



THE ASSET MANAGEMENT PLAN FOR THE COUNTY OF FRONTENAC

2013

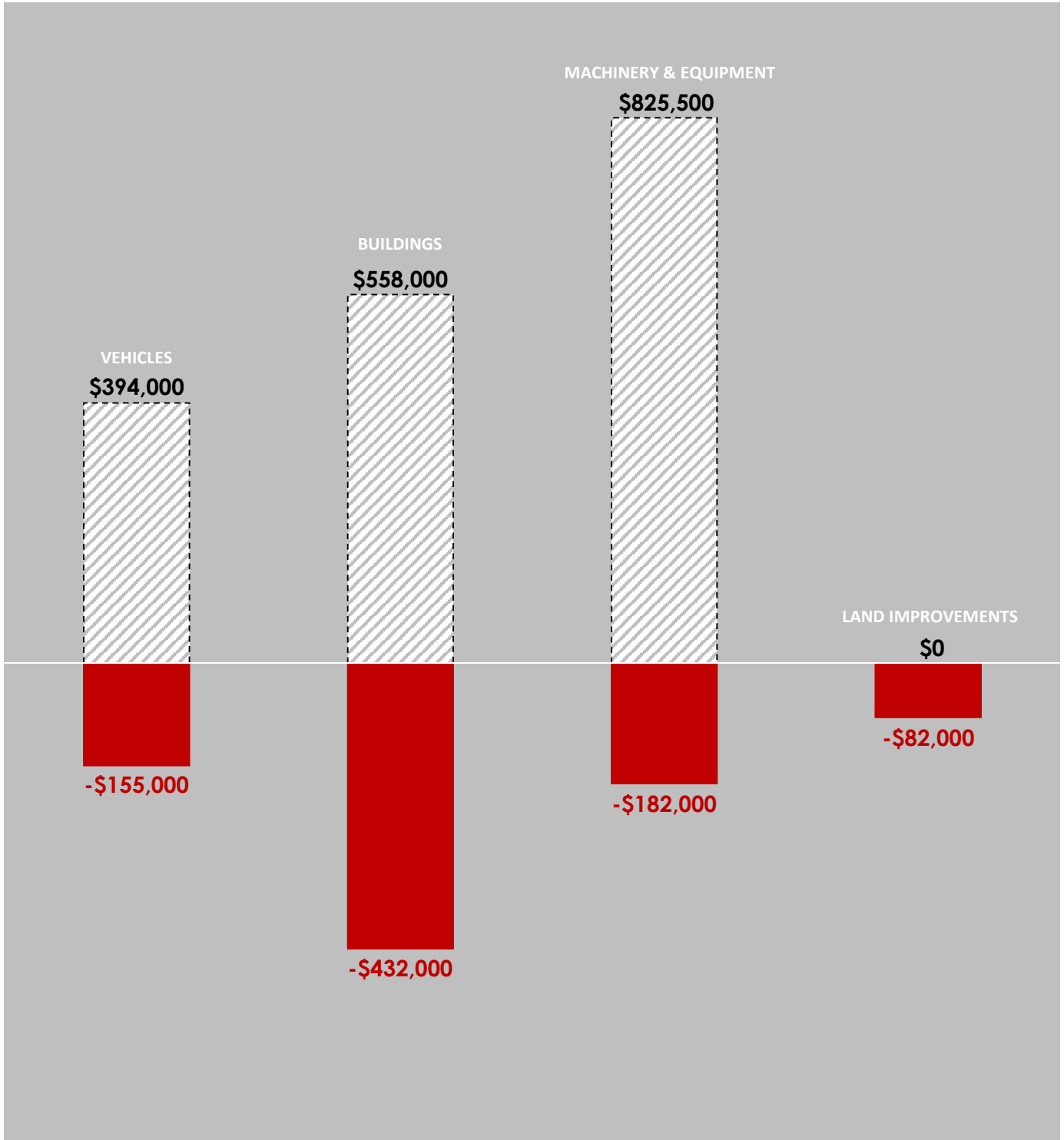
COUNTY OF FRONTENAC
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SUBMITTED DECEMBER 2013
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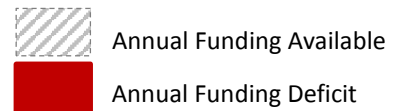
State of the Infrastructure

County of Frontenac

AVERAGE ANNUAL FUNDING REQUIRED vs. AVERAGE ANNUAL FUNDING AVAILABLE



Total Annual Deficit: **\$851,000**



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December 2013

County of Frontenac
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We are pleased to submit the 2013 Asset Management Plan (AMP) for the County of Frontenac. This AMP complies with the requirements as outlined within the provincial *Building Together Guide for Municipal Asset Management Plans*. It will serve as a strategic, tactical, and financial document, ensuring the management of the municipal infrastructure follows sound asset management practices and principles, while optimizing available resources and establishing desired levels of service. Given the broad and profound impact of asset management on the community, and the financial & administrative complexity involved in this ongoing process, we recommend that senior decision-makers from across the organization are actively involved in its implementation.

The performance of a community's infrastructure provides the foundation for its economic development, competitiveness, prosperity, reputation, and the overall quality of life for its residents. As such, we are appreciative of your decision to entrust us with the strategic direction of its infrastructure and asset management planning, and are confident that this AMP will serve as a valuable tool.

Sincerely,
The Public Sector Digest Inc.



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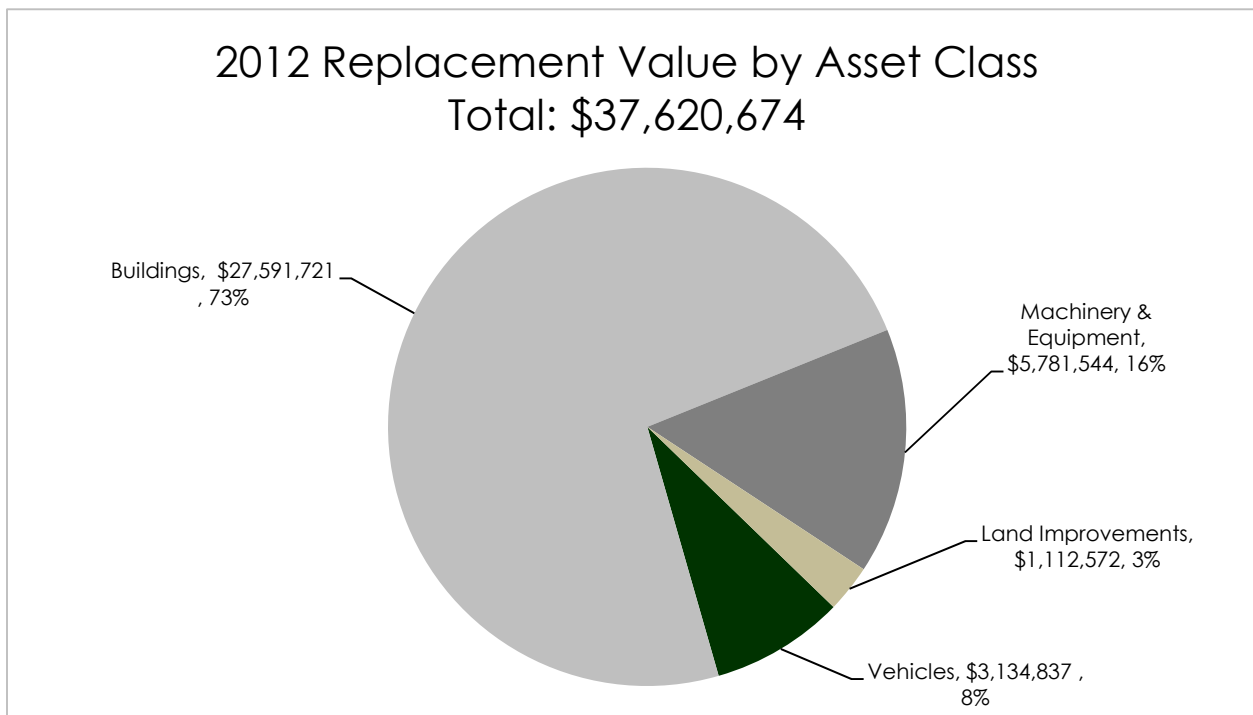
1.0 Executive Summary

The performance of a community's infrastructure provides the foundation for its economic development, competitiveness, prosperity, reputation, and the overall quality of life for its residents. Reliable and well-maintained infrastructure assets are essential for the delivery of critical core services for the citizens of a county.

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

This Asset Management Plan (AMP) for the County of Frontenac meets all requirements as outlined within the provincial *Building Together Guide for Municipal Asset Management Plans*. It will serve as a strategic, tactical, and financial document, ensuring the management of the municipal infrastructure follows sound asset management practices and principles, while optimizing available resources and establishing desired levels of service. Given the expansive financial and social impact of asset management on both a county, and its citizens, it is critical that senior decision-makers, including department heads as well as the chief executives, are strategically involved.

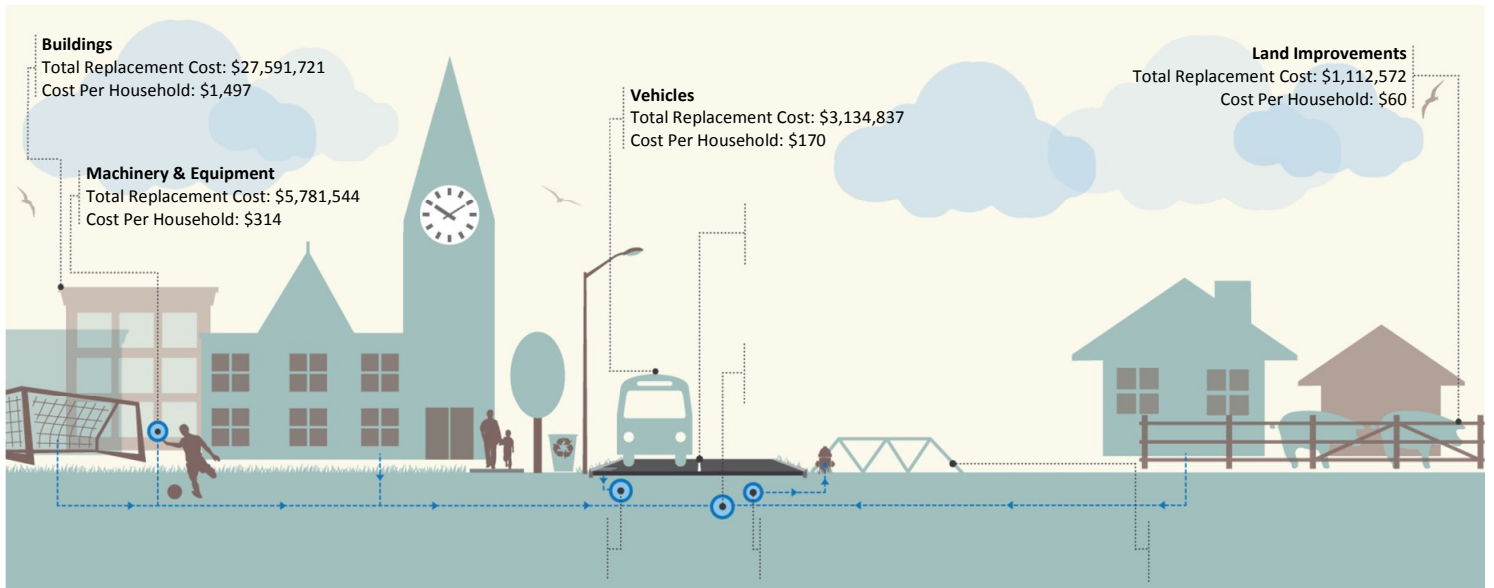
Measured in 2012 dollars, the replacement value of the asset classes analyzed totaled **\$37.6 million** for the County of Frontenac.



While the county is responsible for the strategic direction, it is the taxpayer in the County of Frontenac who ultimately bears the financial burden. As such, a 'cost per household' (CPH) analysis was conducted for each of the asset classes to determine the financial obligation of each household in sharing the replacement cost of the county's assets. Such a measurement can serve as an excellent communication tool for both the administration and the council in communicating the importance of asset management to the citizen. The diagram below illustrates the total CPH, as well as the CPH for individual asset classes.

Infrastructure Replacement Cost Per Household

Total: \$2,041 per household



In assessing the county's state of the infrastructure, we examined, and graded, both the current condition (Condition vs. Performance) of the asset classes as well as the county's financial capacity to fund the asset's average annual requirement for sustainability (Funding vs. Need). We then generated the county's infrastructure report card. The county received a **cumulative GPA of 'D+'**, with an **annual infrastructure deficit of \$851,000**. County of Frontenac's grades on the Funding vs. Need dimension varied, receiving a 'B' in Machinery & Equipment, and an 'F' in Land Improvements, indicating that funding is critically low.

County of Frontenac's grades on the Condition vs. Performance dimension varied, receiving a 'C' in both the vehicles and buildings asset classes. The county earned a 'B' in land improvements, indicating that on average, assets within this class display only minor deterioration. The machinery & equipment class on the other hand, based on age data only, has significant replacement cycles required over the next 5 years totaling approximately \$3.55 million. A breakdown of inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long term budget.

In order for an AMP to be effectively put into action, it must be integrated with financial planning and long-term budgeting. We have developed scenarios that would enable the County of Frontenac to achieve full funding within 5 years, 10 years or 15 years for the following: tax funded assets, including vehicles, buildings, machinery & equipment, and land improvements.

The average annual investment requirement for vehicles, buildings, machinery & equipment, and land improvements is \$2,628,500. Annual revenue currently allocated to these assets for capital purposes is \$1,777,500 leaving an annual deficit of \$851,000. To put it another way, these infrastructure categories are

currently funded at 68% of their long-term requirements. County of Frontenac has annual tax revenues of \$8,162,000 in 2013. Full funding would require an increase in tax revenue of 10.4% over time. We recommend a 10 year option which involves full funding being achieved over 10 years by:

- a) increasing tax revenues by 1.0% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled (to 2050), the recommendations do require prioritizing capital projects to fit the resulting annual funding available. County of Frontenac has \$2.7 million in reserves available for use by applicable asset categories during the phase-in period to full funding. This, coupled with County of Frontenac's judicious use of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short to medium-term.

2.0 Introduction

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

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

The following asset classes are addressed:

1. **Vehicles:** Ambulances and Other
2. **Buildings:** Fairmount Home and Ambulance Bases
3. **Machinery & Equipment**
4. **Land Improvements**

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

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

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

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

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

Through the development of this plan, all data, analysis, life cycle projections, and budget models will be provided through the Public Sector Digest's CityWide suite of software products. The software and plan will be synchronized, will evolve together, and therefore, will allow for ease of updates, and annual reporting of performance measures and overall results.

This will allow for continuous improvement of the plan and its projections. It is therefore recommended that the plan be revisited and updated on an annual basis, particularly as more detailed information becomes available.

2.1 Importance of Infrastructure

Municipalities throughout Ontario, large and small, own a diverse portfolio of infrastructure assets that in turn provide a varied number of services to their citizens. The infrastructure, in essence, is a conduit for the various public services the county provides, i.e. the facilities necessary to deliver county services. A community's prosperity, economic development, competitiveness, image, and overall quality of life are inherently and explicitly tied to the performance of its infrastructure.

2.2 Asset Management Plan (AMP) - Relationship to Strategic Plan

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

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

2.3 AMP - Relationship to other Plans

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

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

2.4 Purpose and Methodology

The following diagram depicts the approach and methodology, including the key components and links between those components that embody this asset management plan:



It can be seen from the above that a county's infrastructure planning starts at the corporate level with ties to the strategic plan, alignment to the community's expectations, and compliance with industry and government regulations.

Then, through the State of the Infrastructure analysis, overall asset inventory, valuation, condition and performance are reported. Also, a life cycle analysis of needs for each infrastructure class is conducted. This analysis yields the sustainable funding level, compared against actual current funding levels, and determines whether there is a funding surplus or deficit for each infrastructure program. The overall measure of condition and available funding is finally scored for each asset class and presented as a star rating (similar to the hotel star rating) and a letter grade (A-F) within the Infrastructure Report card.

From the lifecycle analysis above, the county gains an understanding of the level of service provided today for each infrastructure class and the projected level of service for the future. The next section of the AMP provides a framework for a county to develop a Desired Level of Service (or target service level) and develop performance measures to track the year-to-year progress towards this established target level of service.

The Asset Management Strategy then provides a detailed analysis for each infrastructure class. Included in this analysis are best practices and methodologies from within the industry which can guide the overall management of the infrastructure in order to achieve the desired level of service. This section also provides an overview of condition assessment techniques for each asset class; life cycle interventions required, including those interventions that yield the best return on investment; and prioritization techniques, including risk quantification, to determine which priority projects should move forward into the budget first.

The Financing Strategy then fully integrates with the asset management strategy and asset management plan, and provides a financial analysis that optimizes the 10 year infrastructure budget. All revenue sources available are reviewed, such as the tax levy, debt allocations, rates, reserves, grants, gas tax, development charges, other reliable funding sources, and necessary budget allocations are analysed to inform and deliver the infrastructure programs.

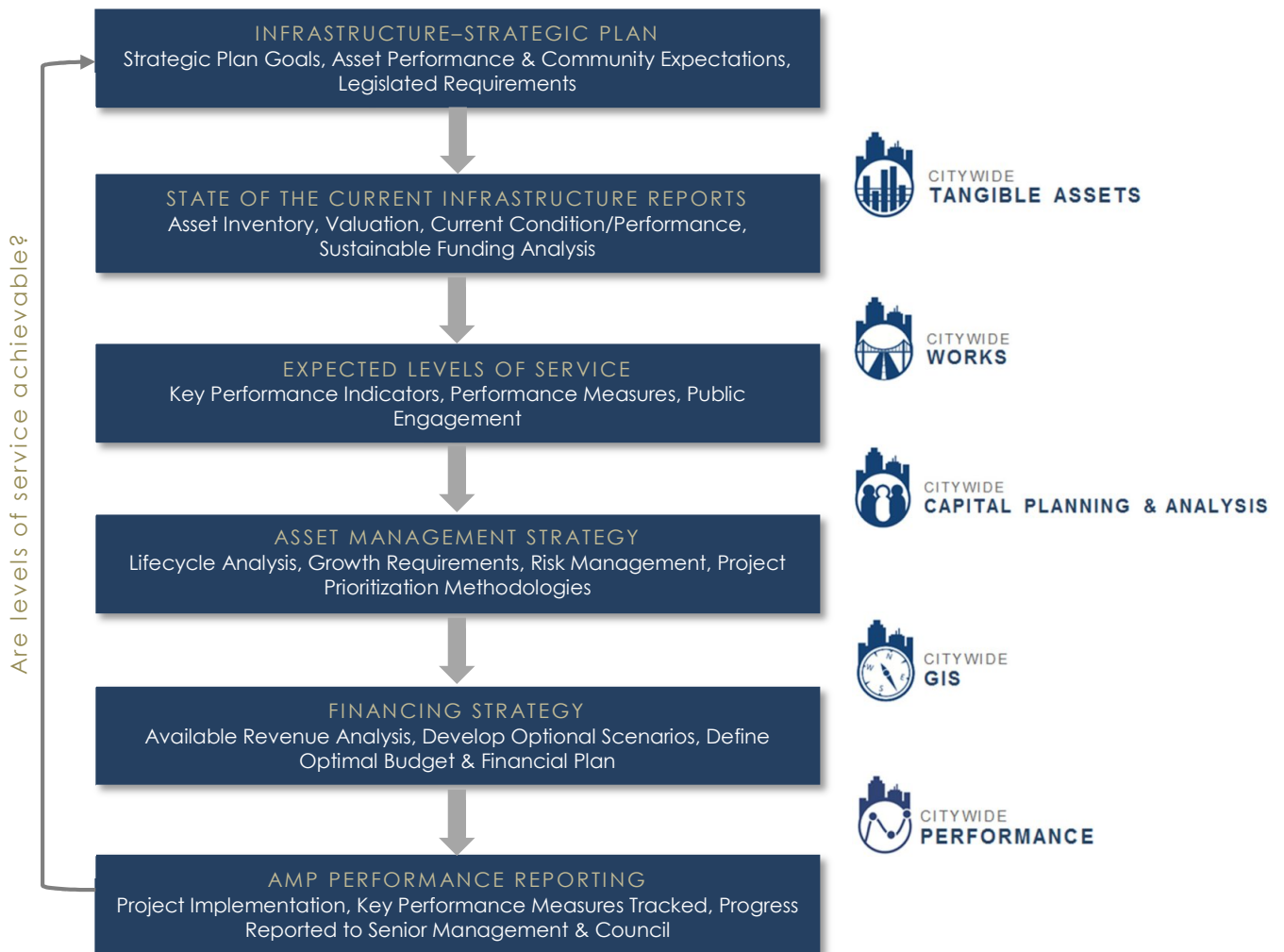
Finally, in subsequent updates to this AMP, actual project implementation will be reviewed and measured through the established performance metrics to quantify whether the desired level of service is achieved or achievable for each infrastructure class. If shortfalls in performance are observed, these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

2.5 CityWide Software alignment with AMP

The plan will be built and developed hand in hand with a database of municipal infrastructure information in the CityWide software suite of products. The software will ultimately contain the county's asset base, valuation information, life cycle activity predictions, costs for activities, sustainability analysis, project prioritization parameters, key performance indicators and targets, 10 year asset management strategy, and the financial plan to deliver the required infrastructure budget.

The software and plan will be synchronized, and will evolve together year-to-year as more detailed information becomes available. This synchronization will allow for ease of updates, modeling and scenario building, and annual reporting of performance measures and results. This will allow for continuous improvement of the plan and its projections. It is therefore recommended that it is revisited and updated on an annual basis.

The following diagram outlines the various CityWide software products and how they align to the various components of the AMP.



3.0 State of the Infrastructure (SOTI)

3.1 Objective and Scope

Objective: To identify the state of the county's infrastructure today and the projected state in the future if current funding levels and management practices remain status quo.

The analysis and subsequent communication tools will outline future asset requirements, will start the development of tactical implementation plans, and ultimately assist the organization to provide cost effective sustainable services to the current and future community.

The approach was based on the following key industry state of the infrastructure documents:

- Canadian Infrastructure Report Card
- City of Hamilton's State of the Infrastructure reports
- Other Ontario Municipal State of the Infrastructure reports

The above reports are themselves based on established principles found within key, industry best practices documents such as:

- The National Guide for Sustainable Municipal Infrastructure (Canada)
- The International Infrastructure Management Manual (Australia / New Zealand)
- American Society of Civil Engineering Manuals (U.S.A.)

Scope: Within this State of the Infrastructure report, a high level review will be undertaken for the following asset classes:

1. **Vehicles:** Ambulances and Other
2. **Buildings:** Fairmount Home, Ambulance Bases
3. **Machinery & Equipment**
4. **Land Improvements**

3.2 Approach

The asset classes above were reviewed at a very high level due to the nature of data and information available. Subsequent detailed reviews of this analysis are recommended on an annual basis, as more detailed conditions assessment information becomes available for each infrastructure program.

3.2.1 Base Data

In order to understand the full inventory of infrastructure assets within Frontenac County, all tangible capital asset data, as collected to meet the PSAB 3150 accounting standard, was loaded into the CityWide Tangible Asset™ software module. This data base now provides a detailed and summarized inventory of assets as used throughout the analysis within this report and the entire Asset Management Plan.

3.2.2 Asset Deterioration Review

For those assets without condition data, buildings and fleet, the deterioration review will rely on the 'straight line' amortization schedule approach provided from the accounting data. Although this approach is based on age data and useful life projections, and is not as accurate as the use of detailed condition data, it does provide a relatively reliable benchmark of future requirements.

3.2.3 Identify Sustainable Investment Requirements

A gap analysis was performed to identify sustainable investment requirements for each asset category. Information on current spending levels and budgets was acquired from the organization, future investment requirements were calculated, and the gap between the two was identified.

The above analysis is performed by using investment and financial planning models, and life cycle costing analysis, embedded within the CityWide software suite of applications.

3.2.4 Asset Rating Criteria

Each asset category will be rated on two key dimensions:

- **Condition vs. Performance:** Based on the condition of the asset today and how well performs its function.
- **Funding vs. Need:** Based on the actual investment requirements to ensure replacement of the asset at the right time, versus current spending levels for each asset group.

3.2.5 Infrastructure Report Card

The dimensions above will be based on a simple 1–5 star rating system, which will be converted into a letter grading system ranging from A-F. An average of the two ratings will be used to calculate the combined rating for each asset class. The outputs for all municipal assets will be consolidated within the CityWide software to produce one overall Infrastructure Report Card showing the current state of the assets.

Grading Scale: Condition vs. Performance			
What is the condition of the asset today and how well does it perform its function?			
Star Rating	Letter Grade	Color Indicator	Description
★★★★★	A		Excellent: No noticeable defects
★★★★	B		Good: Minor deterioration
★★★	C		Fair: Deterioration evident, function is affected
★★	D		Poor: Serious deterioration. Function is inadequate
★	F		Critical: No longer functional. General or complete failure

Grading Scale: Funding vs. Need		
Based on the actual investment requirements to ensure replacement of the asset at the right time, versus current spending levels for each asset group.		
Star Rating	Letter Grade	Description
★★★★★	A	Excellent: 91 to 100% of need
★★★★	B	Good: 76 to 90% of need
★★★	C	Fair: 61 to 75% of need
★★	D	Poor: 46 – 60% of need
★	F	Critical: under 45% of need

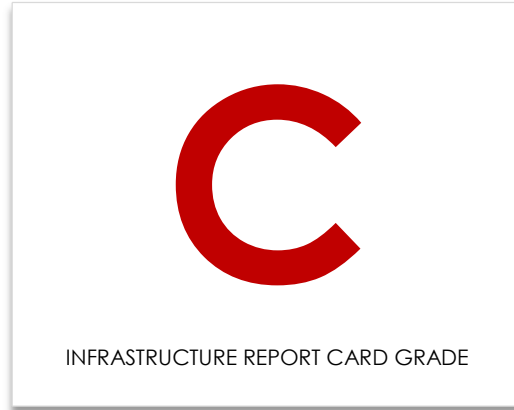
3.2.6 General Methodology and Reporting Approach

The report will be based on the seven key questions of asset management as outlined within the National Guide for Sustainable Municipal Infrastructure:

- What do you own and where is it? (inventory)
- What is it worth? (valuation / replacement cost)
- What is its condition / remaining service life? (function & performance)
- What needs to be done? (maintain, rehabilitate, replace)
- When do you need to do it? (useful life analysis)
- How much will it cost? (investment requirements)
- How do you ensure sustainability? (long-term financial plan)

The above questions will be answered for each individual asset category in the following report sections.

3.3 Vehicles



3.3 Vehicles

3.3.1 What do we own?

The entire vehicle inventory comprises of 29 units.

Vehicle Inventory		
Asset Type	Asset Component	Quantity/Units
Vehicles	Ambulances	15
	County Assets	2
	Paramedic Services	12

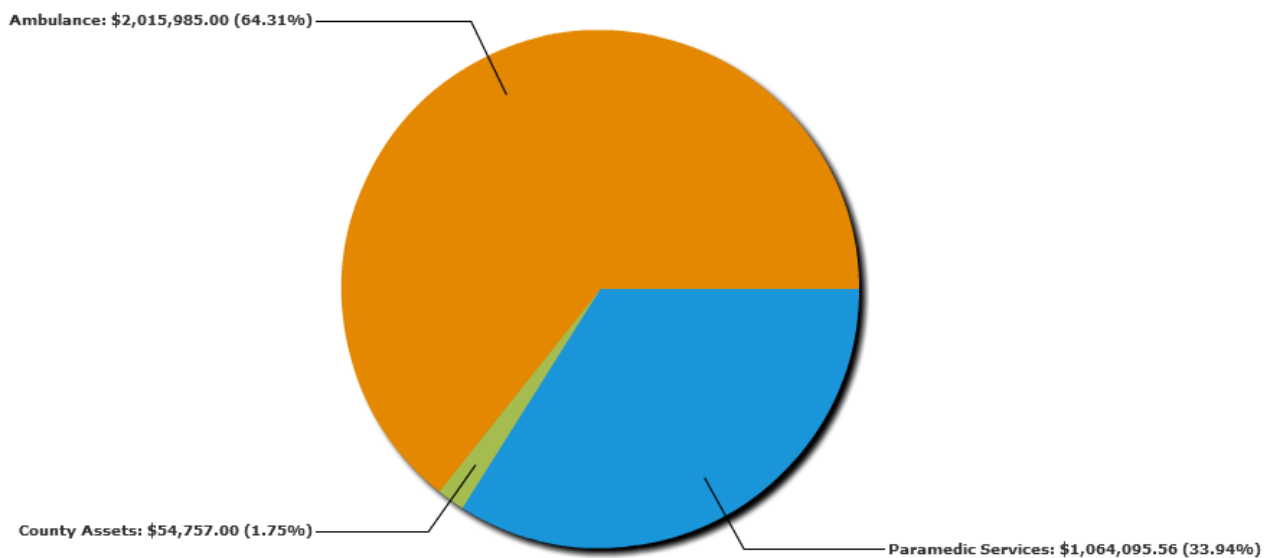
The vehicles data was extracted from the Tangible Capital Asset module of the CityWide software suite.

3.3.2 What is it worth?

The estimated replacement value of all vehicles, in 2012 dollars, is approximately \$3.1 million. The cost per household for vehicles is \$170 based on 18,433 households.

Vehicles Replacement Value				
Asset Type	Asset Component	Quantity/Units	2012 Unit Replacement Cost	2012 Overall Replacement Cost
Vehicles	Ambulances	15	User Defined	\$2,015,985
	County Assets	2	User Defined	\$54,757
	Paramedic Services	12	User Defined	\$1,064,095
				\$3,134,837

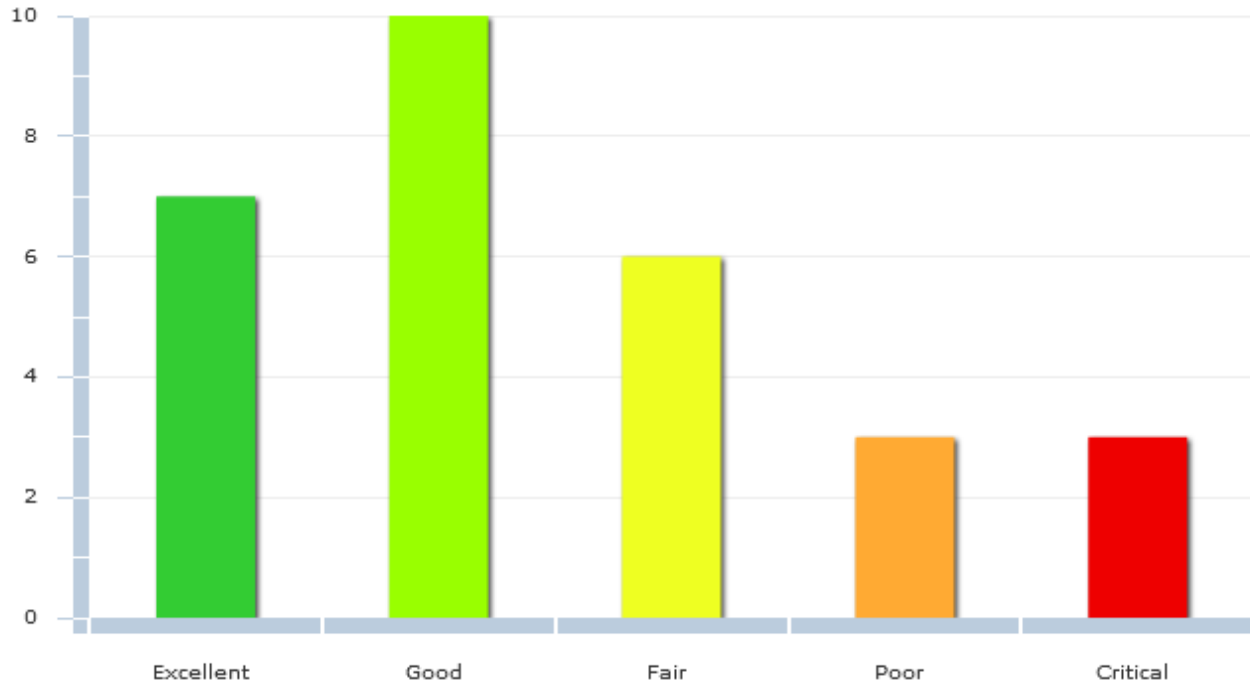
Vehicle Replacement Cost



3.3.3 What condition is it in?

The majority, 80%, of the county's vehicles are in fair to excellent condition, with the remaining 20% in poor to critical condition. As such, the county received a Condition vs. Performance rating of 'C+'.

Vehicle Condition by Quantity (Age Based)



3.3.4 What do we need to do to it?

There are generally four distinct phases in an asset's life cycle that require specific types of attention and lifecycle activity. These are presented at a high level for the vehicle inventory below. Further detail is provided in the "Asset Management Strategy" section of this AMP.

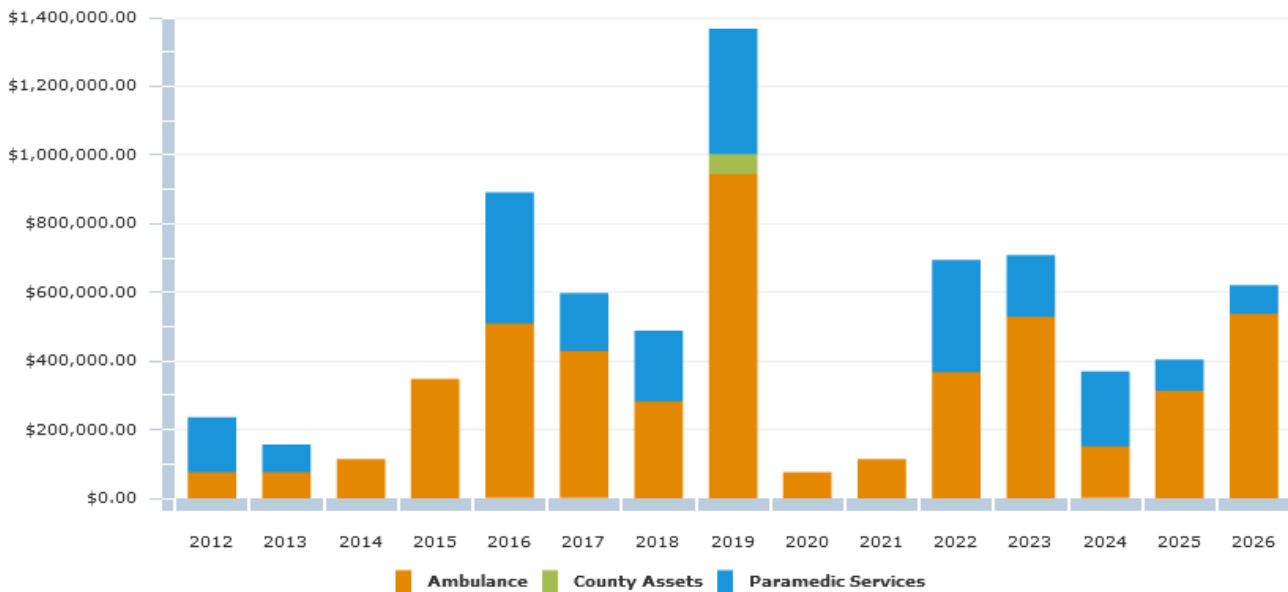
Addressing Asset Needs		
Phase	Lifecycle Activity	Asset Life Stage
Minor maintenance	Activities such as oil change, tire rotation and inspection, brake inspection, body and chassis lubrication, fluid and belt inspections	1 st Qtr
Major maintenance	Activities such as Replacement of various filters, fluids, spark plugs, brakes, tires, and engine belts & timing belts.	2 nd Qtr
Rehabilitation	Rehab activities such as stripping and rebuilding major components, upgrading and component replacement to cover obsolescence, system capability upgrades, de-corrosion work and repainting	3 rd Qtr
Replacement	Full replacement	4 th Qtr

3.3.5 When do we need to do it?

For the purpose of this report, 'useful life' data for each asset class was obtained from the accounting data within the CityWide software database. This proposed useful life is used to determine replacement needs of individual assets. These needs are calculated and quantified in the system as part of the overall financial requirements.

Asset Useful Life in Years		
Asset Type	Asset Component	Useful Life in years
Vehicles	Ambulances	7.5 (Includes Refurbishment)
	County Assets	10
	Paramedic Services	15/10/6

Vehicles Replacement Profile (Age Based)



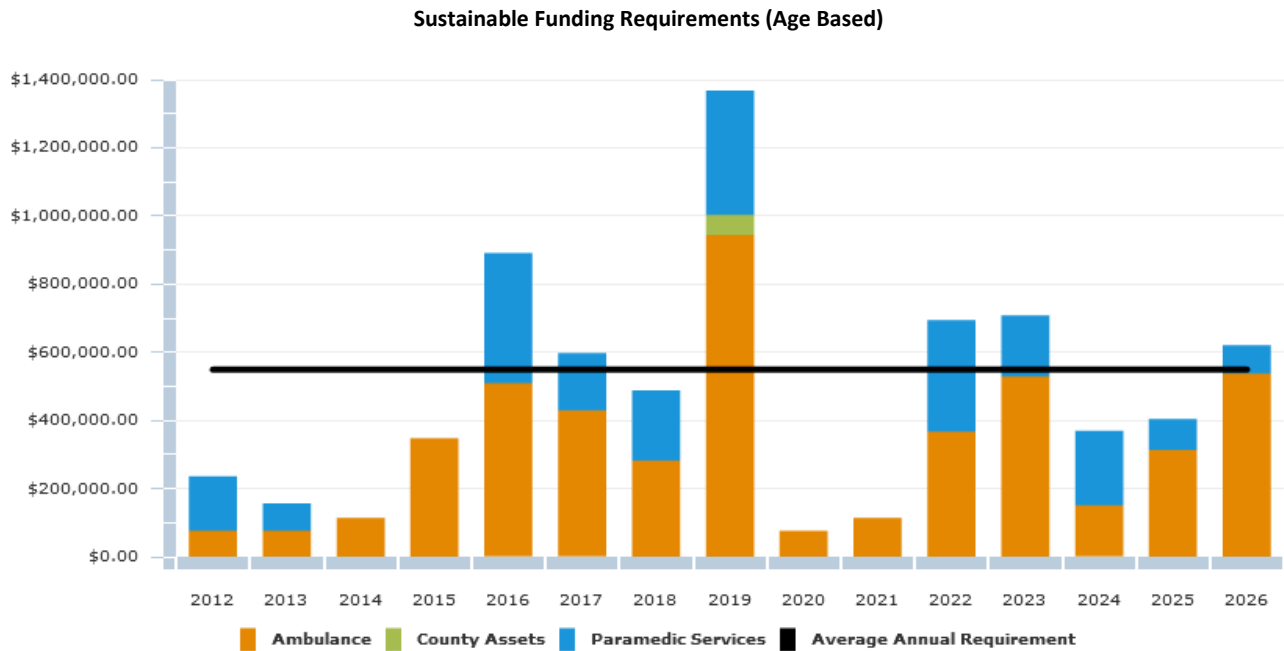
3.3.6 How much money do we need?

The analysis completed to determine capital revenue requirements was based on the following constraints and assumptions:

1. Replacement costs are based upon the unit costs identified within the "What is it worth" section.
2. The timing for individual vehicle replacement was defined by the replacement year as described in the "When do you need to do it?" section.
3. The above replacement profile includes a full refurbishment of the ambulances for \$38,000 at the end of their useful life that extends the life of each ambulance by an additional 3 years.
4. All values are presented in 2012 dollars.
5. The analysis was run for a 15 year period including a 1% inflation factor to ensure all assets went through at least one iteration of replacement, therefore providing a sustainable projection.

3.3.7 How do we reach sustainability?

Based upon the above parameters, the average annual revenue required to sustain the County of Frontenac's vehicles is approximately **\$549,000**. Based on The County of Frontenac's current annual funding of **\$394,000**, there is an annual **deficit of \$155,000**. As such, the county received a Funding vs. Need rating of 'C+'. The following graph illustrates the expenditure requirements against the sustainable funding threshold line.



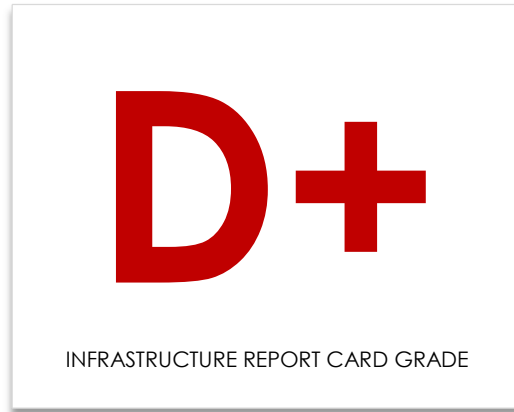
In conclusion, based on age based data for the vehicles they are generally in good condition. However, there are significant replacement cycles required over the next 5 years totaling approximately \$1.75 million. Condition assessment data for vehicles, along with risk management strategies, should be reviewed together to aid in prioritizing overall needs.

3.3.8 Recommendations

The county received an overall rating of 'C+' for its vehicles, calculated from the Condition vs. Performance and the Funding vs. Need ratings. Accordingly, we recommend the following:

1. A condition assessment program should be established for the entire vehicle inventory to gain a better understanding of current condition and performance as outlined further within the "Asset Management Strategy" section of this AMP.
2. The condition assessment data for vehicles, along with risk management strategies, should be reviewed together to aid in prioritizing overall needs for rehabilitation and replacement.
3. A tailored life cycle activity framework should be also be developed by the county as outlined further within the "Asset Management Strategy" section of this AMP.
4. The useful life projections used by the county should be reviewed for consistency with industry standards.
5. An appropriate % of asset replacement value should be used for operations and maintenance activities on an annual basis. This should be determined through a detailed analysis of O & M activities and be added to future AMP reporting.
6. The Infrastructure Report Card should be updated on an annual basis.

3.4 Buildings



3.4 Buildings

3.4.1 What do we own?

Buildings Inventory		
Asset Type	Asset Component	Quantity/Units
Buildings	Ambulance Bases	3
	County Admin & Annex	1
	Fairmount Home	1
	Ferry	1
	Library	1

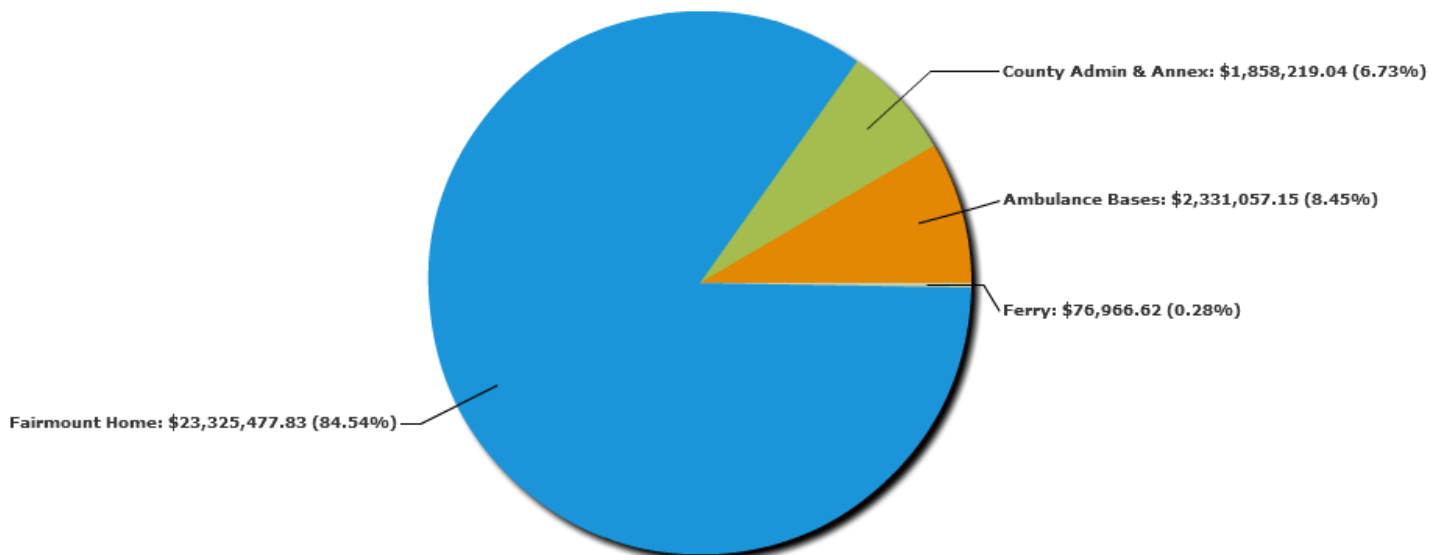
The buildings data was extracted from the Tangible Capital Asset module of the CityWide software suite.

3.4.2 What is it worth?

The estimated replacement value of the county's buildings, in 2012 dollars, is approximately \$27.6 million. The cost per household for buildings is \$1,497 based on 18,433 households.

Buildings Replacement Value				
Asset Type	Asset Component	Quantity/Units	2012 Unit Replacement Cost	2012 Replacement Cost
Buildings	Ambulance Bases	3	NRBCPI (Ottawa)	\$2,331,057
	County Admin & Annex	1	NRBCPI (Ottawa)	\$1,858,219
	Fairmount Home	1	NRBCPI (Ottawa)	\$23,325,478
	Ferry	1	NRBCPI (Ottawa)	\$76,967
	Library	1	Not Planned for Replacement	\$0
				\$27,591,721

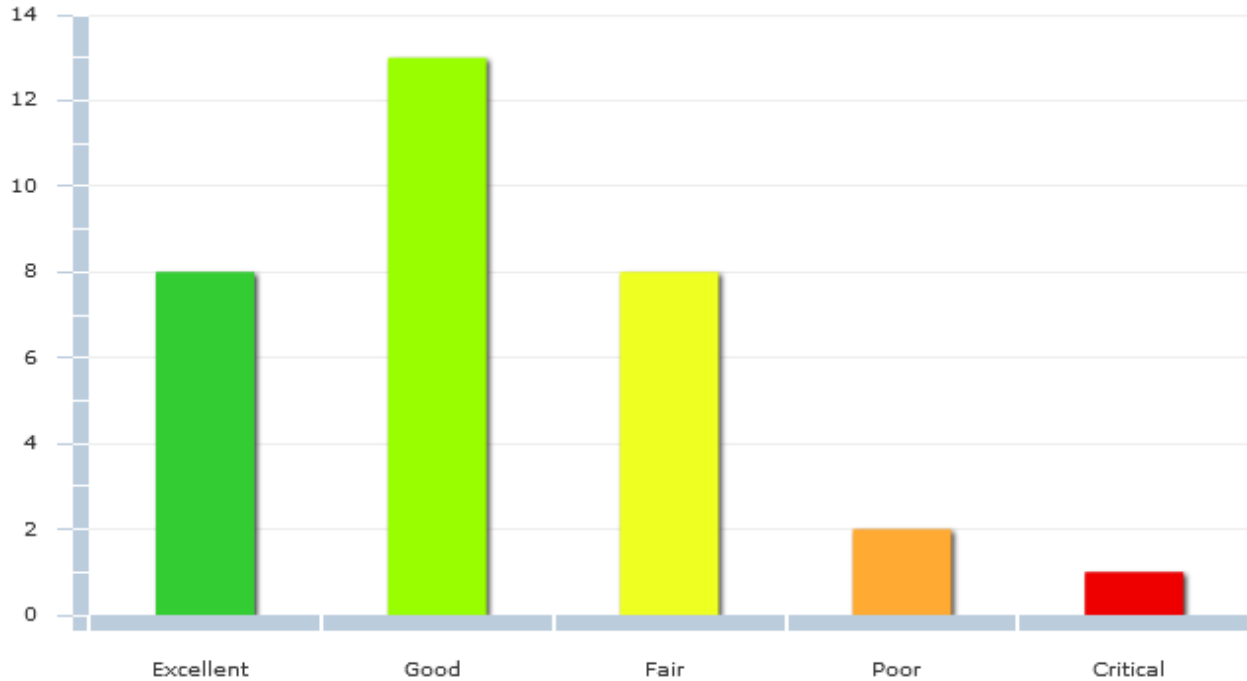
Buildings Replacement Cost



3.4.3 What condition is it in?

The majority, 90%, of the county's buildings are in fair to excellent condition. As such, the county received a Condition vs. Performance rating of 'C+'.

Building Condition with Components (Age Based)



3.4.4 What do we need to do to it?

There are generally four distinct phases in an asset's life cycle. These are presented at a high level for the building structures below. Further detail is provided in the "Asset Management Strategy" section of this AMP.

Addressing Asset Needs		
Phase	Lifecycle Activity	Asset Life Stage
Minor Maintenance	Planned activities such as inspections, monitoring, etc.	1 st Qtr
Major Maintenance	Maintenance and repair activities, generally unplanned, however, anticipated activities that are included in the annual operating budget.	2 nd Qtr
Rehabilitation	Major activities such as the upgrade or replacement of smaller individual facility components (e.g. windows)	3 rd Qtr
Replacement	Complete replacement of asset components or a facility itself.	4 th Qtr

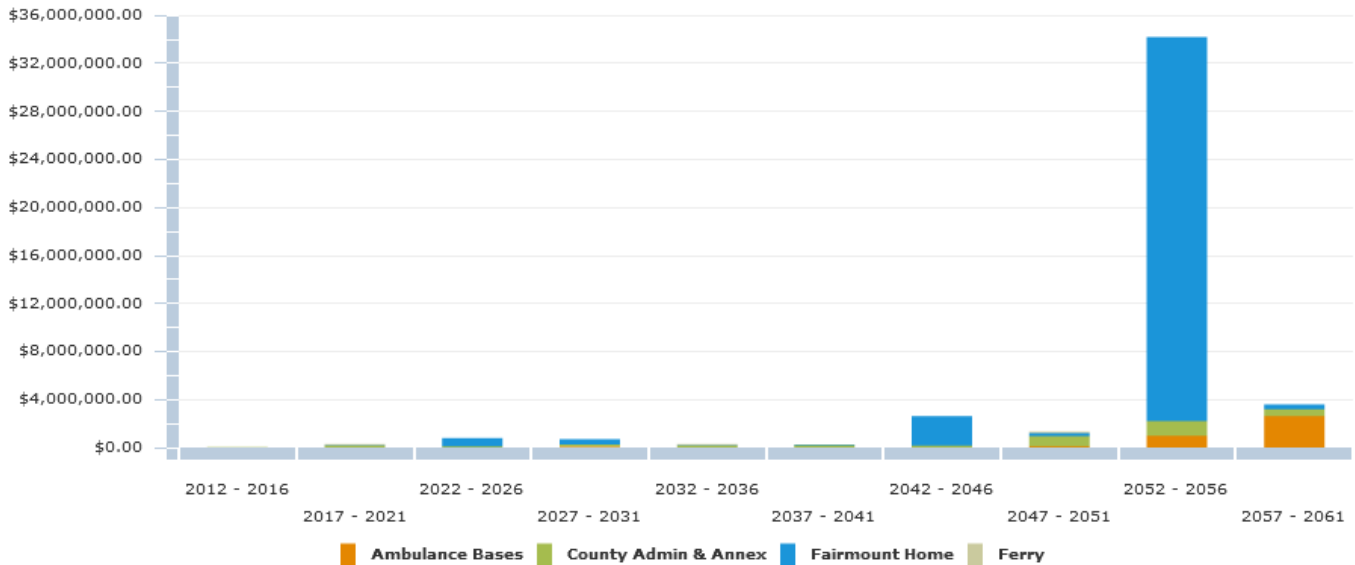
3.4.5 When do we need to do it?

For the purpose of this report, 'useful life' data for each asset class was obtained from the accounting data within the CityWide software database. This proposed useful life is used to determine replacement needs of individual assets, which are calculated in the system as part of the overall financial requirements.

Asset Useful Life in Years		
Asset Type	Asset Component	Useful Life in Years
Buildings	Ambulance Bases	50
	County Admin & Annex	50/45/30/25/20/15/10
	Fairmount Home	50/45/30/25/20
	Ferry	15
	Library	50

As additional field condition information becomes available, the data can be loaded into the CityWide system to increase the accuracy of current asset age and, therefore, that of future replacement requirements. The following graph shows the current projection of buildings replacements based on the age of the asset only.

Buildings Replacement Profile (Age Based)



3.4.6 How much money do we need?

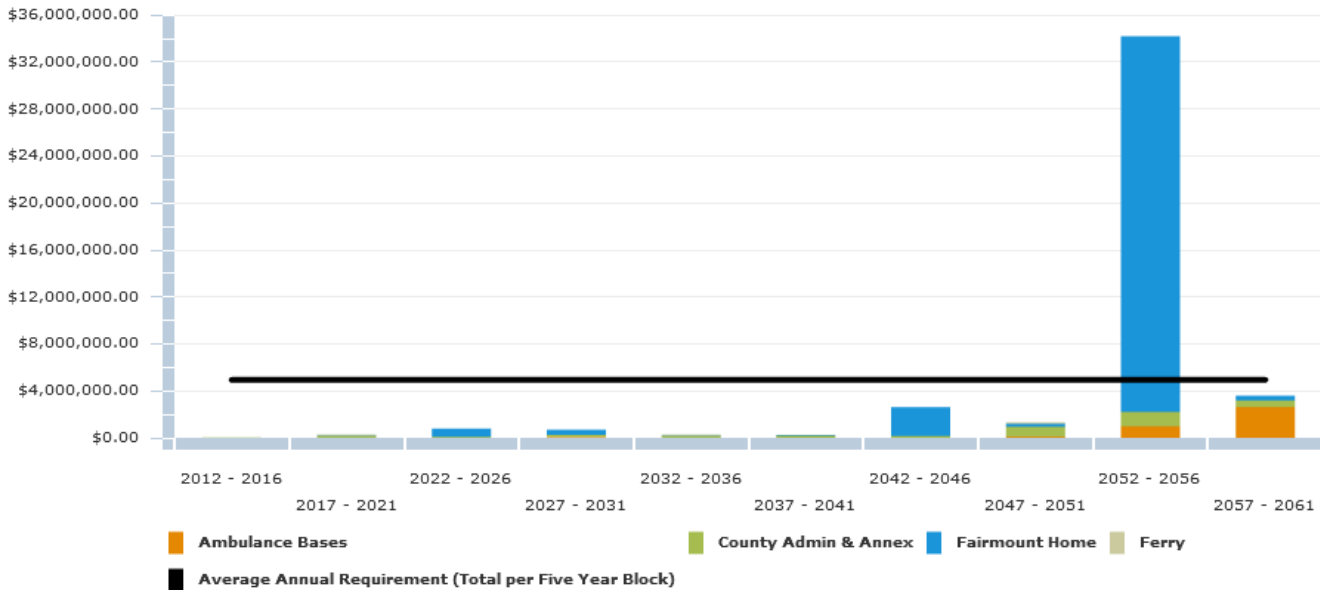
The analysis completed to determine capital revenue requirements was based on the following constraints and assumptions:

1. Replacement costs are based upon the "What is it worth" section above.
2. The timing for individual structure replacement was defined by the replacement year as described in the "When do you need to do it?" section above.
3. All values are presented in 2012 dollars.
4. The analysis was run for a 50 year period including a 1% inflation factor to ensure all assets cycled through at least one iteration of replacement, therefore providing a sustainable projection.

3.4.7 How do we reach sustainability?

Based upon the above assumptions, the average annual revenue required to sustain the County of Frontenac's building inventory is approximately **\$990,000**. Based on the County of Frontenac's current annual funding of **\$558,000**, and based on the County's 32% share of Fairmount Home, assuming the City of Kingston's continued 68% commitment, there is an annual **deficit of \$432,000**. As such, the county received a Funding vs. Need rating of 'D'.

Sustainable Revenue Requirement (Age Based)



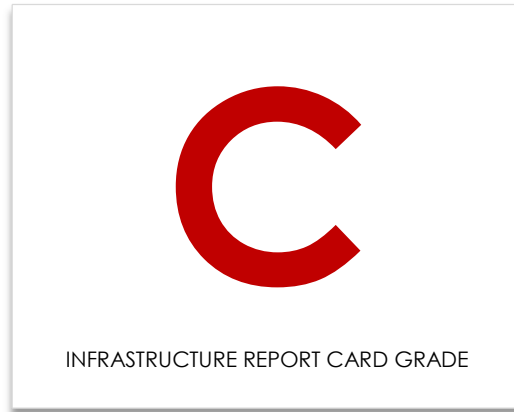
In conclusion, the County of Frontenac's buildings, based on age data only, are in good condition with no immediate asset replacements required. However, a breakdown of inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long term budget.

3.4.8 Recommendations

The county received an overall rating of 'D+' for its buildings, calculated from the Condition vs. Performance and the Funding vs. Need ratings. Accordingly, we recommend the following:

1. An inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long and short term budget as outlined further within the "Asset Management Strategy" section of this AMP.
2. Once the above study is complete or underway, the condition data should be loaded into the CityWide software and an updated "current state of the infrastructure" analysis should be generated.
3. An appropriate % of asset replacement value should be used for operations and maintenance activities on an annual basis. This should be determined through a detailed analysis of O & M activities and be added to future AMP reporting.
4. The Infrastructure Report Card should be updated on an annual basis.

3.5 Machinery & Equipment



3.5 Machinery & Equipment

3.5.1 What do we own?

Frontenac County is responsible for the following machinery and equipment inventory:

Machinery and Equipment Inventory		
Asset Type	Asset Component	Quantity
Machinery & Equipment	County Assets	27
	Fairmount Home	366
	Paramedic Services	108

The machinery & equipment data was extracted from the Tangible Capital Asset module of the CityWide software suite.

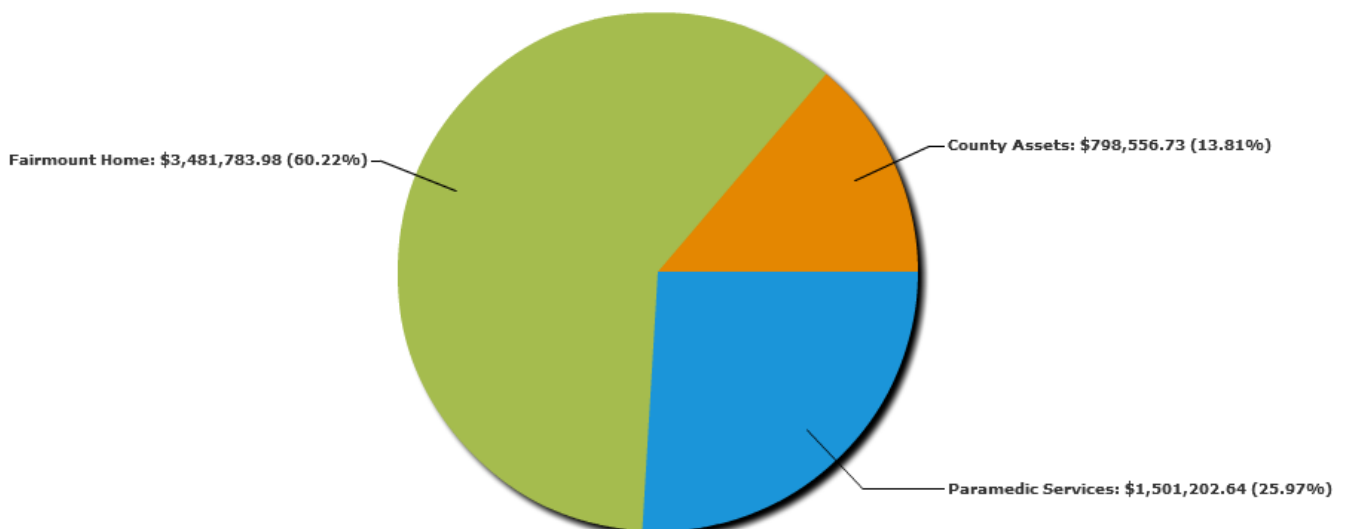
3.5.2 What is it worth?

The estimated replacement value of the machinery & equipment, in 2012 dollars, is approximately \$5.8 million. The cost per household for machinery & equipment is \$314 based on 18,433 households.

Machinery & Equipment Replacement Value				
Asset Type	Asset Component	Quantity	2012 Unit Replacement Cost	2012 Overall Replacement Cost
Machinery & Equipment	County Assets	27	CPI (Ontario)	\$798,557
	Fairmount Home	366	CPI (Ontario)	\$3,481,784
	Paramedic Services	108	CPI (Ontario)	\$1,501,203
				\$5,781,544

The pie chart below provides a breakdown of each of the network components to the overall system value.

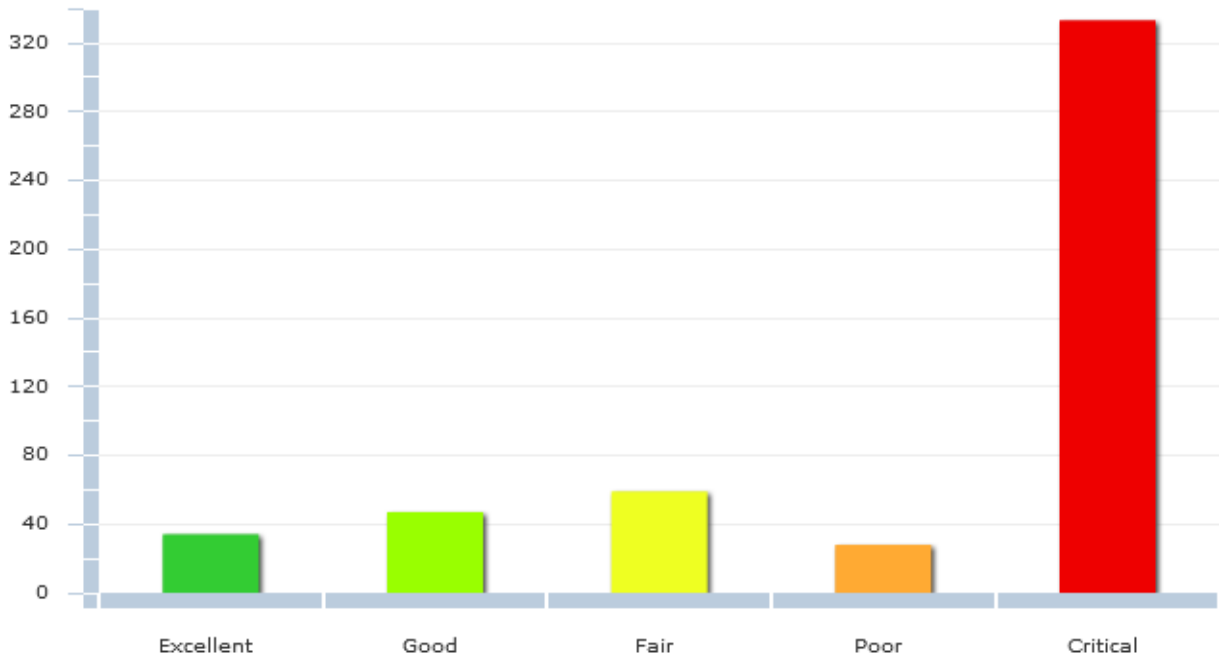
Machinery & Equipment Replacement Cost



3.5.3 What condition is it in?

Approximately 67% of the county's machinery & equipment inventory are in poor to critical condition. As such, the county received a Condition vs. Performance rating of 'D'.

Machinery & Equipment Condition by Quantity (Age Based)



3.5.4 What do we need to do to it?

There are generally four distinct phases in an asset's life cycle. These are presented at a high level for the machinery & equipment below. Further detail is provided in the "Asset Management Strategy" section of this AMP.

Addressing Asset Needs		
Phase	Lifecycle Activity	Asset Age
Minor Maintenance	Planned activities such as inspections, monitoring, etc.	1st Qtr
Major Maintenance	Maintenance and repair activities, generally unplanned, however, anticipated activities that are included in the annual operating budget.	2nd Qtr
Rehabilitation	Major activities such as the upgrade or replacement of smaller individual components.	3rd Qtr
Replacement	Complete replacement of asset components.	4th Qtr

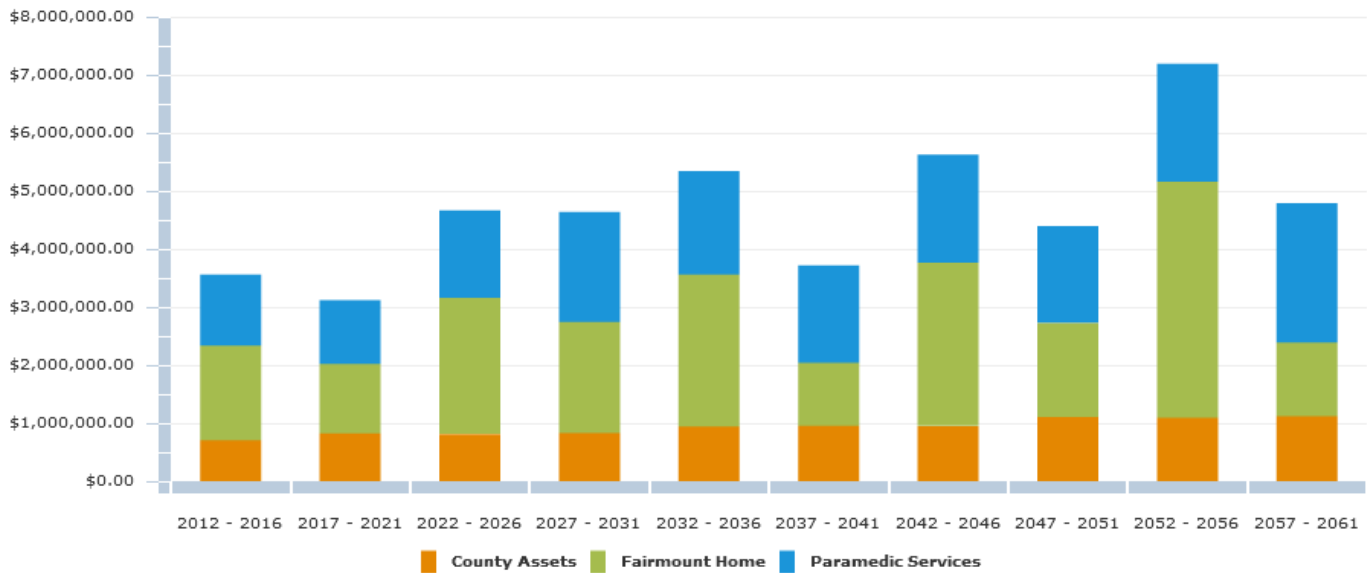
3.5.5 When do we need to do it?

For the purpose of this report 'useful life' data for each asset class was obtained from the accounting data within the CityWide software database. This proposed useful life is used to determine replacement needs of individual assets, which are calculated in the system as part of the overall financial requirements.

Asset Useful Life in Years		
Asset Type	Asset Component	Useful Life in Years
Machinery & Equipment	County Assets	15/10/5
	Fairmount Home	50/25/20/15/10/5
	Paramedic Services	30/20/10/7/6/5/3

As field condition information becomes available in time, the data should be loaded into the CityWide system in order to increasingly have a more accurate picture of current asset age and condition, therefore, future replacement requirements. The following graph shows the current projection of machinery & equipment replacements based on the age of the asset only.

Machinery & Equipment Replacement Profile (Age Based)



3.5.6 How much money do we need?

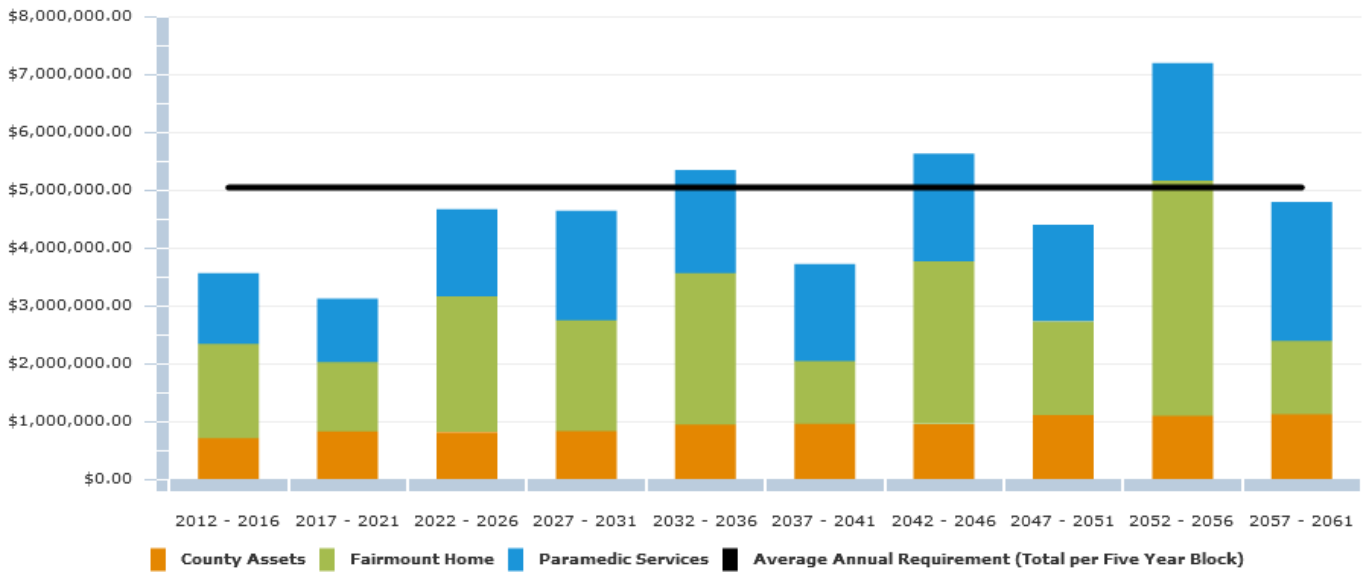
The analysis completed to determine capital revenue requirements was based on the following assumptions:

1. Replacement costs are based upon the unit costs identified within the "What is it worth" section above.
2. The timing for individual machinery & equipment replacement was defined by the replacement year as described in the "When do you need to do it?" section above.
3. All values are presented in 2012 dollars.
4. The analysis was run for a 50 year period including a 1% inflation factor to ensure all assets went through at least one iteration of replacement, therefore providing a sustainable projection.

3.5.7 How do we reach sustainability?

Based upon the above assumptions, the average annual revenue required to sustain the County of Frontenac's machinery & equipment inventory is approximately **\$1,007,500**. Based on the County of Frontenac's current annual funding of **\$825,500** which includes the City of Kingston's current and anticipated contribution to Fairmount Home assets, there is an annual **deficit of \$182,000**. As such, the county received a Funding vs. Need rating of 'B'.

Sustainable Revenue Requirements (Age Based)



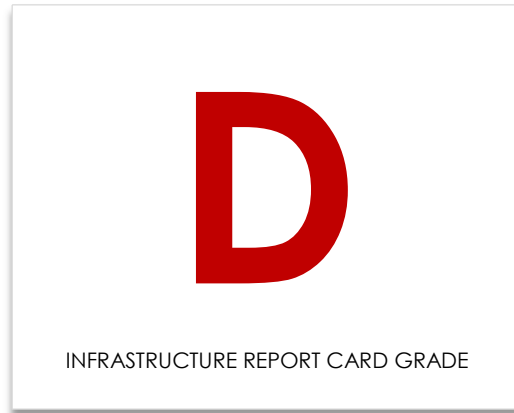
In conclusion, the majority of County of Frontenac's machinery & equipment, based on age data only, is in poor to critical condition with some immediate asset replacements required. With significant replacement cycles required over the next 5 years totaling approximately \$3.55 million, a breakdown of inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long term budget.

3.5.8 Recommendations

The county received an overall rating of 'C' for its machinery & equipment, calculated from the Condition vs. Performance and the Funding vs. Need ratings. Accordingly, we recommend the following:

1. An inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long and short term budget as outlined further within the "Asset Management Strategy" section of this AMP.
2. Once the above study is complete or underway, the condition data should be loaded into the CityWide software and an updated "current state of the infrastructure" analysis should be generated.
3. An appropriate % of asset replacement value should be used for operations and maintenance activities on an annual basis. This should be determined through a detailed analysis of O & M activities and be added to future AMP reporting.
4. The Infrastructure Report Card should be updated on an annual basis.

3.6 Land Improvements



3.6 Land Improvements

3.6.1 What do we own?

The inventory components for Land Improvements are outlined in the table below.

Land Improvements Inventory		
Asset Type	Asset Component	Quantity
Land Improvements	Lighting	1
	Parking Lots/Sidewalks	5
	Trail	1
	Trail Bridge	1
	Wastewater/Storm	3

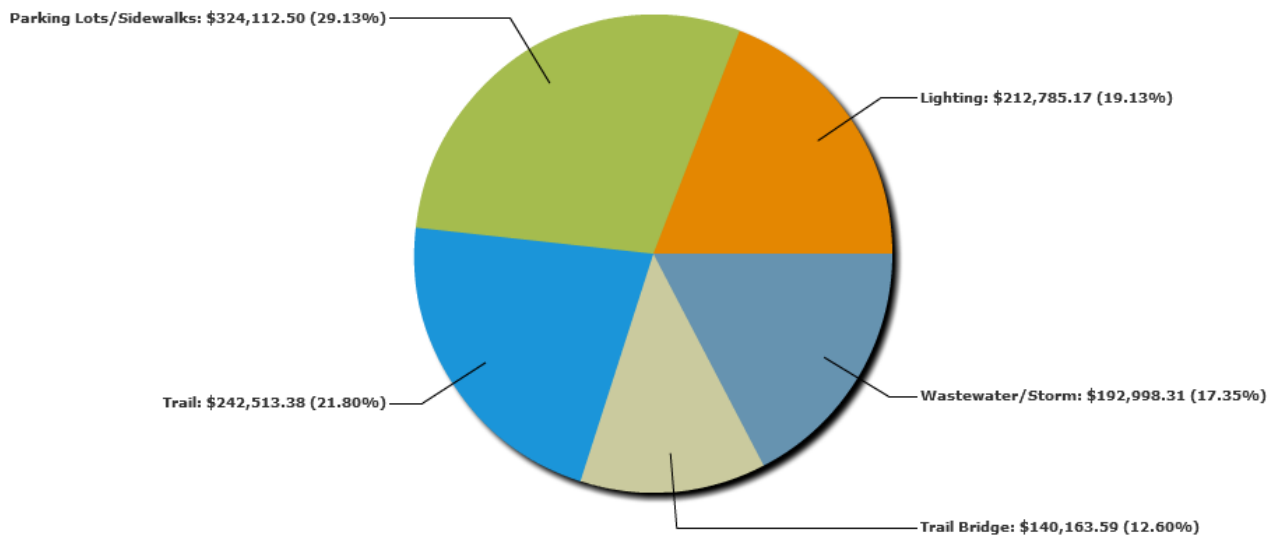
The land improvement data was extracted from the Tangible Capital Asset module of the CityWide software application.

3.6.2 What is it worth?

The estimated replacement value of land improvements, in 2012 dollars, is approximately \$1.1 million. The cost per household for land improvements is \$60 based on 18,433 households.

Land Improvements Replacement Value				
Asset Type	Asset Component	Quantity	2012 Unit Replacement Cost	2012 Overall Replacement Cost
Land Improvements	Lighting	1	NRBCPI (Ottawa)	\$212,785
	Parking Lots/Sidewalks	5	NRBCPI (Ottawa)	\$324,112
	Trail	1	NRBCPI (Ottawa)	\$242,513
	Trail Bridge	1	NRBCPI (Ottawa)	\$140,164
	Wastewater/Storm	3	NRBCPI (Ottawa)	\$192,998
				\$1,112,572

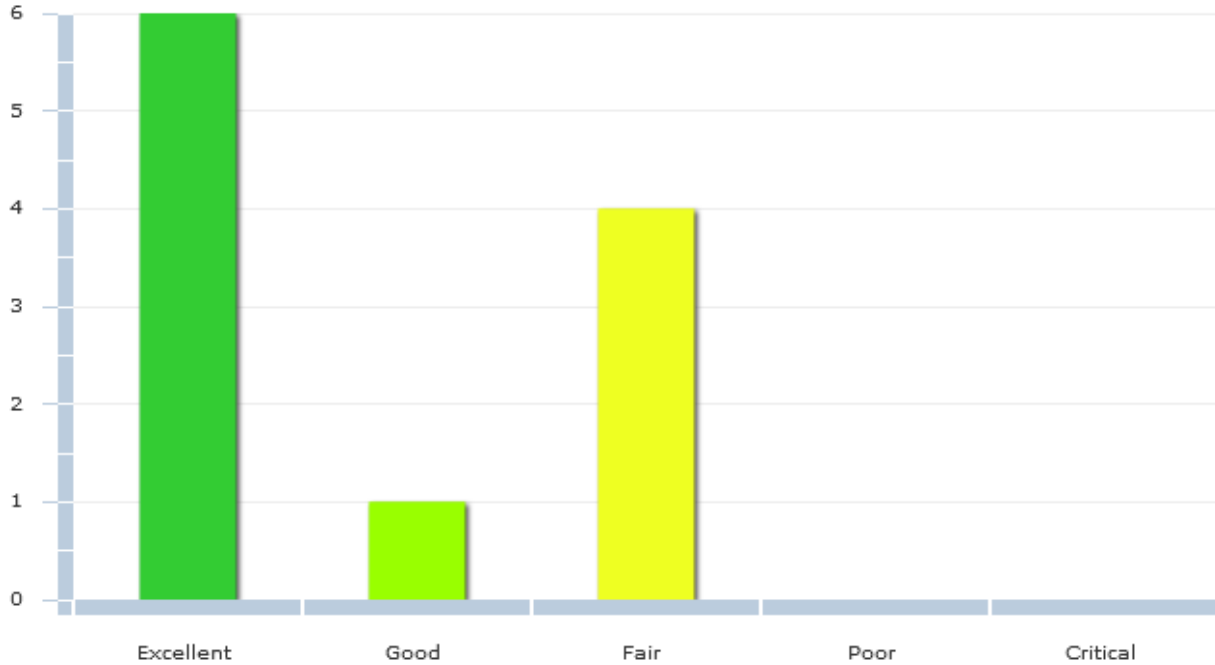
Land Improvements Replacement Cost



3.6.3 What condition is it in?

All of the county's land improvements are in fair to excellent condition. As such, the county received a Condition vs. Performance rating of 'B'.

Land Improvements Condition by Quantity (Age Based)



3.6.4 What do we need to do to it?

There are generally four distinct phases in an assets life cycle. These are presented at a high level for the land improvements below. Further detail is provided in the "Asset Management Strategy" section of this AMP.

Addressing Asset Needs		
Phase	Lifecycle Activity	Asset Life Stage
Minor Maintenance	Planned activities such as inspections, monitoring, etc.	1 st Qtr
Major Maintenance	Maintenance and repair activities, generally unplanned, however, anticipated activities that are included in the annual operating budget.	2 nd Qtr
Rehabilitation	Major activities such as the upgrade or replacement of smaller individual components.	3 rd Qtr
Replacement	Complete replacement of asset components.	4 th Qtr

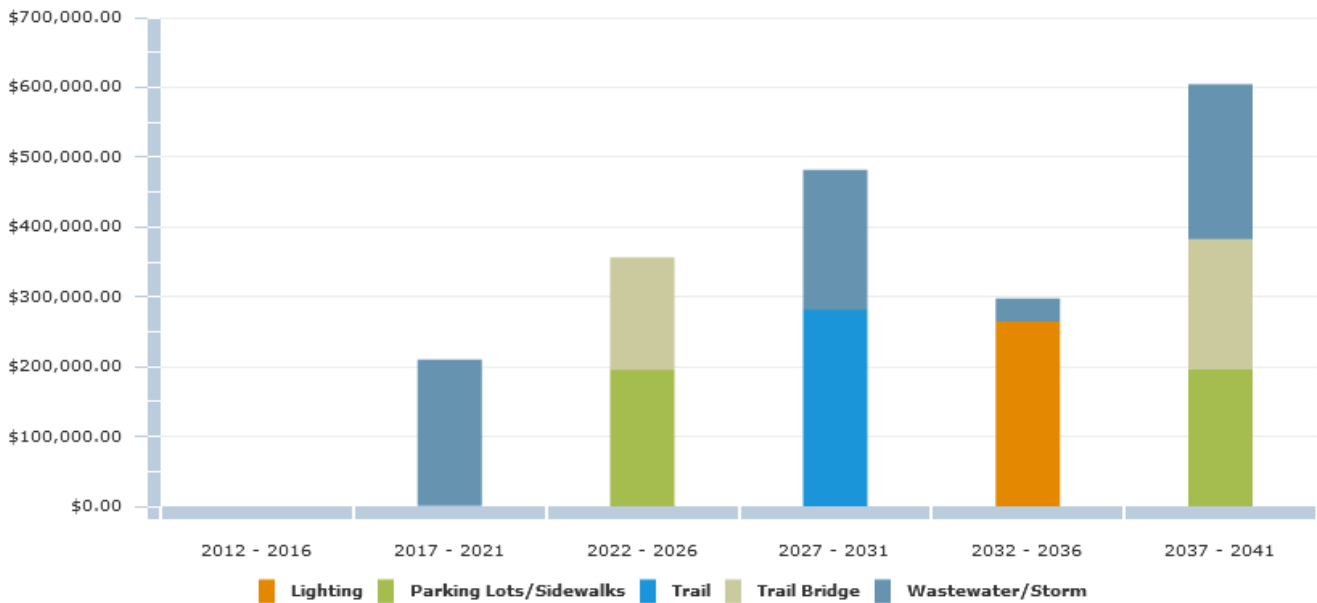
3.6.5 When do we need to do it?

For the purpose of this report 'useful life' data for each asset class was obtained from the accounting data within the CityWide software database. This proposed useful life is used to determine replacement needs of individual assets, which are calculated in the system as part of the overall financial requirements.

Asset Useful Life in Years		
Asset Type	Asset Component	Useful Life in Years
Land Improvements	Lighting	30
	Parking Lots/Sidewalks	30/20
	Trail	15
	Trail Bridge	15
	Wastewater/Storm	15/10

As field condition information becomes available in time, the data should be loaded into the CityWide system in order to increasingly have a more accurate picture of current asset performance age and, therefore, future replacement requirements. The following graph shows the current projection of land improvement replacements based on the age of the asset only.

Land Improvements Replacement Profile (Age Based)



3.6.6 How much money do we need?

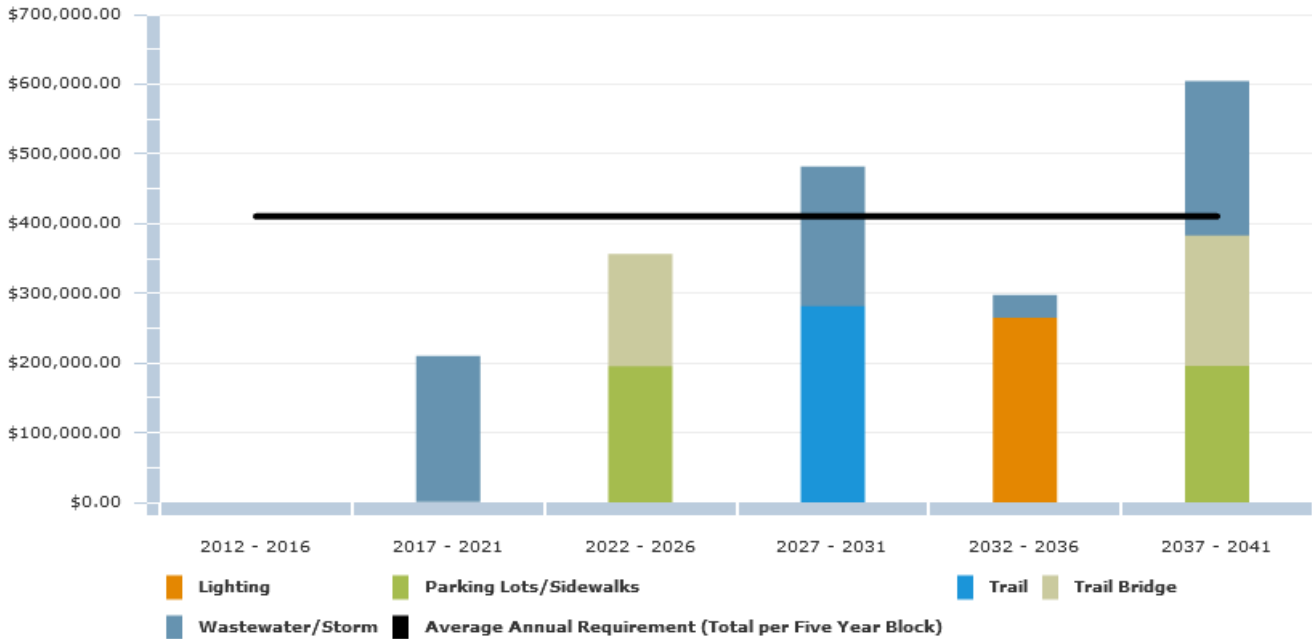
The analysis completed to determine capital revenue requirements was based on the following assumptions:

1. Replacement costs are based upon the unit costs identified within the "What is it worth" section above.
2. The timing for individual land improvement replacement was defined by the replacement year as described in the "When do you need to do it?" section above.
3. All values are presented in 2012 dollars.
4. The analysis was run for a 30 year period including a 1% inflation factor to ensure all assets went through at least one iteration of replacement, therefore providing a sustainable projection.

3.6.7 How do we reach sustainability?

Based upon the above assumptions, the average annual revenue required to sustain the County of Frontenac's land improvements inventory is approximately **\$82,000**. Based on the County of Frontenac's current annual funding of **\$0**, there is an annual **deficit of \$82,000**. As such, the county received a Funding vs. Need rating of 'F'.

Sustainable Revenue Requirements (Age Based)



In conclusion, County of Frontenac's land improvements, based on age data only, are in good condition with no immediate asset replacements required. However, a breakdown of inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long term budget.

3.6.8 Recommendations

The county received an overall rating of 'D' for land improvements, calculated from the Condition vs. Performance and the Funding vs. Need ratings. Accordingly, we recommend the following:

1. An inventory at the component level and an associated condition assessment program should be established to aid in prioritizing overall needs for rehabilitation and replacement and to assist with optimizing the long and short term budget as outlined further within the "Asset Management Strategy" section of this AMP.
2. Once the above study is complete or underway, the condition data should be loaded into the CityWide software and an updated "current state of the infrastructure" analysis should be generated.
3. An appropriate % of asset replacement value should be used for operations and maintenance activities on an annual basis. This should be determined through a detailed analysis of O & M activities and be added to future AMP reporting.
4. The Infrastructure Report Card should be updated on an annual basis.

4.0 Infrastructure Report Card

CUMULATIVE GPA

D+

Infrastructure Report Card The County of Frontenac

1. Each asset category was rated on two key, equally weighted (50/50) dimensions: **Condition vs. Performance**, and **Funding vs. Need**.
2. See the "**What condition is it in?**" section details on the grade of each asset category on the Condition vs. Performance dimension.
3. See the "**How do we reach sustainability?**" section for details on the grade of each asset category on the Funding vs. Need dimension.
4. The 'Overall Rating' below is the average of the two ratings.

Asset Category	Condition vs. Performance	Funding vs. Need	Overall Grade	Comments
Vehicles	C+	C	C	The majority, 80%, of the county's vehicles are in fair to excellent condition, with the remaining 20% in poor to critical condition. The average annual revenue required to sustain the County of Frontenac's vehicles is approximately \$549,000 . Based on The County of Frontenac's current annual funding of \$394,000 , there is an annual deficit of \$155,000 .
Buildings	C+	D	D+	The majority, 90%, of the county's buildings are in fair to excellent condition. The average annual revenue required to sustain the County of Frontenac's building inventory is approximately \$990,000 . Based on the County of Frontenac's current annual funding of \$558,000 , and based on the County's 32% share of Fairmount Home, assuming the City of Kingston's continued 68% commitment, there is an annual deficit of \$432,000 .
Machinery & Equipment	D	B	C	Approximately 67% of the county's machinery & equipment inventory are in poor to critical condition. The average annual revenue required to sustain the County of Frontenac's machinery & equipment inventory is approximately \$1,007,500 . Based on the County of Frontenac's current annual funding of \$825,500 which includes the City of Kingston's current and anticipated contribution to Fairmount Home assets, there is an annual deficit of \$182,000 .
Land Improvements	B	F	D	All of the county's land improvements are in fair to excellent condition. The above assumptions, the average annual revenue required to sustain the County of Frontenac's land improvements inventory is approximately \$82,000 . Based on the County of Frontenac's current annual funding of \$0 , there is an annual deficit of \$82,000 .

5.0 Desired Levels of Service

Desired levels of service are high level indicators, comprising many factors, as listed below, which establish defined quality thresholds at which municipal services should be supplied to the community. They support the organisation's strategic goals and are based on customer expectations, statutory requirements, standards, and the financial capacity of a county to deliver those levels of service.

Levels of Service are used:

- to inform customers of the proposed type and level of service to be offered;
- to identify the costs and benefits of the services offered;
- to assess suitability, affordability and equity of the services offered;
- as a measure of the effectiveness of the asset management plan
- as a focus for the AM strategies developed to deliver the required level of service

In order for a county to establish a desired level of service, it will be important to review the key factors involved in the delivery of that service, and the interactions between those factors. In addition, it will be important to establish some key performance metrics and track them over an annual cycle to gain a better understanding of the current level of service supplied.

Within this first Asset Management Plan, key factors affecting level of service will be outlined below and some key performance indicators for each asset type will be outlined for further review. This will provide a framework and starting point from which the county can determine future desired levels of service for each infrastructure class.

5.1 Key factors that influence a level of service:

- Strategic and Corporate Goals
- Legislative Requirements
- Expected Asset Performance
- Community Expectations
- Availability of Finances

5.1.1 Strategic and Corporate Goals

Infrastructure levels of service can be influenced by strategic and corporate goals. Strategic plans spell out where an organization wants to go, how it's going to get there, and helps decide how and where to allocate resources, ensuring alignment to the strategic priorities and objectives . It will help identify priorities and guide how municipal tax dollars and revenues are spent into the future. The level of importance that a community's vision is dependent upon infrastructure, will ultimately affect the levels of service provided or those levels that it ultimately aspires to deliver.

5.1.2 Legislative Requirements

Infrastructure levels of service are directly influenced by many legislative and regulatory requirements. For instance, building codes, and the Accessibility for Ontarians with Disabilities Act are both legislative requirements that prevent levels of service from declining below a certain standard.

5.1.3 Expected Asset Performance

A level of service will be affected by current asset condition, and performance and limitations in regards to safety, capacity, and the ability to meet regulatory and environmental requirements. In addition, the design life of the asset, the maintenance items required, the rehabilitation or replacement schedule of the asset, and the total costs, are all critical factors that will affect the level of service that can be provided.

5.1.4 Community Expectations

Levels of services are directly related to the expectations that the general public has from the infrastructure. For example, the public will have a qualitative opinion on what the acceptable condition of a County Facility should look like, and a quantitative one on how long it should take to make noticeable repairs. Infrastructure costs are projected to increase dramatically in the future, therefore it is essential that

the public is not only consulted, but also be educated, and ultimately make choices with respect to the service levels that they wish to pay for.

5.1.5 Availability of Finances

Availability of finances will ultimately control all aspects of a desired level of service. Ideally, these funds must be sufficient to achieve corporate goals, meet legislative requirements, address an asset's life cycle needs, and meet community expectations. Levels of service will be dictated by availability of funds or elected officials' ability to increase funds, or the community's willingness to pay.

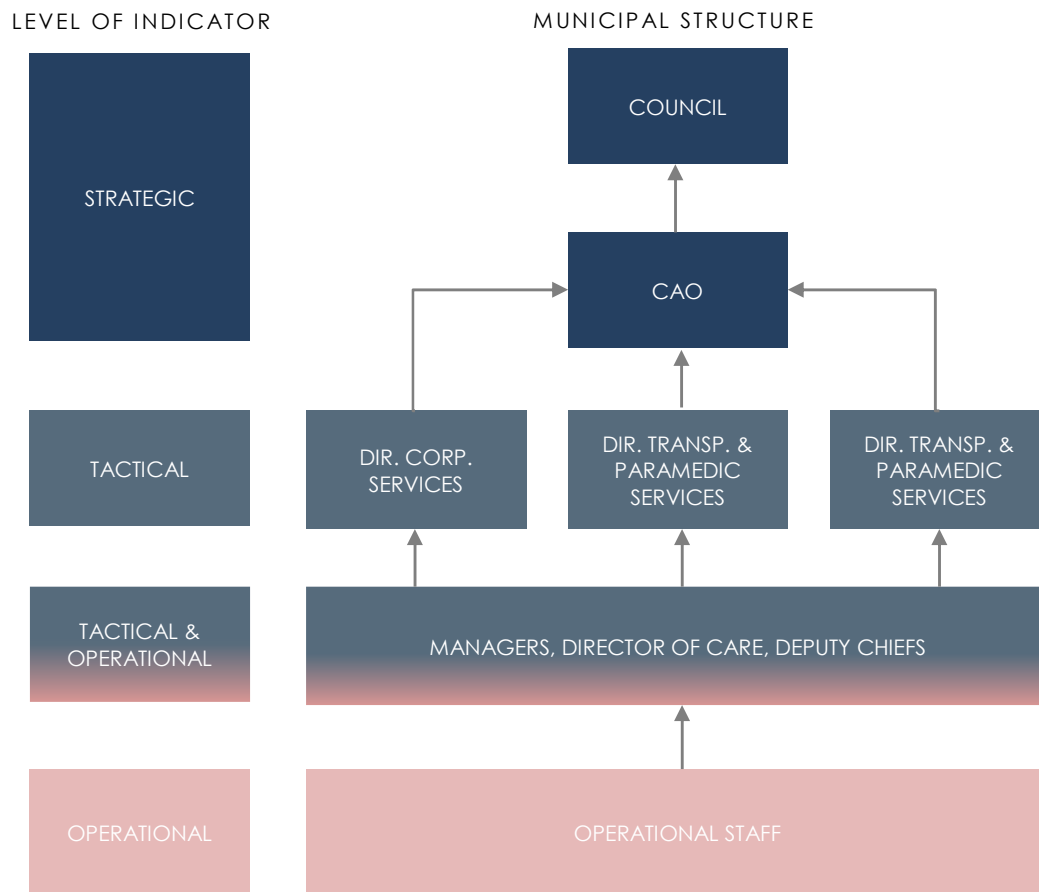
5.2 Key Performance Indicators

Performance measures or key performance indicators (KPIs) that track levels of service should be specific, measurable, achievable, relevant, and timebound (SMART). Many good performance measures can be established and tracked through the CityWide suite of software products. In this way, through automation, results can be reviewed on an annual basis and adjustments can be made to the overall asset management plan, including the desired level of service targets.

In establishing measures, a good rule of thumb to remember is that maintenance activities ensure the performance of an asset and prevent premature aging, whereas rehab activities extend the life of an asset. Replacement activities, by definition, renew the life of an asset. In addition, these activities are constrained by resource availability (in particular, finances) and strategic plan objectives. Therefore, performance measures should not just be established for operating and maintenance activities, but also for the strategic, financial, and tactical levels of the asset management program. This will assist all levels of program delivery to review their performance as part of the overall level of service provided.

This is a very similar approach to the "balanced score card" methodology, in which financial and non-financial measures are established and reviewed to determine whether current performance meets expectations. The "balanced score card", by design, links day to day operations activities to tactical and strategic priorities in order to achieve an overall goal, or in this case, a desired level of service.

The structure of accountability and level of indicator with this type of process is represented in the following table, modified from the InfraGuide's best practice document, "Developing Indicators and Benchmarks" published in April 2003.



As a note, a caution should be raised over developing too many performance indicators that may result in data overload and lack of clarity. It is better to develop a select few that focus in on the targets of the asset management plan.

Outlined below for each infrastructure class is a suggested service description, suggested service scope, and suggested performance indicators. These should be reviewed and updated in each iteration of the AMP.

5.3 Buildings and Facilities

5.3.1 Buildings and Facilities

The county's buildings and facilities enable the county to perform administrative functions and also provide social, cultural, recreational and educational amenities for the community at large.

5.3.2 Scope of Services

- **Movement** – providing for the movement of people and goods.
- **Access** – providing access to residential, commercial, and industrial properties and other community amenities.
- **Recreation** – providing for recreational use, such as walking, cycling, or special events such as parades.

5.3.3 Performance Indicators (reported annually)

Performance Indicators (reported annually)	
Strategic Indicators	<ul style="list-style-type: none"> ■ percentage of total reinvestment compared to asset replacement value ■ completion of strategic plan objectives (related to facilities)
Financial Indicators	<ul style="list-style-type: none"> ■ annual revenues compared to annual expenditures ■ annual replacement value depreciation compared to annual expenditures ■ repair and maintenance cost per square metre ■ energy, utility and water cost per square metre
Tactical Indicators	<ul style="list-style-type: none"> ■ percentage of component value replaced ■ overall facility condition index as a percentage of desired condition index ■ annual adjustment in condition indexes ■ annual percentage of new facilities (square metre) ■ percent of facilities rated poor or critical ■ percentage of facilities replacement value spent on operations and maintenance
Operational Indicators	<ul style="list-style-type: none"> ■ percentage of facilities inspected within the last 5 years ■ number/type of service requests ■ percentage of customer requests responded to within 24 hours

5.4 Parks and Open Spaces

5.4.1 Service Description

The county's parks and open space land holdings and related infrastructure provide recreation and conservation of natural resources, and ultimately contribute to the county's natural form, character and scenic value.

5.4.2 Performance Indicators (reported annually)

Performance Indicators (reported annually)	
Strategic Indicators	<ul style="list-style-type: none"> ■ percentage of total reinvestment compared to asset replacement value ■ completion of strategic plan objectives (related to parks & land)
Financial Indicators	<ul style="list-style-type: none"> ■ annual revenues compared to annual expenditures ■ annual replacement value depreciation compared to annual expenditures ■ cost per capita for supplying parks / trails, etc ■ maintenance cost per square metre
Tactical Indicators	<ul style="list-style-type: none"> ■ overall park condition index as a percentage of desired condition index ■ annual adjustment in condition indexes ■ annual percentage of new parkland ■ percent of park land and infrastructure rated poor or critical ■ percentage of replacement value spent on operations and maintenance parkland per capita
Operational Indicators	<ul style="list-style-type: none"> ■ percentage of park and infrastructure inspected within the last 5 years ■ number/type of service requests ■ percentage of customer requests responded to within 24 hours

5.5 Fleet (Rolling Stock)

5.5.1 Service Description

The county's diverse fleet of vehicles provides support to multiple departments as part of their delivery of various public programs and services to the citizens.

5.5.2 Performance Indicators (reported annually)

Performance Indicators (reported annually)	
Strategic Indicators	<ul style="list-style-type: none"> ■ percentage of total reinvestment compared to asset replacement value ■ completion of strategic plan objectives (related to fleet)
Financial Indicators	<ul style="list-style-type: none"> ■ annual revenues compared to annual expenditures ■ annual replacement value depreciation compared to annual expenditures ■ operating and maintenance cost per fleet category ■ Fuel costs per fleet category
Tactical Indicators	<ul style="list-style-type: none"> ■ percentage of all vehicles replaced ■ average age of fleet vehicles ■ percent of vehicles rated poor or critical ■ percentage of fleet replacement value spent on operations and maintenance
Operational Indicators	<ul style="list-style-type: none"> ■ average downtime per fleet category ■ average utilization per fleet category and/or each vehicle ■ ratio of preventative maintenance repairs vs reactive repairs ■ percent of vehicles that received preventative maintenance ■ number/type of service requests ■ percentage of customer requests responded to within 24 hours

6.0 Asset Management Strategy

6.1 Objective

To outline and establish a set of planned actions, based on best practice, that will enable the assets to provide a desired and sustainable level of service, while managing risk, at the lowest life cycle cost.

The Asset Management Strategy will develop an implementation process that can be applied to the needs identification and prioritization of renewal, rehabilitation, and maintenance activities. This will assist in the production of a 10 year plan, including growth projections, to ensure the best overall health and performance of the county's infrastructure.

This section includes an overview of condition assessment techniques for each asset class; the life cycle interventions required, including interventions with the best ROI; and prioritization techniques, including risk, to determine which priority projects should move forward into the budget first.

6.2 Non-Infrastructure Solutions and Requirements

The county should explore, as requested through the provincial requirements, which non-infrastructure solutions should be incorporated into the budgets for the vehicles, buildings, machinery & equipment, and land improvements. Non- Infrastructure solutions are such items as studies, policies, condition assessments, consultation exercises, etc., that could potentially extend the life of assets or lower total asset program costs in the future.

Typical solutions for a county include linking the asset management plan to the strategic plan, growth and demand management studies, infrastructure master plans, better integrated infrastructure and land use planning, public consultation on levels of service, and condition assessment programs. As part of future asset management plans, a review of these requirements should take place, and a portion of the capital budget should be dedicated for these items in each programs budget.

It is recommended, under this category of solutions, that the county implement holistic condition assessment programs for their vehicles, buildings, machinery & equipment, and land improvement assets. This will lead to higher understanding of infrastructure needs, enhanced budget prioritization methodologies, and a clearer path of what is required to achieve sustainable infrastructure programs.

6.3 Condition Assessment Programs

The foundation of good asset management practice is based on having comprehensive and reliable information on the current condition of the infrastructure. Municipalities need to have a clear understanding regarding performance and condition of their assets, as all management decisions regarding future expenditures and field activities should be based on this knowledge. An incomplete understanding about an asset may lead to its premature failure or premature replacement.

Some benefits of holistic condition assessment programs within the overall asset management process are listed below:

- Understanding of overall condition leads to better management practices
- Allows for the establishment of rehabilitation programs
- Prevents future failures and provides liability protection
- Potential reduction in operation / maintenance costs
- Accurate current asset valuation
- Allows for the establishment of risk assessment programs
- Establishes proactive repair schedules and preventive maintenance programs
- Avoids unnecessary expenditures

- Extends asset service life therefore improving level of service
- Improves financial transparency and accountability
- Enables accurate asset reporting which, in turn, enables better decision making

Condition assessment can involve different forms of analysis such as subjective opinion, mathematical models, or variations thereof, and can be completed through a very detailed or very cursory approach.

When establishing the condition assessment of an entire asset class, the cursory approach (metrics such as good, fair, poor, critical) is used. This will be a less expensive approach when applied to thousands of assets, yet will still provide up to date information, and will allow for detailed assessment or follow up inspections on those assets captured as poor or critical condition later.

The following section outlines condition assessment programs available for facilities and fleet that would be useful for the county.

6.3.1 Facility Inspections

The most popular and practical type of 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.

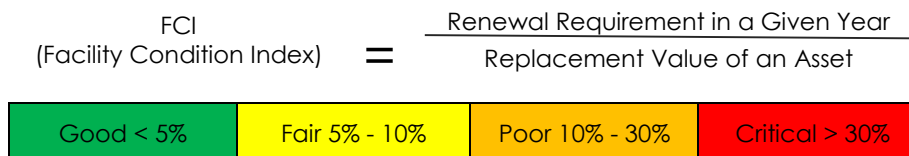
The following 5 asset classifications are typically inspected:

- **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, escalators and stair lifts.

The data collection on the above components typically includes: type and category of component; estimated age; current condition; estimated repair, rehabilitation or replacement date; and estimated cost for the repair, rehabilitation or replacement.

Once collected this type of information can be uploaded into the CityWide 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.

In addition, reports can be generated for each facility that accumulate all current repair, rehabilitation and replacement requirements and generate a facility condition index (FCI) for the overall facility. This allows senior management to assess the overall state of the housing portfolio and determine which facilities have the greatest overall needs.



It is recommended that the county establish a facility condition assessment program and that a portion of capital funding is dedicated to this.

6.3.2 Fleet (Rolling Stock) Inspections and Maintenance

The typical approach to optimizing the maintenance expenditures of a corporate fleet of vehicles is through routine vehicle inspections, routine vehicle servicing, and an established routine 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 vehicle 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.

Once a good preventative maintenance program is defined and scheduled for various categories and types of vehicles it becomes essential to have good software tools to track the scheduling and performance of the overall program. There are municipal maintenance software programs, such as CityWide, that are ideal for this purpose as they are designed to enable county staff to prioritize, schedule and track projects including preventative maintenance schedules. In addition these software applications typically calculate resources utilized, inventory consumed, as well as direct and indirect labour, and will provide full management reporting.

The County currently has a comprehensive fleet inspection and maintenance program in place. This program should be reviewed annually and updated as required.

6.4 Growth and Demand

Typically a county will have specific plans associated with population growth. It is essential that the asset management strategy should address not only the existing infrastructure, as above, but must include the impact of projected growth on defined project schedules and funding requirements. Projects would include the funding of the construction of new assets, and/or the expansion of existing to meet new demands.

6.4.1 Buildings and Facilities

The best approach to develop a 10 year needs list for the county's facility portfolio would be to have the engineers 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.

6.4.2 Legislative requirements

Acts to consider as part of the 10 year plan would be:

Accessibility for Ontarians with Disabilities Act By January 2012, all public sector in Ontario were required to comply with the customer service standard under the *Accessibility for Ontarians with Disabilities Act, 2005* (AODA). This means that each organization will have to establish policies, practices and procedures on providing goods and services to people with disabilities.

The Building Code Act (BCA) and the *Ontario Building Code* (OBC) govern the construction, demolition, and renovation of buildings by setting certain minimum performance and safety standards.

The initial 10 year requirements listings produced from the facility audits / inspections should be reviewed to ensure capital replacements and upgrades are compliant with industry standards and legislation and project prioritisations and estimates should be adjusted accordingly.

6.4.3 Energy Conservation

There are significant savings to be achieved within a facility portfolio through the implementation of energy conservation programs and the associated industry incentives available upon the market. Some examples would be:

Mechanical & Structural Components

- Improve mechanical systems by replacing old inefficient systems (e.g., HVAC, boilers) with new high efficiency systems; investigate if incentives for these improvements are available from utilities, federal government, etc.
- Investigate the tightness and insulation of the building envelope in all properties and develop programs for improvement
- Reduce solar gain through windows with awnings or landscaping.
- Replace/upgrade all toilets with high efficiency toilets

Electrical Components

- Install occupancy sensors
- Implement energy efficiency lighting using compact fluorescent light bulbs and install timers where appropriate to control outside lights
- Install fully programmable thermostats within all housing units

Energy conservation should be studied in detail for the entire facilities portfolio and upgrade and replacement programs should be implemented through the capital program as part of the 10 year plan.

Customer Expectation and Affordability or Willingness to Pay

As discussed within the "Desired Levels of Service" section of this AMP, levels of service are directly related to the expectations of the customer and also their ability to pay for a level of service. Community facilities, such as libraries, are infrastructure service areas where customer surveys can be conducted to gain a better sense of what customer expectations are and to assist in the establishment of a standard level of provision or service. Information could be collected on: safety; security; esthetics; environment; comfort; affordability; cleanliness; functional use of space; etc. This would require a much more detailed review, however, the establishment of a level of service based on customer needs and expectations, while still balancing affordability, would directly affect the prioritization of programs and projects brought forward into the 10 year facility budget.

It is recommended that the county develop a life cycle framework for the facility portfolio based on a detailed review of the above factors and that the results are brought forward into future iterations of this AMP.

6.4.4 Fleet (Rolling Stock)

Life Cycle Requirements

The best approach to develop a 10 year needs list for the county's vehicles would first be through a defined preventative maintenance program as described in the "Fleet inspections and maintenance section", and secondly through an optimized life cycle vehicle replacement schedule. The county has already implemented a preventative maintenance program and a refurbishment program for its ambulance. As previously described, the preventative maintenance program will 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.

Fleet Utilization

One of the most critical factors in managing a fleet of vehicles and the associated costs is utilization. Over utilized vehicles may be used for additional shifts or operated in demanding environments while other vehicles are significantly under-utilized. To ensure preventative maintenance programs and vehicle replacement schedules are optimized, vehicle utilization must be managed and tracked. The county is currently tracking both mileage and engine usage.

A good performance indicator to assist with managing fleet utilization is tracking engine hours of actual vehicle usage, whether it's being driven or not, as kilometers driven is not always a meaningful way to assess whether a vehicle is being utilized fully. Better management of utilization can lower costs by reducing preventative maintenance for some vehicles, selling certain vehicles, encouraging vehicle pooling, outsourcing the use of certain vehicle types, and encouraging the use of employee vehicles.

Green Fleets

Due to the significant increase of fuel costs many fleet management groups are increasingly looking towards the greening of their fleets to lower future operating and maintenance costs. To date County council has supported green fleets, which includes most FPS fleet vehicles, ambulances and supervisor vehicles have Acetech ECORUN technology on-board, Deputy Chiefs and Chiefs vehicles are hybrid, and 2 non ambulance vehicles are hybrid. The city of London, UK, defines a green fleet "as one that does its best to minimize fuel consumption and exhaust emissions. It also seeks to minimize the amount of traffic it generates by utilizing vehicles efficiently and by using alternatives wherever possible". This area would require an individually tailored study for any county to project what type of savings could be achieved over the long term.

6.5 Project Prioritization

The above techniques and processes when established for the vehicles, buildings, machinery & equipment and land improvements will supply a significant listing of potential projects. Typically the infrastructure needs will exceed available resources and therefore project prioritization parameters must be developed to ensure the right projects come forward into the short and long range budgets. An important method of project prioritization is to rank each project, or each piece of infrastructure, on the basis of how much risk it represents to the organization.

6.5.1 Risk Matrix and Scoring Methodology

Risk within the infrastructure industry is often defined as the probability (likelihood) of failure multiplied by the consequence of that failure.

$$\text{RISK} = \text{LIKELIHOOD OF FAILURE} \times \text{CONSEQUENCE OF FAILURE}$$

The likelihood of failure relates to the current condition state of each asset, whether they are in excellent, good, fair, poor or critical condition, as this is a good indicator regarding their future risk of failure. The consequence of failure relates to the magnitude, or overall effect, that an asset's failure will cause. The following table represents the scoring matrix for risk:

Vehicles Risk Profile

		Probability of Failure					
		1	2	3	4	5	
Consequence of Failure	High						
	5	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	
	4	6 Assets 6 units \$809,265.00	3 Assets 3 units \$398,640.00	4 Assets 4 units \$544,080.00	2 Assets 2 units \$264,000.00	No Assets - N/A	
	3	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	
	2	No Assets - N/A	1 Asset 1 units \$197,443.00	No Assets - N/A	No Assets - N/A	No Assets - N/A	
1	1 Asset 1 units \$34,565.00	6 Assets 6 units \$381,683.56	2 Assets 2 units \$192,669.00	1 Asset 1 units \$71,892.00	3 Assets 3 units \$240,600.00		
	Low						High

Land Improvements Risk Profile

		High					
Consequence of Failure	5	1 Asset 1 units \$242,513.38	1 Asset 1 units \$212,785.17	No Assets - N/A	No Assets - N/A	No Assets - N/A	
	4	2 Assets 2 units \$289,613.74	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	
	3	1 Asset 1 units \$86,017.14	No Assets - N/A	1 Asset 1 units \$99,793.04	No Assets - N/A	No Assets - N/A	
	2	1 Asset 1 units \$57,257.29	No Assets - N/A	1 Asset 1 units \$73,377.23	No Assets - N/A	No Assets - N/A	
	1	1 Asset 1 units \$7,667.80	No Assets - N/A	2 Assets 2 units \$43,548.16	No Assets - N/A	No Assets - N/A	
	Low	1	2	3	4	5	High
		Probability of Failure					

All of the county's assets analyzed within this asset management plan have been given both a likelihood of failure score and a consequence of failure score within the CityWide software.

The following risk scores have been developed at a high level for each asset class within the CityWide software system. It is recommended that the county undertake a detailed study to develop a more tailored suite of risk scores, particularly in regards to the consequence of failure, and that this be updated within the CityWide software with future updates to this Asset Management Plan.

The current scores that will determine budget prioritization currently within the system are as follows:

All Assets:

The Likelihood of Failure score is based on the condition of the assets:

Likelihood of Failure: All Assets	
Asset condition	Likelihood of failure
Excellent condition	Score of 1
Good condition	Score of 2
Fair condition	Score of 3
Poor condition	Score of 4
Critical condition	Score of 5

Vehicles (based on valuation):

The consequence of failure score for this initial AMP is based upon the replacement value of each vehicle. The higher the value, probably the more critical the vehicle and therefore probably the higher the consequential risk of failure:

Consequence of Failure: Vehicles	
Replacement Value	Consequence of failure
Up to \$50k	Score of 1
\$51k to \$75k	Score of 2
\$76k to \$100k	Score of 3
\$101k to \$150k	Score of 4
Over \$150k	Score of 5

Buildings (based on valuation):

The consequence of failure score for this initial AMP is based upon the replacement value of each structure or component. The higher the value, probably the larger the structure and therefore probably the higher the consequential risk of failure:

Consequence of Failure: Buildings	
Replacement Value	Consequence of failure
Up to \$100k	Score of 1
\$101k to \$250k	Score of 2
\$251k to \$500k	Score of 3
\$500k to \$1M	Score of 4
Over \$1M	Score of 5

Machinery & Equipment (based on valuation):

The consequence of failure score for this initial AMP is based upon the replacement value of each piece of machinery or equipment. The higher the value, probably the more critical the machinery or equipment and therefore probably the higher the consequential risk of failure:

Consequence of Failure: Machinery & Equipment	
Replacement Value	Consequence of failure
Up to \$25k	Score of 1
\$26k to \$50k	Score of 2
\$51k to \$75k	Score of 3
\$76k to \$100k	Score of 4
Over \$100k	Score of 5

Land Improvements (based on valuation):

The consequence of failure score for this initial AMP is based upon the replacement value of each land improvement. The higher the value, probably the more critical the land improvement and therefore probably the higher the consequential risk of failure:

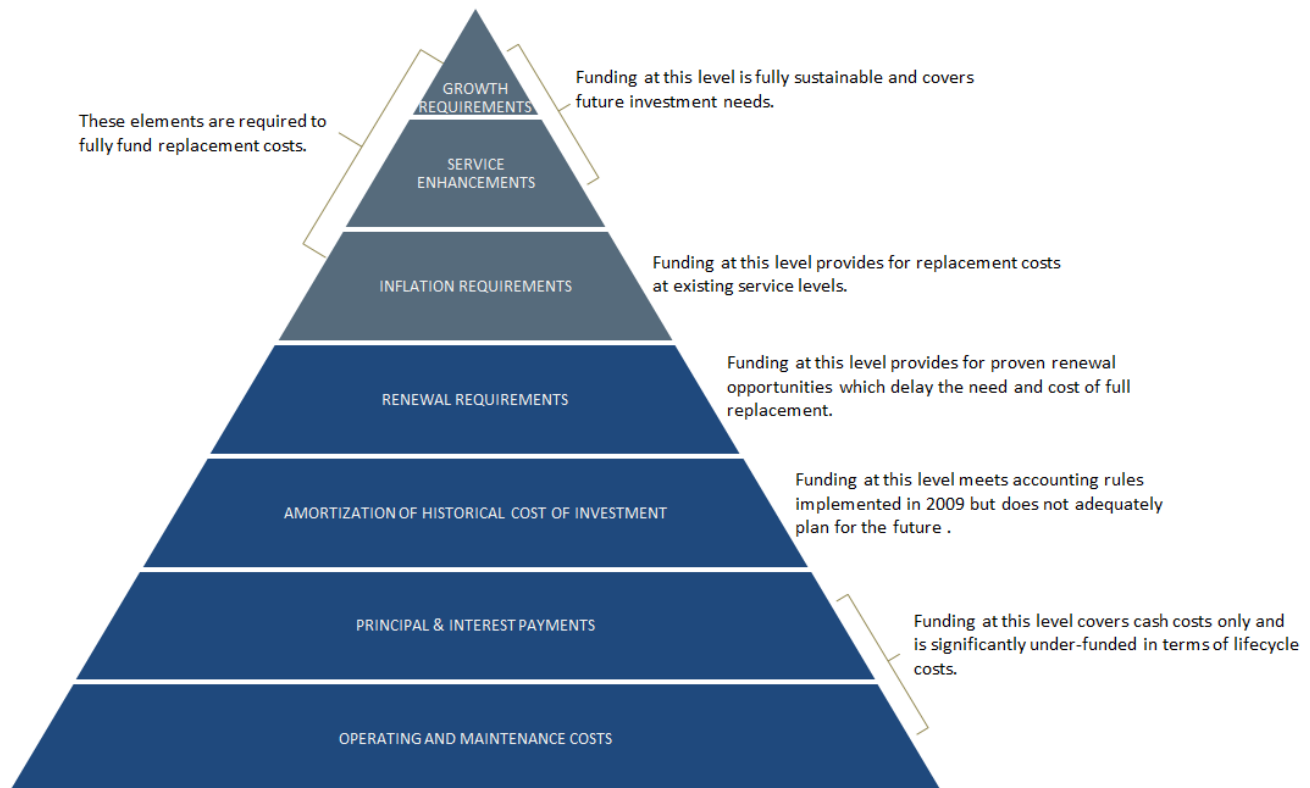
Consequence of Failure: Land Improvements	
Replacement Value	Consequence of failure
Up to \$50k	Score of 1
\$51k to \$75k	Score of 2
\$76k to \$100k	Score of 3
\$101k to \$150k	Score of 4
Over \$150k	Score of 5

7.0 Financial Strategy

7.1 General overview of financial plan requirements

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

The following pyramid depicts the various cost elements and resulting funding levels that should be incorporated into AMP's that are based on best practices.



This report develops such a financial plan by presenting several scenarios for consideration and culminating with final recommendations. As outlined below, the scenarios presented model different combinations of the following components:

- a) the financial requirements (as documented in the SOTI section of this report) for:
 - existing assets
 - existing service levels
 - requirements of contemplated changes in service levels (none identified for this plan)
 - requirements of anticipated growth (none identified for this plan)
- b) use of traditional sources of municipal funds:
 - tax levies
 - user fees
 - reserves
 - debt (no additional debt required for this AMP)
 - development charges (not applicable)

- c) use of non-traditional sources of municipal funds:
 - reallocated budgets (not required for this AMP)
 - partnerships (not applicable)
 - procurement methods (no changes recommended)
- d) use of senior government funds:
 - gas tax
 - grants (not included in this plan due to Provincial requirements for firm commitments)

If the financial plan component of an AMP results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a county's approach to the following:

- a) in order to reduce financial requirements, consideration has been given to revising service levels downward
- b) all asset management and financial strategies have been considered. For example:
 - if a zero debt policy is in place, is it warranted? If not, the use of debt should be considered.
 - do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

This AMP includes recommendations that avoid long-term funding deficits.

7.2 Financial information relating to County of Frontenac's AMP

7.2.1 Funding objective

We have developed scenarios that would enable the County of Frontenac to achieve full funding within 5 years or 10 years for the following assets:

- a) Vehicles
- b) Buildings
- c) Machinery & Equipment
- d) Land Improvements

For each scenario developed we have included strategies, where applicable, regarding the use of tax revenues, user fees and reserves.

7.3 Tax funded assets

7.3.1 Current funding position

Tables 1 and 2 outline, by asset category, County of Frontenac's average annual asset investment requirements, current funding positions and funding changes required to achieve full funding on assets funded by taxes.

Asset Category	Average Annual Investment Required	Average Annual Funding Over Last 3 Years				Annual Deficit/Surplus
		Taxes	Gas Tax	City of Kingston	Total Funding Available	
Vehicles	549,000	99,000	0	295,000	394,000	155,000
Buildings	990,000	0	0	558,000	558,000	432,000
Machinery & Equipment	1,007,500	232,500	0	593,000	825,500	182,000
Land Improvements	82,000	0	0	0	0	82,000
Total	2,628,500	331,500	0	1,446,000	1,777,500	851,000

7.3.2 Recommendations for full funding

The average annual investment requirement for vehicles, buildings, machinery & equipment, and land improvements is \$2,628,500. Annual revenue currently allocated to these assets for capital purposes is \$1,777,500 leaving an annual deficit of \$851,000. To put it another way, these infrastructure categories are currently funded at 68% of their long-term requirements.

In 2013, the County of Frontenac has annual tax revenues of \$8,162,000. As illustrated in table 2, without consideration of any other sources of revenue, full funding would require the following tax increase over time:

Asset Category	Tax Change Required for Full Funding
Vehicles	1.9%
Buildings	5.3%
Machinery & Equipment	2.2%
Land Improvements	1.0%
Total	10.4%

Through table 3, we have expanded the above scenario to present multiple options for a dedicated capital levy:

Table 3. Revenue Options for Full Funding		
	Tax Revenues	
	5 Years	10 Years
Annual Tax Increase Required	2.1%	1.0%

Considering all of the above information, we recommend the 10 year option in table 3. This involves full funding being achieved over 10 years by:

- a) increasing tax revenues by 1.0% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this funding cannot be incorporated into the AMP unless there are firm commitments in place.
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled (to 2050), the recommendations do require prioritizing capital projects to fit the resulting annual funding available. As of 2013, age based data shows a backlog investment demand of \$395,000 for vehicles, \$0 for buildings, \$1,634,035 for machinery & equipment and \$0 for land improvements. Prioritizing future projects will require the age based data to be replaced by condition based data. Although our recommendations include no further use of debt, the results of the condition based analysis may require otherwise.

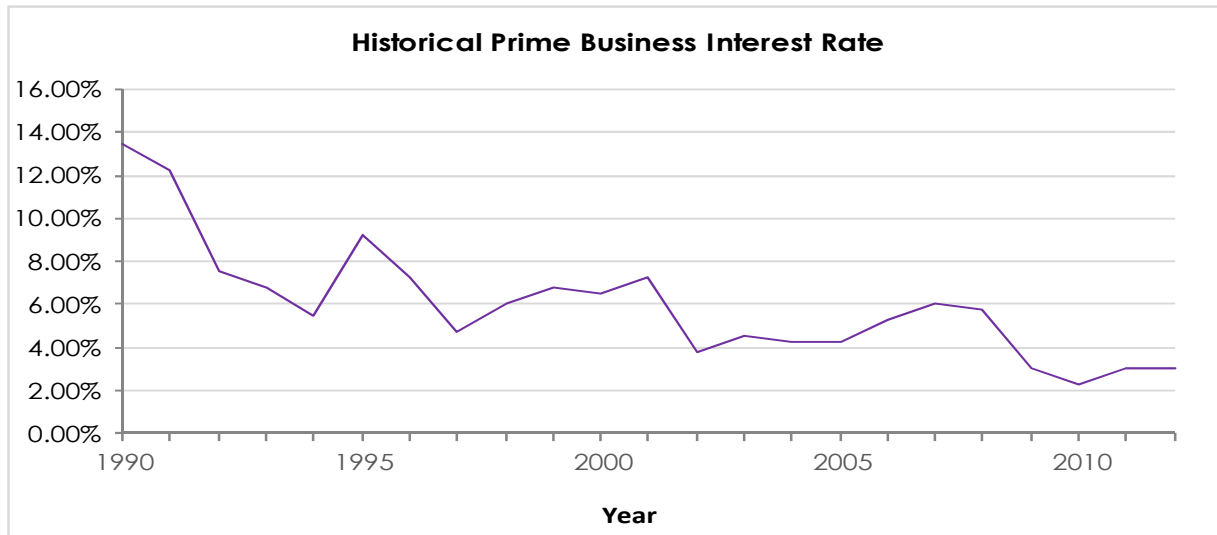
7.4 Use of debt

For reference purposes, table 4 outlines the premium paid on a project if financed by debt. For example, a \$1M project financed at 3.0%¹ over 15 years would result in a 26% premium or \$260,000 of increased costs due to interest payments. For simplicity, the table does not take into account the time value of money or the effect of inflation on delayed projects.

Interest Rate	Number of Years Financed					
	5	10	15	20	25	30
7.0%	22%	42%	65%	89%	115%	142%
6.5%	20%	39%	60%	82%	105%	130%
6.0%	19%	36%	54%	74%	96%	118%
5.5%	17%	33%	49%	67%	86%	106%
5.0%	15%	30%	45%	60%	77%	95%
4.5%	14%	26%	40%	54%	69%	84%
4.0%	12%	23%	35%	47%	60%	73%
3.5%	11%	20%	30%	41%	52%	63%
3.0%	9%	17%	26%	34%	44%	53%
2.5%	8%	14%	21%	28%	36%	43%
2.0%	6%	11%	17%	22%	28%	34%
1.5%	5%	8%	12%	16%	21%	25%
1.0%	3%	6%	8%	11%	14%	16%
0.5%	2%	3%	4%	5%	7%	8%
0.0%	0%	0%	0%	0%	0%	0%

¹ Current municipal Infrastructure Ontario rates for 15 year money is 3.2%.

It should be noted that current interest rates are near all-time lows. Sustainable funding models that include debt need to incorporate the risk of rising interest rates. The following graph shows where historical lending rates have been:



As illustrated in table 4, a change in 15 year rates from 3% to 6% would change the premium from 26% to 54%. Such a change would have a significant impact on a financial plan.

Tables 5 and 6 outline how the County of Frontenac has historically used debt for investing in the asset categories as listed. There is currently \$10,300,000 of debt outstanding for the assets covered by this AMP. In terms of overall debt capacity, the County of Frontenac has \$1,531,000 of total annual principal and interest payment commitments. These principal and interest payments are well within its provincially prescribed annual maximum of \$2,972,000.

Asset Category	Current Debt Outstanding	Use Of Debt in the Last Five Years				
		2009	2010	2011	2012	2013
Vehicles	0	0	0	0	0	0
Buildings	10,300,000	0	0	0	0	0
Machinery & Equipment	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0
Non AMP Debt	0	0	0	0	0	0
Overall Total	10,300,000	0	0	0	0	0

Table 6. Overview of Debt Costs

Asset Category	Principal & Interest Payments in the Next Five Years					
	2013	2014	2015	2016	2017	2018
Vehicles	0	0	0	0	0	0
Buildings	1,531,000	1,531,000	1,531,000	1,531,000	1,531,000	1,531,000
Machinery & Equipment	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0
Non Amp Debt	0	0	0	0	0	0
Overall Total	1,531,000	1,531,000	1,531,000	1,531,000	1,531,000	1,531,000

7.5 Use of reserves

7.5.1 Available reserves

Reserves play a critical role in long-term financial planning. The benefits of having reserves available for infrastructure planning include:

- the ability to stabilize tax rates when dealing with variable and sometimes uncontrollable factors
- financing one-time or short-term investments
- accumulating the funding for significant future infrastructure investments
- managing the use of debt
- normalizing infrastructure funding requirements

By infrastructure category, table 7 outlines the details of the reserves currently available to County of Frontenac.

Table 7. Summary of Reserves Available

Asset Category	Balance at December 31 st , 2013
Vehicles	170,700
Buildings	0
Machinery & Equipment	1,641,300
Land Improvements	0
Total Rate Funded	1,812,000

There is considerable debate in the municipal sector as to the appropriate level of reserves that a county should have on hand. There is no clear guideline that has gained wide acceptance. Factors that municipalities should take into account when determining their capital reserve requirements include:

- breadth of services provided
- age and condition of infrastructure
- use and level of debt
- economic conditions and outlook
- internal reserve and debt policies.

The reserves in table 7 are available for use by applicable asset categories during the phase-in period to full funding. If required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short to medium-term.

7.5.2 Recommendation

As the County of Frontenac updates its AMP and expands it to include other asset categories, we recommend that future planning should include determining what its long-term reserve balance requirements are and a plan to achieve such balances.

8.0 Appendix A: Report Card Calculations

Key Calculations

1. "Weighted, unadjusted star rating":

(% of assets in given condition) x (potential star rating)

2. "Adjusted star rating"

(weighted, unadjusted star rating) x (% of total replacement value)

3. "Overall Rating"

(Condition vs. Performance star rating) + (Funding vs. Need star rating)

2

Grade Cutoffs		
1. Conditions vs Performance		
Letter Grade	Star Rating	
F	0	
D	2	
D+	2.5	
C	2.9	
C+	3.5	
B	3.9	
B+	4.5	
A	4.9	
A	5	
2. Funding vs Need		
Funding %	Star rating	Grade
0.0%	0	F
25.0%	1	F
46.0%	1.9	D
61.0%	2.9	C
76.0%	3.9	B
91.0%	4.9	A
100.0%	5	A

Vehicles County of Frontenac

1. Condition vs. Performance

Total category replacement value		\$3,134,837		Segment replacement value		\$3,134,837		Segment value as a % of total category replacement value		100.0%
Segment	Condition	Letter grade	Star rating	Quantity of assets in given condition	% of Assets in given condition	Weighted, unadjusted star rating		Segment adjusted star rating		
Vehicles	Excellent	A	5	7	24%	1.21		3.5		
	Good	B	4	10	34%	1.38				
	Fair	C	3	6	21%	0.62				
	Poor	D	2	3	10%	0.21				
	Critical	F	1	3	10%	0.10				
			Totals	29	100%	3.52				

Category star rating	Category letter grade
3.5	C+

2. Funding vs. Need

Average annual investment required	2013 funding available	Funding percentage	Deficit	Category star rating	Category letter grade
\$549,000	\$394,000	71.8%	\$155,000	2.9	C

3. Overall Rating

Condition vs Performance star rating	Funding vs. Need star rating	Average star rating	Overall letter grade
3.5	2.9	3.2	C

Buildings County of Frontenac

1. Condition vs. Performance

Total category replacement value		\$27,591,721		Segment replacement value		\$27,591,721		Segment value as a % of total category replacement value		100.0%	
Segment	Condition	Letter grade	Star rating	Quantity of assets in given condition	% of Assets in given condition	Weighted, unadjusted star rating		Segment adjusted star rating			
Buildings	Excellent	A	5	8	26%	1.29		3.8			
	Good	B	4	12	39%	1.55					
	Fair	C	3	8	26%	0.77					
	Poor	D	2	2	6%	0.13					
	Critical	F	1	1	3%	0.03					
			Totals	31	100%	3.77					

Category star rating	Category letter grade
3.8	C+

2. Funding vs. Need

Average annual investment required	2013 funding available	Funding percentage	Deficit	Category star rating	Category letter grade
\$990,000	\$558,000	56.4%	\$432,000	1.9	D

3. Overall Rating

Condition vs Performance star rating	Funding vs. Need star rating	Average star rating	Overall letter grade
3.8	1.9	2.8	D+

Machinery & Equipment County of Frontenac

1. Condition vs. Performance

Total category replacement value		\$5,781,544		Segment replacement value		\$5,781,544		Segment value as a % of total category replacement value		100.0%	
Segment	Condition	Letter grade	Star rating	Quantity of assets in given condition	% of Assets in given condition	Weighted, unadjusted star rating		Segment adjusted star rating			
Machinery & Equipment	Excellent	A	5	67	14%	0.68		2.1			
	Good	B	4	60	12%	0.49					
	Fair	C	3	36	7%	0.22					
	Poor	D	2	18	4%	0.07					
	Critical	F	1	313	63%	0.63					
			Totals	494	100%	2.09					

Category star rating	Category letter grade
2.1	D

2. Funding vs. Need

Average annual investment required	2013 funding available	Funding percentage	Deficit	Category star rating	Category letter grade
\$1,007,500	\$825,500	81.9%	\$182,000	3.9	B

3. Overall Rating

Condition vs Performance star rating	Funding vs. Need star rating	Average star rating	Overall letter grade
2.1	3.9	3.0	C

1. Condition vs. Performance

Total category replacement value		\$1,112,572		Segment replacement value		\$1,112,572		Segment value as a % of total category replacement value		100.0%	
Segment	Condition	Letter grade	Star rating	Quantities (\$) given condition	% of Assets in given condition	Weighted, unadjusted star rating		Segment adjusted star rating			
Land Improvements	Excellent	A	5	6	55%	2.73		4.2			
	Good	B	4	1	9%	0.36					
	Fair	C	3	4	36%	1.09					
	Poor	D	2	0	0%	0.00					
	Critical	F	1	0	0%	0.00					
Totals				11	100%	4.18					

Category star rating	Category letter grade
4.2	B

2. Funding vs. Need

Average annual investment required	2013 funding available	Funding percentage	Deficit	Category star rating	Category letter grade
\$82,000	\$0	0.0%	\$82,000	0.0	F

3. Overall Rating

Condition vs Performance star rating	Funding vs. Need star rating	Average star rating	Overall letter grade
4.2	0.0	2.1	D

Infrastructure Replacement Cost Per Household

Total: \$2,041 per household



Daily Investment Required Per Household for Infrastructure Sustainability

