future replacement cost of our assets.

Base Year Funding Level 1 + Interest Earned = Funding Level 2

The building blocks of asset management and the applicable funding levels are broken down further below.

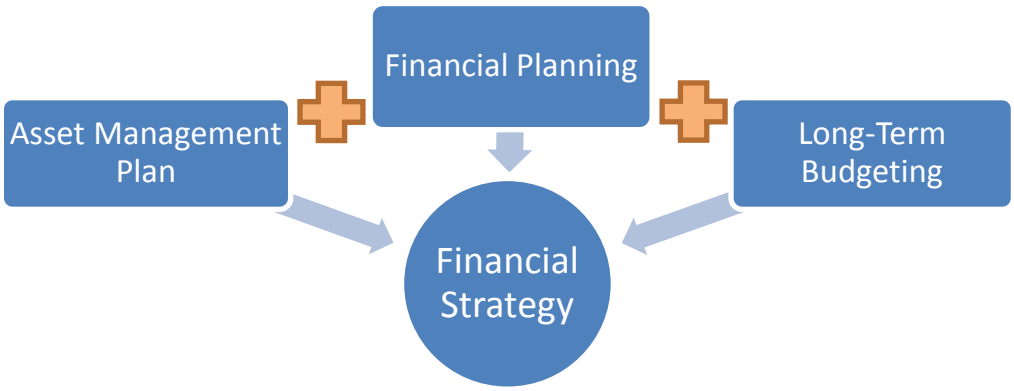


Additionally, consideration needs to been given to the prior year funding gaps (backlog) and compared to historical reserve contributions and reserve balances. The historical backlog in funding requirements will not be addressed in this report and an assumption that the data presented in this report assumes year 1 is the base year and the average annual contributions are going forward. This assumption will allow the municipality to fund all assets at 100% while achieving the desired levels of services as outlined in the infrastructure strategy.

Integration

Beginning with the 2015 budget the Town has begun to integrate the previous Asset Management Plan into the budget document through the linking of assets identified in the capital budget to those assets in tangible capital asset (TCA) inventory. Information based on estimated useful lives and condition ratings are provided. For the 2016 budget, the capital budget was built off of the tangible capital asset inventory and the Town's Asset Management Plan. The same process will be completed with this current Asset Management Plan and the 2018 budget. New assets are being identified separately and their added impact to the average annual requirement is identified along with any ongoing operational costs.

Through the integration of the Asset Management Plan, the budget, and financial planning, a financial strategy can be developed that links each of these processes, allowing the Town to consistently report its objectives and outcomes.



Structure

The financial strategy will address funding assets at Level 1, broken up into asset groups. Funding sources can include:

- Tax levies
- Reserves
- Other
  - Federal and Provincial Grants
  - Miscellaneous revenue
  - Cost sharing agreements
  - Land and Equipment Sales
- Long-Term Debt

Property-Tax Supported Infrastructure (Base Municipal Levy)

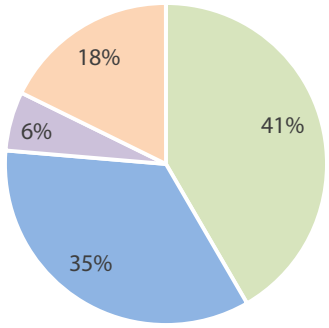
Property-Tax Supported Assets (Base Municipal Levy) as analyzed in this plan include the following asset categories:

- Buildings
- Vehicles
- Machinery and Equipment
- Land Improvements

Revenue

The total average annual funding available for the period of 2014 to 2016 for the Property-Tax Supported Assets (Base Municipal Levy) in this plan is **$1,385,381** broken down between funding sources as follows:

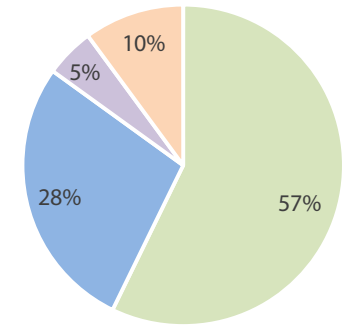
Funding Source	Funding $	Funding %
Tax (Base Municipal Levy)	$576,628	41%
Reserve	$481,018	35%
Other	$82,422	6%
Long-Term Debt (LTD)	$245,313	18%
Total	**$1,385,381**	**100%**



Average Annual Requirement

The average annual requirement is calculated over the lifetime of the asset portfolio to ensure that any significant lifecycle activities and replacements are captured and accurately reflected. The average annual requirement for Property-Tax Supported Assets (Base Municipal Levy) is **$2,481,606**.

Asset Categories	Requirement $	Requirement %
Buildings	$1,420,490	57%
Machinery and Equipment	$687,944	28%
Land Improvements	$122,942	5%
Vehicles	$250,230	10%
Total	**$2,481,606**	**100%**



Funding (Gap) / Surplus

The overall funding (gap) / surplus for Property-Tax Supported Assets (Base Municipal Levy) is **($1,096,225)**. As a percentage, this represents a funding gap of **44%**, and shows that the Town is funding the four catagories analyzed in this plan at a funding score of **56%**.

All (Base Municipal Levy)

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$2,481,606	$576,628	$481,018	$82,422	$245,313	$1,385,381	($1,096,225)

Drilling down into the specific asset categories, it can be seen that buildings and vehicles have a funding gap, whereas machinery and equipment, and land improvements have a funding surplus.

Buildings

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$1,420,490	$113,255	$59,303	$31,414	$93,878	$297,850	($1,122,640)

Vehicles

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$250,230	$21,484	$10,534	$4,000	$151,435	$187,453	($62,777)

Machinery and Equipment

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$687,944	$298,964	$384,429	$34,675	$0	$718,068	$30,124

Land Improvements

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$122,942	$142,925	$26,752	$12,333	$0	$182,010	$59,068

While Gas Tax funding has become a permanent and predictable source of funding for municipalities, the Town of Essex has not allocated funds from this fund to the assets covered in this Asset Management Plan. Further, the municipality has also not allocated any funding from the Ontario Communities Infrastructure Fund grant to the four asset categories.

Closing the Gap

The Town's strategy to eliminate the funding gap includes a combination of re-utilizing debt as it becomes available, while maintining Council's Strategic Priority to ensure total debt does not exceed $15 million, and utilizing changes in taxation and reservers to eliminate the funding gap.

	Time Period			
	5 Years	10 Years	15 Years	20 Years
Funding (Gap)/Surplus	($1,096,225)	($1,096,225)	($1,096,225)	($1,096,225)

Analysis of Long-Term Debt

Total long-term debt is governed by Council's Strategic Priority to maintain the amount at or below $15 million. Based on the long-term debt forecast, this Strategic Priority will not be achieved until year ending 2020.

For the purposes of this report the average annual funding available due to debt is assumed to remain consistant at the amount identified in the 'Average Annual Funding Availalble for (2014 to 2016)' for periods 2019 to 2035.

Average Annual Requirement	Average Annual Funding Available (2014 to 2016)					Funding (Gap) / Surplus
	Tax	Reserve	Other	Long-Term Debt	Total	
$2,481,606	$576,628	$481,018	$82,422	$245,313	$1,385,381	($1,096,225)

The average annual long-term debt amount, along with all applicable principal and interest charges are calculated using an estimated rate of 2.5% and a term of 10 years.

Maininting debt at $15 million will ensure debt servicing remains consistant year over year, subject to the term and interest rates.

The current debt outstanding for Year Ending 2015 includes:

Existing Debt by Part	Balance Year Ending 2015	% of Total Debt
Part 1 – Infrastructure	$6,386,624	33%
Part 2 - General	$13,124,285	67%
Total	$19,510,909	100%

Based on the Town's total debt of $19.5 million for all parts, year ending 2015, debt related to the assets included in Part 2: General Caital is 67%, with assets under Part 1: Infrastructure and Development representing 33% of total debt.

Year	(C) Total Debt (Ending Balance)	(D) Council Identified Debt	(D) - (C) = (E) Under/(Over)	Incremental Debt Available	Average Incremental Debt Available
2016	$17,637,601	$15,000,000	($2,637,601)	$0	$0
2017	$19,384,646	$15,000,000	($4,384,646)	$0	
2018	$17,690,105	$15,000,000	($2,690,105)	$0	
2019	$15,996,811	$15,000,000	($996,811)	$0	
2020	$14,480,523	$15,000,000	$519,477	$348,049	
2021	$12,913,476	$15,000,000	$2,086,524	$1,049,922	$1,512,268
2022	$11,376,632	$15,000,000	$3,623,368	$1,029,685	
2023	$9,862,398	$15,000,000	$5,137,602	$1,014,537	
2024	$8,311,008	$15,000,000	$6,688,992	$1,039,431	
2025	$6,919,181	$15,000,000	$8,080,819	$932,524	
2026	$5,583,165	$15,000,000	$9,416,835	$895,131	$1,052,073
2027	$4,645,379	$15,000,000	$10,354,621	$628,317	
2028	$3,723,476	$15,000,000	$11,276,524	$617,675	
2029	$2,733,160	$15,000,000	$12,266,840	$663,512	
2030	$2,178,295	$15,000,000	$12,821,705	$719,808	
2031	$1,994,869	$15,000,000	$13,005,131	$1,172,818	$1,667,142
2032	$1,804,717	$15,000,000	$13,195,283	$1,157,088	
2033	$1,607,594	$15,000,000	$13,392,406	$1,146,609	
2034	$1,403,246	$15,000,000	$13,596,754	$1,176,344	
2035	$1,403,929	$15,000,000	$13,596,071	$1,872,699	

From 2016 to 2019 the Town's debt exceeds Council's Strategic Priority of debt being below $15 million. From 2020 to 2035 the Town has additional borrowing available while maintaining Counci's Stratgeic Priority.

Options for Funding the Gap

In providing a mechanism for funding the the gap, one can not look strictly at Part 2: General Capital in isolation of the Part 1: Infrastructure and Development. The following tables bring together the funding gaps from each part to provide a total funding gap for purposes of a discussion on funding options.

Options to Fund the Gap

Part 1 - Infrastructure	Time Period (Average per year)			
	Year 1 to 5	Year 6 to 10	Year 11 to 15	Year 16 to 20
Beginning Funding (Gap)/Surplus	($352,499)	($352,499)	($352,499)	($352,499)

Part 2 - General	Time Period (Average)			
	Year 1 to 5	Year 6 to 10	Year 11 to 15	Year 16 to 20
Beginning Funding (Gap)/Surplus	($1,096,225)	($1,096,225)	($1,096,225)	($1,096,225)

Total	Time Period (Average)			
	Year 1 to 5	Year 6 to 10	Year 11 to 15	Year 16 to 20
Beginning Funding (Gap)/Surplus	($1,448,724)	($1,448,724)	($1,448,724)	($1,448,724)
Funding: Capital Levy	$277,089	$277,089	$277,089	$277,089
Funding: E.L.K. Promissory Note	$282,285	$0	$0	$0
Funding: Landfill Reserve	$548,716	$0	$0	$0
Funding: Long-Term Debt	$0	$1,512,269	$1,052,073	$1,291,197
Ending Funding (Gap)/Surplus	($340,634)	$340,634	($119,562)	$119,562

Part 1: Infrastructure and Development identified a funding gap of $352,499 per year as shown in the first table above. Part 2: General Capital includes all other assets and identifies a funding gap of $1,096,225, which collectively represent a total funding gap of $1,448,724 per year over a 20-year period.

As the first step in funding the total funding gap, an annual Capital Levy has been assumed. This capital levy would be equivalent to a 2% tax levy increase in the first year (2018), with this amount growing from year to year based on changes in total assessment, due to growth and current value assessment. The amount of $277,089 represents the average amount that would be received from this levy over a 3-year period.

The amount of a Promissory Note that was repaid by E.L.K. Energy Inc. in 2014, net of interest earnings lost in the first year of repayment, was set aside in reserve in the amount of $1,411,427. If this amount is used to offset the gap over the first 5-year period, it will reduce the funding gap by $282,285.

A further $548,716 is anticipated to be transferred from the Landfill Reserve for the first five years to offset the funding gap. This transfer is in addition to the annual transfer for capital works of approximately $1.3 million and will be the subject of a separate discussion on future commitments from this reserve.

After taking into account these funding sources, the ending funding gap is $340,634 for Year 1 to 5. It is anticipated that the funding surplus during the next five-year period will cover this gap. Similarly it is assumed that the funding gap in years 11 to 15, will be offset by the funding surplus in years 16 to 20.

Years 6 to 20 assume that as long-term debt retires, it will be repurposed to fund capital replacements as illustrated earlier in the Analysis of Long-Term Debt.

Recommendations

Appendix D

Recommendations to Council

The following recommendations are presented for Council's consideration:

- That the Asset Management Plan be received and approved as presented;
- That this Asset Management Plan be updated as needed to reflect the current needs of the Town; and
- That this Asset Management Plan be incorporated into the annual budget process to ensure sufficient funds are available for capital projects.

At present, the level of funding for asset replacement and renewal is not adequate to close the funding gap. It is recommended that the Town:

- Repurpose any debt that becomes available while maintaining the Council Strategic Priority of keeping debt at or below $15 million;
- Utilize the Landfill Reserve in the first five years to help fund the gap per the Financial Strategy section in the amount of $548,716;
- Utilize the E.L.K. Promissory Note repayment to help fundthe gap in the first five year period; and
- Implement a capital levy of 2% tax levy increase in the 2018 budget year.

It is also recommended that the departments:

- Formalize the processes for maintenance management, and
- Commit to reviewing their inventories annually at minimum.

It was identified by the consultant:

- that a condition assessment program be expanded and that the remaining components of all facilities be assessed;
- that the current preventative maintenance routine be defined and established for all fleet and machinery and equipment assets and that a software application be utilized for the overall management of the program;
- that a 10-year needs list for all facilities and vehicles be established; and

- that a prioritization framework for the facilities and vehicles asset classes be established that incorporats the key components outlined in the Life Cycle Activities section of this plan.

As identified in the Financial Strategy section of this plan, beginning in 2015 the Town's Asset Management Plans has been integrated into the budget process. Through the considerations outlined above, the Town can continue to close that funding gap. It is further recommended that the Town pursue available grants, wherever possible, to further reduce gaps.

The Asset Management Plan is a continually evolving document to which amendments and revisions can be made. Town staff will monitor and update the Plan as part of the budget process, with specific recommendations being provided with respect to the priority of each project.