March 14, 2014
Revised Dec. 2014
Revised October 2016

COMPREHENSIVE ASSET MANAGEMENT STRATEGY AND PLAN

March 14, 2014
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1. INTRODUCTION

1.1. AMENDMENTS FOR 2015 AND 2016

Background
In 2013, the Town of Ingersoll hired UEM to assist them in developing an Asset Management Plan and Study. The final report was received in March of 2014. The Asset Management Plan takes a risk-centric approach. Since the adoption of the 2014 Asset Management Plan the following updates and changes have occurred.

Bridges
- Bridge Condition Index rating (BCI) is now entered into the asset management plan database as a condition rating.
- Estimated repair costs and replacement costs are included in asset management plan.

Buildings
- A Facility Assessment was conducted on three (3) major facilities (Town Centre, Arena and Old Carnegie Library) and are included in the Asset Management plan with replacement values by component.
- Due to the unrealistic replacement costs of the components of all Town Buildings which were excessively inflating our capital needs, seven (7) of our buildings have been excluded from this year's plan.
- A Facility Assessment was conducted on the Senior's Centre and needs to be added into the Asset Management plan

Parking Lots (Land Improvements)
- 2015 replacement values being used from Town of Ingersoll's Tender Comparison Library

Roads
- Pavement Condition Evaluation conducted and to be conducted bi-annually in the future
- Condition ratings now being used for replacement as opposed to age
- 2015 replacement values being used from Town of Ingersoll's Tender Comparison Library
- Estimated Service Life (ESL) changed for asset management to reflect type of road
- Rehabilitation costs used for budgeting purposes as opposed to always replacement (eg. Crack sealing, mill and pave) to extend service life

Sidewalks
- 2015 replacement values being used from Town of Ingersoll's Tender Comparison Library
- Updated ESL to reflect observed rate of deterioration

Storm Sewer
- 2015 replacement values being used from Town of Ingersoll's Tender Comparison Library

1.2. TOWN OF INGERSOLL OVERVIEW

Ingersoll, on the Thames River, is one of three urban centres in Oxford County located in southwestern Ontario. Ingersoll has grown over the years to be recognized as a leading industrial community. With a population of 12,200, Ingersoll is home to over 250 other businesses that employ in excess of 7,200 people, many of whom commute to Ingersoll from surrounding communities.

The following figure shows a map of the Town of Ingersoll showing main roads, water courses, and parks.

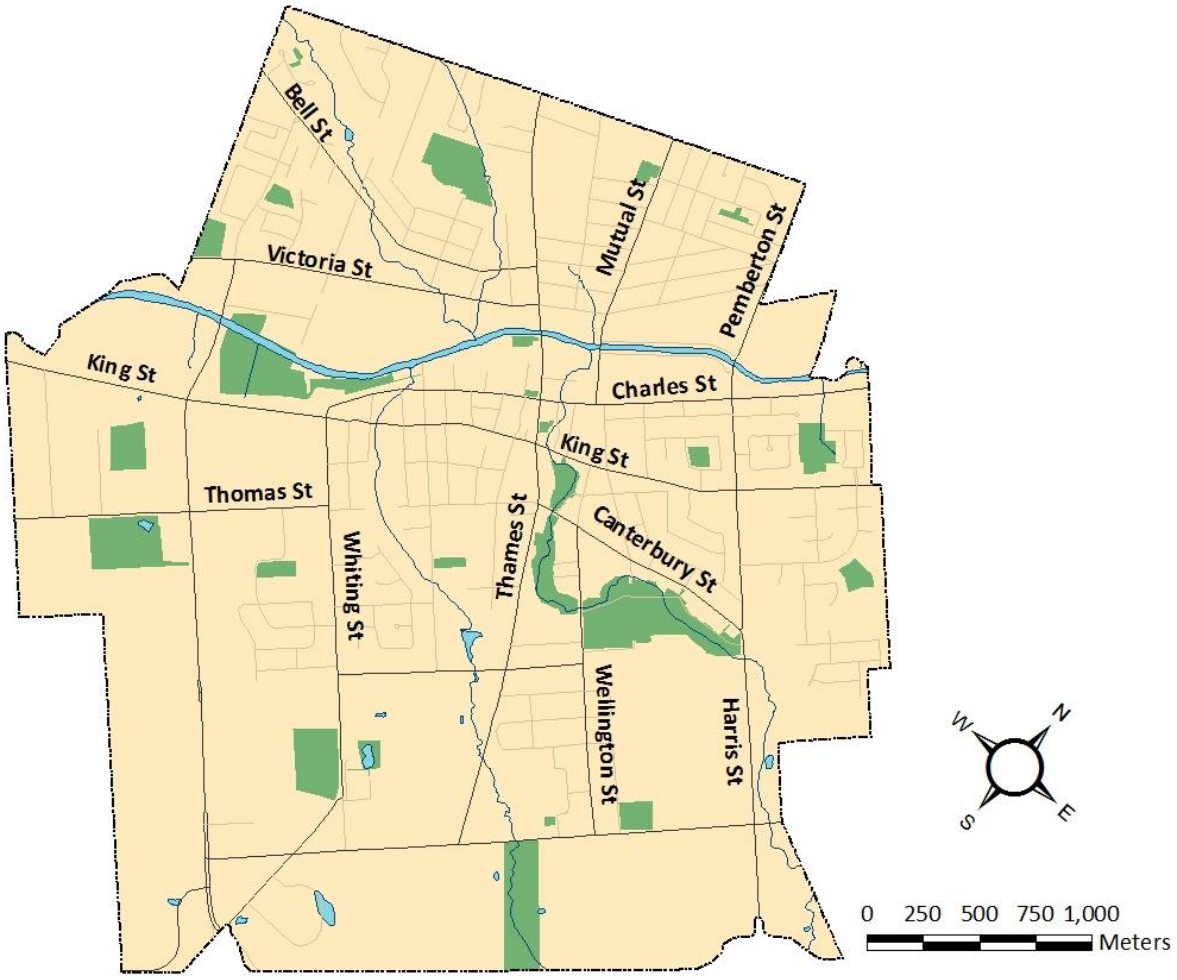

Figure 1: Map of the Town of Ingersoll

1.3. PROVINCIAL REQUIREMENTS FOR ASSET MANAGEMENT PLANS

The province of Ontario, through the Ministry of Infrastructure, released in June 2011 *Building Together*, a long-term infrastructure plan for Ontario. The plan sets out a strategic framework that will guide future investments in ways that support economic growth and respond to changing needs. A key element of this framework is ensuring good stewardship through proper asset management. Municipalities deliver many of the services that are critical to Ontarians and these services rely on well-planned, well-built and well-maintained infrastructure. The Province views asset management as a prerequisite for productive discussions about funding for municipal infrastructure.

The International Infrastructure Management Manual, Version 4, 2011, defines the goal of asset management as "meeting a required level of service, in the most cost-effective manner, through the management of assets for present and future customers". The key elements of asset management are:

- Providing a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet defined level of service;
- Identifying, assessing and appropriately controlling risks; and
- Having a long-term financial plan that identifies required expenditures and how the plan will be funded.

These elements of asset management are enabled through the use of capable staff, effective tools and systems, and a commitment to continuous improvement. A formal approach to the management of infrastructure assets is essential in order to provide services in the most cost-effective manner and to demonstrate this to council, citizens, and other stakeholders.

1.4. THE NEED FOR ASSET MANAGEMENT

Without the appropriate information, it is difficult for municipal government officials to make decisions regarding asset replacement and rehabilitation. Being properly informed is the first step in ensuring that public money is spent in the most efficient and effective manner possible. An asset management plan is the medium for providing this information. The first step in creating an asset management plan is compiling an asset inventory. The inventory is a comprehensive list of all the organization's assets, including their age, replacement value, and condition. Key benefits of asset management include:

- Prolonging asset life and aiding in making informed decisions regarding rehabilitation, repair and replacement concerns;
- Meeting community demands with a focus on system sustainability;
- Setting rates based on sound operational and financial planning;
- Budgeting focused on activities critical to sustained performance;
- Meeting service expectations and regulatory requirements;
- Improving response to emergencies; and
- Improving the security and safety of assets.

1.5. OBJECTIVES

The Town's organization consists of Engineering, Public Works, Buildings, Clerks, Parks and Recreation, Treasury/Finance, Information Technology, Planning & Development Services, Fire & Emergency Services, and Economic Development.

The Asset Management Strategy and Plan was developed in consultation with all departments at the Town and with the following objectives:

- Creation of an Asset Management Plan conforming to provincial guidelines;
- Document a vision for asset management and define the actions and resources that will enable improved asset management by the Town;
- Understand the long term cost to sustain the assets owned by the Town to deliver the current and forecasted future needs to replace and maintain these assets;
- Facilitate involvement with staff and Council.

The objectives were achieved, taking into consideration the Town's size and available resources, and was coordinated with other relevant corporate initiatives.

1.6. DEFINING SUSTAINABILITY

The objective of asset management is to meet a required level of service, in the most cost-effective manner, through the management of assets for present and future customers. Lifecycle asset management encompasses all practices associated with considering management strategies as part of the asset lifecycle. The objective of sustainable asset management is to look at lowest long-term cost when making decisions.

1.7. PSAB vs AMP

Municipalities have undergone financial reporting exercises in conformance with the Public Sector Accounting Board (PSAB 3150), which is an independent body with the authority to set accounting standards for the public sector. There is sometimes confusion regarding the difference between PSAB financial reporting and capital plans based on Asset Management Programs (AMP). The vision of PSAB is to ensure that the public understands and has confidence in public sector reporting. The objective of PSAB is to determine the current valuation of assets for purposes of inclusion in the balance sheet. The objective of an AMP is to determine replacement costs (which are different from asset valuations) and are intended to drive a multi-year capital program which would facilitate long-term funding strategies.

Table 1 and **Table 2** illustrate the difference in data requirements between asset management and PSAB.

Table 1: Example of PSAB Data

Asset	Purchase Date	Design Life	Purchase Value	Current Net Book Value
Collector Road Surface	1993	15 years	$56,452	$0
VPCC Building	1991	70 Years	$3,234,865	$2,265,405

Table 2: Example of Asset Management Data

Asset	Install Date	Estimated Service Life	Current Condition	Estimated Remaining Life	Current Replacement Cost
Collector Road Surface	1993	30 years	Good (4)	10 years	$265,000
VPCC Interiors	1991	70 Years	Poor (2)	22 Years	$943,311
VPCC Electrical	1991	30 Years	Poor (2)	8 Years	$1,131,973
VPCC Roof	2007	15 Years	Poor (2)	5 Years	$268,209

Another difference between PSAB and AMP is the way in which assets are visualized and componentized. PSAB in Ingersoll regards a building as a single asset worth a single monetary value. Asset management requires discreet assets which will be replaced as a unit in order to accurately calculate and forecast capital needs. A building will rarely be replaced in its entirety. Capital works on a building will more likely consist of all or a portion of a building component or system such as a roof or furnace.

In the revised 2014 report only the (3) buildings that Facility Assessments were performed on in 2014 were included in the report. The remaining buildings will be added as Facility Assessments are performed. Therefore the total value of the Town of Ingersoll's Assets is understated by the value of the replacement of the components of 8 buildings and our Museum buildings.

2. PROJECT METHODOLOGY

2.1. PROJECT DELIVERABLES

The project involved developing the following deliverables:

1. Asset Management Strategy & Framework
2. Asset Management & Replacement Plan

ASSET MANAGEMENT STRATEGY & FRAMEWORK

The Asset Management Strategy outlines the systematic process through which the Asset Replacement Plan is developed. Recommended strategies and actions for enhancements to the Town's business processes that support the Asset Management Strategy are included in Section 7.0 Recommendations.

The Town of Ingersoll is currently working on a strategy that will be used as a guide for asset management. The asset management strategies outlined in **Appendix D** are in draft form and require approval by council. The strategies will be combined into their own independent report which will be re-evaluated regularly for changes in best management practices, advances in technology, financial limitations or changes to the condition assessments. The changes to the strategies will be reflected in the Asset Management Plan as the two documents are to be dependent on one another.

ASSET MANAGEMENT & REPLACEMENT PLAN

The Asset Management & Replacement Plan includes the Asset Hierarchy, an overview of the State of Infrastructure for the Town of Ingersoll, a long term (100 year) forecast of the capital requirements to maintain the current infrastructure in a state of good repair and a detailed 10 year capital needs forecast, which identifies and prioritizes specific assets for inclusion in the Capital Budget.

2.2. ASSETS INCLUDED IN PROJECT SCOPE

The Town of Ingersoll operates and maintains a variety of assets which support the delivery of services. The Town's assets forming the scope of this project include but are not limited to:

- Roads
- Sidewalks
- Bridges and Culverts
- Parking Lots
- Retaining Walls
- Traffic Control Devices
- Stormwater Systems
- Parks
- Playground equipment
- Facilities
- Fleet

Only assets whose replacement is expected to be included within the capital budget for the Town of Ingersoll are included within the project scope. As part of this project, assets have been grouped into asset classes for inclusion in an asset hierarchy. The asset hierarchy is found in **Appendix A**. A complete

digital inventory of the assets included in the scope of this project is available in a Microsoft Excel file and an SQL database file.

2.3. DATA & INFORMATION

The following information was used in the completion of this project:

- Town of Ingersoll Organizational Structure, Roles and Responsibilities
- Asset Inventory and Associated Data held in SQL Database
- Bi-annual Pavement Condition Assessment
- Bi-annual Bridge and Culvert Inspection Reports
- Town of Ingersoll's Tender Comparison Library for up to date prices for Transportation and Environmental Services Infrastructure
- Facility Assessments as completed
- Current Capital Programs
- Applicable Policies and Procedures.
- Knowledge of Assets as provided by Department Heads

2.4. PROJECT METHODOLOGY

Workshops were held to expand on the benefits and potential components within an asset management strategy. The objective was to define an initial high-level asset management strategy and a more detailed vision for asset management and asset reporting in Ingersoll. The workshops aimed at educating key staff on the best practices in asset management and to develop a common understanding of what the Town is aiming to achieve.

Once the Asset Management Framework and Strategy were developed, UEM staff executed the strategy using an Optimized Decision Model (ODM) and Ingersoll's asset data, developing initial outputs. The initial outputs identified shortfalls in the asset condition data, which UEM and Ingersoll staff worked together to address in further workshops. In 2014 further refinements were made to the plan to correct shortfalls in asset condition data.

3. Asset Management Strategy & Framework

The asset management strategy & framework takes a risk-centric approach. Risk is an important measure in asset management. Besides cost, risk is one of the few measures that can be compared across asset classes. The comparison of risk across asset classes is only appropriate if risk is calculated using an appropriate methodology. The methodology for assessing asset risk utilized in the Town of Ingersoll's Asset Management Strategy and Framework developed as part of this project allows for the comparison of assets across asset classes, categories and even programs.

3.1. Risk

Risk is the combination of the Consequence of Failure (CoF) and the Probability of Failure (PoF) of an asset as shown in **Figure 2.** The PoF of an asset is determined using the estimated service life of the asset, the age of the asset, and the assessed condition of an asset. CoF is determined for each asset class based on six weighted consequence factors: *Health and Safety, Financial, Environmental, Legal and Regulatory Compliance, Reputation and Image,* and *Service Interruption*.

Workshops were held with the departments responsible for maintaining assets to determine the CoF for each asset class. The PoF and CoF are combined in a risk matrix, as shown in **Figure 3**, to determine an asset's Risk Level which determines its priority for replacement. Risk levels are on a five-point scale: *Very High, High, Moderate, Low,* and *Very Low*. The risk matrix shows the highest risk in the top right and the lowest risk in the bottom left.

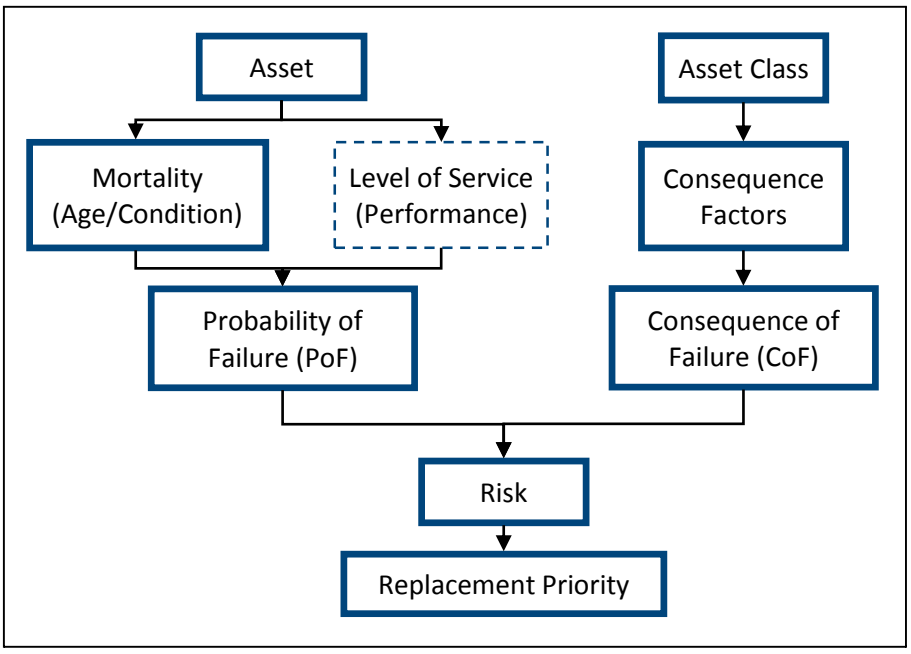

Figure 2: Determining Asset Risk

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	High	High	Very High	Very High	Very High
	4	Highly Likely	Moderate	Moderate	High	High	Very High
	3	Likely	Low	Low	Moderate	High	High
	2	Unlikely	Very Low	Low	Low	Moderate	Moderate
	1	Almost Certainly Not	Very Low	Very Low	Very Low	Low	Low

Figure 3: Risk Matrix

3.2. PROBABILITY OF FAILURE

The probability of failure is the first of two variables required to calculate risk. Probability of failure is the likelihood that an asset will not achieve a desired level of service. Levels of service can be based on the condition of the asset or the performance of the asset.

PROBABILITY OF FAILURE BASED ON PERFORMANCE

While asset performance is often tied directly to the condition of the asset, there are performance measures that do not relate to the condition of an asset. These measures can include:

- The appropriateness/size of an asset
- The availability of backups for critical assets
- The ability to meet legislated requirements

Ingersoll currently collects data required to assess assets based on performance however it is currently not automated in the plan and requires manual intervention to reflect the Level of Service needed.

PROBABILITY OF FAILURE BASED ON CONDITION

Probability of failure based on asset condition is calculated primarily based on the observed condition of an asset along with the age and estimated service life. Where a reliable condition rating is not available, age and estimated service life can be combined to determine the probability of failure. The probability of failure of assets based on condition has been defined for the Town as summarized in **Figure 4**. Probability of failure of asset based on performance is also included in **Figure 4**, these measures are being incorporated into the plan on a case by case basis.

POF		Mortality (Condition)	Level of Service (Performance)
Probability of Failure		Measures Condition and/or Remaining Service Life	Measures ability to provide established service level objectives
1	Almost Certainly Not	Excellent Condition / Candidate for Replacement in Long Term (20+ Years)	Exceeds Town's Established Technical Levels of Service
2	Unlikely	Condition is Good / Candidate for replacement in Long Term (10-20 years)	Meets Town's Established Technical Levels of Service
3	Likely	Fair Condition / Candidate for replacement within Medium Term (5-10 years)	Occasionally Fails to meet Town's established levels of service
4	Highly Likely	Poor Condition / Candidate for replacement within Short Term (< 5 years)	Frequently Fails to meet Town's established levels of Service
5	Almost Certain	Very Poor Condition / Requires Immediate Replacement	Fails to meet legislated service levels / Regularly Fails to meet Town's established levels of service

Figure 4: Probability of Failure

3.3. CONSEQUENCE OF FAILURE

Consequence of Failure is the second of two variables required to calculate risk. Consequence of failure is the degree to which the failure of an asset will impact the Town. Consequence of failure is calculated at the asset class level; all assets within an asset class share the same consequence of failure. Consequence of failure is based on six consequence factors and are weighted as follows:

- Health and Safety (5)
- Financial (4)
- Environmental (4)
- Legal and Regulatory Compliance (4)
- Reputation and Image (2)
- Service Interruption (2)

Each asset class is scored according to each of these factors on a scale of 1 to 5. The scores are assigned based on the definitions identified in **Figure 5** on the following page. The consequence factors, weights and score definitions were developed through workshops with Town of Ingersoll staff as part of this project, and as such reflect Ingersoll's unique operating environment. The use of standardized consequence factors across all assets allows risk to be used as a means of comparing diverse and dissimilar assets.

COF		Health & Safety	Financial	Environmental	Legal & Regulatory Compliance	Reputation & Image	Service Interruption
Weight (1-5)		5	4	4	4	2	2
Consequence Of Failure		Considers impacts to Public and Employee health and safety of asset failure	Considers financial impacts to the organization as a result of asset failure	Considers direct impacts to the natural environment as the result of asset failure	Considers legal implications and ability to meet regulatory requirements as a result of asset failure	Considers the organization's image and reputation from an external or public perspective as a result of asset failure	Considers losses or interruptions to internal operations and services provided both internally and externally as a result of asset failure
1	Insignificant	No obvious potential for injury or affects to health.	Cost of Reactively response and replacement is under 100% to the cost of proactive replacement and increase cost to providing service is negligible	Very negligible impact. Reversible within 1 week.	No prosecution potential	Negligible impact on Public opinion of Staff	Small number of customers experiencing service disruption: Under 10 people affected
2	Low	Potential for minor injury or affects to health of an individual. Full recovery is expected.	Cost of Reactive response and replacement is 110% to 120% of proactive replacement or Increase in cost to providing service is over %5	Material damage of local importance. Minor, short-term (within 6 months) very isolated damage to the environment.	Prosecution by an individual possible.	Negative impact on Public opinion of Staff	Service disruption at a localized level: 10 - 200 people affected, service interrupted 1 day
3	Medium	Potential for serious injuries or affects to health. May affect many individuals and/or result in short-term disabilities.	Cost of Reactive response and replacement is over 110% to 125% of proactive replacement or Increase in cost to providing service is over %10	Significant short-term (< 1 year) local damage to the environment.	Possible prosecution by public groups or Agencies.	Some negative opinion of Senior government staff and ethics.	Significant localized service disruption:200 - 1,000 people affected, Service interrupted 1-5 days
4	High	Potential for serious injury or affects to the health of one or more individuals with a possibility for loss of a life and the certainty of long-term disabilities.	Cost of Reactively response and replacement is over 150% to 200% of proactive replacement or Increase in cost to providing service is over %25	Significant long-term (> 1 year) widespread damage to the environment.	Probable prosecution by interest groups or Agencies. Impact reversible within 5 years	Criminal charges against Senior staff or a Public official. Calls for public inquiry and/or change of a Senior official.	Major localized disruption :1,000 - 5,000 people affected, Service interrupted 5-30 days
5	Severe	Potential for death or multiple death with probable permanent disabilities.	Cost of Reactively response and replacement is over 200% of proactive replacement or Increase in cost to providing service is over %50	Major long-term (+5 years) or permanent widespread damage to the environment.	Definite prosecution by interest groups or agencies with irreversible impacts.	Criminal charges against the Corporation and/or Senior staff. Public Inquiry is necessary. Public outcry for change in Council/Senior Managers.	City-wide service disruption: Over 5,000 people affected service interruption over 30 days

Figure 5: Consequence Factors and Weights

Each asset class has been scored according to the consequence factors. These scores are included in **Appendix B**. The consequence factors weights have been applied to these scores to produce a single consequence of failure value for each asset class. The chart in **Figure 6** shows, as an example, the consequence of failure values for each category within the Fire Program. **Appendix C** contains charts showing the Consequence of Failure for all asset classes in each program.

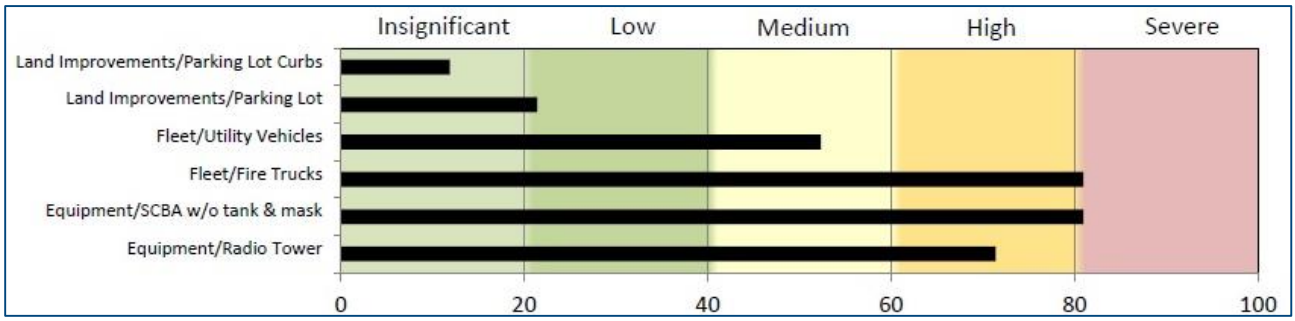

Figure 6: Consequence of Failure (CoF) for Fire

ASSETS WITH SPECIAL CONSIDERATIONS

When assigning consequence of failure at the asset class level, there are bound to be instances where a single asset should not share the same consequence of failure as the rest of the assets in the asset class. For instance, staff may be aware that an asset is no longer required and will not be replaced. In such a case, the asset may be assigned a lower consequence of failure as compared to the rest of the asset class. On the other hand, staff may be aware of a situation where the consequence of failure of a single asset should be considered as higher than the rest of the asset class. In these cases where a single asset does not conform to the consequence of failure for the entire asset class, it is appropriate for Town staff to assign the 1-5 consequence of failure rating to the asset.

3.4. RISK MITIGATION MEASURES

The following are the risk mitigation methods considered by the Asset Management Program to reduce or eliminate asset risk:

REMOVAL OF ASSET

Eliminates risk by 100%. The asset is no longer included in the asset inventory.

REBUILD/REPLACEMENT OF ASSET

If an asset is new or replaced, it decreases the asset risk to the asset class's minimum risk. Risk level is changed to 'Low Risk' or 'Moderate Risk' according to the asset's CoF. If the asset is rebuilt, it eliminates or lowers the asset risk based on the Estimated Remaining Life of the replacement asset.

INCREASED MAINTENANCE

Mitigates asset risk and lowers the risk priority by at least one level, i.e. a 'Very High Risk' priority level should at least change to 'High Risk' priority level with scheduled maintenance.

INCREASED INSPECTIONS

Asset risk level remains unchanged.

3.5. ONGOING MAINTENANCE OF THE ASSET MANAGEMENT PROGRAM

Asset Management requires ongoing updates to the data and reviews of the processes and assumptions used in the development of the Asset Management Plan. At a minimum, on a yearly basis the Asset Hierarchy as well as the Consequence of Failure weightings and scoring should be reviewed by the asset management team and representatives from each department to ensure that the decision making parameters inherent in the Asset Management Framework remain valid. All departments should work with the asset management team on an ongoing basis to ensure that the asset inventory is up to date and reflects the most recent condition assessments and replacement costs available.

The diagram below in **Figure 7** provides an overview of the recommended yearly asset management process.

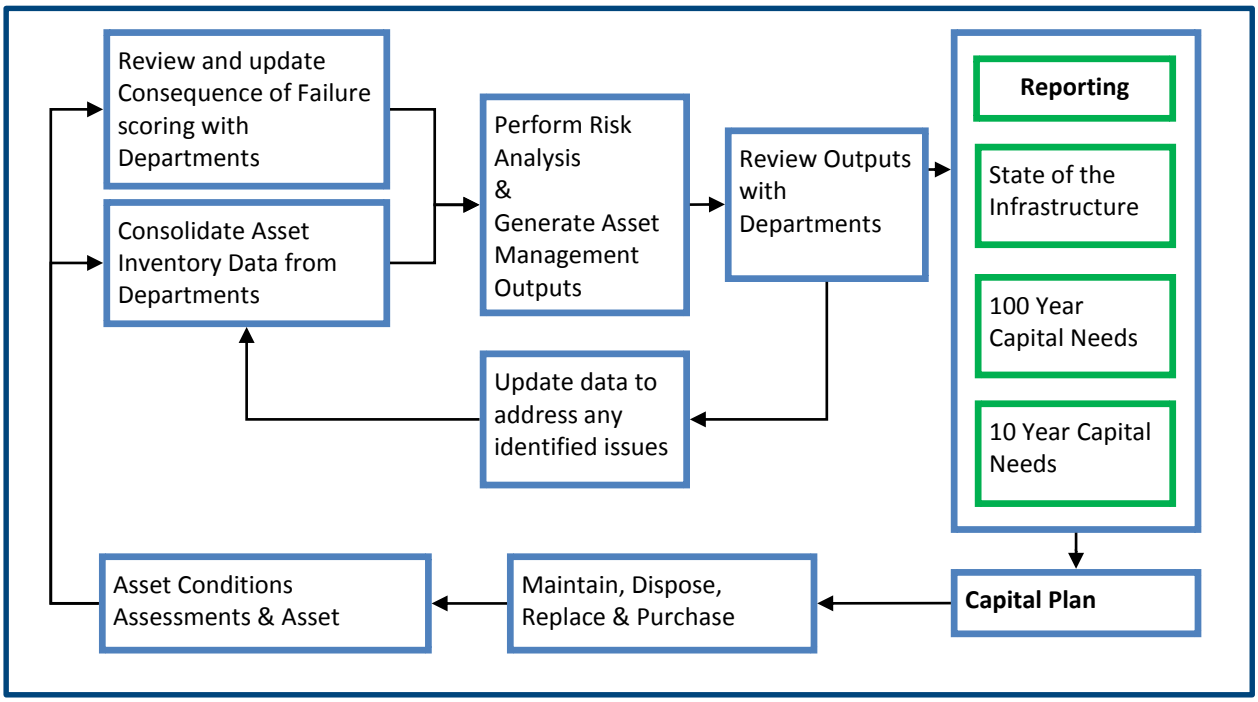

Figure 7: Yearly Asset Management Process

4. INFORMATION TECHNOLOGY SYSTEMS STRATEGY

4.1. CURRENT ASSET MANAGEMENT IT ENVIRONMENT

Currently the Town uses a custom built database to maintain an asset inventory and meet PSAB 3150 reporting requirements. This database is accessed through a set of web based forms for data maintenance. SQL scripts are used to export data for PSAB 3150 reporting into Excel files for the auditors use. The Town's GIS data is housed in a separate database. Non spatial GIS attributes are updated to match the inventory database using scripts on a daily basis. Spatial GIS attributes are updated using AutoCAD Map 3D. A custom web based mapping service also draws on the GIS database to provide a viewing portal to the attribute data, for non GIS users. GIS Shape files are also exported from the GIS database to update the ArcMap based software package used in the Public Works department. In the completion of this project, the available data was extracted from the asset inventory database and used to create an asset management inventory in excel format for non SQL users. An internal SQL database was used to apply the asset management methodology to the asset inventory. **Figure 8** on the following page diagrams the flow of data.

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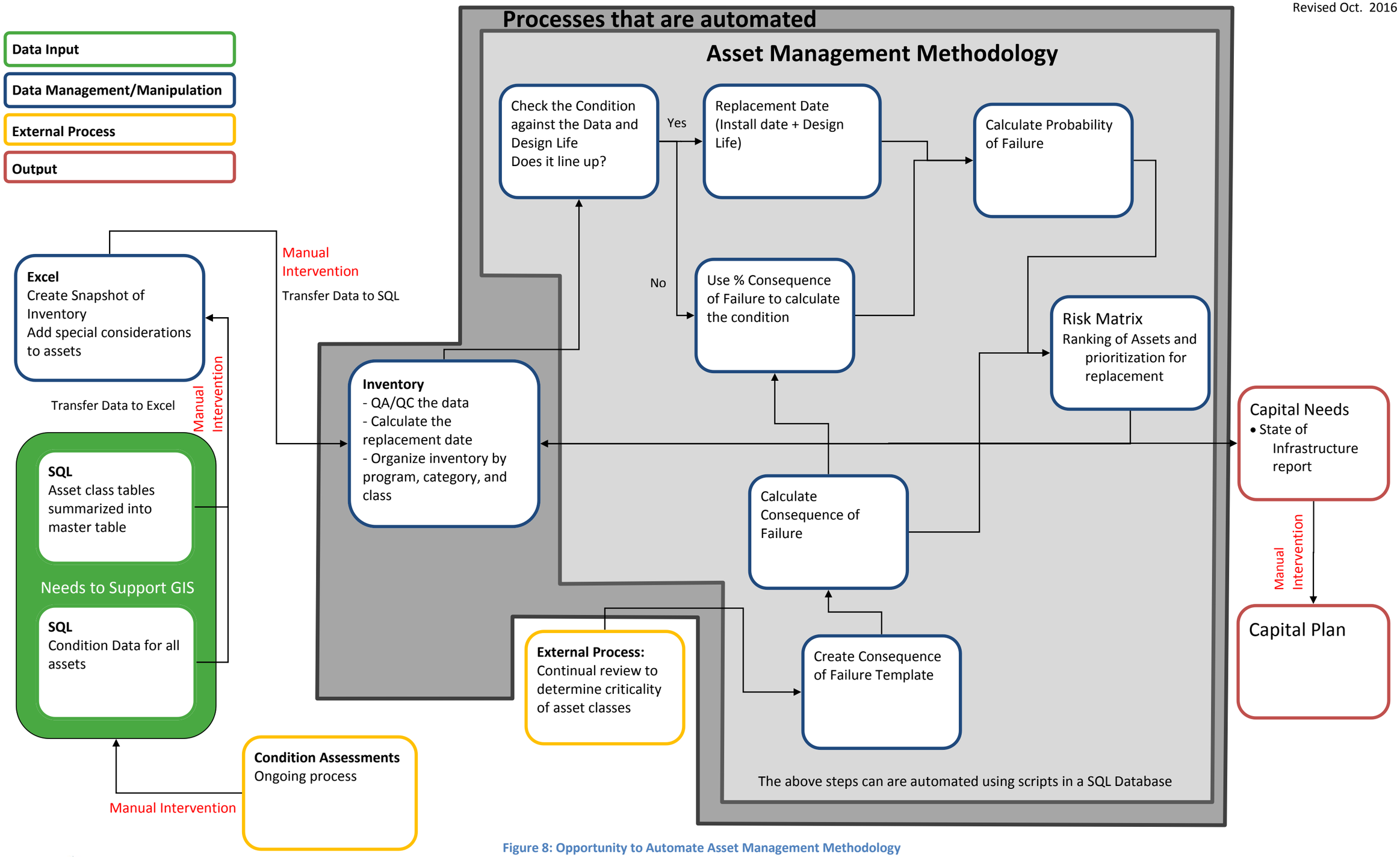


Figure 8: Opportunity to Automate Asset Management Methodology

5. Asset Replacement Plan

5.1. Asset Hierarchy

The asset hierarchy has been developed in consultation with Ingersoll staff and UEM's knowledge of best practices in asset management. The hierarchy is broken down into three levels: Program, Category, and Asset Class. The Program level of the asset hierarchy is in line with divisions in Ingersoll's Capital Budget. The 8 programs, which are sub-divided into 40 categories, are further sub-divided into a total of 210 asset classes. The programs are identified as: Administrative Facilities, Fire, General Governance, Parks and Recreation, Public Works, Transportation, Environmental Services and Engineering. **Table 3** shows a breakdown of asset categories by program.

Table 3: Programs and Asset Categories

Program	Category
Administrative Facilities	Old Carnegie Library
	Town Centre
Fire	Land Improvements
	Equipment
	Fleet
General Governance	Guard Rails
	Land Improvements
	Equipment
	Fleet
Parks and Recreation	Arena
	Senior's Centre
	Sidewalks
	Land Improvements
	Equipment
	Fleet
Public Works	Land Improvements
	Equipment
	Fleet
Transportation	Bridges
	Handrails
	Retaining Walls
	Roads
	Traffic Signals
	Guard Rails
	Sidewalks
Environmental Services	Storm Management
Engineering	Equipment
	Fleet

As an example, **Table 4** shows the breakdown of asset classes and categories for Transportation and Environmental Services. **Appendix A** contains the complete asset class hierarchy.

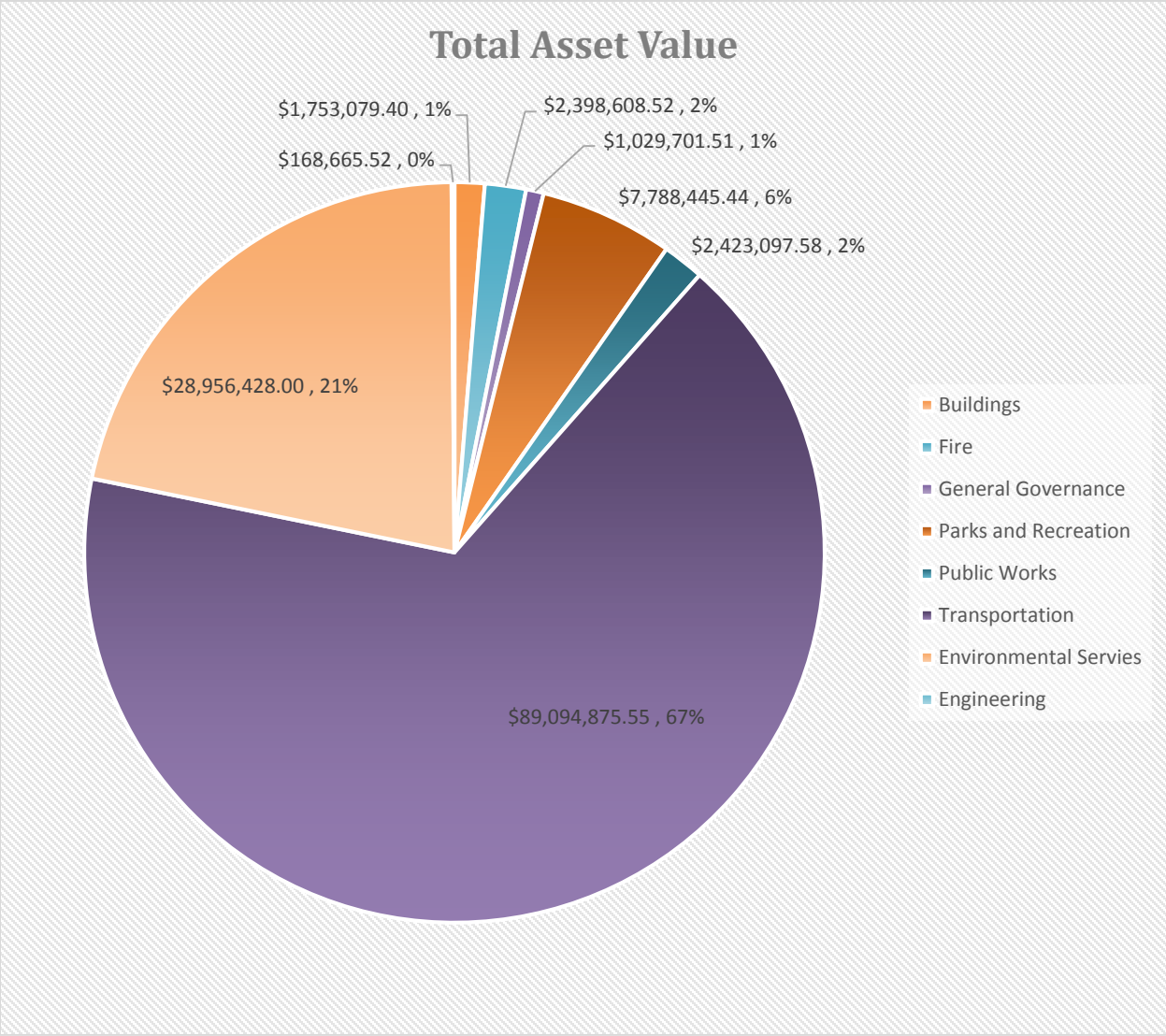
Table 4: Example of Asset Classes and Categories for Transportation

Program	Category	Asset Class
Transportation	Bridges	Bridge Deck
Transportation	Bridges	Bridge Structure
Transportation	Retaining Walls	Retaining Walls
Transportation	Roads	Road Base - Arterial
Transportation	Roads	Road Base - Collector Commercial Industrial
Transportation	Roads	Road Base - Collector Residential
Transportation	Roads	Road Base - Lane
Transportation	Roads	Road Base - Local Commercial Industrial
Transportation	Roads	Road Base - Local Residential
Transportation	Roads	Road Curb
Transportation	Roads	Road Surface - Arterial
Transportation	Roads	Road Surface - Collector Commercial Industrial
Transportation	Roads	Road Surface - Collector Residential
Transportation	Roads	Road Surface - Lane
Transportation	Roads	Road Surface - Local Commercial Industrial
Transportation	Roads	Road Surface - Local Residential
Transportation	Traffic Signals	Traffic Signals
Transportation	Guard Rails	Guard Rails
Transportation	Sidewalks	Sidewalks
Environmental Services	Storm Management	Storm Water System
Environmental Services	Storm Management	Headwalls
Environmental Services	Storm Management	Pumping Station
Environmental Services	Storm Management	Quality and Quantity Management Ponds

5.2. ASSET INVENTORY

The Programs represented by the Town of Ingersoll and the percentage of total assets and their respective replacement values (2014 replacement costs) are included in **Figure 9** below.

Figure 9: Total Asset Values by Program



A summary of the Town of Ingersoll's asset inventory included in the Asset Management Plan is shown in **Table 5.** This inventory was established from PSAB 3150 TCA data from the SQL database, then reviewed with department heads for the necessity to be included in the Asset Management Plan.

Table 5: Example of Asset Inventory

Quantity	Item	Program
68.8	***km of Roads - Total***	Transportation
9.6	*km of Roads - Arterial*	
19.0	*km of Roads - Collector*	
41.1	*km of Roads - Local*	
7	*# of Traffic Signals*	
64.1	***km of Sidewalks - Total***	
0.1	*km of Sidewalks - Interlock*	
2.0	*km of Sidewalks - Asphalt*	
62.1	*km of Sidewalks - Concrete*	
1.8	*km of Guardrails*	
4	*# of Bridges*	
2	*# of Pedestrian Bridges*	
25	*# of Culverts over 3m*	
798	*# of Manholes*	Environmental Services
1729	*# of Catch Basins*	
66.2	***km of Storm Pipe - Total***	
50.6	*km of Storm Pipe – Local/Municipal*	
14.7	*km of Storm Pipe – Catch Basin Leads*	
0.84	*km of Storm Pipe – Culverts under 3m*	
5	*# of SWM Ponds*	
1	*Engineering Fleet*	Various
1	*General Governance Fleet*	
7	*Parks and Rec Fleet*	
5	*Public Works Fleet - Trucks*	
5	*Public Works Fleet - Utility Vehicles*	
2	*Fire Fleet - Fire Trucks*	
2	*Fire Fleet - Utility Vehicles*	
10	*# of Facilities*	

Although Land Improvements and Equipment are included in the Asset Management Plan, they are not included in the above table due to the wide range of assets included in these Categories. The above table lists all Town owned facilities, only the 3 facilities that have had assessments completed have been included in the 2014 plan.

5.3. STATE OF INFRASTRUCTURE

Table 6: Condition Ratings by Program

Program	Asset Category	Condition Rating (Estimated Remaining Life)					Total
		1 (40%-100%)	2 (20%-40%)	3 (10%-20%)	4 (5%-10%)	5 (0%-5%)	
Administrative Facilities	Old Carnegie Library	$16,185.10	$10,254.00	$36,914.40	$13,330.20	$266,091.30	$342,775.00
	Town Centre	$453,565.18	$119,459.10	$286,896.67	$-	$550,383.45	$1,410,304.40
	Total	**$469,750.28**	**$129,713.10**	**$323,811.07**	**$13,330.20**	**$816,474.75**	**$1,753,079.40**
	Percentage	**26.8%**	**7.4%**	**18.5%**	**0.8%**	**46.6%**	**100%**
Fire	Equipment	$314,904.08	$-	$-	$-	$78,810.67	$393,714.75
	Fleet	$893,917.93	$1,060,342.15	$9,147.01	$-	$-	$1,963,407.09
	Land Improvements	$30,279.35	$11,207.33	$-	$-	$-	$41,486.68
	Total	**$1,239,101.36**	**$1,071,549.48**	**$9,147.01**	**$-**	**$78,810.67**	**$2,398,608.52**
	Percentage	**51.7%**	**44.7%**	**0.4%**	**0.0%**	**3.3%**	**100%**
General Governance	Equipment	$84,333.29	$21,354.25	$6,720.00	$35,764.70	$45,293.35	$193,465.60
	Guard Rails	$-	$92,355.76	$-	$33,336.11	$1,866.48	$127,558.35
	Land Improvements	$395,836.75	$197,446.84	$77,949.13	$-	$37,444.84	$708,677.56
	Fleet	$-	$-	$-	$-	$-	$-
	Total	**$480,170.04**	**$311,156.86**	**$84,669.12**	**$69,100.81**	**$84,604.67**	**$1,029,701.51**
	Percentage	**46.6%**	**30.2%**	**8.2%**	**6.7%**	**8.2%**	**100%**
Parks & Recreation	Land Improvements	$2,032,339.89	$325,486.87	$311,805.15	$441,357.16	$215,289.61	$3,326,278.69
	Fleet	$50,825.41	$9,446.40	$39,622.91	$46,538.08	$51,660.54	$198,093.34
	Equipment	$1,138,917.22	$414,202.50	$285,864.06	$69,745.62	$138,519.71	$2,047,249.13
	Arena	$242,483.71	$1,051,547.70	$450,150.60	$40,246.95	$402,469.50	$2,186,898.46
	Sidewalks	$28,181.01	$-	$-	$765.47	$979.33	$29,925.82
	Total	**$3,492,747.25**	**$1,800,683.48**	**$1,087,442.73**	**$598,653.29**	**$808,918.70**	**$7,788,445.44**
	Percentage	**44.8%**	**23.1%**	**14.0%**	**7.7%**	**10.4%**	**100%**
Public Works	Equipment	$688,968.45	$28,929.25	$541,492.41	$55,403.26	$7,159.00	$1,321,952.36
	Fleet	$514,323.56	$41,185.72	$37,560.98	$193,842.37	$208,482.29	$995,394.91
	Land Improvements	$17,157.66	$88,592.64	$-	$-	$-	$105,750.30
	Total	**$1,220,449.67**	**$158,707.61**	**$579,053.39**	**$249,245.63**	**$215,641.29**	**$2,423,097.58**
	Percentage	**50.4%**	**6.5%**	**23.9%**	**10.3%**	**8.9%**	**100%**
Transportation	Bridges	$8,348,317.20	$-	$9,886,438.80	$1,346,757.66	$2,893,874.18	$22,475,387.84
	Retaining Walls	$1,309,515.65	$28,018.72	$8,173.20	$-	$413,614.63	$1,759,322.20
	Roads	$51,532,781.54	$5,146,512.97	$103,458.92	$265,605.07	$1,106,840.04	$58,155,198.53
	Traffic Signals	$807,316.93	$-	$-	$-	$-	$807,316.93
	Guard Rails	$226,089.06	$92,065.24	$-	$29,809.24	$38,130.35	$386,093.89
	Sidewalks	$4,696,230.87	$574,671.84	$15,391.58	$7,560.52	$217,701.35	$5,511,556.15
	Total	**$66,920,251.24**	**$5,841,268.76**	**$10,013,462.49**	**$1,649,732.49**	**$4,670,160.56**	**$89,094,875.55**
	Percentage	**75.1%**	**6.6%**	**11.2%**	**1.9%**	**5.2%**	**100%**
Environmental Services	Storm Management	$24,280,146.02	$4,501,171.50	$62,346.89	$3,308.53	$109,455.06	$28,956,428.00
	Total	**$24,280,146.02**	**$4,501,171.50**	**$62,346.89**	**$3,308.53**	**$109,455.06**	**$28,956,428.00**
	Percentage	**83.9%**	**15.5%**	**0.2%**	**0.0%**	**0.4%**	**100%**
Engineering	Equipment	$72,759.85	$67,299.44	$-	$-	$-	$140,059.29
	Fleet	$-	$28,606.23	$-	$-	$-	$28,606.23
	Total	**$72,759.85**	**$95,905.67**	**$-**	**$-**	**$-**	**$168,665.52**
	Percentage	**43.1%**	**56.9%**	**0.0%**	**0.0%**	**0.0%**	**100%**
Total	**Total Assets**	**$98,175,375.71**	**$13,910,156.46**	**$12,159,932.69**	**$2,583,370.96**	**$6,784,065.69**	**$133,612,901.51**
	Percentage	**73.5%**	**10.4%**	**9.1%**	**1.9%**	**5.1%**	**100%**

Asset Condition

The condition of each asset is based on a condition assessment if available. If there is no assessment available the condition is based on age.

The asset conditions are rated as a 1-5 rating or Excellent to Fail. A (1) one or Excellent indicates that 40% - 100% of the original useful life of the asset is still available, (2) two or Very Good is 20% - 40% remaining ESL, (3) three or Good is 10% - 20% remaining ESL, (4) four or Fair is 5% - 10% remaining ESL and (5) five or Fail is 0% to 5% remaining ESL.

Table 6: Condition Ratings by Program, summarizes the asset conditions for each asset class and shows the replacement cost in each condition category. **Figure 10** shows Total Asset Condition for the Town of Ingersoll.

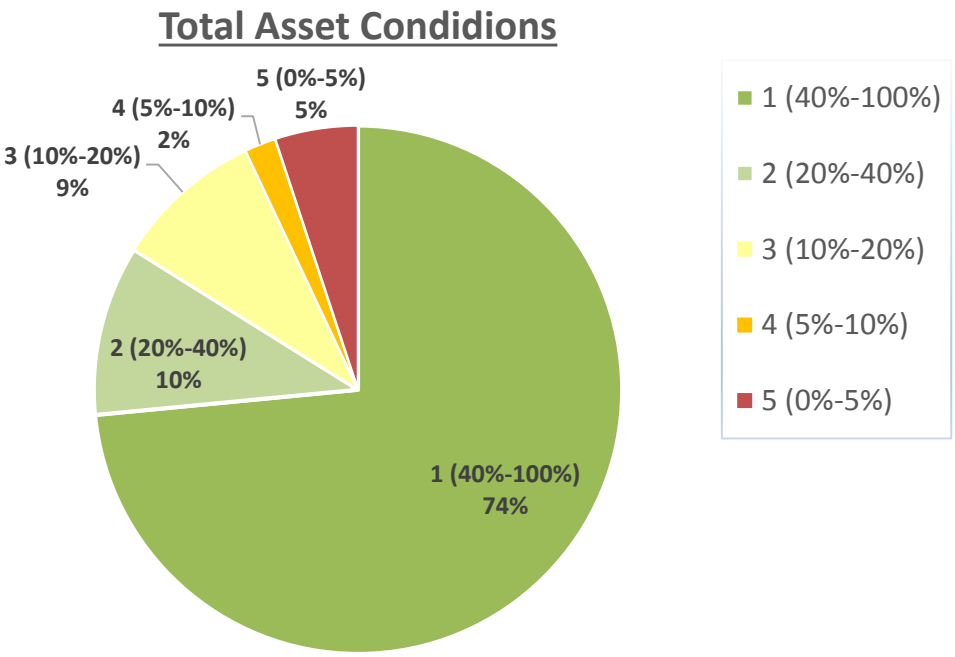


Figure 10: Town Asset Conditions

In terms of replacement cost, the majority (74%) of the assets valued at approximately $98.2 million are in excellent condition, $13.9 million (10.4%) are in very good condition, $12.2 million (9.1%) are in good condition, $2.6 million (1.9%) are in fair condition and $6.8 million (5.1%) are failing. The condition by Program are as follows:

- **Administrative Facilities** – only (2) are included in this report as facility assessments have yet to be conducted on the remaining facilities. The two administrative facilities assessed were the Old Carnegie Library and the Town Centre. The Old Carnegie Library which is in poor condition and the tenants have been vacated from the building due to safety concerns. Council is considering alternatives for this building. The Town Centre is a shared facility with the County of Oxford. It is in Good condition with the following components needing immediate attention: the

HVAC automation system should be replaced, one boiler should be replaced, a backflow preventer should be installed and various exterior windows should be replaced.

- **Fire Protection Assets** - the Fire Facility has not been included as an assessment has not been performed. The facility was constructed in 1992 and therefore should be in good condition but individual components such as the roof and HVAC should be inspected. Overall, Fire assets are in excellent to very good condition with a few pieces of equipment falling into the replacement category because of age. The Fire parking lot also is appearing in the plan due to its age and condition.
- **General Governance** – the majority of General Governance assets which would primarily be equipment related and parking lots are in good condition. The assets showing up for need of replacement are computer servers and software and no condition ratings were available.
- **Parks and Recreation** – only the Arena is included in the report until Facility assessments have been conducted to break the remaining Parks and Recreation facilities into asset components with replacement values. Facility assessments are proposed for the Fusion Centre and VPCC in 2015. The arena needs immediate attention to fire protection systems, the roof and some upgrades to the interior. The remainder of the assets are in good condition with some playground equipment, ball diamond lighting, parking lot asphalt and gym equipment needing replacement in the near future.
- **Public Works** - the Public Works Facility has not been included until an assessment has been performed on the components. The facility was constructed in 1999 therefore should be in good condition with some interior updates which would fall in the operating budget. Public Works assets are in good condition due to a reserve funded replacement plan which involves putting money into the reserves on a yearly basis for the replacement of vehicles and large equipment.
- **Transportation** – road base, culverts, bridges, traffic signals and sidewalks are in generally good condition. However there is one culvert that require immediate replacement and two bridges which require rehabilitation. The culvert on Victoria St. at Sutherland Creek was inspected in 2013 and received a BCI of 31.59. In 2013 the estimated replacement cost was over $1,000,000. The two bridges requiring rehabilitation are Pemberton Street over the Thames River and Mutual Street over the Thames River, this rehabilitation is estimated to cost over $1,000,000. Of the $25.6 million dollars of road assets, approx. $1 million dollars are in a ‘Now’ category and $1 million in Fair condition. This is primarily surface work which could be rectified with the Town’s proposed pavement management and maintenance policy. Our current asset management plan does not take into consideration the dollar value needed for capital improvements to improve roads to Town standards.
- **Environmental Services** – overall the storm water system is in excellent to very good condition. However because of the extended estimated useful life of storm water assets we need to be conscious of the fact that although a low dollar value is appearing in the 10 year asset management plan, within the 100 year plan we will need to be budgeting for approximately $340,000 per year. The first significant requirement for storm water management is approx. $600,000 in 2030. Also the current plan does not take into consideration the dollar value needed for capital improvements to supply storm water management to roads without a storm sewer system.

- **Engineering** – these assets consist of equipment and fleet. The assets are in good condition but due to the nature of technology they have a relatively short useful life so fall into the plan on average every 10 years.

The state of the Town of Ingersoll's infrastructure has been assessed using the asset management framework. The following three figures provide a high level snapshot of the current state of Ingersoll's infrastructure. **Figure** 11 shows the replacement cost of Ingersoll's entire asset portfolio as it falls within the risk matrix. **Figure 12** shows the percent of the total asset portfolio as it falls within the risk matrix. As assets age the probability of failure moves assets from a lower risk to a higher risk. As assets are replaced or are rehabilitated, the probability of failure moves assets to a lower risk in the risk matrix.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ 368,514.55	$ 1,805,101.93	$ 1,611,103.96	$ 105,471.07	$ 2,893,874.18
	4	Highly Likely	$ 118,233.80	$ 49,100.57	$ 1,069,278.93	$ -	$ 1,346,757.66
	3	Likely	$ 164,038.38	$ 410,797.77	$ 1,637,133.74	$ 61,524.00	$ 9,886,438.80
	2	Unlikely	$1,188,654.43	$ 4,491,128.34	$ 7,226,384.29	$ -	$ 1,003,989.40
	1	Almost Certainly Not	$4,935,223.05	$ 35,607,097.78	$47,850,327.68	$ 540,492.08	$ 9,242,235.13

Figure 11: Total Replacement Costs for All Assets Categorized by Risk Score

The total cost to replace assets, categorized by risk score shows that the total replacement cost of all assets is $133,612,901.51.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.28%	1.35%	1.21%	0.08%	2.17%
	4	Highly Likely	0.09%	0.04%	0.80%	0.00%	1.01%
	3	Likely	0.12%	0.31%	1.23%	0.05%	7.40%
	2	Unlikely	0.89%	3.36%	5.41%	0.00%	0.75%
	1	Almost Certainly Not	3.69%	26.65%	35.81%	0.40%	6.92%

Figure 12: Percentage of Total Replacement Costs for All Assets Categorized by Risk Score

The percentage of the total cost, categorized by risk score shows that 67.05% (0.89% + 3.69% + 26.65% + 35.81%) of the asset portfolio has the best possible score (categorized as Very Low Risk) and that only 4.46% (1.21% + 0.08% + 2.17% + 1.01%) of the asset portfolio requires immediate attention (categorized as Very High Risk).

Appendix E Contains risk matrices for each program in the asset hierarchy.

Figure 13 shows the relative replacement value of the asset categories as well as division of risk within each category. The distribution of Risk is shown by the colour of the bar. **Appendix F** contains charts showing the division of risk and relative replacement value of assets included in each category for individual programs.

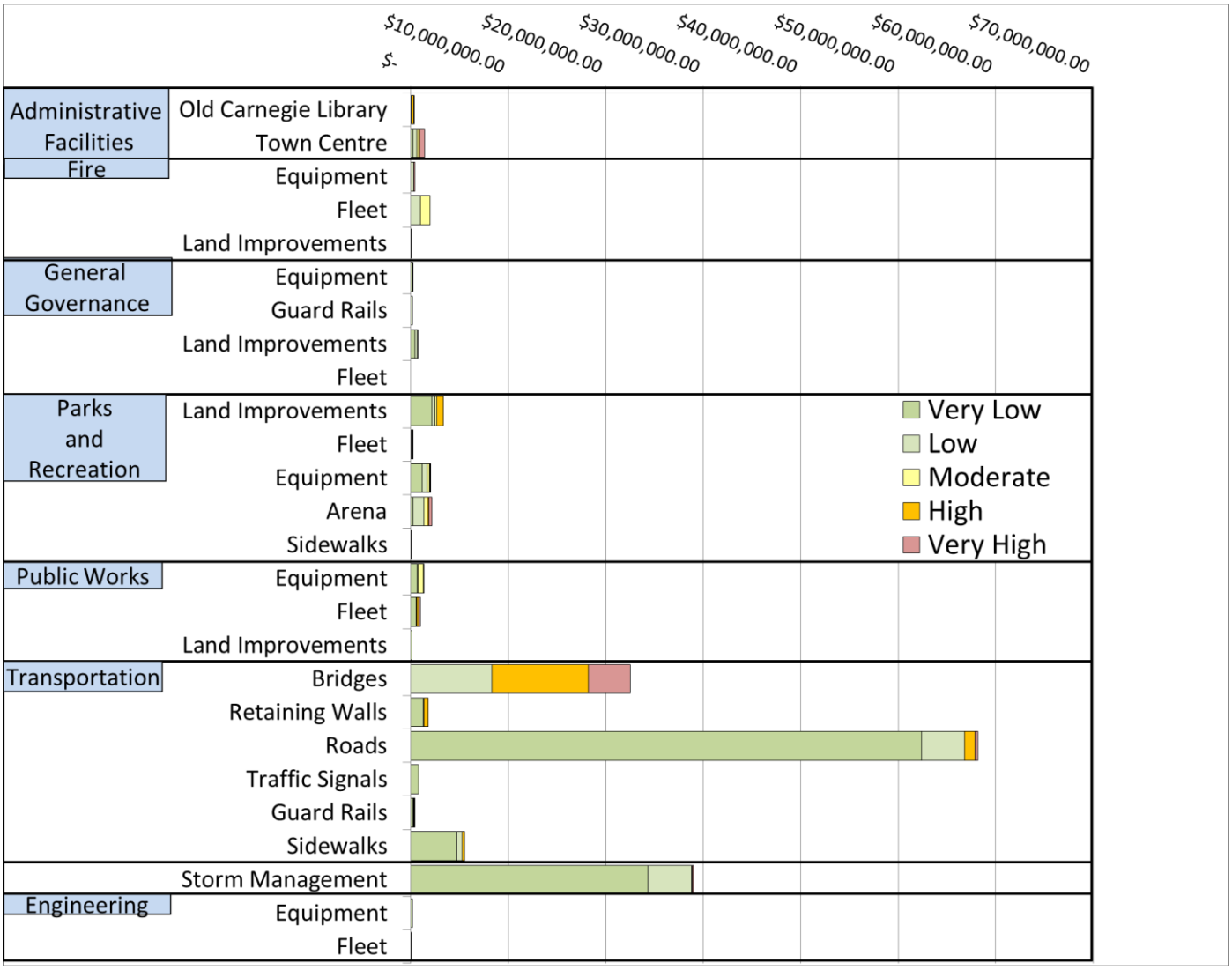


Figure 13: Replacement Costs by Program and Associated Category

When risk is factored into the replacement of an asset it is a deciding consideration of the priority for replacement. The asset may have served its useful life and it may be in poor condition but it may not pose a risk to the Town. For example, when deciding which roads to repave or reconstruct, a residential road may be in the same condition or the same age as an arterial road but because of the arterial roads traffic volume and higher risk to the Town, the arterial road will place higher in priority in the budget then a residential road. Bridges, Culverts and Fire Trucks tend to pose the highest risk due to their consequence of failure.

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5.4. DESIRED LEVEL OF SERVICE

The Town of Ingersoll's corporate strategic objectives related to service levels and their respective asset classes are not documented in a strategic plan. However the overall objectives of providing services at levels that meet the community expectations and in accordance with regulatory requirements are fundamental in the Town's current levels of service. The Town is currently in the process of creating Design Guidelines and Specifications for infrastructure being built and assumed by the Town. It will be presented to council in early 2015.
The Town's Public Works Departments Level of Service Guidelines outline the road maintenance standards (winter maintenance, patrols, etc.) These standards are consistent with the obligations of O.Reg.239/02 which sets the minimum road maintenance service levels in Ontario and embody the desired service levels regarding the road system.
The Municipal Performance measurement Program (MPMP) 2013 results were also used as the basis for defining the expected service levels for asset classes where MPMP information is available. The proposed target values for the Town of Ingersoll are the 2013 median MPMP values for the group of similar municipalities.
In other instances the desired level of service is known as the percentage of the asset class that is deemed to be in "good" condition. The initial target is set at 80% for storm water management assets and 100% for buildings and vehicles, acknowledging that these goals would be adjusted over time as more thorough asset condition information become available.

Table 7 identifies the Town's recommended level of service by asset class. It shows the performance measure and the goal (desired) and current values for each asset class. These service level goals need to be reviewed and discussed with Town staff prior to approval. The current annual maintenance budget and staff resources does not allow the Town to meet all these goals.
This suggests that higher levels of proactive (as opposed to reactive) road and facility maintenance is required in addition to building rehabilitation works at the Town Centre and Recreation facilities.

Table 7: Level of Service Targets

Service	Desired AMP Standard	Indicator	Target Value	Current Value
Transportation	Maintain Adequate Road Condition	Percentage of Paved Lane Kilometres where Condition is rated Good to Very Good with PCI of 75 to 100	65%	76.7%
	Maintain Adequate Bridge Condition	Percentage of Bridges and Culverts where the condition is rated as good to very good with BCI of 65 to 100	80%	81%
	Ensure Roads Meet Current Town Standards	Percentage of road sections that meet current Town standards (typical cross-sections for corresponding land use)	100%	90%
Environmental Services	Maintain Adequate Environmental Services (Stormwater) Condition	Percentage of Stormwater assets rated as good to very good	80%	85%
	Provide adequate drainage to all residents	Percentage of Roads which currently have adequate storm systems	100%	80%
Recreation	Maintain Adequate Service	Percentage of Facilities where accessibility standards are met	100%	
	Maintain Adequate Service	Percentage of Facilities where Condition is rated Good to Very Good	100%	
	Minimize Service Interruptions	Number of Days Facilities unable to be used due to failure of one or more asset components	0	
Fire Protection	Maintain Adequate Service	Percentage of Fire Trucks where Condition is rated Good to Very Good	100%	
	Maintain Adequate Service	Percentage of Fire Stations where Condition rating is Good to Very Good	100%	
General Government	Minimize Service Interruptions	Number of Days Facilities unable to be used due to failure of one or more asset components	0	
	Maintain Adequate Service	Percentage of Facilities where accessibility standards are met	100%	
	Maintain Adequate Service	Percentage of Buildings where Condition is rated Good to Very Good	100%	

Revised Oct., 2016

5.5. 10 YEAR PROJECTED CAPITAL REQUIREMENTS

Detailed Capital requirements have been forecasted over a 10 year period based on the current condition, age, estimated service life, and replacement cost of the Town of Ingersoll's capital assets. The Town of Ingersoll has an estimated 10 year capital requirement of $30,011,940.20. **Figure 14** below shows the estimated average yearly capital requirements per program over the 10 year horizon. **Table 8** which follows, show the breakdown of capital requirements by Program and year. **Appendix G** contains a breakdown of the capital requirements by Program and Category. **Appendix H** contains a breakdown of the 10 year capital requirements by Asset Class.

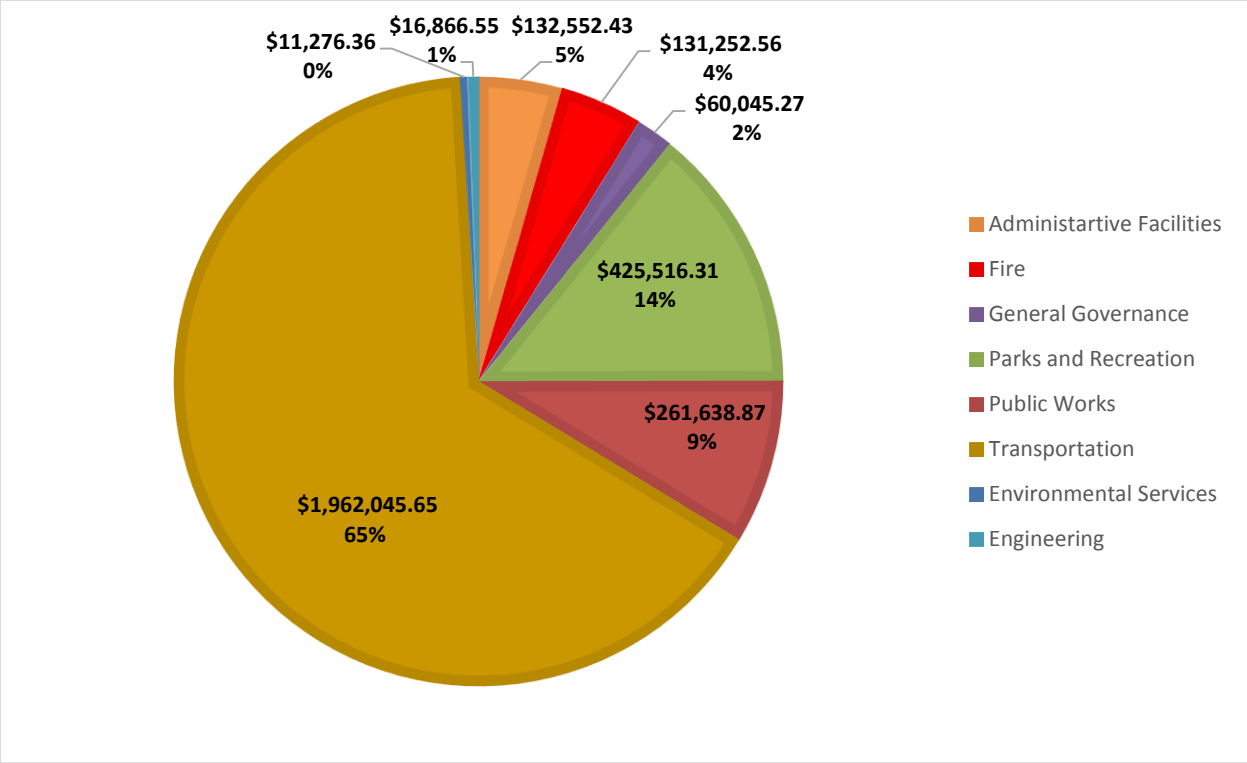

Figure 14: 10 Year Average Capital Needs by Program

Table 8: Capital requirements by Program and year 2015-2024

Program Name	Backlog	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Administrative Facilities	$132,552.43	$546,025.50	$251,992.05	$31,274.70	$21,533.40	$42,338.77	$299,057.91	$0.00	$0.00	$5,127.00	$0.00
Fire	$131,252.56	$78,810.67	$0.00	$0.00	$9,147.01	$56,352.75	$28,249.90	$1,003,989.40	$0.00	$59,991.14	$65,709.07
General Governance	$60,045.27	$47,159.83	$79,929.54	$0.00	$60,076.79	$77,949.13	$134,994.36	$49,836.05	$100,084.46	$5,386.43	$35,055.29
Parks and Recreation	$425,516.31	$356,436.44	$632,172.17	$598,445.41	$528,384.75	$221,112.63	$614,529.99	$433,294.42	$151,611.04	$105,986.13	$110,041.04
Public Works	$261,638.87	$215,641.29	$255,618.70	$359,770.91	$180,534.30	$62,861.02	$330,055.13	$347,750.71	$230,012.89	$88,592.64	$305,004.66
Transportation	$1,962,045.65	$4,345,393.93	$498,659.57	$37,632.53	$781,632.52	$641,474.01	$0.00	$830,981.78	$148,514.09	$4,093,892.87	$6,857,908.58
Environmental Services	$11,276.36	$35,114.80	$0.00	$13,417.87	$60,922.39	$3,308.53	$0.00	$0.00	$0.00	$0.00	$0.00
Engineering	$16,866.55	$0.00	$0.00	$0.00	$9,209.73	$86,695.94	$0.00	$0.00	$56,951.61	$15,808.24	$0.00
TOTAL	**$3,001,194.02**	**$5,624,582.46**	**$1,718,372.03**	**$1,040,541.41**	**$1,651,440.88**	**$1,192,092.78**	**$1,406,887.29**	**$2,665,852.37**	**$687,174.10**	**$4,374,784.45**	**$7,373,718.64**

As can be seen previously in **Table 8** $7,342,954.50 of the $30,011,940.20 in capital requirements fall within the first year (backlog plus 2017 Capital Needs). It is expected that the 2017 Capital Budget for Ingersoll will be insufficient to meet the entire amount. It is recommended that Ingersoll staff use the risk level assigned to each asset to prioritize the work, and appropriate risk mitigation measures should be in place as identified in Section *3.4 Risk Mitigation Measures*.

5.6. LONG TERM FORECAST

Capital requirements have been forecasted over a 100 year period based on the estimated replacement date of all assets. All projected replacement costs are 2014 values and have not been adjusted for future inflation. Capital requirements cannot be predicted accurately for a single year, but the overall trend can be used as a guide to prepare for future needs.
Table 9 below shows the project capital requirements by year over the 100 year period as well as the cost distributed into 10 year groupings. **Figure 15** below displays the 100 year in tabular format.

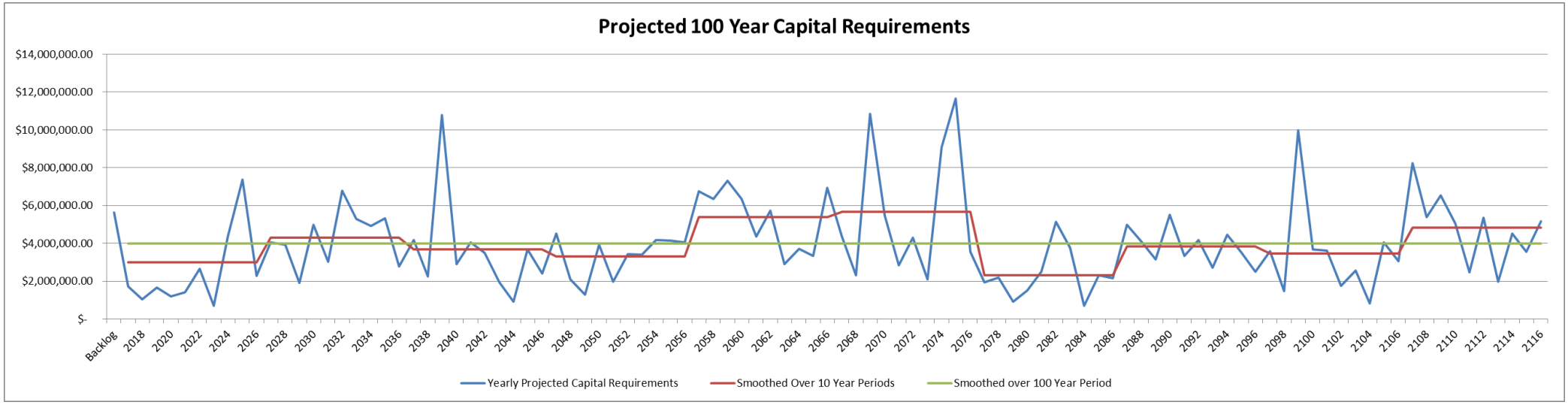

Figure 15: Projected 100 Year Capital Requirements

Table 9: Projected 100 Year Capital requirements in 10 Year Groupings

Years	10 Year Capital Needs	Average Capital Needs per Year
2017-2026	$ 30,011,940.18	$ 3,001,194.02
2027-2036	$ 42,997,072.09	$ 4,299,707.21
2037-2046	$ 36,647,433.91	$ 3,664,743.39
2047-2056	$ 32,987,036.75	$ 3,298,703.68
2057-2066	$ 53,765,359.33	$ 5,376,535.93
2067-2076	$ 56,528,088.52	$ 5,652,808.85
2077-2086	$ 23,154,075.69	$ 2,315,407.57
2087-2096	$ 38,439,237.52	$ 3,843,923.75
2097-2106	$ 34,571,339.70	$ 3,457,133.97
2107-2116	$ 48,237,618.40	$ 4,823,761.84

5.7. FINANCIAL STRATEGY

Reserve Funded Programs Financial Strategy
The Town maintains two reserves specifically for the replacement of equipment. One is for Public Works and the other is Fire. These are distinctly different from the other reserves in that the balance in the reserve represents the accumulated amortization of the asset. The purpose being that at time of replacement the funds are available without the need for special funding in the year of purchase. These reserves have been segregated in this report due to the fact that in some years a significant balance will result which will not be available for other non-related purposes. **Table 10** below reflects the Funded Programs reserves and Capital Needs for Public Works and Fire.

Table 10: Reserve Funded Programs

Funded Programs	Current	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025 - 2034
Fire	$150k	$17k	$45k	$0k	$5k	$9k	$55k	$46k	$986k	$0k	$52k	$1,222k
Public Works - Equipment	$221k	$30k	$0k	$373k	$341k	$453k	$61k	$310k	$344k	$224k	$290k	$2,483k
	$371k	$48k	$45k	$373k	$346k	$462k	$116k	$356k	$1,330k	$224k	$343k	$3,705k
All Other Programs	$2,798k	$1,659k	$1,221k	$1,811k	$2,194k	$1,673k	$2,465k	$1,377k	$923k	$266k	$737k	$29,357k
Total	**$3,168k**	**$1,707k**	**$1,266k**	**$2,185k**	**$2,540k**	**$2,135k**	**$2,581k**	**$1,733k**	**$2,253k**	**$490k**	**$1,080k**	**$33,062k**
Fire												
Reserve Balance	$159k	$9k	$171k	$305k	$484k	$657k	$828k	$952k	$1,085k	$278k	$457k	$584k
Capital Requirements	-$150k	-$17k	-$45k	$0k	-$5k	-$9k	-$55k	-$46k	-$986k	$0k	-$52k	-$1,222k
Transfer to Reserve		$179k	$179k	$179k	$179k	$179k	$179k	$179k	$179k	$179k	$179k	$1,790k
Closing Reserve Balance	**$9k**	**$171k**	**$305k**	**$484k**	**$657k**	**$828k**	**$952k**	**$1,085k**	**$278k**	**$457k**	**$584k**	**$1,152k**
Public Works												
Reserve Balance	$352k	$131k	$351k	$601k	$478k	$387k	$184k	$373k	$313k	$218k	$245k	$204k
Capital Requirements	-$221k	-$30k	$0k	-$373k	-$341k	-$453k	-$61k	-$310k	-$344k	-$224k	-$290k	-$2,483k
Transfer to Reserve		$250k	$250k	$250k	$250k	$250k	$250k	$250k	$250k	$250k	$250k	$2,500k
Closing Reserve Balance	**$131k**	**$351k**	**$601k**	**$478k**	**$387k**	**$184k**	**$373k**	**$313k**	**$218k**	**$245k**	**$204k**	**$222k**

Levy Funded Programs Financial Strategy

Table 11 outlines the proposed Financial Strategy for levy funded programs (all those but Fire and Public Works). The Reserve Balance outlines the dollars that are currently in the reserve fund. The Town is anticipating Capital Improvements and County triggered capital needs. These expenses include the cost to bring Town streets up to Town of Ingersoll standards and the costs for Town infrastructure that is being triggered by the need for new County Sanitary or Water infrastructure. The COIF formula based funding and Federal Gas Tax money has been included in the Strategy, but is not necessarily guaranteed funding. The dollar value to be transferred into reserves is the actual dollar value being budgeted for reserves in 2014. It is being proposed that a Levy increase of 2% per year for 4 years be budgeted for capital expenses. This proposal would need to be approved by Council in the 2015 budget.

Because of the longer term estimated useful life (ESL) of some assets, we need to be conscious of the fact that although a lower dollar value for capital requirements is appearing in the 10 year asset management plan, within the 20 year plan it becomes evident that more assets will be reaching the end of their useful life. For example the first significant requirement for storm water management is approx. $600,000 in 2030. Therefore we need to look at the long term requirements for asset management when budgeting for reserves. For this reason the 2025-2034 (10 to 20 year) has been included in this plan.

Although the strategy shows the Town of Ingersoll would still be in a deficit position for refurbishing or replacing their capital assets, this strategy does not take into consideration any Federal or Provincial Funding that may be offered for Infrastructure in the future. The Town of Ingersoll's Recreation Department is also actively involved in seeking grants and other funding to help in their asset management needs which are not reflected in this strategy.

Table 11: Levy Funded Programs

All Other Programs	Current	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025 - 2034
Reserve Balance	1,852k	-946k	-1,725k	-1,083k	-958k	-1,081k	-526k	-1,002k	-62k	1,467k	3,851k	5,622k
Capital Requirements	-2,798k	-1,659k	-1,221k	-1,811k	-2,194k	-1,673k	-2,465k	-1,377k	-923k	-266k	-737k	-29,357k
Capital Improvements/County		-1,100k	-366k	-543k	-658k	-502k	-740k	-413k	-277k	-80k	-221k	-8,807k
Bridge Project (COIF Funded)												
COIF Funding - One Time												
COIF Funding - Formula Based		70k	70k	70k	70k	70k	70k	70k	70k	70k	70k	705k
Federal Gas Tax		360k	360k	360k	360k	360k	360k	360k	360k	360k	360k	3,600k
Development Charges		50k	50k	50k	50k	50k	50k	50k	50k	50k	50k	500k
Transfer to Reserve		1,249k	1,249k	1,249k	1,249k	1,249k	1,249k	1,249k	1,249k	1,249k	1,249k	12,490k
Levy Increase for Capital		250k	500k	750k	1,000k	1,000k	1,000k	1,000k	1,000k	1,000k	1,000k	10,000k
Closing Reserve Balance	**-946k**	**-1,725k**	**-1,083k**	**-958k**	**-1,081k**	**-526k**	**-1,002k**	**-62k**	**1,467k**	**3,851k**	**5,622k**	**-5,247k**

This report excludes a large portion of Town owned facilities as the component details were lacking, resulting in less than usable asset management data. These buildings are significant and include the recreation centre (VPCC), public works shop, seniors centre, parks shop, police building, museum, Carr's walkway and the fire hall. Building assessments will be completed in near future to collect this information. As a result the capital program for the last number of years has been centred on infrastructure needs. Only minimal amounts have been allocated to facilities in term of expenditures and reserve allocation. Excluding these assets from the financial plan would result in an understatement of the Town's financial situation. **Table 12** below shows the proposed capital reserves to be created for maintaining and replacing Town owned Facilities.

Table 12: Additional Facilities Funding

Facilities Excluded in Report	Current	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025 -2034
Reserve Balance	693k	-57k	-57k	-57k	-57k	-57k	-57k	-57k	-57k	-57k	-57k	-57k
Capital Requirements	-750k	-100k	-100k	-100k	-100k	-100k	-100k	-100k	-100k	-100k	-100k	-1,000k
Transfer to Reserve		100k	100k	100k	100k	100k	100k	100k	100k	100k	100k	1,000k
Closing Reserve Balance	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**	**-57k**

It is known that the Town's arena is nearing the end of its useful life and will require replacement within the next 10 years. As a result the plan is to only replace equipment as it fails and perform repairs only as needed to keep the facility open. By doing so the ten year requirements are understated.

6. CONCLUSIONS

The Town of Ingersoll has implemented an Asset Management Strategy and Plan, which assesses the Town's assets based on condition assessments, lifecycles, LOS requirements, and Risk Analysis. The decision process is executed through an Optimized Decision Model (ODM) created by UEM. The ODM applies the Asset Management strategies to the Town's asset data. The outputs of the ODM are used to develop and prioritize assets for Capital Plans, which address those assets that pose the greatest risk. The Asset Management Plan is expected to achieve improved performance of the Town's services as well as:

- Enhanced customer satisfaction from improved performance and control of the Level of Service (LOS);
- Improved financial planning for maintenance and replacement of key infrastructure Assets;
- Improved Risk Management Strategies;
- Optimized return on investment and/or growth;
- Improved health, safety and environmental performance;
- Sustainable long-term planning and performance; and
- Improved corporate stewardship, including greater staff satisfaction.

The Asset Management Program will be improved yearly through improved data collection, data confidence, data architecture, business processes, and Asset Management procedures. The Town of Ingersoll is committed to an Asset Management Strategy and Plan that can be used to provide appropriate information to the Town's Council for decision making during the annual budget process.

7. RECOMMENDATIONS

The following is a list of recommendations for ongoing improvement of the management of the Town's assets. The identified costs are rough estimates and should not be considered as quotes.

7.1. CAPITAL PROGRAM

The asset management plan and strategy is a means to support the Town's budget process as long as the asset management program is continually updated and to also include in the future planning and growth. Updating the condition data and replacement values of assets should be carried out on an annual basis, which will ensure up-to-date condition data. Condition is especially significant as assets near or exceed their expected service life. Generally, conditions are being assessed by staff. However, such conditions are not documented in a useable format. The Town currently has reliable and up-to-date condition information on bridges and sidewalks.

Recommendation: Update internal business processes so that condition assessments are recorded and entered into the asset database for Recreation assets such as playground equipment and playing fields.

Estimated Cost: Minimal internal cost

Recommendation: Bi-Annual completion of Pavement Condition Evaluation

Estimated Cost: approximately 3 weeks of interrupted time from (2) trained internal Engineering staff

Asset management for buildings requires improvement. A building should not be considered as a single asset, but rather sub-divided into multiple assets per asset class. This requires knowledge specific to buildings in order to break asset classes down into discreet assets. It is recommended that the Town complete building condition inspections on all buildings. Priority should be given to the oldest buildings and those buildings most critical to the services of the Town. **Figure 16, Figure 17** and **Figure 18** illustrate the move away from a building being considered a single asset (**Figure 16**) to the desired state of individual components under each asset class (**Figure 18**).

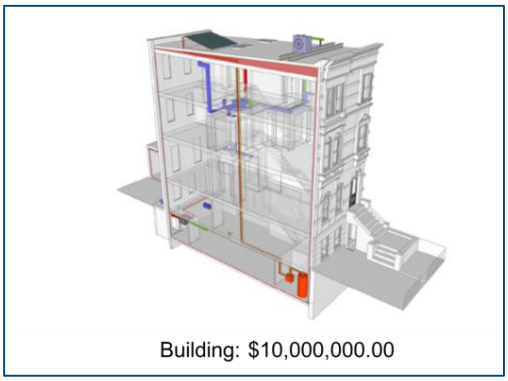

Figure 16: Single Value for Building

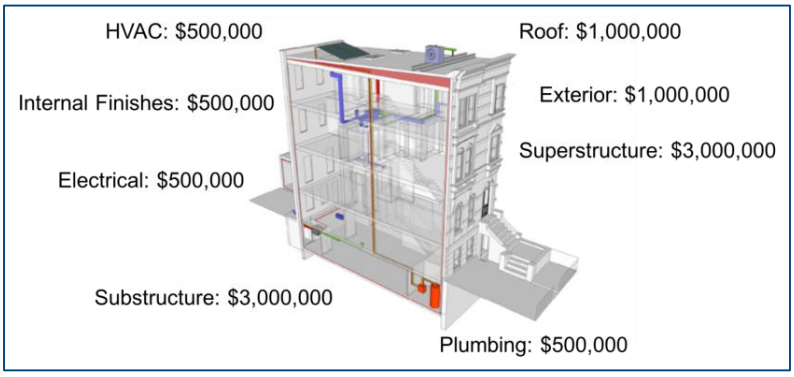

Figure 17: Single Asset per Asset Class in Building

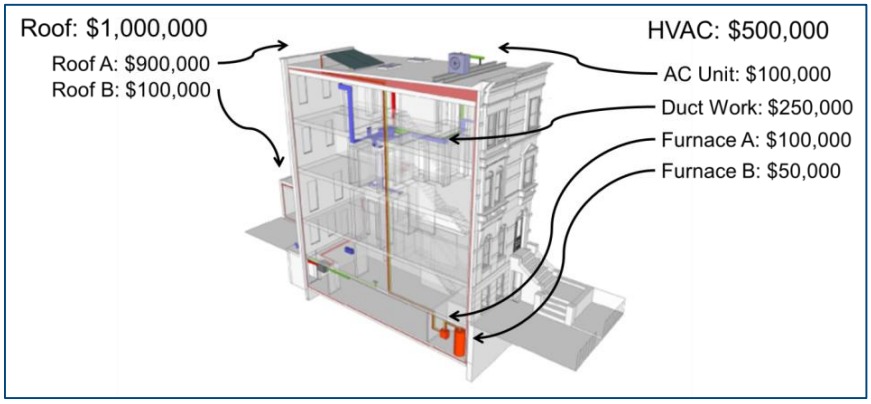

Figure 18: Multiple Assets per Asset Class in Building

Recommendation: Building Assessments of all Town owned buildings

Estimated Cost: $ 10,000/year for 3 years

Revised Oct., 2016

7.2. ASSET MANAGEMENT IMPROVEMENT AND MAINTENANCE

The Town requires formalized maintenance procedures for all programs. Maintenance procedures for a wide range of assets were reviewed and it is recommended that the Town acquire maintenance procedures for all programs. In addition, it is important that significant maintenance activities be recorded and reported to the staff member(s) responsible for maintaining the asset management data. This can be achieved through new business processes or the implementation of work order and maintenance management systems as discussed further in Section 7.4 below. A process should be in place to update replacement values when significant maintenance/improvement is completed. This may result in extending/diminishing the life of an asset or increasing/decreasing the value of an asset.

Recommendation: Establish formalized maintenance procedures for all programs.

Estimated Cost: Minimal internal cost

Recommendation: Update internal business processes so that significant maintenance activities are recorded and asset data is adjusted to reflect changes to condition and replacement value.

Estimated Cost: Minimal internal cost

Currently the sole Technical Level of Service (TLOS) used to determine the Probability of Failure is mortality. Mortality is based on the age and condition of assets. Performance-based levels of service can be added in the future. Performance-based TLOS relate to measurements that are not directly related to condition such as the accessibility of buildings for persons with disabilities. Performance TLOS may be mandated by legislation, like the Safe Drinking Water Act, or explicitly identified by the Town in a Service Level Agreement. New business and reporting practices will need to be implemented in order to collect and maintain the data required to evaluate performance- based TLOS

Recommendation: Develop & incorporate Performance TLOS

Cost Estimate: Internal Asset Management staff to develop

To meet asset management goals and maintain or improve the infrastructure, a number of innovative infrastructure management tools that should be considered include:

- A consistent ranking system to evaluate the state and condition of infrastructure assets,
- A risk assessment methodology to help quantify the risk of asset failure and relate this risk to funding and limitations,
- Life cycle modelling to support better decision-making and planning, and
- Detailed level of service corresponding with state of infrastructure and indicator data.

Recommendation: Enhance asset management practices through the implementation of innovative infrastructure management tools

Estimated Cost: Internal Asset Management team to develop as time permits

Revised Oct., 2016

7.3. ORGANIZATIONAL CHANGES

A formalized asset management policy should be developed which details roles responsibilities and procedures for the execution of the asset management plan. An environment that would achieve buy-in and/or ownership of asset management from all departments is necessary for the continual improvement of the asset management program. Defining the role of asset management within the organization is necessary, especially to enable buy-in from Council and to ensure that departments take ownership of the data and inputs required for asset management. Each department must designate one individual as being responsible for data management within the department. Corporately, a single manager within Engineering should be responsible for asset management as part of their duties and would need to be supported by at least one additional full time staff member to maintain the asset management data, update and consolidate inputs from the Departments, and produce the asset management outputs and capital plans. While a single database may be used to house the data for both PSAB and asset management, the responsibility for PSAB reporting should be separate from asset management.

Recommendation: Develop a formalized asset management policy

Estimated Cost: Internal Asset Management staff to develop

Recommendation: Identify an Asset Management champion in each department to ensure ownership of asset management processes.

Estimated Cost: Minimal internal cost

Recommendation: Additional permanent staff member

Estimated Cost: $50,000 per year in salary & benefits

7.4. TECHNOLOGY-RELATED REQUIREMENTS

Upon review of the Town's existing asset management process, some areas for improvement have been noted. The foundation of any asset management plan is the data pertaining to each asset. The entire process is reliant on solid, up to date information from the database.

It is recommended that a maintenance management program be adopted to track costs associated with the maintenance of assets so an accurate comparison can be made between the costs associated with continued maintenance as compared to the cost of reconstruction or replacement.

Revised Oct., 2016

APPENDIX A

Asset Hierarchy

Program	Category	Asset Class
Administrative Facilities	Old Carnegie Library	Buildings - Conveying
Administrative Facilities	Old Carnegie Library	Buildings - Electrical
Administrative Facilities	Old Carnegie Library	Buildings - Exterior Enclosure
Administrative Facilities	Old Carnegie Library	Buildings - Fire Protection
Administrative Facilities	Old Carnegie Library	Buildings - HVAC
Administrative Facilities	Old Carnegie Library	Buildings - Interiors
Administrative Facilities	Old Carnegie Library	Buildings - Plumbing
Administrative Facilities	Old Carnegie Library	Buildings - Substructure
Administrative Facilities	Old Carnegie Library	Buildings - Superstructure(roof/floor)
Administrative Facilities	Town Centre	Buildings - Conveying
Administrative Facilities	Town Centre	Buildings - Electrical
Administrative Facilities	Town Centre	Buildings - Exterior Enclosure
Administrative Facilities	Town Centre	Buildings - Fire Protection
Administrative Facilities	Town Centre	Buildings - HVAC
Administrative Facilities	Town Centre	Buildings - Interiors
Administrative Facilities	Town Centre	Buildings - Plumbing
Administrative Facilities	Town Centre	Buildings - Substructure
Administrative Facilities	Town Centre	Buildings - Superstructure(roof/floor)
Engineering	Equipment	Printer/Plotter/Scanner
Engineering	Equipment	Survey Equipment
Engineering	Fleet	Utility Vehicles
Fire	Equipment	Radio Tower
Fire	Equipment	SCBA w/o tank & mask
Fire	Fleet	Fire Trucks
Fire	Fleet	Heavy Equipment
Fire	Fleet	Utility Vehicles
Fire	Land Improvements	Parking Lot
Fire	Land Improvements	Parking Lot Curbs
General Governance	Guard Rails	Guard Rails
General Governance	Equipment	Equipment
General Governance	Land Improvements	Parking Lot
General Governance	Land Improvements	Parking Lot Curbs
General Governance	Fleet	Utility Vehicles
Parks and Recreation	Arena	Buildings - Conveying
Parks and Recreation	Arena	Buildings - Electrical
Parks and Recreation	Arena	Buildings - Exterior Enclosure
Parks and Recreation	Arena	Buildings - Fire Protection
Parks and Recreation	Arena	Buildings - HVAC
Parks and Recreation	Arena	Buildings - Interiors
Parks and Recreation	Arena	Buildings - Plumbing
Parks and Recreation	Arena	Buildings - Substructure
Parks and Recreation	Arena	Buildings - Superstructure(roof/floor)
Parks and Recreation	Arena	Buildings - Specialized
Parks and Recreation	Equipment	Bleachers
Parks and Recreation	Equipment	Heavy Equipment
Parks and Recreation	Equipment	Playground Equipment
Parks and Recreation	Fleet	Trucks
Parks and Recreation	Fleet	Utility Vehicles
Parks and Recreation	Land Improvements	Fencing
Parks and Recreation	Land Improvements	Parking Lot
Parks and Recreation	Land Improvements	Parking Lot Curbs
Parks and Recreation	Land Improvements	Pathways

Revised Oct., 2016

Program	Category	Asset Class
Parks and Recreation	Land Improvements	Playing Fields
Parks and Recreation	Sidewalks	Sidewalks
Parks and Recreation	Recreation Centre with pool	Buildings - Concrete shell
Parks and Recreation	Land Improvements	Irrigation
Parks and Recreation	Land Improvements	Sportsfield Lighting
Public Works	Equipment	Heavy Equipment
Public Works	Fleet	Trucks
Public Works	Fleet	Utility Vehicles
Public Works	Land Improvements	Facility Roadway
Public Works	Land Improvements	Fencing
Public Works	Land Improvements	Parking Lot
Public Works	Land Improvements	Parking Lot Curbs
Transportation	Bridges	Bridge Deck
Transportation	Bridges	Bridge Structure
Transportation	Guard Rails	Guard Rails
Transportation	Hand Rails	Hand Rails
Transportation	Retaining Walls	Retaining Walls
Transportation	Roads	Road Curb
Transportation	Roads	Road - Arterial
Transportation	Roads	Road - Collector Commercial Industrial
Transportation	Roads	Road - Collector Residential
Transportation	Roads	Road - Lane
Transportation	Roads	Road - Local Commercial Industrial
Transportation	Roads	Road - Local Residential
Transportation	Sidewalks	Sidewalks
Transportation	Storm Management	Stormwater System
Transportation	Storm Management	Headwalls
Transportation	Storm Management	Pumping Station
Transportation	Storm Management	Quality and Quantity Management Ponds
Transportation	Traffic Signals	Traffic Signals
Transportation	Roads	Roads - Special Considerations

Revised Oct., 2016

APPENDIX B

Consequence of Failure Scoring

March 14, 2014

Revised Oct., 2016

Program	Category	Asset Class	Health & Safety	Financial	Environmental	Legal & Regulatory	Reputation & Image	Service Interruption	CoF Value	CoF Name
Administrative Facilities	Old Carnegie Library	Buildings - Electrical	2	3	2	2	3	2	2	Low
Administrative Facilities	Old Carnegie Library	Buildings - Exterior Enclosure	3	2	2	2	3	2	2	Low
Administrative Facilities	Old Carnegie Library	Buildings - HVAC	2	1	2	2	3	2	2	Low
Administrative Facilities	Old Carnegie Library	Buildings - Interiors	3	2	2	3	3	4	3	Medium
Administrative Facilities	Old Carnegie Library	Buildings - Plumbing	3	3	2	2	3	4	3	Medium
Administrative Facilities	Old Carnegie Library	Buildings - Roofing	2	2	2	2	2	2	2	Low
Administrative Facilities	Old Carnegie Library	Buildings - Substructure	4	3	3	4	4	4	4	High
Administrative Facilities	Old Carnegie Library	Buildings - Superstructure(roof/floor)	3	3	2	4	4	4	3	Medium
Administrative Facilities	Town Centre	Buildings - Conveying	4	4	2	4	4	3	4	High
Administrative Facilities	Town Centre	Buildings - Electrical	4	3	2	4	4	5	4	High
Administrative Facilities	Town Centre	Buildings - Exterior Enclosure	3	2	2	3	3	2	2	Low
Administrative Facilities	Town Centre	Buildings - HVAC	3	3	2	3	3	3	3	Medium
Administrative Facilities	Town Centre	Buildings - Interiors	3	2	2	3	3	4	3	Medium
Administrative Facilities	Town Centre	Buildings - Plumbing	3	3	2	2	3	4	3	Medium
Administrative Facilities	Town Centre	Buildings - Roofing	2	2	2	2	2	2	2	Low
Administrative Facilities	Town Centre	Buildings - Substructure	4	2	3	4	4	4	4	High
Administrative Facilities	Town Centre	Buildings - Superstructure(roof/floor)	4	2	2	4	4	4	3	Medium
Engineering	Equipment	Printer/Plotter/Scanner	1	3	1	1	2	2	1	Insignificant
Engineering	Equipment	Survey Equipment	1	2	1	1	2	1	1	Insignificant
Environmental Services	Storm Management	Headwalls	2	3	3	2	2	3	2	Low
Environmental Services	Storm Management	Pumping Station	2	4	3	3	3	3	3	Medium
Environmental Services	Storm Management	Quality and Quantity Management Ponds	3	2	4	3	2	2	3	Medium
Environmental Services	Storm Management	Stormwater System	2	3	4	2	2	2	3	Medium
Fire	Equipment	Radio Tower	5	2	2	5	5	5	4	High
Fire	Equipment	SCBA w/o tank & mask	5	4	2	5	5	5	5	Severe
Fire	Fleet	Fire Trucks	5	4	3	4	5	5	5	Severe
Fire	Fleet	Utility Vehicles	3	3	3	3	4	3	3	Medium
Fire	Land Improvements	Parking Lot	3	1	1	2	1	3	2	Low
Fire	Land Improvements	Parking Lot Curbs	1	1	2	2	2	1	1	Insignificant
General Governance	Equipment	Equipment	1	3	1	2	1	3	1	Insignificant
General Governance	Fleet	Utility Vehicles	3	3	3	3	4	3	3	Medium
General Governance	Guard Rails	Guard Rails	4	2	2	4	4	2	3	Medium
General Governance	Land Improvements	Parking Lot	2	2	2	3	2	3	2	Low
General Governance	Land Improvements	Parking Lot Curbs	2	2	2	2	2	1	2	Low
Parks and Recreation	Arena	Buildings - Arena Ice Pad	2	4	2	2	3	5	3	Medium
Parks and Recreation	Arena	Buildings - Conveying	4	4	2	3	3	3	3	Medium
Parks and Recreation	Arena	Buildings - Electrical	2	3	2	2	3	2	2	Low
Parks and Recreation	Arena	Buildings - Exterior Enclosure	3	2	2	2	3	2	2	Low
Parks and Recreation	Arena	Buildings - Fire Protection	2	3	2	2	3	2	2	Low
Parks and Recreation	Arena	Buildings - HVAC	2	1	2	2	3	2	2	Low
Parks and Recreation	Arena	Buildings - Interiors	3	2	2	3	3	4	3	Medium
Parks and Recreation	Arena	Buildings - Plumbing	3	3	2	2	3	4	3	Medium
Parks and Recreation	Arena	Buildings - Roofing	2	2	2	2	2	2	2	Low
Parks and Recreation	Arena	Buildings - Substructure	4	2	3	4	4	4	4	High
Parks and Recreation	Arena	Buildings - Superstructure(roof/floor)	3	2	2	3	3	4	3	Medium
Parks and Recreation	Equipment	Bleachers	2	1	1	1	3	3	1	Insignificant
Parks and Recreation	Equipment	Heavy Equipment	4	3	1	2	3	2	2	Low
Parks and Recreation	Equipment	Playground Equipment	4	2	1	4	3	2	3	Medium

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Program	Category	Asset Class	Health & Safety	Financial	Environmental	Legal & Regulatory	Reputation & Image	Service Interruption	CoF Value	CoF Name
Parks and Recreation	Fleet	Trucks	2	2	1	2	1	1	1	Insignificant
Parks and Recreation	Fleet	Utility Vehicles	2	2	1	2	1	2	1	Insignificant
Parks and Recreation	Land Improvements	Fencing	2	1	1	2	2	2	1	Insignificant
Parks and Recreation	Land Improvements	Irrigation	2	2	2	2	3	2	2	Low
Parks and Recreation	Land Improvements	Parking Lot	2	1	1	2	2	2	1	Insignificant
Parks and Recreation	Land Improvements	Parking Lot Curbs	1	1	1	1	1	1	1	Insignificant
Parks and Recreation	Land Improvements	Pathways	3	1	1	2	2	2	2	Low
Parks and Recreation	Land Improvements	Playing Fields	3	3	3	2	3	3	3	Medium
Parks and Recreation	Land Improvements	Sportsfield Lighting	4	2	1	3	3	2	2	Low
Parks and Recreation	Portable Building	Small/Portable Building	2	2	1	2	2	3	2	Low
Parks and Recreation	Sidewalks	Sidewalks	3	2	2	2	2	3	2	Low
Public Works	Equipment	Heavy Equipment	4	2	2	3	3	3	3	Medium
Public Works	Fleet	Trucks	4	4	2	3	3	3	3	Medium
Public Works	Fleet	Utility Vehicles	3	2	1	2	1	3	2	Low
Public Works	Land Improvements	Facility Roadway	3	3	2	2	3	3	3	Medium
Public Works	Land Improvements	Fencing	1	1	2	2	3	1	1	Insignificant
Public Works	Land Improvements	Parking Lot	3	2	2	2	3	3	2	Low
Public Works	Land Improvements	Parking Lot Curbs	2	1	1	1	2	1	1	Insignificant
Transportation	Bridges	Bridge Deck	5	3	3	4	4	4	4	High
Transportation	Bridges	Bridge Structure	5	5	3	5	5	5	5	Severe
Transportation	Guard Rails	Guard Rails	4	2	1	3	4	3	3	Medium
Transportation	Retaining Walls	Retaining Walls	2	3	3	2	2	2	2	Low
Transportation	Roads	Road Curb	2	2	1	1	1	3	1	Insignificant
Transportation	Roads	Road Surface - Arterial	4	2	2	3	3	5	3	Medium
Transportation	Roads	Road Surface - Collector Commercial Industrial	3	2	2	2	3	4	2	Low
Transportation	Roads	Road Surface - Collector Residential	3	2	2	3	3	4	3	Medium
Transportation	Roads	Road Surface - Local Commercial Industrial	3	2	2	1	2	3	2	Low
Transportation	Roads	Road Surface - Local Residential	2	2	1	2	2	3	2	Low
Transportation	Sidewalks	Sidewalks	3	2	2	2	2	2	2	Low
Transportation	Traffic Signals	Traffic Signals	4	3	1	2	3	4	3	Medium

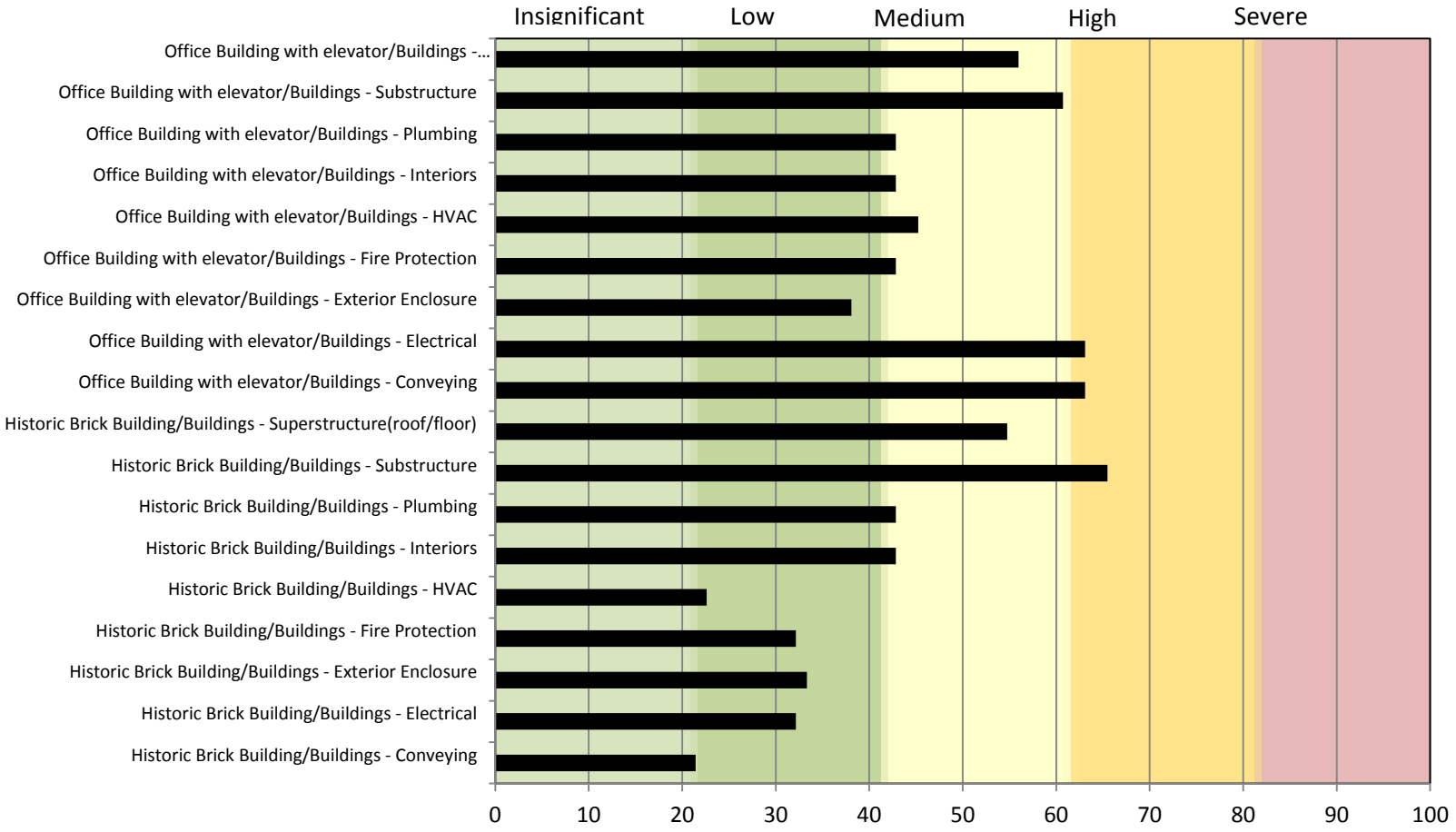
Revised Oct., 2016

APPENDIX C

Asset Class Consequence of Failure

March 14, 2014
Revised Oct., 2016

Consequence of Failure for Administrative Facilities Asset Classes



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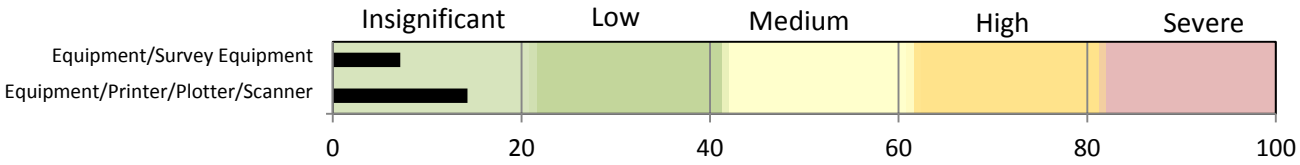
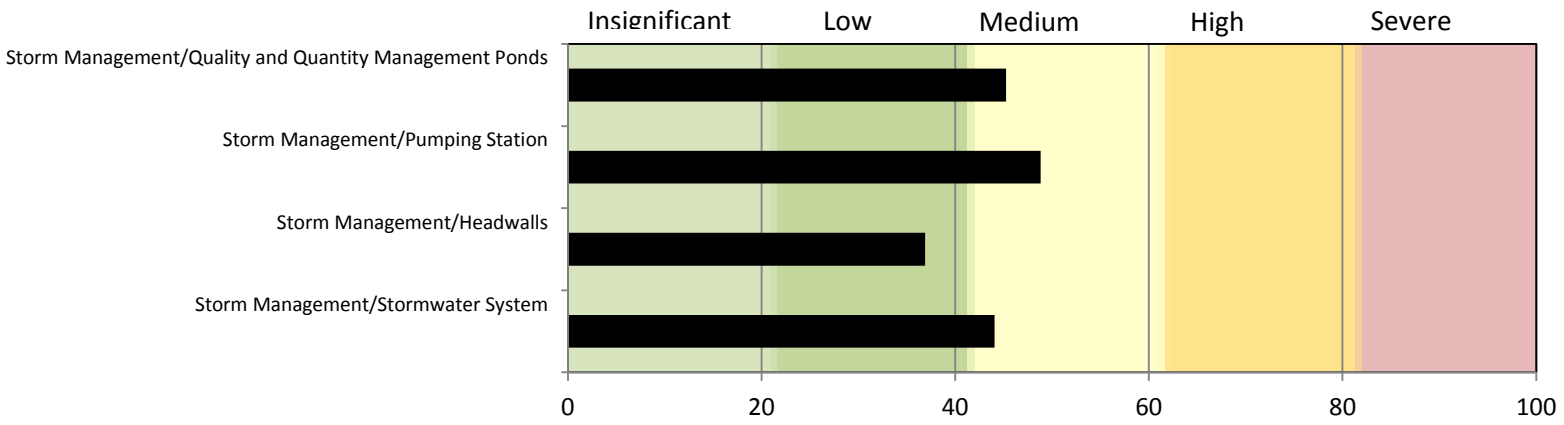
Consequence of Failure for Engineering Asset Classes



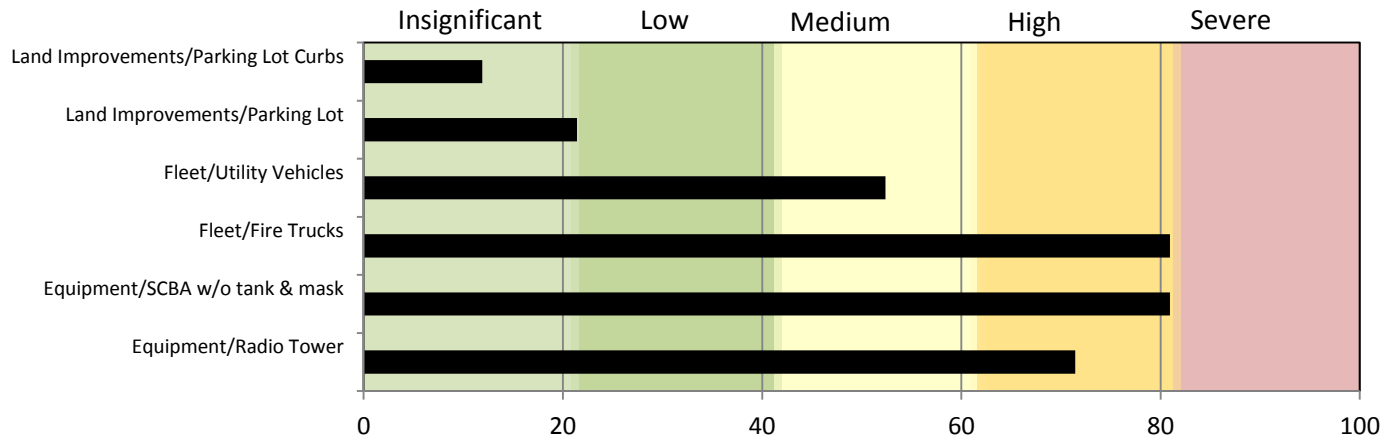
March 14, 2014
Revised Oct., 2016

Consequence of Failure for Environmental Services Asset Classes

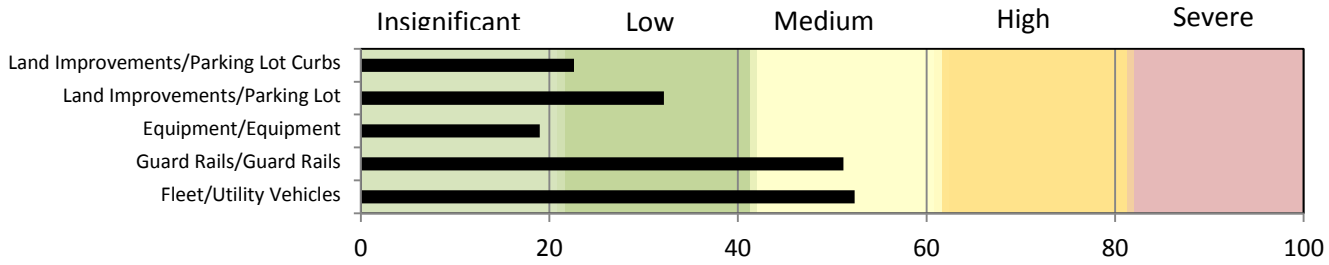


March 14, 2014
Revised Oct., 2016

Consequence of Failure for Fire Asset Classes



Consequence of Failure for General Governance Asset Classes



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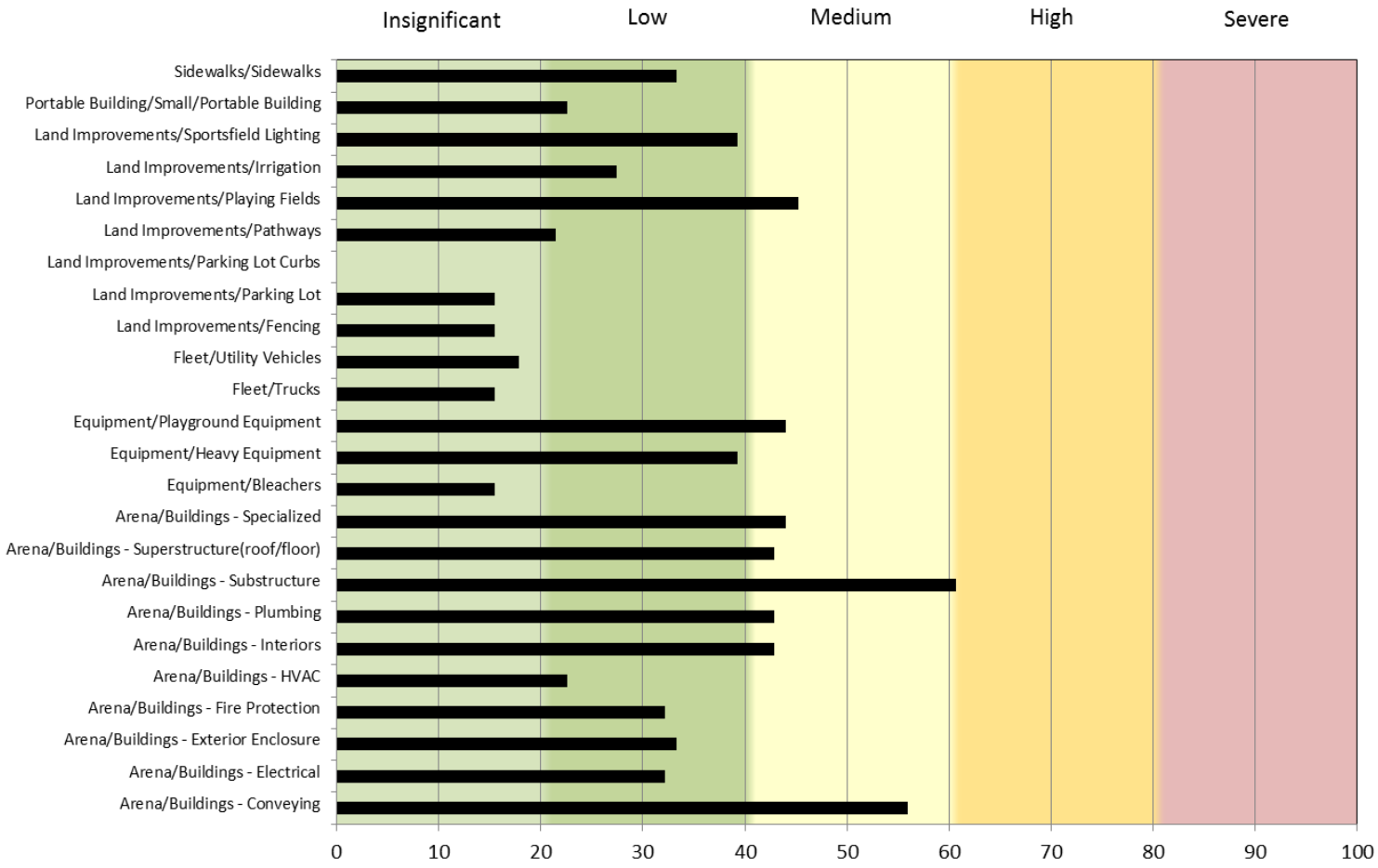
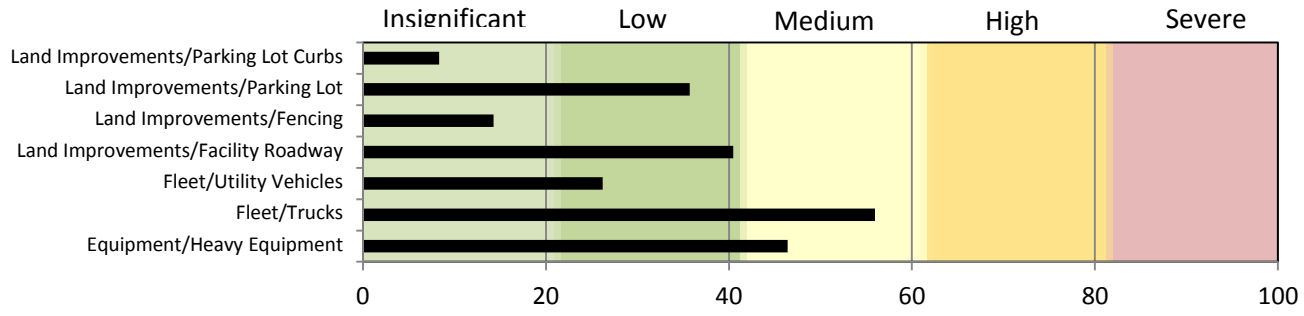
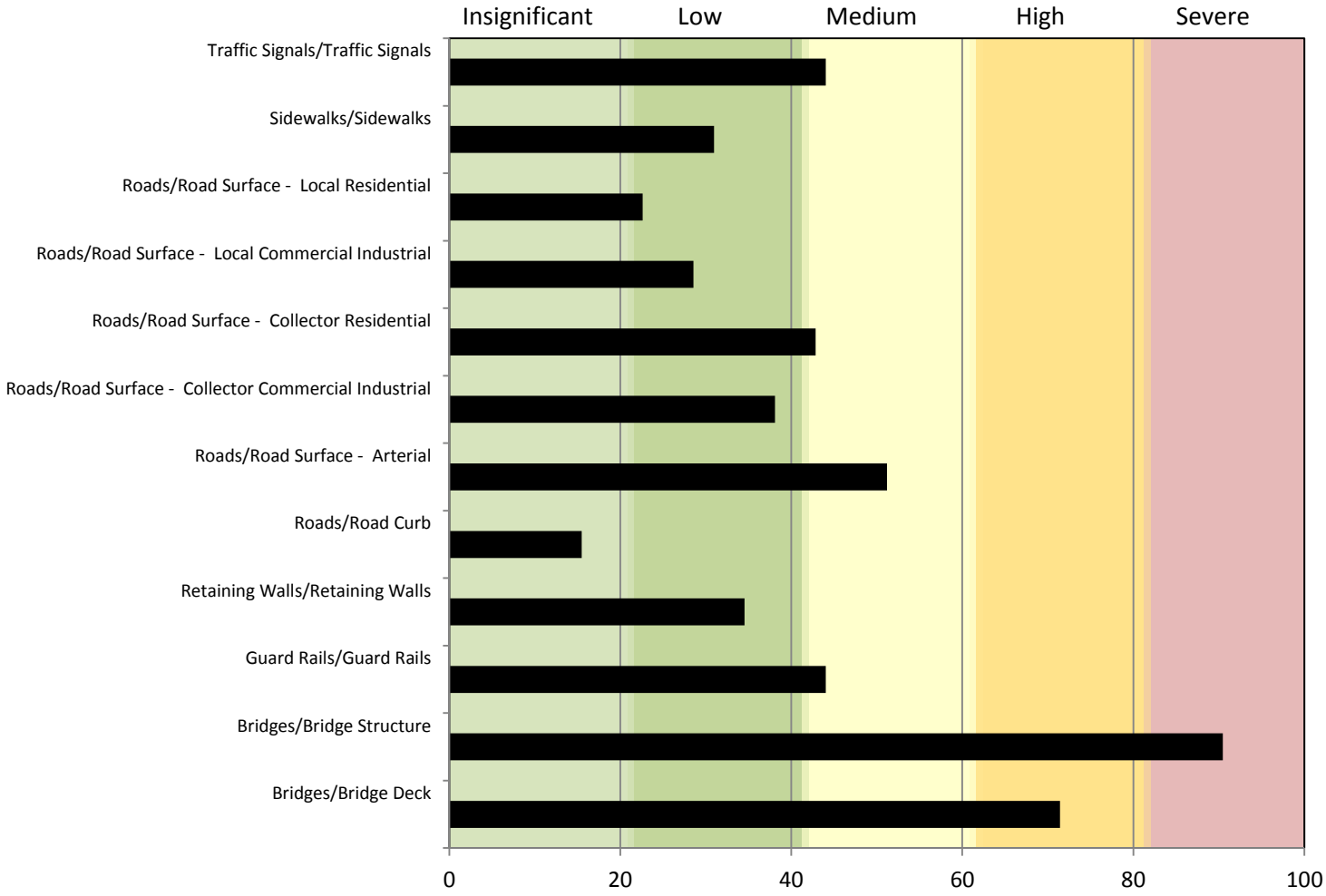
Consequence of Failure for Parks & Recreation Asset Classes



Consequence of Failure for Public Works Asset Classes



Consequence of Failure for Transportation Asset Classes



Revised Oct., 2016

APPENDIX D

Draft Asset Management Strategy

Revised Oct., 2016

Asset:	**Bridges and Culverts over 3m**
Inventory:	4 Bridges, 25 culverts over 3m in size and 2 pedestrian bridges.
Anticipated Asset Life Cycle	Bridges consist of various components, each with an assumed life. For example bridge structures haves a life span of 75 years. The life cycle is affected by traffic volumes and loads, climate and chloride exposure. Other life cycles are as follows: Asphalt Riding Surface - 15yrs. , Deck Waterproofing - 25 yrs., Deck Joints - 25 yrs.
Integrated:	May be integrated with road resurfacing or road widening projects however generally not integrated with other infrastructure
Rehab and Replacement Criteria:	Criteria for prioritizing include level of service and traffic volumes, safety (risk factor) and to preserve infrastructure. Bi-annual visual inspection and bridge condition survey by Engineering Consultant. Bridge components are evaluated and tested providing severity and extent of deterioration and overall condition. For example bridge decks are rated based on reinforcement corrosion potential, concrete delamination, chloride ion and concrete compressive strength. An overall BCI (bridge condition index) is provided for each bridge and culvert over 1m. A value of 100 indicates that the bridge is in excellent condition and a value of zero indicates that the bridge is in extremely poor condition. Level of Service or network improvements such as widening a roadway to four lanes may influence criteria.
Rehab and Replacement Strategies:	Bridge rehabilitation or replacement is based on bridge component age and assumed life spans and results of condition surveys: Asphalt Deck Resurfacing = 15 yrs., Water proofing and asphalt deck resurfacing = 25 yrs., Patch concrete deck, waterproof and asphalt deck resurfacing = 25 yrs., Joint replacement = 25 yrs.
Life Cycle Consequences:	Bridge component life cycles will be reduced, level of service is lowered and safety is compromised
Integrated Asset Priorities:	NA
Charts/Tables	NA
Previous Corporate Report on subject:	NA
Estimated Cost per year for strategy described:	The cost for bridge inspections is $20,000/yr. $640,000/yr. over 10 years, $370,000/yr. over 100 year
Other information or reference materials:	NA
Notes about above info:	According to Public Transportation and Highway Improvement Act, all bridges shall be inspected every two years under the direction of a professional engineer using the Ministry's Ontario Structure Inspection Manual. The Town has divided the Bridge and Culvert inventory into two segments which are inspected by a tendered Engineering firm on an every other year basis. The findings are entered into the asset management system to aid in the budgeting process.

Revised Oct., 2016

Asset:	**Corporate Facilities**
Inventory:	10 Facilities
Anticipated Asset Life Cycle	Life Cycles can vary from 10 yrs. to 50 yrs. A hot water tank replacement cycle would be in the 10 yrs. range, a roof membrane in the 20 yrs. range, heating ventilating, air conditioning in the 15-25 yrs. range and a building super structure would be in the 50 yrs. range. These life cycles assume adequate maintenance is provided throughout the course of the components life.
Integrated:	Individual asset components are reviewed. Projects should be combined with similar assets to take advantage of the economics of bulk replacement. Consideration should be given to minimize the disruption of operations to a given asset over time.
Rehab and Replacement Criteria:	Currently rehab and replacement is done on an as identified basis. Staff in each department tracks the maintenance and repair on the individual components and reports to department heads with a recommendation for replacement. Age of the component is a main consideration for replacement.
Rehab and Replacement Strategies:	Currently a Facility Assessment has been conducted on (3) of the Town's facilities. This assessment identified components of the buildings in need of immediate replacement and identified maintenance and replacement within the next 15 years and suggested dollar values. It is recommended that Facility assessments be completed on the remaining Town Facilities over a 3 year period so we have accurate condition ratings and replacement costs for the components of the main facilities. It is also recommended that all facilities are reviewed for accessibility standards. Along with maintaining and protecting the facilities the program should also include implementing energy efficient systems and equipment.
Life Cycle Consequences:	Underfunding facility maintenance could cause increased deterioration of building and properties, health and safety concerns, inefficient operation, higher operating costs, accelerated depreciation of Corporate assets.
Integrated Asset Priorities:	Replacement is based on actual condition, the point in time within its life cycle, the availability to complete the replacement with minimal disruption to the program/service delivery within the asset
Charts/Tables	
Previous Corporate Report on subject:	
Estimated Cost per year for strategy described:	$10,000/year for 3 years for Facility Assessments
Other information or reference materials:	
Notes about above info:	

Revised Oct., 2016

Asset:	**Paved Roads**
Inventory:	144 lane kilometres of paved lane surface
Anticipated Asset Life Cycle	Pavement Life of a newly constructed road is affected by design, traffic volumes and loads, construction quality and climate but generally the end of its useful life is: Arterial Roads - 20years, Collector Roads - 25 years and Local Roads - 30 years
Integrated:	With other buried assets located in the utility corridor, such as sewers and water
Rehab and Replacement Criteria:	Pavement Condition Index (PCI) is a pavement condition rating between zero (0) and one hundred (100) which measures defects in the pavement. A PCI that is equal to (100) is a new pavement and a PCI equal to (0) is a pavement that is impassable. PCI threshold point for overlay, partial reconstruction or total reconstruction: 60-70 for overlay, 50-60 for partial reconstruction, <50 for total reconstruction. The average condition of an arterial or collector road should be at least a 70 and the maximum percentage of arterial/collector roads <40 should be less than 10%. The average condition of a residential road should be 65 and the percentage of roads <40 should be less than 10%.
Rehab and Replacement Strategies:	**Preventative Maintenance** to extend the useful life of pavement include crack sealing, micro-surfacing or a thin overlay which is contracted or performed by public works typically 1-5 years after pavement installation. **Light Rehabilitation** such as pothole filling, full depth patching, medium overlays and minor mill and fills are also performed by public works typically 7-10 years after pavement installation. **Heavy Rehabilitation** which include thick overlay, base repair and overlay, mill and pave or total depth reclamation is usually a tendered capital project and typically 15-25 years after pavement installation.
Life Cycle Consequences:	Underfunding pavement maintenance and rehabilitation results in more pavement falling below a 50. Preventative maintenance costs such as crack sealing reflects a cost of $2.00/lm and can add 5 -10 years to the ESL of the pavement, mill and pave reflects a cost of $17.00/sm (square metre) and can add 15 years to the ESL, a full depth reconstruction reflects a cost of $27/sm and can extend the ESL for 15to 25 years as opposed to letting the road deteriorate to a full road reconstruction with a PCI of 50 reflects a cost of $65/sm. Pavement falling to a PCI of 30 affects level of service and increases risk and liabilities.
Integrated Asset Priorities:	Pavement rehabilitation forecast is compared to underground utility forecast. The integration of projects occurs internally between Public Works and Engineering and externally with The County of Oxford and members of the Utility Coordinating Committee. In general a pavement rehabilitation project is driven by the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.
Charts/Tables	See Tables: Pavement Condition Evaluation Form, See output from Pavement Evaluations.
Previous Corporate Report on subject:	2005 Pavement Condition Report, Town of Ingersoll Long Range Financial Plan
Estimated Cost per year for strategy described:	Crack Sealing - 4000 lm =$10,000, Mill and Pave = $375,000/yrs.
Other information or reference materials:	Engineering Pavement Management Policy (draft form). OGRA Pavement Condition Valuation, OGRA Asset Management of Data Collection and Condition Evaluation

Revised Oct., 2016

Asset:	**Sidewalks**
Inventory:	65 km
Anticipated Asset Life Cycle	Concrete life of newly constructed sidewalk is affected by traffic loads, construction quality and climate but general the end of its useful life is 30 years.
Integrated:	With other buried assets located in the utility corridor under the sidewalk, such as hydro, rogers, or bell.
Rehab and Replacement Criteria:	Sidewalk Condition Index (SCI) is a rating between zero (0) and 10 (10) which measures defects in the concrete and the number of panels damaged within a block. The threshold point of replacement is less than 5.0 or 50% of the section.
Rehab and Replacement Strategies:	Based on the SCI index and road classification (arterial, collector, local) the following rehabilitation or replacement strategies are selected: Total sidewalk replacement, panel replacement, lift & level sidewalk panels, removal of trip edges, concrete ramps for accessibility and texturing where required.
Life Cycle Consequences:	Risk and liabilities from trip and falls.
Integrated Asset Priorities:	Generally underground utilities are the priority and individual sidewalk panels are replaced as required by utilities.
Charts/Tables	NA
Previous Corporate Report on subject:	NA
Estimated Cost per year for strategy described:	Yearly cost as per asset management 10 year plan is $ 32,000 (2014 construction replacement costs).
Other information or reference materials:	Sidewalk Construction and Maintenance Policy, Public Works Sidewalk Maintenance Policy
Notes about above info:	The majority of sidewalk replacement is performed on an as needed basis by the Public Works Department. Each spring the sidewalks are inspected for defects as per minimum maintenance standards and repairs and replacement is performed by Public Works staff as part of the operating budget. New sidewalk, significant quantities and sidewalk replaced as part of a road reconstruction are covered in the capital budget.

Revised Oct., 2016

Asset:	**Storm Sewer System**
Inventory:	51 km of local and municipal drains, 15 km of catch basin leads, 1 km of culverts under 1 m, 798 manholes, 1729 catch basins and 5 storm water management ponds.
Anticipated Asset Life Cycle	The average life for a stormwater system is 70 years and stormwater ponds is 50 years.
Integrated:	May be integrated with road re-surfacing, road reconstruction work and other utilities such as sanitary and water. It may also be a standalone replacement with a trench cut and repair.
Rehab and Replacement Criteria:	The criteria for prioritizing the replacement schedule for stormwater system is based upon and assessment through a closed circuit television (CTV) inspection. The camera work and associated rating system known as WRc coding rates the sewer condition and then allows engineers to input data into an inspection data software. Other factors affecting the criteria are localized sewer collapses, material type, upsizing requirements as well as the coordination with roads, sanitary, and water projects.
Rehab and Replacement Strategies	Stormwater systems are straight forward when it comes to rehab strategies. Once the pipe has been inspected and coded using the WRc system, engineers can determine what method of rehab best suits the situation. The rating system applies a condition rating to the pipe and different conditions have suggested rehab and replacement options. Replacement is the most common method for collapsed and heavily deteriorated pipe. Cured in place pipe (CIPP) is a method of lining the sewer with a new resin impregnated felt that helps prolong the life of the sewer that has remaining service life by as much as 50 years. This method helps reduce the costs associated with restoration when the project is complete. Other methods include spot repairs and joint sealing.
Life Cycle Consequences	The consequence of failure of a storm sewer is not usually as significant as that for a failure of a sanitary system. The structural deterioration can result in infiltration of groundwater into the sewer that results in a loss of pipe bedding which promotes further deterioration. As with any buried infrastructure maintenance and rehab is key to the longevity for any system. Without yearly maintenance and cleaning major failures will occur and larger budgets will be required.
Integrated Asset Priorities:	A deteriorated storm sewer is replaced or rehabilitated depending on the condition. Should replacement be the method used, then other assets such as curb/gutter, sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as sanitary sewers, water, telephone, cable and hydro may be integrated into the work as well. Often sanitary or water projects help accelerate the project priority.
Charts/Tables	N/A
Previous Corporate Report on subject	N/A
Estimated cost per year for strategy described:	Do to the estimated service life of a Stormwater system no significant dollar value occurs in the 10 year plan. According to the 100 year plan approx. $340,000/yr. should be budgeted to prepare for significant replacements starting in 2030 and beyond.

Revised Oct., 2016

Asset:	**Traffic Signals**
Inventory:	7 intersections with signals including audible signals for crosswalks
Anticipated Asset Life Cycle	Components: 1. Controller - 15-20 years, 2. Lamps - LED - 8-10 years, 3. Signal Head/Support Arms -25 years, Poles: 25 years, 4. Audible Signals - 25 years
Integrated:	This asset is integrated above and below ground with the Hydro for electricity.
Rehab and Replacement Criteria:	Based on the improvements required to the Levels of Service (LOS) due to changing vehicular and/or pedestrian volumes, on roadway infrastructure reconstruction programs, updated component technologies and life cycle requirements as outlined above.
Life Cycle Consequences:	Outdated traffic signals will not be able to provide the recommended Levels of Service based on changing traffic volumes and vehicular/pedestrian movements, resulting in traffic congestion, delays, public concerns for traffic safety and increased maintenance costs.
Integrated Asset Priorities:	Priorities are based on maintaining recommended Levels of Service (LOS) due to changing traffic volumes, accessibility standards and vehicular/pedestrian movements and other underground utilities.
Charts/Tables	N/A
Previous Corporate Report on subject:	Audible Pedestrian Signals - #C-138/08,
Estimated Cost per year for strategy described:	Approx. $25,000/yr. is spent on traffic signal maintenance and hydro in the operating budget. Although no signals show up in the 10 year plan, based on the 100 yr. plan approx. $31,000/yrs. should be budgeted for replacements since approx. $400,000 will be needed with 15 to 20 years.
Other information or reference materials:	Ontario Traffic Manual Book 12 Traffic Signals
Notes about above info:	

Revised Oct., 2016

APPENDIX E

Risk Matrices

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Administrative Facilities

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Administrative Facilities is $1,753,079.40.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ -	$ 248,146.80	$ 568,327.95	$ -	$ -
	4	Highly Likely	$ -	$ -	$ 13,330.20	$ -	$ -
	3	Likely	$ -	$ 5,127.00	$ 257,160.07	$ 61,524.00	$ -
	2	Unlikely	$ -	$ 27,173.10	$ 102,540.00	$ -	$ -
	1	Almost Certainly Not	$ -	$ 25,413.70	$ 218,748.58	$ 225,588.00	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.00%	14.15%	32.42%	0.00%	0.00%
	4	Highly Likely	0.00%	0.00%	0.76%	0.00%	0.00%
	3	Likely	0.00%	0.29%	14.67%	3.51%	0.00%
	2	Unlikely	0.00%	1.55%	5.85%	0.00%	0.00%
	1	Almost Certainly Not	0.00%	1.45%	12.48%	12.87%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Engineering

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Engineering is $168,665.52.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ -	$ -	$ -	$ -	$ -
	4	Highly Likely	$ -	$ -	$ -	$ -	$ -
	3	Likely	$ -	$ -	$ -	$ -	$ -
	2	Unlikely	$ 67,299.44	$ 28,606.23	$ -	$ -	$ -
	1	Almost Certainly Not	$ 72,759.85	$ -	$ -	$ -	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.00%	0.00%	0.00%	0.00%	0.00%
	4	Highly Likely	0.00%	0.00%	0.00%	0.00%	0.00%
	3	Likely	0.00%	0.00%	0.00%	0.00%	0.00%
	2	Unlikely	39.90%	16.96%	0.00%	0.00%	0.00%
	1	Almost Certainly Not	43.14%	0.00%	0.00%	0.00%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Environmental Services

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Environmental Services is $28,956,428.00.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ -	$ -	$ 109,455.06	$ -	$ -
	4	Highly Likely	$ -	$ -	$ 3,308.53	$ -	$ -
	3	Likely	$ -	$ -	$ 62,346.89	$ -	$ -
	2	Unlikely	$ -	$ -	$ 4,501,171.50	$ -	$ -
	1	Almost Certainly Not	$ -	$ 89,216.00	$24,190,930.02	$ -	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.00%	0.00%	0.38%	0.00%	0.00%
	4	Highly Likely	0.00%	0.00%	0.01%	0.00%	0.00%
	3	Likely	0.00%	0.00%	0.22%	0.00%	0.00%
	2	Unlikely	0.00%	0.00%	15.54%	0.00%	0.00%
	1	Almost Certainly Not	0.00%	0.31%	83.54%	0.00%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Fire

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Fire is $2,398,608.52.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ -	$ -	$ -	$ 78,810.67	$ -
	4	Highly Likely	$ -	$ -	$ -	$ -	$ -
	3	Likely	$ -	$ -	$ 9,147.01	$ -	$ -
	2	Unlikely	$ -	$ 11,207.33	$ 56,352.75	$ -	$ 1,003,989.40
	1	Almost Certainly Not	$ 30,279.35	$ -	$ -	$ 314,904.08	$ 893,917.93

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.00%	0.00%	0.00%	3.29%	0.00%
	4	Highly Likely	0.00%	0.00%	0.00%	0.00%	0.00%
	3	Likely	0.00%	0.00%	0.38%	0.00%	0.00%
	2	Unlikely	0.00%	0.47%	2.35%	0.00%	41.86%
	1	Almost Certainly Not	1.26%	0.00%	0.00%	13.13%	37.27%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
General Governance

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of General Governance is $1,029,701.51.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ 45,293.35	$ 37,444.84	$ 1,866.48	$ -	$ -
	4	Highly Likely	$ 35,764.70	$ -	$ 33,336.11	$ -	$ -
	3	Likely	$ 6,720.00	$ 77,949.13	$ -	$ -	$ -
	2	Unlikely	$ 21,354.25	$ 197,446.84	$ 92,355.76	$ -	$ -
	1	Almost Certainly Not	$ 84,333.29	$ 395,836.75	$ -	$ -	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	4.40%	3.64%	0.18%	0.00%	0.00%
	4	Highly Likely	3.47%	0.00%	3.24%	0.00%	0.00%
	3	Likely	0.65%	7.57%	0.00%	0.00%	0.00%
	2	Unlikely	2.07%	19.18%	8.97%	0.00%	0.00%
	1	Almost Certainly Not	8.19%	38.44%	0.00%	0.00%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Parks & Recreation

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Parks & Recreation is $7,788,445.44.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ 225,416.95	$ 197,198.60	$ 359,642.74	$ 26,660.40	$ -
	4	Highly Likely	$ 78,841.68	$ 41,540.05	$ 478,271.56	$ -	$ -
	3	Likely	$ 71,983.38	$ 248,471.97	$ 766,987.37	$ -	$ -
	2	Unlikely	$ 145,789.24	$ 625,492.51	$ 1,029,401.73	$ -	$ -
	1	Almost Certainly Not	$ 900,322.36	$ 1,056,100.64	$ 1,536,324.25	$ -	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	2.89%	2.53%	4.62%	0.34%	0.00%
	4	Highly Likely	1.01%	0.53%	6.14%	0.00%	0.00%
	3	Likely	0.92%	3.19%	9.85%	0.00%	0.00%
	2	Unlikely	1.87%	8.03%	13.22%	0.00%	0.00%
	1	Almost Certainly Not	11.56%	13.56%	19.73%	0.00%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Public Works

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Public Works is $2,423,097.58.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ -	$ -	$ 215,641.29	$ -	$ -
	4	Highly Likely	$ -	$ -	$ 249,245.63	$ -	$ -
	3	Likely	$ -	$ 37,560.98	$ 541,492.41	$ -	$ -
	2	Unlikely	$ 88,592.64	$ 41,185.72	$ 28,929.25	$ -	$ -
	1	Almost Certainly Not	$ 17,157.66	$ 112,004.67	$ 1,091,287.33	$ -	$ -

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.00%	0.00%	8.90%	0.00%	0.00%
	4	Highly Likely	0.00%	0.00%	10.29%	0.00%	0.00%
	3	Likely	0.00%	1.55%	22.35%	0.00%	0.00%
	2	Unlikely	3.66%	1.70%	1.19%	0.00%	0.00%
	1	Almost Certainly Not	0.71%	4.62%	45.04%	0.00%	0.00%

Revised Oct., 2016

Town of Ingersoll
Risk Matrix
Transportation

The following charts show the distribution of asset value across the risk matrix by asset replacement value and percentage of total value for the program. The total replacement value of Transportation is $89,094,875.55.

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	$ 97,804.25	$ 1,322,311.68	$ 356,170.44	$ -	$ 2,893,874.18
	4	Highly Likely	$ 3,627.42	$ 7,560.52	$ 291,786.90	$ -	$ 1,346,757.66
	3	Likely	$ 85,335.00	$ 41,688.69	$ -	$ -	$ 9,886,438.80
	2	Unlikely	$ 865,618.86	$ 3,560,016.61	$ 1,415,633.30	$ -	$ -
	1	Almost Certainly Not	$3,830,370.53	$ 33,928,526.01	$20,813,037.50	$ -	$ 8,348,317.20

Risk Matrix			Consequence of Failure (COF)				
			1	2	3	4	5
			Insignificant	Low	Medium	High	Severe
Probability of Failure (POF)	5	Almost Certain	0.11%	1.48%	0.40%	0.00%	3.25%
	4	Highly Likely	0.00%	0.01%	0.33%	0.00%	1.51%
	3	Likely	0.10%	0.05%	0.00%	0.00%	11.10%
	2	Unlikely	0.97%	4.00%	1.59%	0.00%	0.00%
	1	Almost Certainly Not	4.30%	38.08%	23.36%	0.00%	9.37%

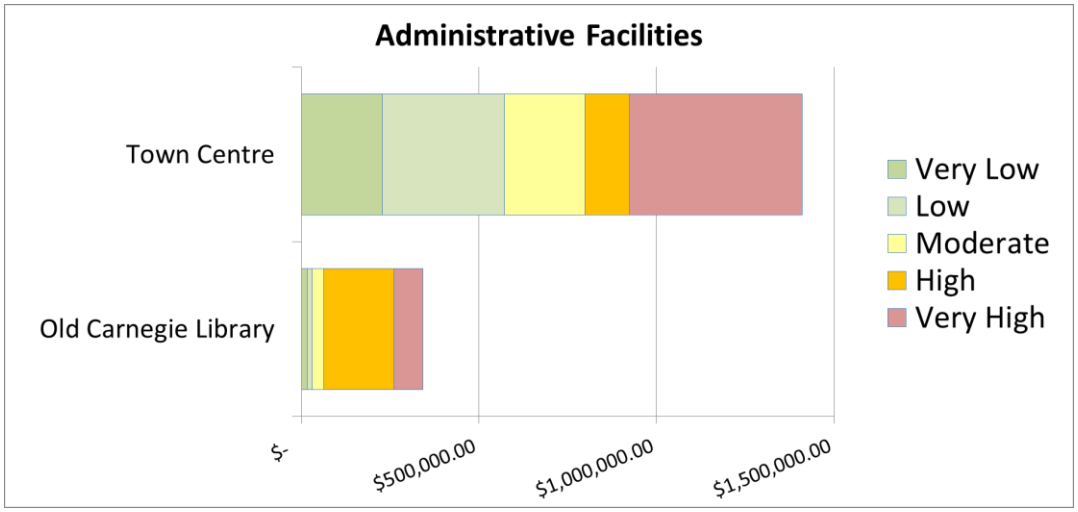
Revised Oct., 2016

APPENDIX F

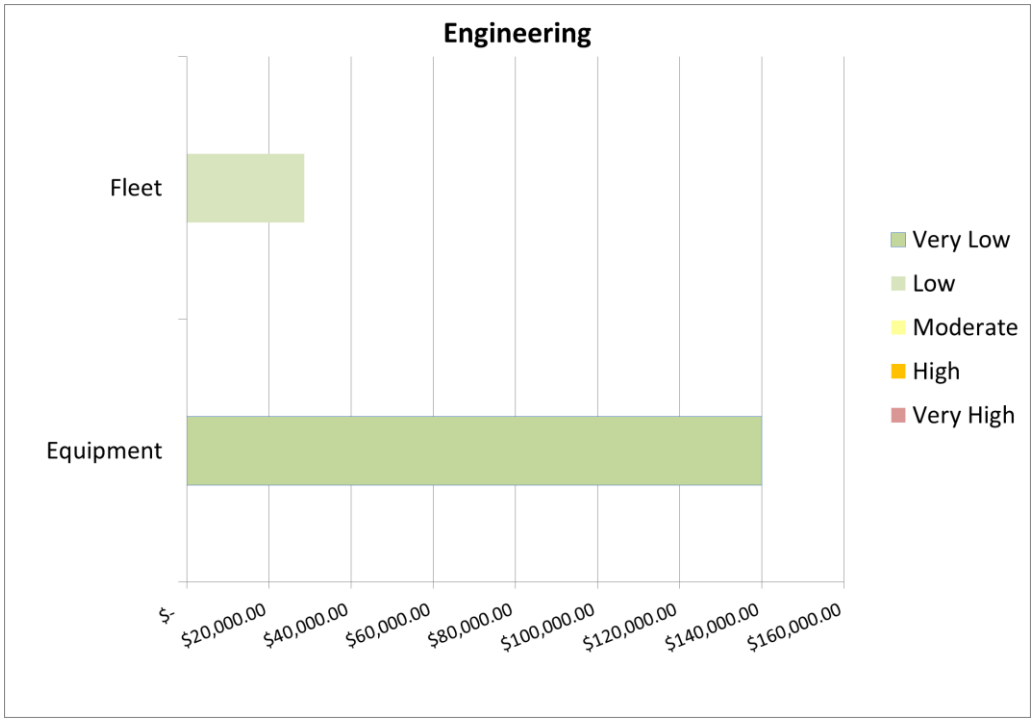
Risk/Cost Distribution by Category

Revised Oct., 2016

Town of Ingersoll
Asset Management Program Cost
Administrative Facilities



Town of Ingersoll
Asset Management Program Cost
Engineering



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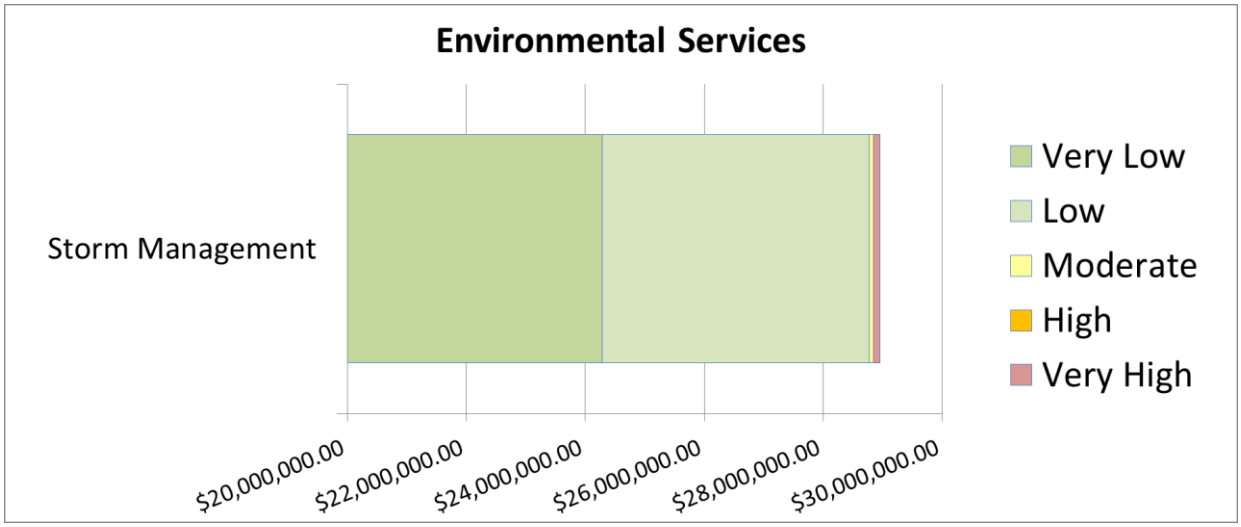
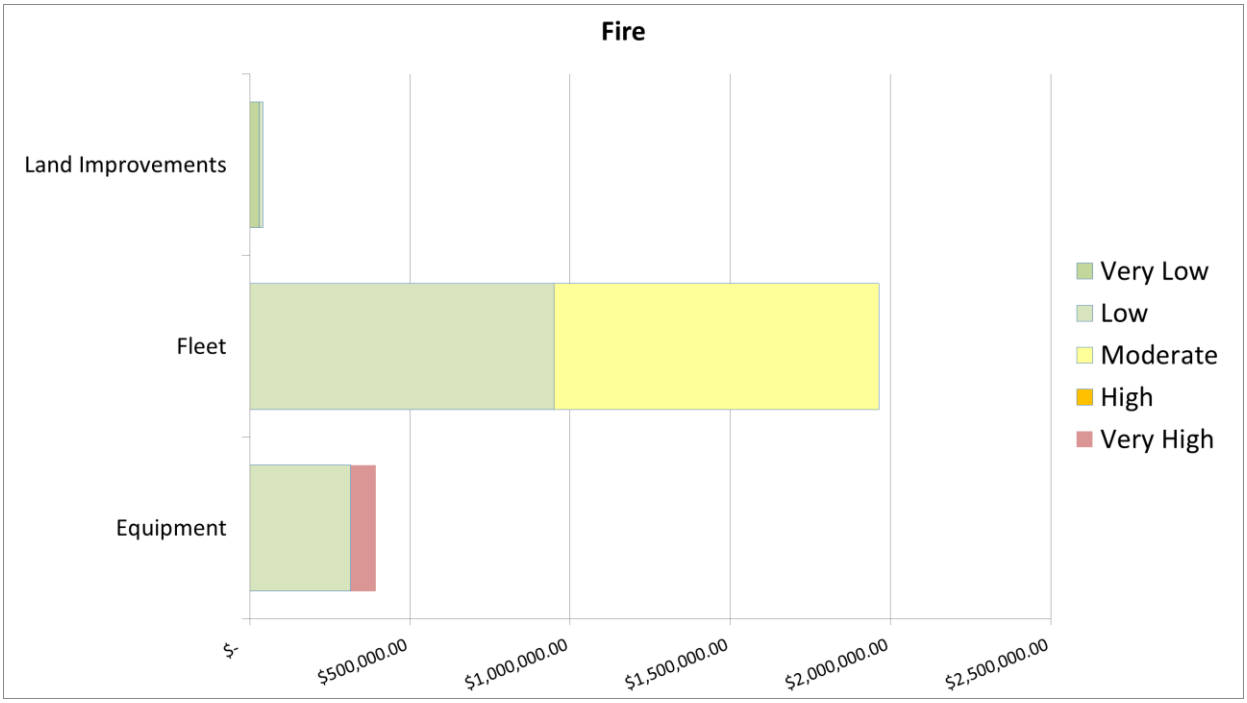
Town of Ingersoll
Asset Management Program Cost
Environmental Services



Town of Ingersoll
Asset Management Program Cost
Fire



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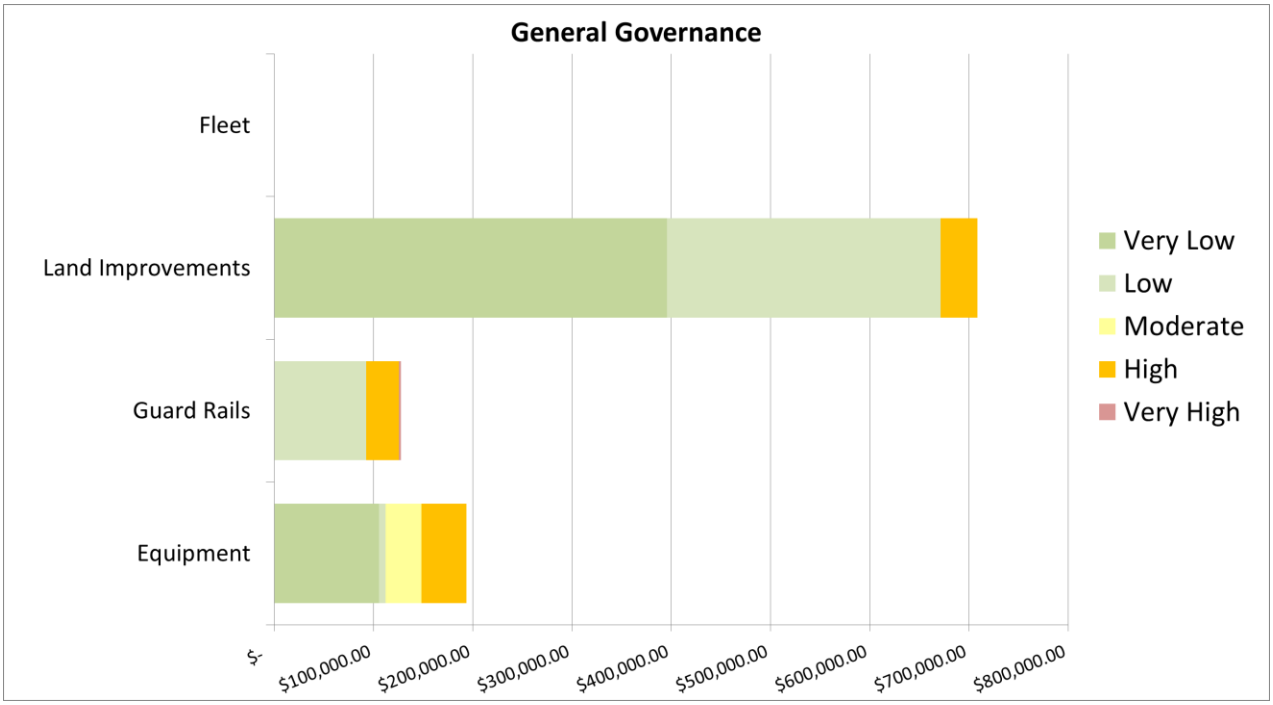
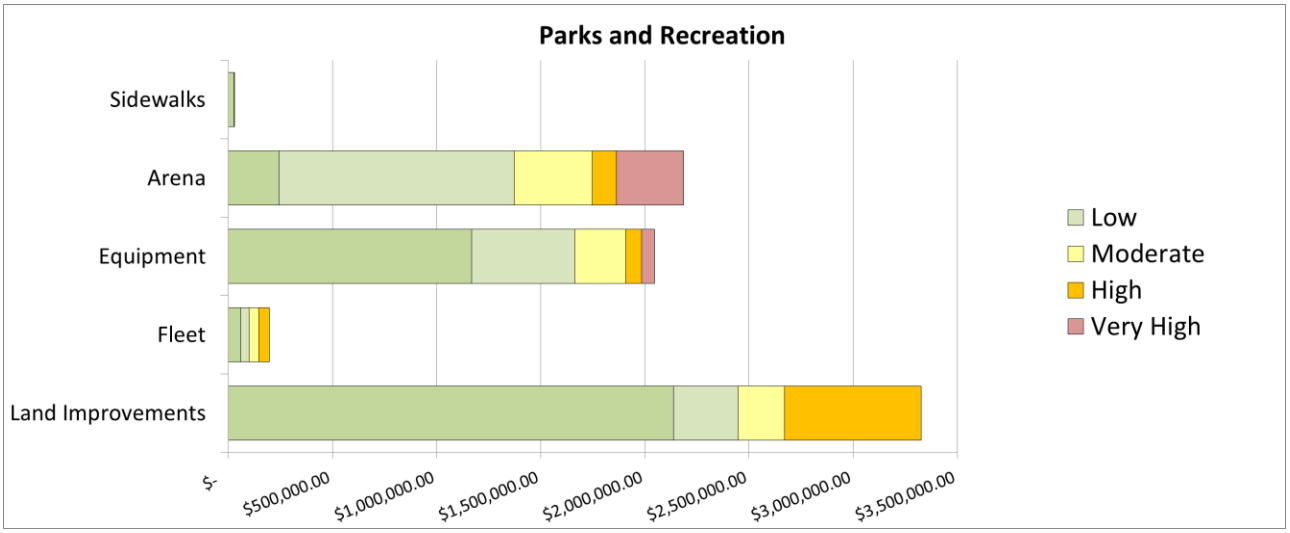
Town of Ingersoll
Asset Management Program Cost
General Government



Town of Ingersoll
Asset Management Program Cost
Parks & Recreation



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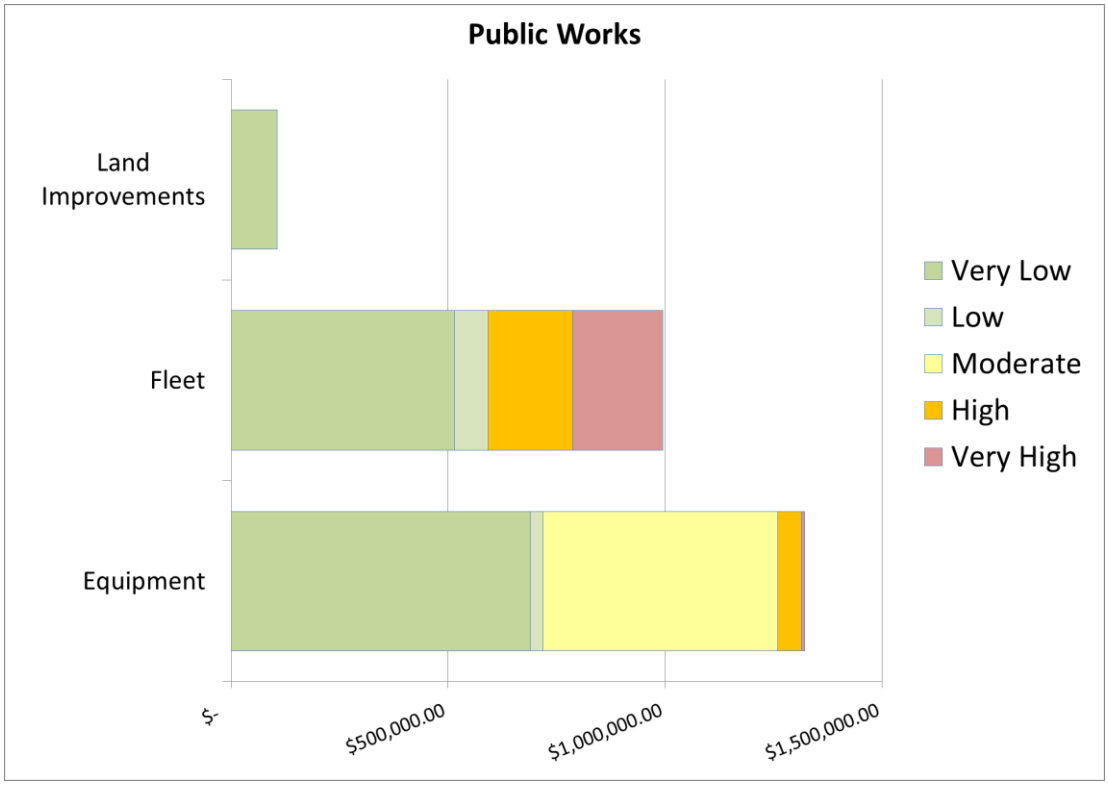
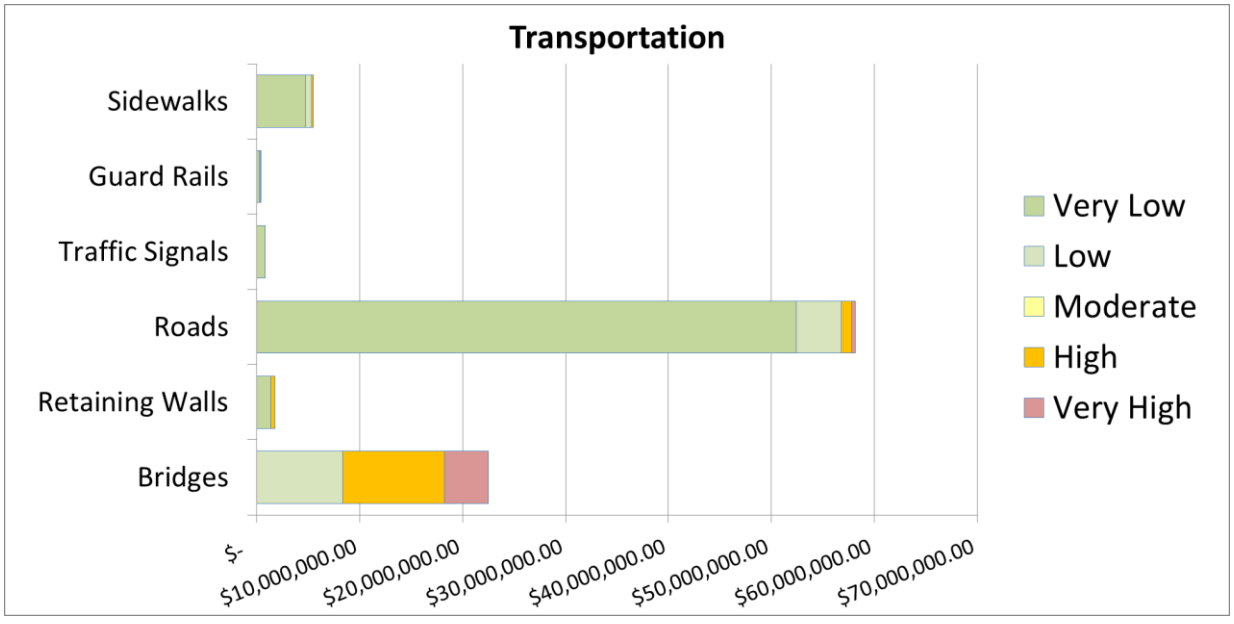
Town of Ingersoll
Asset Management Program Cost
Public Works



Town of Ingersoll
Asset Management Program Cost
Transportation



Revised Oct., 2016

APPENDIX G

10 Year Capital Requirements Summarized by Program

March 14, 2014

Revised Oct., 2016

Program Name	10 Year Average	Backlog	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Administrative Facilities	$132,552.43	$546,025.50	$251,992.05	$31,274.70	$21,533.40	$42,338.77	$299,057.91	$0.00	$0.00	$5,127.00	$0.00	$128,175.00
Fire	$131,252.56	$78,810.67	$0.00	$0.00	$9,147.01	$56,352.75	$28,249.90	$1,003,989.40	$0.00	$59,991.14	$65,709.07	$10,275.69
General Governance	$60,045.27	$47,159.83	$79,929.54	$0.00	$60,076.79	$77,949.13	$134,994.36	$49,836.05	$100,084.46	$5,386.43	$35,055.29	$9,980.85
Parks and Recreation	$425,516.31	$356,436.44	$632,172.17	$598,445.41	$528,384.75	$221,112.63	$614,529.99	$433,294.42	$151,611.04	$105,986.13	$110,041.04	$503,149.10
Public Works	$261,638.87	$215,641.29	$255,618.70	$359,770.91	$180,534.30	$62,861.02	$330,055.13	$347,750.71	$230,012.89	$88,592.64	$305,004.66	$240,546.48
Transportation	$1,962,045.65	$4,345,393.93	$498,659.57	$37,632.53	$781,632.52	$641,474.01	$0.00	$830,981.78	$148,514.09	$4,093,892.87	$6,857,908.58	$1,384,366.64
Environmental Services	$11,276.36	$35,114.80	$0.00	$13,417.87	$60,922.39	$3,308.53	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Engineering	$16,866.55	$0.00	$0.00	$0.00	$9,209.73	$86,695.94	$0.00	$0.00	$56,951.61	$15,808.24	$0.00	$0.00
TOTAL	**$3,001,194.02**	**$5,624,582.46**	**$1,718,372.03**	**$1,040,541.41**	**$1,651,440.88**	**$1,192,092.78**	**$1,406,887.29**	**$2,665,852.37**	**$687,174.10**	**$4,374,784.45**	**$7,373,718.64**	**$2,276,493.77**

Administrative Facilities												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Old Carnegie Library	$32,197.56	$247,634.10	$0.00	$19,482.60	$18,457.20	$25,635.00	$0.00	$0.00	$0.00	$5,127.00	$0.00	$5,639.70
Town Centre	$100,354.87	$298,391.40	$251,992.05	$11,792.10	$3,076.20	$16,703.77	$299,057.91	$0.00	$0.00	$0.00	$0.00	$122,535.30
TOTAL	$132,552.43	$546,025.50	$251,992.05	$31,274.70	$21,533.40	$42,338.77	$299,057.91	$0.00	$0.00	$5,127.00	$0.00	$128,175.00

Fire												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Land Improvements	$1,120.73	$0.00	$0.00	$0.00	$0.00	$0.00	$11,207.33	$0.00	$0.00	$0.00	$0.00	$0.00
Equipment	$23,182.91	$78,810.67	$0.00	$0.00	$0.00	$0.00	$17,042.57	$0.00	$0.00	$59,991.14	$65,709.07	$10,275.69
Fleet	$106,948.92	$0.00	$0.00	$0.00	$9,147.01	$56,352.75	$0.00	$1,003,989.40	$0.00	$0.00	$0.00	$0.00
TOTAL	$131,252.56	$78,810.67	$0.00	$0.00	$9,147.01	$56,352.75	$28,249.90	$1,003,989.40	$0.00	$59,991.14	$65,709.07	$10,275.69

General Governance												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Guard Rails	$3,520.26	$1,866.48	$0.00	$0.00	$33,336.11	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Land Improvements	$33,127.30	$0.00	$37,444.84	$0.00	$0.00	$77,949.13	$125,013.51	$43,116.05	$29,317.28	$0.00	$18,432.15	$0.00
Equipment	$23,397.72	$45,293.35	$42,484.70	$0.00	$26,740.68	$0.00	$9,980.85	$6,720.00	$70,767.18	$5,386.43	$16,623.14	$9,980.85
Fleet	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	$60,045.27	$47,159.83	$79,929.54	$0.00	$60,076.79	$77,949.13	$134,994.36	$49,836.05	$100,084.46	$5,386.43	$35,055.29	$9,980.85

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Parks and Recreation												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Arena	$139,428.77	$117,921.00	$289,419.15	$69,727.20	$30,762.00	$24,096.90	$308,645.40	$231,740.40	$33,838.20	$0.00	$57,422.40	$230,715.00
Sidewalks	$174.48	$0.00	$979.33	$0.00	$0.00	$765.47	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Land Improvements	$131,311.81	$48,335.19	$174,407.77	$441,357.16	$74,990.50	$135,821.15	$129,932.85	$86,712.54	$35,690.98	$10,120.20	$20,090.26	$155,659.49
Equipment	$128,681.23	$138,519.71	$120,827.85	$38,291.73	$422,632.25	$60,429.11	$148,950.31	$114,841.48	$72,635.47	$72,041.94	$32,528.39	$65,114.07
Fleet	$25,920.03	$51,660.54	$46,538.08	$49,069.31	$0.00	$0.00	$27,001.42	$0.00	$9,446.40	$23,823.99	$0.00	$51,660.54
TOTAL	$425,516.31	$356,436.44	$632,172.17	$598,445.41	$528,384.75	$221,112.63	$614,529.99	$433,294.42	$151,611.04	$105,986.13	$110,041.04	$503,149.10

Public Works												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Land Improvements	$8,859.26	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$88,592.64	$0.00	$0.00
Equipment	$132,391.89	$7,159.00	$61,776.33	$322,209.93	$150,048.39	$62,861.02	$121,781.69	$347,750.71	$174,827.55	$0.00	$43,440.07	$32,064.19
Fleet	$120,387.72	$208,482.29	$193,842.37	$37,560.98	$30,485.91	$0.00	$208,273.44	$0.00	$55,185.34	$0.00	$261,564.58	$208,482.29
TOTAL	$261,638.87	$215,641.29	$255,618.70	$359,770.91	$180,534.30	$62,861.02	$330,055.13	$347,750.71	$230,012.89	$88,592.64	$305,004.66	$240,546.48

Transportation												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Bridges	$1,412,707.06	$2,893,874.18	$0.00	$0.00	$751,823.28	$594,934.38	$0.00	$0.00	$0.00	$3,894,469.20	$5,322,135.60	$669,834.00
Retaining Walls	$38,394.87	$345,038.53	$0.00	$0.00	$0.00	$0.00	$0.00	$24,250.50	$0.00	$8,173.20	$6,486.44	$0.00
Roads	$480,084.42	$1,042,816.11	$326,001.57	$18,123.92	$0.00	$38,979.11	$0.00	$806,731.28	$148,514.09	$184,027.51	$1,529,286.55	$706,364.02
Traffic Signals	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Guard Rails	$6,793.96	$4,039.87	$14,581.88	$19,508.60	$29,809.24	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Sidewalks	$24,065.34	$59,625.23	$158,076.12	$0.00	$0.00	$7,560.52	$0.00	$0.00	$0.00	$7,222.96	$0.00	$8,168.62
TOTAL	$1,962,045.65	$4,345,393.93	$498,659.57	$37,632.53	$781,632.52	$641,474.01	$0.00	$830,981.78	$148,514.09	$4,093,892.87	$6,857,908.58	$1,384,366.64

Environmental Services												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Storm Management	$11,276.36	$35,114.80	$0.00	$13,417.87	$60,922.39	$3,308.53	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	$11,276.36	$35,114.80	$0.00	$13,417.87	$60,922.39	$3,308.53	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Engineering												
Category Name	**10 Year Average**	**Backlog**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Equipment	$14,005.93	$0.00	$0.00	$0.00	$9,209.73	$58,089.71	$0.00	$0.00	$56,951.61	$15,808.24	$0.00	$0.00
Fleet	$2,860.62	$0.00	$0.00	$0.00	$0.00	$28,606.23	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL	$16,866.55	$0.00	$0.00	$0.00	$9,209.73	$86,695.94	$0.00	$0.00	$56,951.61	$15,808.24	$0.00	$0.00

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APPENDIX H

10 Year Capital Requirements Summarized by Asset Class

March 14, 2014

Revised Oct., 2016

Program	Category	Asset Class	10 Year Average	Backlog	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Administrative Facilities	Old Carnegie Library	Buildings - Conveying	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Electrical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Exterior Enclosure	$ 18,354.66	$ 183,546.60	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Fire Protection	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - HVAC	$ 512.70	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,127.00	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Interiors	$ 8,715.90	$ 17,944.50	$ -	$ 19,482.60	$ 18,457.20	$ 25,635.00	$ -	$ -	$ -	$ -	$ -	$ 5,639.70
Administrative Facilities	Old Carnegie Library	Buildings - Plumbing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Roofing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Substructure	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Old Carnegie Library	Buildings - Superstructure(roof/floor)	$ 4,614.30	$ 46,143.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Conveying	$ 6,152.40	$ -	$ -	$ -	$ -	$ -	$ 61,524.00	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Electrical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Exterior Enclosure	$ 8,459.55	$ 64,600.20	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 19,995.30
Administrative Facilities	Town Centre	Buildings - Fire Protection	$ 4,101.60	$ 41,016.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - HVAC	$ 46,655.70	$ 170,216.40	$ -	$ -	$ -	$ -	$ 193,800.60	$ -	$ -	$ -	$ -	$ 102,540.00
Administrative Facilities	Town Centre	Buildings - Interiors	$ 9,581.34	$ 7,177.80	$ 16,406.40	$ 11,792.10	$ -	$ 16,703.77	$ 43,733.31	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Plumbing	$ 1,538.10	$ 15,381.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Roofing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Substructure	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Administrative Facilities	Town Centre	Buildings - Superstructure(roof/floor)	$ 23,866.19	$ -	$ 235,585.65	$ -	$ 3,076.20	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fire	Land Improvements	Parking Lot	$ 1,120.73	$ -	$ -	$ -	$ -	$ -	$ 11,207.33	$ -	$ -	$ -	$ -	$ -
Fire	Land Improvements	Parking Lot Curbs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fire	Equipment	Radio Tower	$ 3,759.40	$ 10,275.69	$ -	$ -	$ -	$ -	$ 17,042.57	$ -	$ -	$ -	$ -	$ 10,275.69
Fire	Equipment	SCBA w/o tank & mask	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fire	Fleet	Fire Trucks	$ 100,398.94	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,003,989.40	$ -	$ -	$ -	$ -
Fire	Equipment	Heavy Equipment	$ 19,423.52	$ 68,534.98	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 59,991.14	$ 65,709.07	$ -
Fire	Fleet	Utility Vehicles	$ 6,549.98	$ -	$ -	$ -	$ 9,147.01	$ 56,352.75	$ -	$ -	$ -	$ -	$ -	$ -
General Governance	Guard Rails	Guard Rails	$ 3,520.26	$ 1,866.48	$ -	$ -	$ 33,336.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Governance	Land Improvements	Parking Lot	$ 28,815.69	$ -	$ 37,444.84	$ -	$ -	$ 77,949.13	$ 125,013.51	$ -	$ 29,317.28	$ -	$ 18,432.15	$ -
General Governance	Land Improvements	Parking Lot Curbs	$ 4,311.61	$ -	$ -	$ -	$ -	$ -	$ -	$ 43,116.05	$ -	$ -	$ -	$ -
General Governance	Equipment	Equipment	$ 23,397.72	$ 45,293.35	$ 42,484.70	$ -	$ 26,740.68	$ -	$ 9,980.85	$ 6,720.00	$ 70,767.18	$ 5,386.43	$ 16,623.14	$ 9,980.85
General Governance	Fleet	Utility Vehicles	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Conveying	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Electrical	$ 7,793.04	$ -	$ -	$ -	$ -	$ -	$ 57,422.40	$ 20,508.00	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Exterior Enclosure	$ 5,460.26	$ 20,508.00	$ 3,332.55	$ -	$ -	$ -	$ -	$ 30,762.00	$ -	$ -	$ -	$ -

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Program	Category	Asset Class	10 Year Average	Backlog	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Parks and Recreation	Arena	Buildings - Fire Protection	$ 3,076.20	$ 30,762.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - HVAC	$ 16,303.86	$ 28,711.20	$ -	$ -	$ -	$ -	$ -	$ 10,254.00	$ 25,635.00	$ -	$ 57,422.40	$ 41,016.00
Parks and Recreation	Arena	Buildings - Interiors	$ 12,971.31	$ -	$ 29,736.60	$ 69,727.20	$ -	$ 24,096.90	$ -	$ 6,152.40	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Plumbing	$ 1,435.56	$ 6,152.40	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,203.20	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Roofing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Substructure	$ 2,666.04	$ 26,660.40	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Superstructure(roof/floor)	$ 39,477.90	$ -	$ 256,350.00	$ -	$ -	$ -	$ 138,429.00	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Arena	Buildings - Arena Ice Pad	$ 50,244.60	$ 5,127.00	$ -	$ -	$ 30,762.00	$ -	$ 112,794.00	$ 164,064.00	$ -	$ -	$ -	$ 189,699.00
Parks and Recreation	Sidewalks	Sidewalks	$ 174.48	$ -	$ 979.33	$ -	$ -	$ 765.47	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Portable Building	Small/Portable Building	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Land Improvements	Fencing	$ 7,272.41	$ 11,163.20	$ 17,529.32	$ -	$ -	$ -	$ -	$ -	$ 10,500.98	$ 10,120.20	$ -	$ 23,410.39
Parks and Recreation	Land Improvements	Parking Lot	$ 22,534.94	$ 37,171.99	$ 94,047.51	$ -	$ -	$ 32,360.47	$ 61,769.47	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Land Improvements	Parking Lot Curbs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Land Improvements	Pathways	$ 15,832.80	$ -	$ -	$ -	$ -	$ 59,165.33	$ 26,539.71	$ 27,342.69	$ 25,190.00	$ -	$ 20,090.26	$ -
Parks and Recreation	Land Improvements	Playing Fields	$ 68,829.90	$ -	$ 7,453.35	$ 441,357.16	$ 74,990.50	$ 44,295.34	$ 41,623.66	$ 59,369.85	$ -	$ -	$ -	$ 19,209.11
Parks and Recreation	Land Improvements	Irrigation	$ 4,381.80	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 43,818.00
Parks and Recreation	Land Improvements	Sportsfield Lighting	$ 12,459.96	$ -	$ 55,377.60	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 69,222.00
Parks and Recreation	Equipment	Bleachers	$ 7,668.98	$ 13,844.40	$ -	$ 32,303.60	$ -	$ -	$ 30,541.80	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Equipment	Heavy Equipment	$ 92,567.19	$ 60,860.47	$ 120,827.85	$ 5,988.13	$ 263,123.32	$ 45,450.22	$ 72,260.51	$ 114,841.48	$ 72,635.47	$ 72,041.94	$ 32,528.39	$ 65,114.07
Parks and Recreation	Equipment	Playground Equipment	$ 28,445.07	$ 63,814.84	$ -	$ -	$ 159,508.93	$ 14,978.89	$ 46,148.00	$ -	$ -	$ -	$ -	$ -
Parks and Recreation	Fleet	Trucks	$ 6,089.37	$ 7,177.80	$ 46,538.08	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,177.80
Parks and Recreation	Fleet	Utility Vehicles	$ 19,830.66	$ 44,482.74	$ -	$ 49,069.31	$ -	$ -	$ 27,001.42	$ -	$ 9,446.40	$ 23,823.99	$ -	$ 44,482.74
Public Works	Land Improvements	Facility Roadway	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Works	Land Improvements	Fencing	$ 7,122.42	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 71,224.24	$ -	$ -
Public Works	Land Improvements	Parking Lot	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Works	Land Improvements	Parking Lot Curbs	$ 1,736.84	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 17,368.40	$ -	$ -
Public Works	Equipment	Heavy Equipment	$ 132,391.89	$ 7,159.00	$ 61,776.33	$ 322,209.93	$ 150,048.39	$ 62,861.02	$ 121,781.69	$ 347,750.71	$ 174,827.55	$ -	$ 43,440.07	$ 32,064.19
Public Works	Fleet	Trucks	$ 101,312.58	$ 208,482.29	$ 193,842.37	$ -	$ -	$ -	$ 197,573.63	$ -	$ -	$ -	$ 204,745.26	$ 208,482.29
Public Works	Fleet	Utility Vehicles	$ 19,075.14	$ -	$ -	$ 37,560.98	$ 30,485.91	$ -	$ 10,699.81	$ -	$ 55,185.34	$ -	$ 56,819.33	$ -
Transportation	Bridges	Bridge Deck	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Bridges	Bridge Structure	$ 1,412,707.06	$ 2,893,874.18	$ -	$ -	$ 751,823.28	$ 594,934.38	$ -	$ -	$ -	$ 3,894,469.20	$ 5,322,135.60	$ 669,834.00
Transportation	Hand Rails	Hand Rails	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Retaining Walls	Retaining Walls	$ 38,394.87	$ 345,038.53	$ -	$ -	$ -	$ -	$ -	$ 24,250.50	$ -	$ 8,173.20	$ 6,486.44	$ -
Transportation	Roads	Road Curb	$ 13,906.61	$ 33,780.33	$ 64,023.92	$ -	$ -	$ 3,627.42	$ -	$ -	$ -	$ -	$ -	$ 37,634.46
Transportation	Roads	Road Surface - Arterial	$ 81,260.69	$ -	$ 107,394.19	$ -	$ -	$ -	$ -	$ 619,293.09	$ -	$ -	$ 85,919.59	$ -

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Program	Category	Asset Class	10 Year Average	Backlog	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Transportation	Roads	Road Surface - Collector Commercial Industrial	$ 41,346.93	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 413,469.35	$ -
Transportation	Roads	Road Surface - Collector Residential	$ 168,995.94	$ 318,040.09	$ 154,583.46	$ -	$ -	$ -	$ -	$ 187,438.20	$ -	$ -	$ 1,029,897.61	$ -
Transportation	Roads	Road Surface - Lane	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Roads	Road Surface - Local Commercial Industrial	$ 14,851.41	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 148,514.09	$ -	$ -	$ -
Transportation	Roads	Road Surface - Local Residential	$ 159,722.84	$ 690,995.70	$ -	$ 18,123.92	$ -	$ 35,351.69	$ -	$ -	$ -	$ 184,027.51	$ -	$ 668,729.57
Transportation	Traffic Signals	Traffic Signals	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Guard Rails	Guard Rails	$ 6,793.96	$ 4,039.87	$ 14,581.88	$ 19,508.60	$ 29,809.24	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Sidewalks	Sidewalks	$ 24,065.34	$ 59,625.23	$ 158,076.12	$ -	$ -	$ 7,560.52	$ -	$ -	$ -	$ 7,222.96	$ -	$ 8,168.62
Environmental Services	Storm Management	Headwalls	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Environmental Services	Storm Management	Pumping Station	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Environmental Services	Storm Management	Quality and Quantity Management Ponds	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Environmental Services	Storm Management	Stormwater System	$ 11,276.36	$ 35,114.80	$ -	$ 13,417.87	$ 60,922.39	$ 3,308.53	$ -	$ -	$ -	$ -	$ -	$ -
Engineering	Equipment	Printer/Plotter/Scanner	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Engineering	Equipment	Survey Equipment	$ 14,005.93	$ -	$ -	$ -	$ 9,209.73	$ 58,089.71	$ -	$ -	$ 56,951.61	$ 15,808.24	$ -	$ -
Engineering	Fleet	Utility Vehicles	$ 2,860.62	$ -	$ -	$ -	$ -	$ 28,606.23	$ -	$ -	$ -	$ -	$ -	$ -

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APPENDIX I

Detailed 10 Year Needs by Program

Administrative Facilities

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Old Carnegie Library	Buildings - Exterior Enclosure	Former Carnegie Library - Solid Doors	1965	51	30	1995	5	2014	2016	Low	Almost Certain	High	$ 5,639.70
Old Carnegie Library	Buildings - Exterior Enclosure	Former Carnegie Library - Windows	1910	106	40	1950	5	2014	2016	Low	Almost Certain	High	$ 51,270.00
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Interior Stair Finish	1995	21	10	2005	5	2014	2016	Medium	Almost Certain	Very High	$ 5,639.70
Old Carnegie Library	Buildings - Superstructure(roof/floor)	Former Carnegie Library - Low Slope Roof membrane System	1950	66	25	1975	5	2014	2016	Medium	Almost Certain	Very High	$ 30,762.00
Town Centre	Buildings - Exterior Enclosure	Town Centre - Exterior Windows	1996	20	22	2018	5	2014	2016	Low	Almost Certain	High	$ 61,524.00
Town Centre	Buildings - Exterior Enclosure	Town Centre - Joint Sealants	1996	20	10	2006	5	2014	2016	Low	Almost Certain	High	$ 3,076.20
Town Centre	Buildings - HVAC	Town Centre - Boiler	1996	20	25	2021	5	2014	2016	Medium	Almost Certain	Very High	$ 51,270.00
Town Centre	Buildings - HVAC	Town Centre - Boiler venting, breeching, and chimney	1996	20	50	2046	5	2014	2016	Medium	Almost Certain	Very High	$ 30,762.00
Town Centre	Buildings - HVAC	Town Centre - Building Automation System	1996	20	15	2011	5	2014	2016	Medium	Almost Certain	Very High	$ 82,032.00
Town Centre	Buildings - Interiors	Town Centre - Interior Stair Finishes	1996	20	25	2021	4	2014	2016	Medium	Almost Certain	Very High	$ 7,177.80
Town Centre	Buildings - Plumbing	Town Centre - Backflow Preventer	1996	20	30	2026	5	2014	2016	Medium	Almost Certain	Very High	$ 15,381.00
Old Carnegie Library	Buildings - Exterior Enclosure	Former Carnegie Library - Glazed Doors	1985	31	30	2015	4	2014	2016	Low	Almost Certain	High	$ 2,563.50
Old Carnegie Library	Buildings - Exterior Enclosure	Former Carnegie Library - Masonry	1910	106	75	1985	5	2014	2016	Low	Almost Certain	High	$ 42,041.40
Old Carnegie Library	Buildings - Exterior Enclosure	Former Carnegie Library - Parapets and Wood Cornice	1910	106	75	1985	5	2014	2016	Low	Almost Certain	High	$ 82,032.00
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Plaster Wall Finishes	1910	106	75	1985	5	2014	2016	Medium	Almost Certain	Very High	$ 12,304.80
Old Carnegie Library	Buildings - Superstructure(roof/floor)	Former Carnegie Library - Structural Frame - Roof	1910	106	100	2010	5	2014	2016	Medium	Almost Certain	Very High	$ 15,381.00
Town Centre	Buildings - Fire Protection	Town Centre - Fire Alarm System	1996	20	20	2016	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 41,016.00
Town Centre	Buildings - HVAC	Town Centre - AHU Humidifier	1996	20	20	2016	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 6,152.40
Town Centre	Buildings - Interiors	Town Centre - Acoustic Ceiling Tiles and Panels	1996	20	20	2016	3	2014	2017	Medium	Almost Certain	Very High	$ 16,406.40
Town Centre	Buildings - Superstructure(roof/floor)	Town Centre - Low Slope Roof Membrane System	1996	20	25	2021	3	2014	2017	Medium	Almost Certain	Very High	$ 225,588.00
Town Centre	Buildings - Superstructure(roof/floor)	Town Centre - Roof Openings and Supports	1996	20	25	2021	3	2014	2017	Medium	Almost Certain	Very High	$ 9,997.65
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Acoustic Ceiling Tile and Panels	1950	66	30	1980	3	2014	2018	Medium	Highly Likely	High	$ 13,330.20
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Resilient Floor Finishes	1985	31	15	2000	2	2014	2018	Medium	Likely	Moderate	$ 6,152.40
Town Centre	Buildings - Interiors	Town Centre - Wall Coverings	1996	20	15	2011	2	2014	2018	Medium	Likely	Moderate	$ 11,792.10
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Wood Floor Finish	1910	106	75	1985	4	2014	2019	Medium	Almost Certain	Very High	$ 18,457.20
Town Centre	Buildings - Superstructure(roof/floor)	Town Centre - Gutters and Downspouts	1996	20	20	2016	2	2014	2019	Medium	Likely	Moderate	$ 3,076.20
Old Carnegie Library	Buildings - Interiors	Former Carnegie Library - Counters and Cabinets	1990	26	20	2010	2	2014	2020	Medium	Likely	Moderate	$ 25,635.00
Town Centre	Buildings - Interiors	Town Centre - Counters and Cabinets	1996	20	20	2016	2	2014	2020	Medium	Likely	Moderate	$ 10,459.08
Town Centre	Buildings - Interiors	Town Centre - Wall Base Finishes	1996	20	20	2016	2	2014	2020	Medium	Likely	Moderate	$ 6,244.69
Town Centre	Buildings - Conveying	Town Centre - Elevator	1996	20	25	2021	NULL	NULL	2021	High	Likely	High	$ 61,524.00
Town Centre	Buildings - HVAC	Town Centre - AHU	1996	20	25	2021	NULL	NULL	2021	Medium	Likely	Moderate	$ 25,635.00
Town Centre	Buildings - HVAC	Town Centre - AHU Return Fan	1996	20	25	2021	NULL	NULL	2021	Medium	Likely	Moderate	$ 6,152.40
Town Centre	Buildings - HVAC	Town Centre - Exhaust Fans	1996	20	25	2021	NULL	NULL	2021	Medium	Likely	Moderate	$ 8,203.20
Town Centre	Buildings - HVAC	Town Centre - RTU	1996	20	25	2021	NULL	NULL	2021	Medium	Likely	Moderate	$ 153,810.00
Town Centre	Buildings - Interiors	Town Centre - Carpeting	1996	20	10	2006	1	2014	2021	Medium	Almost Certainly Not	Very Low	$ 43,733.31

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Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Old Carnegie Library	Buildings - HVAC	Former Carnegie Library - Radiators	1950	66	60	2010	3	2014	2024	Low	Likely	Low	$ 5,127.00
Town Centre	Buildings - Exterior Enclosure	Town Centre - Solid Doors	1996	20	30	2026	1	2014	2026	Low	Unlikely	Low	$ 16,919.10
Town Centre	Buildings - HVAC	Town Centre - VAV Boxes	1996	20	30	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 102,540.00

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Engineering

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Equipment	Survey Equipment	Trimble Controller	2009	7	10	2019	NULL	NULL	2019	Insignificant	Unlikely	Very Low	$ 9,209.73
Equipment	Survey Equipment	Trimble Total Station	2010	6	10	2020	NULL	NULL	2020	Insignificant	Unlikely	Very Low	$ 38,891.79
Equipment	Survey Equipment	Data Collector	2010	6	10	2020	NULL	NULL	2020	Insignificant	Unlikely	Very Low	$ 10,096.97
Fleet	Utility Vehicles	2010 Dodge Caravan	2010	6	10	2020	NULL	NULL	2020	Low	Unlikely	Low	$ 28,606.23
Equipment	Survey Equipment	Trimble TSC2 Controller	2010	6	10	2020	NULL	NULL	2020	Insignificant	Unlikely	Very Low	$ 9,100.96
Equipment	Survey Equipment	Trimble GPS R10-1	2013	3	10	2023	NULL	NULL	2023	Insignificant	Almost Certainly Not	Very Low	$ 28,475.81
Equipment	Survey Equipment	Trimble GPS R10-2	2013	3	10	2023	NULL	NULL	2023	Insignificant	Almost Certainly Not	Very Low	$ 28,475.81
Equipment	Survey Equipment	Handheld Trimble -GPS	2007	9	10	2017	1	2015	2024	Insignificant	Almost Certainly Not	Very Low	$ 9,343.72
Equipment	Survey Equipment	Tripod for Manhole inspection	2006	10	10	2016	1	2015	2024	Insignificant	Almost Certainly Not	Very Low	$ 6,464.52

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Environmental Services

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Storm Management	Stormwater System	Stormwater System - Albert Street-Ann Street-Frances Street	1947	69	68	2015	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 27,384.49
Storm Management	Stormwater System	Stormwater System - Benson Street-Frederick Street-King Street W	1950	66	64	2014	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 7,730.31
Storm Management	Stormwater System	Stormwater System - Mill Street-Charles Street E-King Street E	1950	66	68	2018	NULL	NULL	2018	Medium	Almost Certain	Very High	$ 13,417.87
Storm Management	Stormwater System	Stormwater System - Albert Street-Frances Street-King Street W	1953	63	66	2019	NULL	NULL	2019	Medium	Almost Certain	Very High	$ 60,922.39
Storm Management	Stormwater System	Stormwater System - Alma Street-Thames Street N-George Street	1960	56	60	2020	NULL	NULL	2020	Medium	Highly Likely	High	$ 3,308.53
Storm Management	Stormwater System	Stormwater System - Dufferin Street-Oxford Street-End	1962	54	65	2027	NULL	NULL	2027	Medium	Likely	Moderate	$ 62,346.89

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Fire

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Equipment	Heavy Equipment	Heavy Hydraulics - extrication	1995	21	18	2013	NULL	NULL	2016	High	Almost Certain	Very High	$ 58,884.00
Equipment	Heavy Equipment	Zoll Defibrillator	2003	13	8	2011	NULL	NULL	2016	High	Almost Certain	Very High	$ 9,650.98
Equipment	Heavy Equipment	Holmatro Rescue Tool Set	2009	7	15	2024	NULL	NULL	2024	High	Almost Certainly Not	Low	$ 24,675.20
Equipment	Heavy Equipment	Bobcat	2014	2	10	2024	NULL	NULL	2024	High	Almost Certainly Not	Low	$ 16,903.84
Equipment	Heavy Equipment	Washing Machine	2014	2	10	2024	NULL	NULL	2024	High	Almost Certainly Not	Low	$ 8,761.12
Equipment	Heavy Equipment	Breathing Air Compressor and Fill Station	2010	6	15	2025	NULL	NULL	2025	High	Almost Certainly Not	Low	$ 51,728.42
Equipment	Heavy Equipment	Thermal Imaging Camera	2015	1	10	2025	NULL	NULL	2025	High	Almost Certainly Not	Low	$ 5,154.85
Equipment	Radio Tower	Telephone System	2011	5	10	2021	NULL	NULL	2021	High	Almost Certainly Not	Low	$ 6,766.88
Fleet	Fire Trucks	1996 Simon LTI	1997	19	25	2022	NULL	NULL	2022	Severe	Unlikely	Moderate	$ 1,003,989.40
Fleet	Utility Vehicles	1999 Streamline Trailer	1999	17	20	2019	NULL	NULL	2019	Medium	Likely	Moderate	$ 9,147.01
Fleet	Utility Vehicles	2011 Chev Silverado	2010	6	10	2020	NULL	NULL	2020	Medium	Unlikely	Low	$ 56,352.75
Land Improvements	Parking Lot	Fire Hall - Asphalt Parking Lot - north side	1992	24	20	2012	2	2014	2021	Low	Unlikely	Low	$ 11,207.33
Equipment	Radio Tower	Confined Spaces Communication System	2011	5	15	2026	NULL	NULL	2026	High	Almost Certain	Very High	$ 10,275.69

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General Government

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Equipment	Equipment	Class with Crystal Reports 6 Licenses	1998	18	7	2005	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 35,312.50
Guard Rails	Guard Rails	Mutual Street-Charles Street E-CPR Tracks, Arena at south gravel lot	1960	56	40	2000	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 1,866.48
Equipment	Equipment	SQL Server STD 2008	2011	5	5	2016	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 9,980.85
Equipment	Equipment	VoIP Device - Phone System	2007	9	10	2017	NULL	NULL	2017	Insignificant	Highly Likely	Moderate	$ 35,764.70
Equipment	Equipment	Town Centre Smart Board	2012	4	5	2017	NULL	NULL	2017	Insignificant	Likely	Low	$ 6,720.00
Land Improvements	Parking Lot	Market Square Lot - Asphalt Parking Lot	1989	27	20	2009	3	2014	2017	Low	Almost Certain	High	$ 37,444.84
Equipment	Equipment	Treasury Folder Inserter	2009	7	10	2019	NULL	NULL	2019	Insignificant	Unlikely	Very Low	$ 21,354.25
Equipment	Equipment	Council Chambers Microphones	2014	2	5	2019	NULL	NULL	2019	Insignificant	Almost Certainly Not	Very Low	$ 5,386.43
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - North Side	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 8,601.36
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - NE Corner	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 820.47
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - Centre East	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 2,838.61
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - SE Corner	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 1,399.86
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - Centre South	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 7,959.76
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - Centre North	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 8,488.60
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street- East Parking Lot	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 3,227.46
Land Improvements	Parking Lot	Town Centre - Asphalt Driveway and Engineering Parking	1997	19	20	2017	2	2014	2020	Low	Likely	Low	$ 11,320.53
Land Improvements	Parking Lot	Water Street Lot - Asphalt Parking Lot	1979	37	20	1999	2	2014	2020	Low	Likely	Low	$ 29,897.82
Land Improvements	Parking Lot	Police Station - Asphalt Parking Lot - west side	1992	24	20	2012	2	2014	2020	Low	Likely	Low	$ 17,706.47
Land Improvements	Parking Lot	Police Station - Asphalt Parking Lot - east side	1992	24	20	2012	2	2014	2020	Low	Likely	Low	$ 19,024.30
Land Improvements	Parking Lot	Town Centre - Asphalt Parking Lot south side	1997	19	20	2017	2	2015	2021	Low	Unlikely	Low	$ 11,634.02
Land Improvements	Parking Lot	Oxford Street South Lot - Asphalt Parking Lot	1992	24	20	2012	2	2015	2021	Low	Unlikely	Low	$ 30,623.49
Land Improvements	Parking Lot	Charles Street East Lot - Asphalt Parking Lot	1991	25	20	2011	2	2015	2021	Low	Unlikely	Low	$ 82,756.00
Land Improvements	Parking Lot Curbs	Town Centre - Curbs	1997	19	25	2022	NULL	NULL	2022	Low	Unlikely	Low	$ 43,116.05
Equipment	Equipment	TABFUSION Software	2013	3	10	2023	NULL	NULL	2023	Insignificant	Almost Certainly Not	Very Low	$ 35,454.68
Land Improvements	Parking Lot	Post Office Lot - Asphalt Parking Lot	2003	13	20	2023	NULL	NULL	2023	Low	Unlikely	Low	$ 29,317.28
Equipment	Equipment	HP Designjet T3500	2015	1	10	2025	NULL	NULL	2025	Insignificant	Almost Certainly Not	Very Low	$ 16,623.14
Land Improvements	Parking Lot	Water Street overflow lot - Asphalt Parking Lot	2005	11	20	2025	NULL	NULL	2025	Low	Almost Certainly Not	Very Low	$ 18,432.15
Land Improvements	Parking Lot	Police Station - Asphalt Parking Lot - south side	2007	9	20	2027	NULL	NULL	2027	Low	Almost Certainly Not	Very Low	$ 13,633.99

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Parks & Recreation

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Arena	Buildings - Substructure	Arena - Standard Slab on Grade	1959	57	100	2059	5	2014	2016	High	Almost Certain	Very High	$ 14,355.60
Arena	Buildings - Substructure	Arena - Pits and Bases	1959	57	100	2059	5	2014	2016	High	Almost Certain	Very High	$ 12,304.80
Arena	Buildings - Plumbing	Arena - Domestic Hot Water Storage Tank	1993	23	20	2013	5	2014	2016	Medium	Almost Certain	Very High	$ 6,152.40
Arena	Buildings - HVAC	Arena - Exhaust Fans	1959	57	30	1989	5	2014	2016	Low	Almost Certain	High	$ 8,203.20
Arena	Buildings - HVAC	Arena - Dehumidifiers	1994	22	20	2014	5	2014	2016	Low	Almost Certain	High	$ 20,508.00
Arena	Buildings - Fire Protection	Arena - Fire Alarm System	1992	24	20	2012	5	2014	2016	Low	Almost Certain	High	$ 30,762.00
Arena	Buildings - Exterior Enclosure	Arena - Exterior Closure	2002	14	35	2037	5	2014	2016	Low	Almost Certain	High	$ 20,508.00
Arena	Buildings - Specialized	Arena - Refrigerant Leak Sensor	2001	15	15	2016	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 5,127.00
Arena	Buildings - Exterior Enclosure	Arena - Overhead Door	2002	14	15	2017	NULL	NULL	2017	Low	Highly Likely	Moderate	$ 3,332.55
Arena	Buildings - Superstructure(roof/floor)	Arena - Low slope roof membrane	1989	27	25	2014	3	2014	2017	Medium	Almost Certain	Very High	$ 256,350.00
Arena	Buildings - Interiors	Arena - Cubicles and Toilet Partitions	2002	14	15	2017	NULL	NULL	2017	Medium	Highly Likely	High	$ 6,152.40
Arena	Buildings - Interiors	Arena - Wood Floor Finish	2002	14	50	2052	4	2014	2017	Medium	Almost Certain	Very High	$ 15,381.00
Arena	Buildings - Interiors	Arena - Resilient Floor Finishes	2002	14	50	2052	4	2014	2017	Medium	Almost Certain	Very High	$ 8,203.20
Arena	Buildings - Interiors	Arena - Resilient Floor Finishes	2002	14	15	2017	2	2014	2018	Medium	Likely	Moderate	$ 69,727.20
Arena	Buildings - Specialized	Arena - Cooling Tower Holding Tank	1959	57	35	1994	3	2014	2019	Medium	Highly Likely	High	$ 30,762.00
Arena	Buildings - Interiors	Arena - Countertops	2002	14	18	2020	NULL	NULL	2020	Medium	Unlikely	Low	$ 22,558.80
Arena	Buildings - Interiors	Arena - Cabinets	2002	14	18	2020	NULL	NULL	2020	Medium	Unlikely	Low	$ 1,538.10
Arena	Buildings - Superstructure(roof/floor)	Arena - Low slope roof membrane	2002	14	25	2027	2	2014	2021	Medium	Likely	Moderate	$ 138,429.00
Arena	Buildings - Specialized	Arena - Glycol Headers	2001	15	20	2021	NULL	NULL	2021	Medium	Unlikely	Low	$ 102,540.00
Arena	Buildings - Specialized	Arena - Underfloor Heating System	2001	15	20	2021	NULL	NULL	2021	Medium	Unlikely	Low	$ 10,254.00
Arena	Buildings - Electrical	Arena - Main Switchboards	1959	57	45	2004	3	2014	2021	Low	Likely	Low	$ 15,381.00
Arena	Buildings - Electrical	Arena - Step-Down Transformers	1959	57	45	2004	3	2014	2021	Low	Likely	Low	$ 16,406.40
Arena	Buildings - Electrical	Arena - Distribution	1959	57	45	2004	3	2014	2021	Low	Likely	Low	$ 25,635.00
Arena	Buildings - Exterior Enclosure	Arena - Exterior EIFS Coating	2002	14	20	2022	2	2014	2022	Low	Unlikely	Low	$ 30,762.00
Arena	Buildings - Interiors	Arena - Acoustic Ceiling Tile and Panels	2002	14	20	2022	NULL	NULL	2022	Medium	Unlikely	Low	$ 6,152.40
Arena	Buildings - HVAC	Arena - RTU	2002	14	20	2022	NULL	NULL	2022	Low	Unlikely	Low	$ 10,254.00
Arena	Buildings - Specialized	Arena - Ammonia Compressors	1992	24	30	2022	NULL	NULL	2022	Medium	Likely	Moderate	$ 164,064.00
Arena	Buildings - Electrical	Arena - Lighting Equipment	1992	24	30	2022	2	2014	2022	Low	Likely	Low	$ 20,508.00
Arena	Buildings - Plumbing	Arena - Domestic Hot Water Heater	2008	8	15	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 8,203.20
Arena	Buildings - HVAC	Arena - Unit Heaters	1993	23	30	2023	NULL	NULL	2023	Low	Unlikely	Low	$ 25,635.00
Arena	Buildings - HVAC	Arena - Boiler	2000	16	25	2025	NULL	NULL	2025	Low	Unlikely	Low	$ 51,270.00
Arena	Buildings - HVAC	Arena - Furnace	2000	16	25	2025	NULL	NULL	2025	Low	Unlikely	Low	$ 6,152.40
Arena	Buildings - HVAC	Arena - MAU	2001	15	25	2026	NULL	NULL	2026	Low	Unlikely	Low	$ 41,016.00
Arena	Buildings - Specialized	Arena - Ammonia Heat Exchanger	2001	15	25	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 56,397.00
Arena	Buildings - Specialized	Arena - Glycol Pump	2001	15	25	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 10,254.00

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Arena	Buildings - Specialized	Arena - Ammonia Compressors	1992	24	30	2022	NULL	NULL	2022	Medium	Likely	Moderate	$ 164,064.00
Arena	Buildings - Electrical	Arena - Lighting Equipment	1992	24	30	2022	2	2014	2022	Low	Likely	Low	$ 20,508.00
Arena	Buildings - Plumbing	Arena - Domestic Hot Water Heater	2008	8	15	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 8,203.20
Arena	Buildings - HVAC	Arena - Unit Heaters	1993	23	30	2023	NULL	NULL	2023	Low	Unlikely	Low	$ 25,635.00
Arena	Buildings - HVAC	Arena - Boiler	2000	16	25	2025	NULL	NULL	2025	Low	Unlikely	Low	$ 51,270.00
Arena	Buildings - HVAC	Arena - Furnace	2000	16	25	2025	NULL	NULL	2025	Low	Unlikely	Low	$ 6,152.40
Arena	Buildings - HVAC	Arena - MAU	2001	15	25	2026	NULL	NULL	2026	Low	Unlikely	Low	$ 41,016.00
Arena	Buildings - Specialized	Arena - Ammonia Heat Exchanger	2001	15	25	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 56,397.00
Arena	Buildings - Specialized	Arena - Glycol Pump	2001	15	25	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 10,254.00
Arena	Buildings - Specialized	Arena - Cooling Tower	2001	15	25	2026	NULL	NULL	2026	Medium	Unlikely	Low	$ 123,048.00
Arena	Buildings - Interiors	Arena - Paint	2002	14	25	2027	NULL	NULL	2027	Medium	Almost Certainly Not	Very Low	$ 51,270.00
Arena	Buildings - Conveying	Arena - Wheelchair Lift	2002	14	25	2027	NULL	NULL	2027	Medium	Almost Certainly Not	Very Low	$ 61,524.00
Arena	Buildings - Plumbing	Arena - Domestic Hot Water Storage Tank	2007	9	20	2027	NULL	NULL	2027	Medium	Almost Certainly Not	Very Low	$ 6,152.40
Arena	Buildings - HVAC	Arena - RTU	2002	14	25	2027	NULL	NULL	2027	Low	Almost Certainly Not	Very Low	$ 46,143.00
Arena	Buildings - Specialized	Arena - Glycol Tubes and Ice Pad Floor	1992	24	35	2027	NULL	NULL	2027	Medium	Unlikely	Low	$ 512,700.00
Arena	Buildings - Specialized	Arena - Underfloor Heating Tubes	1992	24	35	2027	NULL	NULL	2027	Medium	Unlikely	Low	$ 41,016.00
Equipment	Heavy Equipment	Tread Mill	2004	12	10	2014	3	2014	2015	Low	Almost Certain	High	$ 9,412.74
Equipment	Heavy Equipment	Tread Mill 2	2004	12	10	2014	3	2014	2015	Low	Almost Certain	High	$ 9,412.74
Equipment	Heavy Equipment	VPCC Self Propelled Floor Machine	2001	15	10	2011	4	2014	2015	Low	Almost Certain	High	$ 8,519.00
Equipment	Playground Equipment	Woodhatch Park - Base for Playground Equipment	1990	26	20	2010	4	2014	2015	Medium	Almost Certain	Very High	$ 7,390.83
Equipment	Playground Equipment	Memorial Park - Playground Structure	1989	27	20	2009	4	2014	2015	Medium	Almost Certain	Very High	$ 46,148.00
Equipment	Playground Equipment	Jim Robbins Park - Base for Playground Equipment	1989	27	20	2009	4	2014	2015	Medium	Almost Certain	Very High	$ 10,276.01
Equipment	Bleachers	Garnett Elliott Park - Bleachers (2) at GE #1	1975	41	30	2005	NULL	NULL	2015	Insignificant	Almost Certain	High	$ 13,844.40
Equipment	Heavy Equipment	John Deere Lawnmower	2003	13	10	2013	2	2013	2016	Low	Almost Certain	High	$ 27,644.34
Equipment	Heavy Equipment	Fusion iMedia Touch Software Suite	2010	6	3	2013	1	2014	2016	Low	Almost Certain	High	$ 5,871.66
Equipment	Heavy Equipment	Arena Scoreboard	2002	14	5	2007	1	2014	2017	Low	Likely	Low	$ 12,923.00
Equipment	Heavy Equipment	Arena Exterior Message Sign	2003	13	5	2008	1	2014	2017	Low	Likely	Low	$ 12,595.00
Equipment	Heavy Equipment	Tread Mill 3	2005	11	10	2015	2	2014	2017	Low	Highly Likely	Moderate	$ 9,371.02
Equipment	Heavy Equipment	Tread Mill 4	2007	9	10	2017	NULL	NULL	2017	Low	Highly Likely	Moderate	$ 9,228.76
Equipment	Heavy Equipment	Cross Trainer 1	2002	14	10	2012	2	2014	2017	Low	Highly Likely	Moderate	$ 9,421.13
Equipment	Heavy Equipment	Cross Trainer 3	2002	14	10	2012	2	2014	2017	Low	Highly Likely	Moderate	$ 9,421.13
Equipment	Heavy Equipment	Fusion Security System Monitor	2007	9	5	2012	1	2014	2017	Low	Likely	Low	$ 8,541.79
Equipment	Heavy Equipment	Pool Chemical Controller	2009	7	5	2014	1	2014	2017	Low	Likely	Low	$ 6,879.30
Equipment	Heavy Equipment	Fusion Misc. Broadcast Equipment and Installation	2010	6	5	2015	1	2014	2017	Low	Likely	Low	$ 14,004.99
Equipment	Heavy Equipment	Fusion Signs- Internal Door	2010	6	5	2015	1	2014	2017	Low	Likely	Low	$ 6,226.04
Equipment	Heavy Equipment	Fusion Signs - Thames St. Main Entrance	2010	6	5	2015	1	2014	2017	Low	Likely	Low	$ 6,820.53

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Equipment	Heavy Equipment	Fusion Sign - 3D Wall Sign	2010	6	5	2015	1	2014	2017	Low	Likely	Low	$ 8,751.27
Equipment	Heavy Equipment	Fusion Bubble Column Corner Podium Kit	2012	4	5	2017	1	2014	2017	Low	Likely	Low	$ 6,643.91
Equipment	Heavy Equipment	Arena Water Heater	2008	8	10	2018	NULL	NULL	2018	Low	Likely	Low	$ 5,988.13
Equipment	Bleachers	Garnet Elliott Park at G.E #1 and G.E. #2 - Bleachers (4)	1980	36	30	2010	3	2013	2018	Insignificant	Highly Likely	Moderate	$ 16,151.80
Equipment	Bleachers	Victoria Park - Bleachers	1988	28	30	2018	3	2013	2018	Insignificant	Highly Likely	Moderate	$ 16,151.80
Equipment	Heavy Equipment	Olympia Ice Resurfacer	2009	7	10	2019	1	2013	2019	Low	Unlikely	Low	$ 88,749.96
Equipment	Heavy Equipment	Arena Floor Machine	2009	7	10	2019	1	2014	2019	Low	Unlikely	Low	$ 10,233.77
Equipment	Heavy Equipment	John Deere 1445 Lawnmower	2009	7	10	2019	1	2013	2019	Low	Unlikely	Low	$ 33,917.18
Equipment	Heavy Equipment	Fusion Sound Studio Equipment	2009	7	10	2019	1	2014	2019	Low	Unlikely	Low	$ 108,369.53
Equipment	Heavy Equipment	Fusion Fitness Equipment	2009	7	10	2019	1	2014	2019	Low	Unlikely	Low	$ 5,727.21
Equipment	Heavy Equipment	Fusion Lenovo Edge 62Z Qty. 22	2014	2	5	2019	NULL	NULL	2019	Low	Almost Certainly Not	Very Low	$ 10,254.00
Equipment	Playground Equipment	Woodhatch Park - Playground Structure	1990	26	20	2010	2	2013	2019	Medium	Likely	Moderate	$ 46,148.00
Equipment	Playground Equipment	Edward Park - Playground Structure	1987	29	20	2007	2	2013	2019	Medium	Likely	Moderate	$ 46,148.00
Equipment	Playground Equipment	Jim Robbins Park - Playground Structure	1989	27	20	2009	2	2013	2019	Medium	Likely	Moderate	$ 46,148.00
Equipment	Playground Equipment	Lions Park - Swing Set	2003	13	20	2023	2	2013	2019	Medium	Likely	Moderate	$ 13,466.75
Equipment	Playground Equipment	Victoria Park - Playground Structure -toddler	2002	14	20	2022	2	2013	2019	Medium	Likely	Moderate	$ 7,598.18
Equipment	Heavy Equipment	VPCC Desks and Chairs	2000	16	20	2020	NULL	NULL	2020	Low	Likely	Low	$ 10,465.28
Equipment	Heavy Equipment	Fusion Skate Park Ramps	2010	6	10	2020	1	2014	2020	Low	Unlikely	Low	$ 22,220.00
Equipment	Heavy Equipment	Fusion Sign - Double Sided Pylon	2010	6	10	2020	NULL	NULL	2020	Low	Unlikely	Low	$ 12,764.93
Equipment	Playground Equipment	Lions Park - Playground Structure	2000	16	20	2020	2	2013	2020	Medium	Likely	Moderate	$ 14,978.89
Equipment	Heavy Equipment	Kubota Tractor	2002	14	10	2012	1	2014	2021	Low	Almost Certainly Not	Very Low	$ 37,954.02
Equipment	Heavy Equipment	Diamond Master Groomer	2000	16	10	2010	1	2014	2021	Low	Almost Certainly Not	Very Low	$ 9,431.10
Equipment	Heavy Equipment	Arena Safety Netting	2002	14	10	2012	1	2014	2021	Low	Almost Certainly Not	Very Low	$ 6,803.96
Equipment	Heavy Equipment	Arena Telephone System	2000	16	10	2010	1	2014	2021	Low	Almost Certainly Not	Very Low	$ 9,596.10
Equipment	Heavy Equipment	VPCC Telephone System	2011	5	10	2021	NULL	NULL	2021	Low	Almost Certainly Not	Very Low	$ 8,475.32
Equipment	Playground Equipment	Lorne Moon Park - Playground Structure	2001	15	20	2021	2	2013	2021	Medium	Unlikely	Low	$ 46,148.00
Equipment	Bleachers	Cami/Flyer Soccer Park - Players Benches	2001	15	20	2021	NULL	NULL	2021	Insignificant	Unlikely	Very Low	$ 9,352.20
Equipment	Bleachers	Cami/Flyer Soccer Park - Spectator Benches	2001	15	20	2021	2	2013	2021	Insignificant	Unlikely	Very Low	$ 21,189.60
Equipment	Heavy Equipment	Arena Ball Hockey Flooring	2007	9	15	2022	1	2014	2022	Low	Unlikely	Low	$ 11,537.00
Equipment	Heavy Equipment	VPCC Main Pool Pump	2012	4	10	2022	NULL	NULL	2022	Low	Almost Certainly Not	Very Low	$ 8,471.37
Equipment	Heavy Equipment	VPCC Starter for Pool pump	2012	4	10	2022	NULL	NULL	2022	Low	Almost Certainly Not	Very Low	$ 5,575.63
Equipment	Heavy Equipment	John Deere 5055E Cab Tractor	2013	3	10	2023	1	2014	2023	Low	Almost Certainly Not	Very Low	$ 31,960.32
Equipment	Heavy Equipment	John Deere 553 Loader	2013	3	10	2023	1	2014	2023	Low	Almost Certainly Not	Very Low	$ 5,562.88
Equipment	Heavy Equipment	Memorial Park - Electrical Outlets	2003	13	20	2023	1	2014	2023	Low	Unlikely	Low	$ 35,112.27
Equipment	Heavy Equipment	2014 John Deere 1445 Lawn Mower	2014	2	10	2024	NULL	NULL	2024	Low	Almost Certainly Not	Very Low	$ 32,556.45

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Equipment	Heavy Equipment	Misc. Kitchen Wares	2014	2	10	2024	NULL	NULL	2024	Low	Almost Certainly Not	Very Low	$ 7,573.38
Equipment	Heavy Equipment	Dishwasher	2014	2	10	2024	NULL	NULL	2024	Low	Almost Certainly Not	Very Low	$ 5,435.70
Equipment	Heavy Equipment	Misc Kitchen Supplies	2014	2	10	2024	NULL	NULL	2024	Low	Almost Certainly Not	Very Low	$ 7,341.58
Equipment	Heavy Equipment	Centennial Park - Electrical Outlets	2004	12	20	2024	NULL	NULL	2024	Low	Unlikely	Low	$ 8,880.84
Equipment	Heavy Equipment	Aerator-Aerwal	1995	21	15	2010	1	2014	2025	Low	Almost Certainly Not	Very Low	$ 18,273.18
Equipment	Heavy Equipment	Victoria Park - Electrical Outlets	2005	11	20	2025	NULL	NULL	2025	Low	Almost Certainly Not	Very Low	$ 8,383.55
Equipment	Heavy Equipment	Thames Centre - Exterior Sign	2006	10	20	2026	NULL	NULL	2026	Low	Almost Certainly Not	Very Low	$ 10,125.25
Fleet	Trucks	2001 Dodge Ram One Tonne	2000	16	10	2010	4	2013	2015	Insignificant	Almost Certain	High	$ 7,177.80
Fleet	Utility Vehicles	1999 Dodge 2500	1999	17	10	2009	2	2013	2016	Insignificant	Almost Certain	High	$ 44,482.74
Fleet	Trucks	2007 Chev Silverado Flatbed	2006	10	10	2016	2	2014	2017	Insignificant	Highly Likely	Moderate	$ 46,538.08
Fleet	Utility Vehicles	2008 Dodge Ram formerly PW2	2008	8	10	2018	NULL	NULL	2018	Insignificant	Likely	Low	$ 39,622.91
Fleet	Utility Vehicles	2005 GMC Sierra	2013	3	5	2018	NULL	NULL	2018	Insignificant	Unlikely	Very Low	$ 9,446.40
Fleet	Utility Vehicles	2012 Chev Silverado	2011	5	10	2021	1	2014	2021	Insignificant	Almost Certainly Not	Very Low	$ 27,001.42
Fleet	Utility Vehicles	2014 GMC Sierra 1500	2014	2	10	2024	1	2014	2024	Insignificant	Almost Certainly Not	Very Low	$ 23,823.99
Land Improvements	Parking Lot	Garnett Elliott Park - Asphalt Parking Lot	1989	27	20	2009	5	2014	2015	Insignificant	Almost Certain	High	$ 37,171.99
Land Improvements	Fencing	Garnett Elliott Park - Chainlink Fence at GE #1	1999	17	25	2024	4	2014	2016	Insignificant	Almost Certain	High	$ 11,163.20
Land Improvements	Fencing	Westfield Park - Chainlink Fence at Tennis Courts	1973	43	25	1998	3	2013	2017	Insignificant	Almost Certain	High	$ 17,529.32
Land Improvements	Sportsfield Lighting	Westfield Park - Lights for tennis courts	1973	43	20	1993	3	2014	2017	Low	Almost Certain	High	$ 55,377.60
Land Improvements	Parking Lot	VPCC Facility - Asphalt Parking Lot	1991	25	20	2011	3	2014	2017	Insignificant	Almost Certain	High	$ 94,047.51
Land Improvements	Playing Fields	Thames Centre - Deck at Skatepark	2012	4	5	2017	1	2014	2017	Medium	Likely	Moderate	$ 7,453.35
Land Improvements	Playing Fields	Victoria Park - Main Diamond - Lighted	1975	41	30	2005	3	2014	2018	Medium	Highly Likely	High	$ 74,990.50
Land Improvements	Playing Fields	Victoria Park - North Diamond - Lighted	1988	28	30	2018	3	2013	2018	Medium	Highly Likely	High	$ 74,990.50
Land Improvements	Playing Fields	Victoria Park - South Diamond - Lighted	1988	28	30	2018	3	2013	2018	Medium	Highly Likely	High	$ 74,990.50
Land Improvements	Playing Fields	Victoria Park - Main Diamond - Lighting - Main Diamond	1975	41	30	2005	3	2014	2018	Medium	Highly Likely	High	$ 75,802.70
Land Improvements	Playing Fields	Victoria Park - North Diamond - Lighting - North Diamond	1988	28	30	2018	3	2014	2018	Medium	Highly Likely	High	$ 64,780.26
Land Improvements	Playing Fields	Victoria Park - South Diamond - Lighting - South Diamond	1988	28	30	2018	3	2014	2018	Medium	Highly Likely	High	$ 75,802.70
Land Improvements	Playing Fields	Garnet Elliott Park- GE #1 - Diamond -Lighted	1975	41	20	1995	2	2013	2019	Medium	Likely	Moderate	$ 74,990.50
Land Improvements	Pathways	Smith's Pond Park - Walking Trail	2004	12	20	2024	2	2013	2020	Low	Likely	Low	$ 40,739.33
Land Improvements	Playing Fields	Cami/Suzuki House - Tennis Courts	1988	28	20	2008	2	2014	2020	Medium	Likely	Moderate	$ 44,295.34
Land Improvements	Pathways	Victoria Park - Walking Trail	2004	12	20	2024	2	2013	2020	Low	Likely	Low	$ 18,426.00
Land Improvements	Parking Lot	Parks Shop Facility - Parking Lot South	1975	41	20	1995	2	2013	2020	Insignificant	Likely	Low	$ 32,360.47
Land Improvements	Playing Fields	Kensington Park - Basketball Court	1970	46	25	1995	2	2014	2021	Medium	Likely	Moderate	$ 17,356.74
Land Improvements	Playing Fields	Lions Park - Basketball Court	1975	41	25	2000	2	2014	2021	Medium	Likely	Moderate	$ 24,266.93
Land Improvements	Parking Lot	Cami/Suzuki House - Parking Lot with curbs	1988	28	20	2008	2	2014	2021	Insignificant	Unlikely	Very Low	$ 61,769.47
Land Improvements	Pathways	Memorial Park - Asphalt laneway	1960	56	20	1980	2	2014	2021	Low	Unlikely	Low	$ 26,539.71
Land Improvements	Pathways	North Meadows Naturalized Park - Walking Trail	2002	14	20	2022	1	2014	2022	Low	Unlikely	Low	$ 14,536.62

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Land Improvements	Pathways	Lorne Moon Park - Walking Trail	2002	14	20	2022	1	2014	2022	Low	Unlikely	Low	$ 12,806.07
Land Improvements	Playing Fields	Garnett Elliott Park - Soccer Field- Major Size	1986	30	30	2016	2	2013	2022	Medium	Likely	Moderate	$ 51,916.50
Land Improvements	Pathways	Memorial Park - Asphalt walkway from bridge to bridge	2003	13	20	2023	1	2014	2023	Low	Unlikely	Low	$ 25,190.00
Land Improvements	Fencing	Westfield Park - Chainlink Fence at outfield of diamond	1973	43	25	1998	2	2014	2023	Insignificant	Unlikely	Very Low	$ 10,500.98
Land Improvements	Fencing	Garnet Elliott Park - GE #1 - Safety Netting & Poles for out field	1999	17	25	2024	NULL	NULL	2024	Insignificant	Unlikely	Very Low	$ 10,120.20
Land Improvements	Pathways	Victoria Park - Cenntenial Lane	2005	11	20	2025	1	2014	2025	Low	Almost Certainly Not	Very Low	$ 20,090.26
Land Improvements	Sportsfield Lighting	Heritage Court Park - Lighting	2006	10	20	2026	1	2014	2026	Low	Almost Certainly Not	Very Low	$ 41,533.20
Land Improvements	Sportsfield Lighting	Dewan Park - Lighting	2006	10	20	2026	1	2014	2026	Low	Almost Certainly Not	Very Low	$ 27,688.80
Land Improvements	Irrigation	Cami/Flyer Soccer Park - Irrigation System	2001	15	25	2026	NULL	NULL	2026	Low	Unlikely	Low	$ 43,818.00
Land Improvements	Fencing	Victoria Park- at toddler playground - Chainlink Fence	2001	15	25	2026	1	2014	2026	Insignificant	Unlikely	Very Low	$ 7,424.01
Land Improvements	Playing Fields	Victoria Park - Lawn Tractor Race Track	2006	10	20	2026	1	2014	2026	Medium	Almost Certainly Not	Very Low	$ -
Land Improvements	Fencing	Cami/Flyer Soccer Park - Chainlink Fence at soccer park and parking lot	2001	15	25	2026	1	2014	2026	Insignificant	Unlikely	Very Low	$ 15,986.38
Land Improvements	Pathways	Dewan Park - Interlocking Brick Walking Trail	2007	9	20	2027	1	2014	2027	Low	Almost Certainly Not	Very Low	$ 12,472.04
Land Improvements	Playing Fields	Westfield Park - Tennis Courts	1973	43	20	1993	1	2013	2027	Medium	Almost Certainly Not	Very Low	$ 44,295.34
Land Improvements	Sportsfield Lighting	Thames Centre - Lighting	2007	9	20	2027	NULL	NULL	2027	Low	Almost Certainly Not	Very Low	$ 23,074.00
Land Improvements	Parking Lot	Community Museum - Gravel Parking Lot	2007	9	20	2027	1	2013	2027	Insignificant	Almost Certainly Not	Very Low	$ 21,073.61
Sidewalks	Sidewalks	Concrete, Not Applicable St. Andrew Street-Mill Street(road allowance)-Mutual Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 338.58
Sidewalks	Sidewalks	Concrete, Not Applicable St. Andrew Street-Mill Street(road allowance)-Mutual Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 640.75
Sidewalks	Sidewalks	Concrete, East Side Memorial Park Lane-Concession Street-Canterbury Street	1960	56	60	2020	NULL	NULL	2020	Low	Highly Likely	Moderate	$ 765.47
Land Improvements	Parking Lot	Community Museum - Gravel Parking Lot	2007	9	20	2027	1	2013	2027	Insignificant	Almost Certainly Not	Very Low	$ 21,073.61
Sidewalks	Sidewalks	Concrete, Not Applicable St. Andrew Street-Mill Street(road allowance)-Mutual Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 338.58

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Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Equipment	Heavy Equipment	PW25 Cobra Concrete Breaker	2003	13	10	2013	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 7,159.00
Fleet	Trucks	PW8 2010 Peterbilt 340	2009	7	10	2019	3	2015	2016	Medium	Almost Certain	Very High	$ 208,482.29
Fleet	Trucks	PW5 2007 International	2007	9	10	2017	2	2015	2017	Medium	Highly Likely	High	$ 193,842.37
Equipment	Heavy Equipment	PW17A Broom for Trackless	1995	21	10	2005	2	2014	2017	Medium	Highly Likely	High	$ 11,934.31
Equipment	Heavy Equipment	PW17D Sander for Trackless	2003	13	8	2011	2	2015	2017	Medium	Likely	Moderate	$ 6,373.07
Equipment	Heavy Equipment	PW29 Brush Chipper	2004	12	10	2014	2	2014	2017	Medium	Highly Likely	High	$ 43,468.95
Equipment	Heavy Equipment	PW13B Daniels Snow Plow	2002	14	10	2012	2	2015	2018	Medium	Likely	Moderate	$ 17,647.65
Equipment	Heavy Equipment	PW20 Giant Vac Leaf Loader	2005	11	10	2015	2	2015	2018	Medium	Likely	Moderate	$ 31,337.40
Fleet	Utility Vehicles	PW7 2009 Dodge Ram	2008	8	10	2018	NULL	NULL	2018	Low	Likely	Low	$ 37,560.98
Equipment	Heavy Equipment	PW13 CAT Loader	2008	8	10	2018	NULL	NULL	2018	Medium	Likely	Moderate	$ 172,469.98
Equipment	Heavy Equipment	PW13A Tenco Snowblower for Loader	2008	8	10	2018	NULL	NULL	2018	Medium	Likely	Moderate	$ 100,754.90
Equipment	Heavy Equipment	PW11 Champion Grader / Snow Wing	1994	22	15	2009	2	2015	2019	Medium	Likely	Moderate	$ 134,344.78
Equipment	Heavy Equipment	PW31 Jib Crane in Repair Bay	1999	17	20	2019	NULL	NULL	2019	Medium	Likely	Moderate	$ 15,703.61
Fleet	Utility Vehicles	PW10 2009 Dodge Ram	2009	7	10	2019	NULL	NULL	2019	Low	Unlikely	Low	$ 30,485.91
Equipment	Heavy Equipment	PW 22 Asphalt Roller	1994	22	20	2014	2	2014	2020	Medium	Likely	Moderate	$ 62,861.02
Fleet	Utility Vehicles	PW26 Carrier Trailer	1994	22	20	2014	2	2015	2021	Low	Unlikely	Low	$ 10,699.81
Equipment	Heavy Equipment	PW14 Ford Tractor Mower	2004	12	10	2014	1	2014	2021	Medium	Almost Certainly Not	Very Low	$ 92,852.45
Equipment	Heavy Equipment	PW27 Crane for PW2	2005	11	16	2021	NULL	NULL	2021	Medium	Unlikely	Low	$ 14,464.62
Equipment	Heavy Equipment	PW28 Crane for PW7	2005	11	16	2021	NULL	NULL	2021	Medium	Unlikely	Low	$ 14,464.62
Fleet	Trucks	PW6 2011 Freightliner	2011	5	10	2021	NULL	NULL	2021	Medium	Almost Certainly Not	Very Low	$ 197,573.63
Equipment	Heavy Equipment	PW12 CAT Tractor Backhoe	2012	4	10	2022	NULL	NULL	2022	Medium	Almost Certainly Not	Very Low	$ 113,887.76
Equipment	Heavy Equipment	PW15 2012 Sweeper & Basin Cleaner	2012	4	10	2022	NULL	NULL	2022	Medium	Almost Certainly Not	Very Low	$ 233,862.95
Equipment	Heavy Equipment	PW17 Sidewalk Tractor	2013	3	10	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 110,769.85
Equipment	Heavy Equipment	PW17C Snow Plow for Sidewalk Tractor	2013	3	10	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 6,248.23
Equipment	Heavy Equipment	PW 17DSander for Sidewalk Tractor	2013	3	10	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 6,622.05
Equipment	Heavy Equipment	PW17F Cold Planer	2013	3	10	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 23,951.54
Fleet	Utility Vehicles	2013 Dodge Ram	2013	3	10	2023	NULL	NULL	2023	Low	Almost Certainly Not	Very Low	$ 27,174.31
Equipment	Heavy Equipment	PW 21 Monster Leaf Loader	2013	3	10	2023	NULL	NULL	2023	Medium	Almost Certainly Not	Very Low	$ 27,235.88
Fleet	Utility Vehicles	2014 Dodge Ram	2013	3	10	2023	NULL	NULL	2023	Low	Almost Certainly Not	Very Low	$ 28,011.03
Land Improvements	Fencing	Public Works Facility - Chainlink Fence around perimeter	1999	17	25	2024	NULL	NULL	2024	Insignificant	Unlikely	Very Low	$ 44,470.40
Land Improvements	Fencing	Public Works Facility - Post and Wire Fence - rear yard	1999	17	25	2024	NULL	NULL	2024	Insignificant	Unlikely	Very Low	$ 26,753.84
Land Improvements	Parking Lot Curbs	Public Works Facility - Curbs - north lot	1999	17	25	2024	NULL	NULL	2024	Insignificant	Unlikely	Very Low	$ 10,076.32
Land Improvements	Parking Lot Curbs	Public Works Facility - Curbs - south visitor	1999	17	25	2024	NULL	NULL	2024	Insignificant	Unlikely	Very Low	$ 7,292.08
Equipment	Heavy Equipment	PW23 Winco PTO Generator	2005	11	20	2025	NULL	NULL	2025	Medium	Almost Certainly Not	Very Low	$ 20,138.40

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Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Equipment	Heavy Equipment	PW24 Anti-Ice Unit	2005	11	20	2025	NULL	NULL	2025	Medium	Almost Certainly Not	Very Low	$ 9,866.91
Fleet	Trucks	PW4 2015 International	2015	1	10	2025	NULL	NULL	2025	Medium	Almost Certainly Not	Very Low	$ 204,745.26
Fleet	Utility Vehicles	2016 Ford Super Duty F-3	2015	1	10	2025	NULL	NULL	2025	Low	Almost Certainly Not	Very Low	$ 56,819.33
Equipment	Heavy Equipment	Portable Radio	2015	1	10	2025	NULL	NULL	2025	Medium	Almost Certainly Not	Very Low	$ 7,061.69
Equipment	Heavy Equipment	PW30 Jib Crane in Welding Bay	2006	10	20	2026	NULL	NULL	2026	Medium	Almost Certainly Not	Very Low	$ 24,905.20

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Transportation

Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Bridges	**Bridge Structure**	**Replace - Victoria Street over Sutherland Creek**	**1976**	**40**	**50**	**2026**	**5**	**2015**	**2016**	**Severe**	**Almost Certain**	**Very High**	**$ 1,166,729.04**
Bridges	Bridge Structure	Replace - Wonham Street N over Sutherland Creek	1976	40	50	2026	5	2015	2016	Severe	Almost Certain	Very High	$ 889,052.40
Bridges	Bridge Structure	Rehab - Clark Road E over Hall's Creek	1976	40	50	2026	5	2015	2016	Severe	Almost Certain	Very High	$ 200,950.20
Bridges	Bridge Structure	Rehab - Pemberton Street over Thames River	1977	39	50	2027	5	2014	2016	Severe	Almost Certain	Very High	$ 637,142.54
Guard Rails	Guard Rails	Victoria Street-Thames Street N-Wonham Street N, At Culvert East of Union St	1968	48	40	2008	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 2,418.65
Guard Rails	Guard Rails	St. Andrew Street-Mill Street(road allowance)-Mutual Street, SW corner of Mutual and St. Andrew intersection	1960	56	40	2000	NULL	NULL	2016	Medium	Almost Certain	Very High	$ 1,621.23
Retaining Walls	Retaining Walls	Memorial Park - Gabion Baskets along river banks	1982	34	25	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 276,888.00
Retaining Walls	Retaining Walls	Victoria Park - Retaining Wall	1950	66	25	1975	NULL	NULL	2016	Low	Almost Certain	High	$ 55,377.60
Roads	Road Curb	North Side - Albert Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 6,574.69
Roads	Road Curb	North Side - Albert Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 6,574.69
Roads	Road Curb	North Side - Duke Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 7,254.84
Roads	Road Curb	North Side - Duke Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 7,254.84
Roads	Road Curb	North Side - Mill Street-Charles Street E-King Street E	1947	69	60	2007	NULL	NULL	2016	Insignificant	Almost Certain	High	$ 6,121.27
Retaining Walls	Retaining Walls	Concrete - 173 Carnegie Street	1960	56	50	2010	NULL	NULL	2016	Low	Almost Certain	High	$ 5,886.57
Retaining Walls	Retaining Walls	Concrete - 252 Victoria West Side	1960	56	50	2010	NULL	NULL	2016	Low	Almost Certain	High	$ 1,104.90
Retaining Walls	Retaining Walls	Concrete - 252 - 248 Victoria Street	1960	56	50	2010	NULL	NULL	2016	Low	Almost Certain	High	$ 1,927.16
Retaining Walls	Retaining Walls	Concrete - 161 McKeand St	1960	56	50	2010	NULL	NULL	2016	Low	Almost Certain	High	$ 3,854.30
Sidewalks	Sidewalks	Concrete, East Side Albert Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 8,946.94
Sidewalks	Sidewalks	Concrete, West Side Albert Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 10,920.04
Sidewalks	Sidewalks	Asphalt/Concrete, East Side Duke Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 10,122.45
Sidewalks	Sidewalks	Asphalt/Concrete, West Side Duke Street-King Street W-Charles Street W	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 9,926.53
Sidewalks	Sidewalks	Asphalt, East Side Mill Street-Charles Street E-King Street E	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 3,599.54
Sidewalks	Sidewalks	Concrete, East Side Mill Street-Charles Street E-King Street E	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 1,686.18
Sidewalks	Sidewalks	Concrete, East Side Union Street-Victoria Street-Bell Street	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 7,836.73
Sidewalks	Sidewalks	Concrete, West Side Union Street-Victoria Street-Bell Street	1947	69	60	2007	NULL	NULL	2016	Low	Almost Certain	High	$ 6,586.82
Roads	Road Surface - Local Residential	M & P - George Street-William Street-Alma Street - 0 to 91	1995	21	12	2007	5	2014	2016	Low	Almost Certain	High	$ 20,389.41
Roads	Road Surface - Local Residential	M & P - George Street-Alma Street-Cathcart Street - 0 to 206	2002	14	12	2014	5	2014	2016	Low	Almost Certain	High	$ 35,899.31
Roads	Road Surface - Local Residential	M & P - Boles Street-Charles Street W-End - 0 to 75	1988	28	12	2000	5	2014	2016	Low	Almost Certain	High	$ 13,070.14
Roads	Road Surface - Local Residential	M & P - Caffyn Street-Cross Street-Cedar Street - 0 to 142	1957	59	12	1969	5	2014	2016	Low	Almost Certain	High	$ 22,625.02
Roads	Road Surface - Local Residential	M & P - Ann Street-Oxford Street-Thames Street S - 0 to 170	1957	59	12	1969	4	2014	2016	Low	Almost Certain	High	$ 42,322.34
Roads	**Road Surface - Collector Residential**	**Recon. - North Town Line E-Pemberton Street-Kensington Avenue - 0 to 442**	**1957**	**59**	**25**	**1982**	**5**	**2014**	**2016**	**Medium**	**Almost Certain**	**Very High**	**$ 263,725.39**
Roads	Road Surface - Collector Residential	FDR. - North Town Line W-Oxford Avenue-McCreery Road - 0 to 214	2002	14	18	2020	3	2014	2016	Medium	Almost Certain	Very High	$ 54,314.70
Roads	Road Surface - Local Residential	M & P - Frances Street-Merritt Street-Wonham Street S - 0 to 95	1994	22	12	2006	3	2014	2016	Low	Almost Certain	High	$ 16,555.51
Roads	Road Surface - Local Residential	M & P - Frederick Street-Bond Street-East End - 0 to 85	1985	31	12	1997	3	2014	2016	Low	Almost Certain	High	$ 14,812.82

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Roads	Road Surface - Local Residential	M & P - Dufferin Street-Oxford Street-End - 0 to 95	1957	59	12	1969	3	2014	2016	Low	Almost Certain	High	$ 15,845.99
Roads	Road Surface - Local Residential	M & P - Wonham Street S-Charles Street W-End - 0 to 60	1957	59	12	1969	3	2014	2016	Low	Almost Certain	High	$ 10,456.11
Roads	Road Surface - Local Residential	M & P - Albert Street-Ann Street-Frances Street - 0 to 180	1997	19	12	2009	3	2014	2016	Low	Almost Certain	High	$ 29,127.73
Roads	Road Surface - Local Residential	M & P - Albert Street-Frances Street-King Street W - 0 to 160	1997	19	12	2009	3	2014	2016	Low	Almost Certain	High	$ 27,882.96
Roads	Road Surface - Local Residential	M & P - Cherry Street-Carroll Street-Harris Street - 0 to 570	1978	38	12	1990	3	2014	2016	Low	Almost Certain	High	$ 112,104.42
Roads	Road Surface - Local Residential	M & P - Concession Street-Wellington Street-End - 0 to 50	1995	21	12	2007	3	2014	2016	Low	Almost Certain	High	$ 12,447.75
Roads	Road Surface - Local Residential	M & P - Centre Street-Concession Street-85m South of Concession St - 0 to 90	1957	59	12	1969	3	2014	2016	Low	Almost Certain	High	$ 8,962.38
Roads	Road Surface - Local Residential	Recon. - Duke Lane-Duke Street-Church Street - 0 to 120	1957	59	30	1987	4	2014	2016	Low	Almost Certain	High	$ 35,799.83
Roads	Road Surface - Local Residential	Recon. - William Street-Thames Street N-George Street - 0 to 192	1970	46	30	2000	4	2014	2016	Low	Almost Certain	High	$ 125,299.39
Roads	Road Surface - Local Residential	Recon. - William Street-George Street-Mutual Street - 0 to 186	1950	66	30	1980	4	2014	2016	Low	Almost Certain	High	$ 147,394.60
Guard Rails	Guard Rails	Pemberton Street-Charles Street E-Thames River, SW Side	1977	39	40	2017	NULL	NULL	2017	Medium	Almost Certain	Very High	$ 3,324.67
Guard Rails	Guard Rails	Pemberton Street-Charles Street E-Thames River, SE Side	1977	39	40	2017	NULL	NULL	2017	Medium	Almost Certain	Very High	$ 3,849.62
Guard Rails	Guard Rails	Pemberton Street-Thames River-CNR Tracks, NE Side	1977	39	40	2017	NULL	NULL	2017	Medium	Almost Certain	Very High	$ 3,452.99
Guard Rails	Guard Rails	Pemberton Street-Thames River-CNR Tracks, NW Side	1977	39	40	2017	NULL	NULL	2017	Medium	Almost Certain	Very High	$ 3,954.60
Roads	Road Curb	North Side - Ann Street-Oxford Street-Thames Street S	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 7,708.26
Roads	Road Curb	North Side - Avonlea Street-Charles Street W-End	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 2,040.42
Roads	Road Curb	North Side - Charles Street W-Boles Street-Merrit Street	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 10,700.88
Roads	Road Curb	North Side - Charles Street W-Boles Street-Merrit Street	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 10,700.88
Roads	Road Curb	North Side - Charles Street W-Merritt Street-30 m. W of CPR Tracks	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 2,720.56
Roads	Road Curb	North Side - Charles Street W-Merritt Street-30 m. W of CPR Tracks	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 2,720.56
Roads	Road Curb	North Side - Frederick Street-Bond Street-East End	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 3,854.13
Roads	Road Curb	North Side - Merritt Street-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 4,987.70
Roads	Road Curb	North Side - Merritt Street-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 4,987.70
Roads	Road Curb	North Side - Wonham Street S-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 6,801.41
Roads	Road Curb	North Side - Wonham Street S-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Insignificant	Almost Certain	High	$ 6,801.41
Sidewalks	Sidewalks	Asphalt/Concrete, East Side Albert Street-Ann Street-Frances Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 10,080.69
Sidewalks	Sidewalks	Asphalt/Concrete, West Side Albert Street-Ann Street-Frances Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 11,557.04
Sidewalks	Sidewalks	Concrete, East Side King Street W-Oxford Street-Merrit Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 9,049.71
Sidewalks	Sidewalks	Concrete, West Side Albert Street-Frances Street-King Street W	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 10,057.14
Sidewalks	Sidewalks	Concrete, North Side Alma Street-Thames Street N-George Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 20,179.59
Sidewalks	Sidewalks	Concrete, North Side Ann Street-Oxford Street-Thames Street S	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 11,151.29
Sidewalks	Sidewalks	Concrete, South Side Ann Street-Oxford Street-Thames Street S	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 12,440.28
Sidewalks	Sidewalks	Concrete, South Side Cottage Street-Thames Street S-End	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 6,400.00
Sidewalks	Sidewalks	Concrete, East Side Earl Street-Ann Street-Frances Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 12,367.48
Sidewalks	Sidewalks	Asphalt/Concrete, West Side Earl Street-Ann Street-Frances Street	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 8,190.03
Sidewalks	Sidewalks	Concrete, South Side Frances Street-Merritt Street-Wonham Street S	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 3,092.94

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Sidewalks	Sidewalks	Concrete, North Side Frederick Street-Bond Street-East End	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 5,821.34
Sidewalks	Sidewalks	Concrete, East Side Merritt Street-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 7,868.85
Sidewalks	Sidewalks	Concrete, West Side Merritt Street-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 8,671.80
Sidewalks	Sidewalks	Concrete, South Side Oxford Lane-Thames Street S-Oxford Lane	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 1,798.59
Sidewalks	Sidewalks	Concrete, East Side Wonham Street S-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 9,159.99
Sidewalks	Sidewalks	Concrete, West Side Wonham Street S-King Street W-Charles Street W	1957	59	60	2017	NULL	NULL	2017	Low	Almost Certain	High	$ 10,189.36
Roads	Road Surface - Collector Residential	FDR. - North Town Line W-Thames Street N-Oxford Avenue - 0 to 491	1999	17	18	2017	3	2014	2017	Medium	Highly Likely	High	$ 124,619.24
Roads	**Road Surface - Collector Residential**	**M & P - North Town Line E-Kensington Avenue-Mutual Street - 0 to 177**	**1957**	**59**	**12**	**1969**	**2**	**2014**	**2017**	**Medium**	**Highly Likely**	**High**	**$ 29,964.22**
Roads	Road Surface - Arterial	M & P - Charles Street W-Thames Street S-Oxford Street - 0 to 64	1992	24	12	2004	2	2014	2017	Medium	Highly Likely	High	$ 22,306.37
Roads	Road Surface - Arterial	M & P - Charles Street W-Oxford Street-Duke Street - 0 to 103	1989	27	12	2001	2	2014	2017	Medium	Highly Likely	High	$ 32,309.37
Roads	Road Surface - Arterial	M & P - Charles Street W-Duke Street-Boles Street - 0 to 212	1989	27	12	2001	2	2014	2017	Medium	Highly Likely	High	$ 52,778.45
Guard Rails	Guard Rails	Boles Street-Charles Street W-End, North end	1978	38	40	2018	NULL	NULL	2018	Medium	Almost Certain	Very High	$ 1,675.94
Guard Rails	Guard Rails	Mutual Street-Charles Street E-CPR Tracks, East Side north of Charles St. E	1978	38	40	2018	NULL	NULL	2018	Medium	Almost Certain	Very High	$ 17,832.66
Roads	Road Surface - Local Residential	M & P - George Street-Carnegie Street-Catherine Street - 0 to 91	1995	21	12	2007	2	2014	2018	Low	Likely	Low	$ 18,123.92
Bridges	Bridge Structure	Rehab - Wellington Street over Hall's Creek	1981	35	50	2031	3	2014	2019	Severe	Highly Likely	Very High	$ 145,196.64
Bridges	Bridge Structure	Rehab - Canterbury Street over Hall's Creek	1960	56	50	2010	3	2014	2019	Severe	Highly Likely	Very High	$ 141,505.20
Bridges	Bridge Structure	Rehab - Water Street over Hall's Creek	1994	22	50	2044	3	2014	2019	Severe	Highly Likely	Very High	$ 111,973.68
Bridges	Bridge Structure	Rehab - Mutual Street over Thames River	1982	34	50	2032	3	2014	2019	Severe	Highly Likely	Very High	$ 353,147.76
Guard Rails	Guard Rails	Benson Street-Frederick Street-King Street W, Frederick Street and Benson Street	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 8,601.36
Guard Rails	Guard Rails	Benson Street-Frederick Street-King Street W, East Side across from 136	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 9,005.77
Guard Rails	Guard Rails	Charles Street W-30 m. W of CPR Tracks-King Street W, N of King St/Whiting St intersection	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 4,716.75
Guard Rails	Guard Rails	Water Street-Charles Street E-King Street E, Water Street Parking Lot - South Side	1979	37	40	2019	NULL	NULL	2019	Medium	Highly Likely	High	$ 7,485.36
Bridges	Bridge Structure	Rehab - Carnegie Street over Henderson Creek	1992	24	50	2042	3	2015	2020	Severe	Highly Likely	Very High	$ 85,251.60
Bridges	Bridge Structure	Replace - Wonham Street S over Whiting Creek	1970	46	50	2020	4	2015	2020	Severe	Highly Likely	Very High	$ 353,185.20
Bridges	Bridge Structure	Rehab - Charles Street E over Hall's Creek	1970	46	50	2020	3	2015	2020	Severe	Highly Likely	Very High	$ 156,497.58
Roads	Road Curb	North Side - St. Andrew Street-Thames Street S-Mill Street(road allowance)	1960	56	60	2020	NULL	NULL	2020	Insignificant	Highly Likely	Moderate	$ 1,813.71
Roads	Road Curb	North Side - St. Andrew Street-Thames Street S-Mill Street(road allowance)	1960	56	60	2020	NULL	NULL	2020	Insignificant	Highly Likely	Moderate	$ 1,813.71
Sidewalks	Sidewalks	Concrete, South Side Martha Street-Hall Street-Tunis Street	1960	56	60	2020	NULL	NULL	2020	Low	Highly Likely	Moderate	$ -
Sidewalks	Sidewalks	Concrete, North Side St. Andrew Street-Thames Street S-Mill Street(road allowance)	1960	56	60	2020	NULL	NULL	2020	Low	Highly Likely	Moderate	$ 2,293.21
Sidewalks	Sidewalks	Concrete, South Side St. Andrew Street-Mill Street(road allowance)-Mutual Street	1960	56	60	2020	NULL	NULL	2020	Low	Highly Likely	Moderate	$ 5,267.31
Roads	Road Surface - Local Residential	FDR. - Earl Street-Ann Street-Frances Street - 0 to 150	1957	59	18	1975	2	2014	2020	Low	Unlikely	Low	$ 35,351.69
Retaining Walls	Retaining Walls	Smith's Pond Park - Gabion Blocks in Creek	1997	19	25	2022	NULL	NULL	2022	Low	Unlikely	Low	$ 24,250.50
Roads	Road Surface - Collector Residential	M & P - North Town Line E-George Street-Thames Street N - 0 to 284	1984	32	12	1996	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 70,703.21
Roads	Road Surface - Collector Residential	M & P - Mutual Street-CNR Tracks-King Solomon Street - 0 to 521	1984	32	12	1996	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 116,734.99
Roads	Road Surface - Arterial	M & P - Canterbury Street-Hall Street-Harris Street - 0 to 580	1996	20	12	2008	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 115,515.11
Roads	Road Surface - Arterial	M & P - Charles Street E-Water Street-Mill Street - 0 to 71.6	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 21,222.91

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Roads	Road Surface - Arterial	M & P - Charles Street E-Mill Street-Mutual Street - 0 to 101.75	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 33,437.14
Roads	Road Surface - Arterial	M & P - Charles Street E-Mutual Street-Carroll Street - 0 to 32	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 10,197.20
Roads	Road Surface - Arterial	M & P - Charles Street E-Carroll Street-Daniel Street - 0 to 176.6	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 45,724.07
Roads	Road Surface - Arterial	M & P - Charles Street E-Daniel Street-McCarthy Street - 0 to 176	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 45,568.72
Roads	Road Surface - Arterial	M & P - Charles Street E-McCarthy Street-Harris Street - 0 to 208.4	1987	29	12	1999	1	2014	2022	Medium	Almost Certainly Not	Very Low	$ 53,957.50
Roads	Road Surface - Arterial	Recon. - Charles Street W-30 m. W of CPR Tracks-King Street W - 0 to 315	2002	14	20	2022	1	2014	2022	Medium	Unlikely	Low	$ 293,670.45
Roads	Road Surface - Local Commercial Industrial	M & P - Janes Road-Pemberton Street-Mutual Street - 0 to 615	1999	17	12	2011	1	2014	2023	Low	Almost Certainly Not	Very Low	$ 99,519.75
Roads	Road Surface - Local Commercial Industrial	M & P - St. Andrew Street-Thames Street S-Mill Street(road allowance) - 0 to 120	1978	38	12	1990	1	2014	2023	Low	Almost Certainly Not	Very Low	$ 23,899.68
Roads	Road Surface - Local Commercial Industrial	M & P - St. Andrew Street-Mill Street(road allowance)-Mutual Street - 0 to 126	1978	38	12	1990	1	2014	2023	Low	Almost Certainly Not	Very Low	$ 25,094.66
Bridges	Bridge Structure	Replace - McKeand Street over Sutherland Creek	2004	12	50	2054	2	2014	2024	Severe	Likely	High	$ 430,668.00
Bridges	Bridge Structure	Replace - Charles Street W over Whiting Creek	1970	46	50	2020	2	2014	2024	Severe	Likely	High	$ 590,630.40
Bridges	Bridge Structure	Replace - Wonham Street S over Whiting Creek	2004	12	50	2054	2	2014	2024	Severe	Likely	High	$ 276,858.00
Bridges	Bridge Structure	Replace - Moulton Court over Murphy Creek	1994	22	50	2044	2	2014	2024	Severe	Likely	High	$ 984,384.00
Bridges	Bridge Structure	Replace - Victoria Street over Murphy Creek	1988	28	50	2038	2	2014	2024	Severe	Likely	High	$ 356,839.20
Bridges	Bridge Structure	Replace - King Street E over Hall's Creek	1990	26	50	2040	2	2014	2024	Severe	Likely	High	$ 1,255,089.60
Retaining Walls	Retaining Walls	Pisa Stone - 319 Bell Street	1974	42	50	2024	NULL	NULL	2024	Low	Likely	Low	$ 8,173.20
Sidewalks	Sidewalks	Concrete, Not Applicable Fergusson Avenue-Centre Street-Princess Park Road	1964	52	60	2024	NULL	NULL	2024	Low	Likely	Low	$ 4,979.53
Sidewalks	Sidewalks	Concrete, Not Applicable Centre Street-Concession Street-85m South of Concession St	1964	52	60	2024	NULL	NULL	2024	Low	Likely	Low	$ 2,243.43
Roads	Road Surface - Local Residential	M & P - Union Street-Victoria Street-Bell Street - 0 to 120	2004	12	12	2016	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 22,405.95
Roads	Road Surface - Local Residential	M & P - Benson Street-Frederick Street-King Street W - 0 to 170	1979	37	12	1991	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 25,393.41
Roads	Road Surface - Local Residential	M & P - Merritt Street-King Street W-Charles Street W - 0 to 155	1957	59	12	1969	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 27,011.61
Roads	Road Surface - Local Residential	M & P - Church Street-King Street W-Charles Street W - 0 to 145	1989	27	12	2001	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 23,824.99
Roads	Road Surface - Local Residential	M & P - Glenwood Road-Harris Street-End - 0 to 350	1974	42	12	1986	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 74,935.45
Roads	Road Surface - Local Residential	M & P - Hall Street-Canterbury Street-End - 0 to 105	1957	59	12	1969	1	2014	2024	Low	Almost Certainly Not	Very Low	$ 10,456.11
Bridges	Bridge Structure	Replace - George Street over Henderson Creek	1954	62	50	2004	2	2015	2025	Severe	Likely	High	$ 4,871,520.00
Bridges	Bridge Structure	Replace - Holcroft Street over Whiting Creek	1974	42	50	2024	2	2015	2025	Severe	Likely	High	$ 450,615.60
Retaining Walls	Retaining Walls	Concrete - 165 Whiting St	1975	41	50	2025	NULL	NULL	2025	Low	Almost Certain	High	$ 6,486.44
Roads	Road Surface - Collector Commercial Industrial	Recon. - Thomas Street-Whiting Street-Chisholm Drive - 0 to 200	2000	16	25	2025	1	2014	2025	Low	Unlikely	Low	$ 149,165.94
Roads	Road Surface - Collector Commercial Industrial	Recon. - Thomas Street-Chisholm Drive-Ingersoll Street S - 0 to 405	2000	16	25	2025	1	2014	2025	Low	Unlikely	Low	$ 264,303.40
Roads	Road Surface - Collector Residential	Recon. - Victoria Street-McKeand Street-Ingersoll Street N - 0 to 422	2000	16	25	2025	1	2014	2025	Medium	Unlikely	Low	$ 354,082.66
Roads	Road Surface - Collector Residential	Recon. - Victoria Street-Ingersoll Street N-Town Limits - 0 to 195	2000	16	25	2025	1	2014	2025	Medium	Unlikely	Low	$ 121,803.31
Roads	Road Surface - Collector Residential	Recon. - David Street-Proposed Street-Harris Street - 0 to 145	2000	16	25	2025	1	2014	2025	Medium	Unlikely	Low	$ 130,450.28
Roads	Road Surface - Collector Residential	Recon. - David Street-King Street E-Proposed Street - 0 to 305	2000	16	25	2025	1	2014	2025	Medium	Unlikely	Low	$ 274,395.42
Roads	Road Surface - Collector Residential	Recon. - Mutual Street-Charles Street E-CPR Tracks - 0 to 160	2000	16	25	2025	1	2014	2025	Medium	Unlikely	Low	$ 149,165.94
Roads	Road Surface - Arterial	Recon. - Charles Street E-Thames Street S-Water Street - 0 to 72	2005	11	20	2025	1	2014	2025	Medium	Almost Certainly Not	Very Low	$ 85,919.59

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Category	Asset Class	Asset Identifying Comments	Install Date	Age	Design Life	Design Life Replacement Year	condition	Condition Assessment Year	Replacement Year	Consequence of Failure	Probability of Failure	Risk	2014 Replacement Cost
Bridges	Bridge Structure	Replace - Thames Street S over Whiting Creek	1976	40	50	2026	2	2015	2026	Severe	Likely	High	$ 334,917.00
Bridges	Bridge Structure	Replace - Centennial Lane over Hall's Creek	1976	40	50	2026	2	2015	2026	Severe	Likely	High	$ 334,917.00
Roads	Road Curb	North Side - Fergusson Avenue-Centre Street-Princess Park Road	1966	50	60	2026	NULL	NULL	2026	Insignificant	Likely	Low	$ 12,242.53
Roads	Road Curb	North Side - Fergusson Avenue-Centre Street-Princess Park Road	1966	50	60	2026	NULL	NULL	2026	Insignificant	Likely	Low	$ 12,242.53
Roads	Road Curb	East Side - Wonham Street N-Bell Street-Victoria Street	1966	50	60	2026	NULL	NULL	2026	Insignificant	Likely	Low	$ 6,574.69
Roads	Road Curb	West Side - Wonham Street N-Bell Street-Victoria Street	1966	50	60	2026	NULL	NULL	2026	Insignificant	Likely	Low	$ 6,574.69
Sidewalks	Sidewalks	Concrete, West Side Wonham Street N-Bell Street-Victoria Street	1966	50	60	2026	NULL	NULL	2026	Low	Likely	Low	$ 8,168.62
Roads	Road Surface - Local Residential	Recon. - Moulton Court-North Town Line W-End - 0 to 361	1996	20	30	2026	1	2014	2026	Low	Unlikely	Low	$ 269,244.53
Roads	Road Surface - Local Residential	Recon. - Metcalfe Street-Mutual Street-King Solomon Street - 0 to 440	1996	20	30	2026	1	2014	2026	Low	Unlikely	Low	$ 328,165.07
Roads	Road Surface - Local Residential	Recon. - King Solomon Street-Mutual Street-Evelyn Avenue - 0 to 85	1996	20	30	2026	1	2014	2026	Low	Unlikely	Low	$ 71,319.97
Guard Rails	Guard Rails	Thompson Road-Ingersoll Street S-Town Limits, South Side	1987	29	40	2027	NULL	NULL	2027	Medium	Unlikely	Low	$ 43,040.14
Guard Rails	Guard Rails	Thompson Road-Ingersoll Street S-Town Limits, North Side	1987	29	40	2027	NULL	NULL	2027	Medium	Unlikely	Low	$ 38,331.72
Guard Rails	Guard Rails	King Solomon Street-Bruce Street-Florence Avenue, South side at Florence	1987	29	40	2027	NULL	NULL	2027	Medium	Unlikely	Low	$ 4,553.43
Roads	Road Surface - Collector Residential	FDR. - Pemberton Street-King Solomon Street-North Town Line E - 0 to 370	1992	24	18	2010	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 85,859.28
Roads	Road Surface - Collector Residential	FDR. - North Town Line W-McCreery Road-Town Limits - 0 to 496	1998	18	18	2016	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 125,888.28
Roads	Road Surface - Collector Residential	FDR. - Wonham Street S-Ann Street-King Street W - 0 to 355	1997	19	18	2015	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 102,973.13
Roads	Road Surface - Collector Residential	FDR. - King Street E-Harris Street-Town Limits - 0 to 641	1998	18	18	2016	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 192,904.21
Roads	Road Surface - Arterial	Recon. - Charles Street W-Boles Street-Merrit Street - 0 to 236	1989	27	20	2009	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 198,017.79
Roads	Road Surface - Arterial	Recon. - Charles Street W-Merritt Street-30 m. W of CPR Tracks - 0 to 60	1986	30	20	2006	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 53,699.74
Roads	Road Surface - Local Commercial Industrial	Recon. - Oxford Street-King Street W-Charles Street W - 0 to 176	1997	19	30	2027	1	2014	2027	Low	Unlikely	Low	$ 164,082.54
Roads	Road Surface - Arterial	Recon. - Thames Street N-Bell Street-Thames River - 0 to 300	2000	16	20	2020	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 251,717.53
Roads	Road Surface - Arterial	Recon. - Thames Street S-Thames River-CPR Tracks - 0 to 102	2000	16	20	2020	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 114,111.95
Roads	Road Surface - Arterial	Recon. - Thames Street S-CPR Tracks-Charles Street W - 0 to 170	2000	16	20	2020	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 221,884.34
Roads	Road Surface - Arterial	Recon. - Thames Street S-Charles Street W-King Street W - 0 to 185	2000	16	20	2020	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 234,563.44
Roads	Road Surface - Arterial	Recon. - Thames Street S-King Street W-Canterbury Street - 0 to 273	1996	20	20	2016	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 295,236.69
Roads	Road Surface - Arterial	Recon. - Charles Street W-Boles Street-Merrit Street - 0 to 236	1989	27	20	2009	1	2014	2027	Medium	Almost Certainly Not	Very Low	$ 198,017.79
Roads	Road Surface - Local Residential	Recon. - Concession Street-Wellington Street-Hall Street - 0 to 130	1997	19	30	2027	1	2014	2027	Low	Unlikely	Low	$ 112,713.52
Roads	Road Surface - Local Residential	Recon. - Hall Street-Canterbury Street-King Street E - 0 to 400	1997	19	30	2027	1	2014	2027	Low	Unlikely	Low	$ 238,665.51