Asset Management Plan

Espanola
ONTARIO CANADA

Town of Espanola

100 Tudhope Street

Phone: (705) 869-1540

Facsimile: (705) 869-0083

2015

Ensuring long-term financial sustainability by providing essential services that meet approved standards at minimum cost.

Contents

1.0 Executive Summary 6
Total Asset Condition Report: 7
2.0 Introduction 8
3.0 State of Local Infrastructure 10
3.1 Water System 11
Water System Inventory 11
Age Report: 11
Asset Condition: 11
Updating Information: 12
3.2 Wastewater System 12
Wastewater System Inventory 12
Age Report: 13
Asset Condition: 13
Updating Information: 14
3.3 Storm Sewer System 15
Storm Sewer System Inventory 15
Age Report: 15
Asset Condition: 15
Updating Information: 15
3.4 Transportation System 16
Transportation System Inventory 16
Age Report: 16
Asset Condition: 16
Updating Information: 17
3.5 Bridge & Culverts 18
Bridges & Culverts Inventory 18
Age Report: 18
Asset Condition: 18
Updating Information: 19
3.6 Buildings 19
Buildings Inventory 19

Age Report: 20
Asset Condition: 20
Updating Information: 21
3.7 Vehicles and Equipment 21
Inventory - Vehicles 21
Inventory - Equipment 21
Age Reports: 21
Asset Condition: 22
4.0 Expected Levels of Service 24
4.1 Water System 24
Water Distribution & Collection: Expected Levels of Service 24
4.2 Wastewater System 26
Wastewater Collection & Treatment: Expected Levels of Service 26
4.3 Storm Sewer System 27
Storm Sewer System: Expected Levels of Service 27
4.4 Transportation System 28
Transportation System: Expected Levels of Service 28
4.5 Bridges & Culverts 29
Bridges & Culverts: Expected Levels of Service 29
4.6 Buildings 30
Buildings Level of Service 30
4.7 Vehicles & Equipment 31
Level of Service 31
Vehicles & Equipment 31
5.0 Asset Management Strategy 32
5.1 Water System Management Strategy 32
Water System Lifecycle Schedule 32
Integrated Replacement 32
Rehabilitation & Replacement Criteria 32
Rehabilitation & Replacement Strategies 32
Maintenance Schedule/Life Cycle Costs 33
Lifecycle Consequences 33

Integrated Asset Priorities 33
5.2 Wastewater System 34
Wastewater System Lifecycle Schedule 34
Integrated Replacement 34
Rehabilitation & Replacement Criteria 34
Rehabilitation & Replacement Strategies 34
Maintenance Schedule/Life Cycle Costs 35
Lifecycle Consequences 35
Integrated Asset Priorities 35
5.3 Storm Sewer System 35
Storm Sewer System Lifecycle Schedule 35
Integrated Replacement 36
Rehabilitation & Replacement Criteria 36
Rehabilitation & Replacement Strategies 36
Maintenance Schedule/Life Cycle Costs 36
Lifecycle Consequences 36
Risk Report: 37
Integrated Asset Priorities 37
5.4 Transportation System 37
Transportation System Lifecycle Schedule 37
Integrated Replacement 38
Rehabilitation & Replacement Criteria 38
Rehabilitation & Replacement Strategies 38
Maintenance Schedule/Life Cycle Costs 38
Lifecycle Consequences 40
Integrated Asset Priorities 40
5.5 Bridges & Culverts 41
Bridges & Culverts Lifecycle Schedule 41
Integrated Replacement 41
Rehabilitation & Replacement Criteria 41
Rehabilitation & Replacement Strategies 41
Maintenance Schedule/Life Cycle Costs 41

Lifecycle Consequences 41
Integrated Asset Priorities 42
5.6 Buildings 42
Building Lifecycle Schedule 42
Building Component Life Spans 43
Integrated Replacement 43
Rehabilitation & Replacement Criteria 43
Rehabilitation & Replacement Strategies 43
Maintenance Schedule/Life Cycle Costs 44
Lifecycle Consequences 44
Risk Report: 45
Integrated Asset Priorities 45
5.7 Vehicles and Equipment 46
Lifecycle Schedule 46
Life Spans 46
Rehabilitation & Replacement Criteria 46
Rehabilitation & Replacement Strategies 46
Lifecycle Consequences 46
6.0 Financing Strategy 48
ANNUAL REQUIREMENTS: 48
DEBT FINANCING: 49
USER FEES: 49
RESERVES: 49
Moving Forward 49
APPENDIX A 0
APPENDIX B ..... **Error! Bookmark not defined.**
APPENDIX C 53

1.0 Executive Summary

Canadian municipalities are facing a crisis in maintaining and replacing the aging infrastructure that residents depend upon for quality of life and in some cases survival. Their critical infrastructure is aging, decaying and failing at a rate at which far surpasses the ability to rebuild in the current tax environment created by provincial and federal downloads and strict legislative requirements. Municipalities are struggling with the pressure and need to invest in aging and failing infrastructure.

Creative strategies will be needed to fund these investments in light of political restraint on tax increases and the past two decades of systematic downloading that has eroded the financial health of municipalities. Coupled with restrictive and costly legislative compliance demands in every functional area, the challenges are vast.

- The replacement cost per household is $61,709
- Reserves per household are $2,202
- Current debt levels per household are $3,374

The political climate is not receptive to tax increases. Industrial assessment has been systematically decreasing with a major shift to residential tax payers.

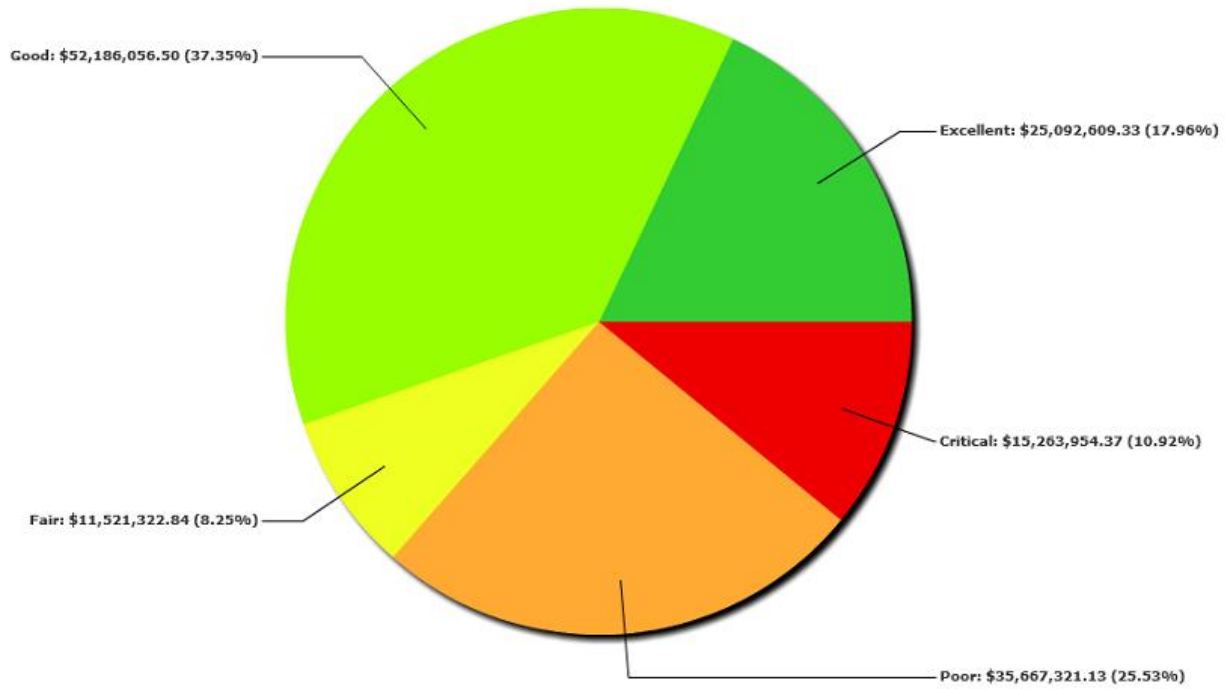
The analysis of the existing infrastructure demonstrates that 6.1% of the Town's fixed assets have surpassed their useful life and require costly repairs and rehabilitation efforts.

Asset Category:	***Total Number of Assets***	***% that have Surpassed Useful Life***	***# of Assets that have Surpassed Useful Life***	***Total Replacement Cost***
Water System	752	0%	0	$18,603,446
Wastewater System	970	0%	0	$18,601,923
Vehicles	27	10%	3[1]	$1,881,138
Storm Sewer System	1,937	0%	0	$10,886,637
Transportation Network	599	40.07%	240	$21,359,350
Signalized Intersections	4	0%	0	$478,275
Equipment	118	18%	23	$14,030,345
Bridges & Culverts	6	67%	4[2]	$2,199,199
Buildings	23	4.3%	1[3]	$50,990,951
Total Assets	**4,437**	**6.1%**	**271**	**$139,031,264**

[1] The vehicles with the expired service life are the 1984 Ford Rescue Van (replaced 2015), 2001 Ford F150 in the Recreation Department (replaced 2015) and a 1999 International Plow truck used in Winter Maintenance.
[2] Four culverts were determined to be beyond their useful lives based on a condition assessment in 2012. Two were replaced in 2015 with the remaining two to be included in the budget in 2016.
[3] The asset that has surpassed its useful life is the Municipal Office/Court House.

It is important to note that the largest portion of the assets that are beyond their useful lives are in the Transportation Network. This is a result of decreases in funding for the road network over the past several years and the lack of funds available through taxation levels.

Total Asset Condition Report:



Total Cost: $139,731,264

Assets with a replacement cost of $15,263,954 are currently rated as critical, which means they are at the end of their useful life or have been assessed as being at high risk of failure. This represents 11% of all assets. Many of these assets may outlast their expected life cycle with no indication of failure and will need to be monitored and assessed on a more frequent basis until these assets can be replaced. Of further concern are the 25.53% of assets with a replacement cost of $35,667,321 rated as poor which indicates these assets are in the last 5 years of their life cycle. Together these costs are $50,931,276 or $22,606 per household over the next 5 years. A challenge that is insurmountable without a planned maintenance and replacement system.

2.0 Introduction

In 2013, Espanola adopted a Strategic Plan which incorporates the Town's Strategic Goals. The first Strategic Goal is to improve and maintain our infrastructure because, "It is critical to the delivery of essential services that residents depend on daily. As stewards of the infrastructure we own, we must make proactive decisions on maintenance and replacement strategies for long-term asset management." The third Strategic Goal is to "pursue community confidence through a transparent and accountable municipal government focused on excellence by providing the highest level of service while continually seeking cost saving strategies."

The Asset Management Plan as presented in this report is a systematic process that allows for the maintenance, upgrading and the operating of our physical assets in a cost effective manner. The implementation of the Plan provides the Town with a decision making tool to analyze new demands and deliver fiscally responsible options in an environmentally sustainable framework that supports preserving our quality of life. In this way, it becomes a key component in the development of annual capital budgets by establishing the framework for optimizing infrastructure decisions among opposing priorities.

The Asset Management Plan aligns with all provisions of the Official Plan by ensuring essential infrastructure meets the requirements of expected demographic and new development demands. Effective land use planning provides a strong foundation for creating optimal infrastructure investment strategies to manage growth for a sustainable future.

Specific benefits associated with an Asset Management Plan are:

- Allows for better decision making regarding resource allocation;
- Leads to more effective communications with ratepayers, elected officials, financial rating organizations, and regulatory agencies;
- Provides Consistent levels of service to the public;
- Better management of risk to the municipality;
- Allows for more effective financial planning;
- Reduces lifecycle costs;
- Leads to more efficient data management;
- Facilitates the establishment and subsequent implementation of policy objectives and the related measurement of performance;
- Avoids problems and potential crises;
- Results in positive institutional change.

The Asset Management Plan includes the following infrastructure assets:

- Water System
- Wastewater System
- Storm Sewer System

- Transportation System
- Bridges & Culverts
- Buildings

Initially, the Plan will cover a 10-year period with the intent to expand the scope to cover the entire lifecycle of all assets. Annually, the actual results of Infrastructure decisions made throughout the year will be measured and evaluated against the plan. The results will be reported to Council and form the basis for revisions and updates to the plan going forward. The Plan is a general guide only and must be receptive to shifting priorities, trends and contingencies.

In early 2013 the Town met the Municipal Infrastructure Investment Initiative (MIII) Asset Management Program eligibility and used the funding to purchase asset management software provided through Public Sector Digest.

Citywide Tangible Assets is an industry leading TCA compliance and Asset Management module. This application provides municipalities with a complete asset registry for all asset types. All TCA financial reporting is easily handled through the default and custom reporting engines. Key asset management features include lifecycle planning, condition assessment, risk analysis, levels of service, and project prioritization.

Citywide CPA is a financial modeling application for asset management and lifecycle costing. The application enables public sector organizations to capture the data from their Tangible Capital Asset Inventory, and analyze and consolidate it, then develop unlimited scenarios in real-time, generating a series of options and long-term recommendations.

The plan has been updated to reflect the 2014 figures and will be updated in 2016 once the 2015 year end is complete.

3.0 State of Local Infrastructure

This section is supported by:

- An inventory database of infrastructure assets covered by the Plan, which include basic asset information (e.g. asset type/class, physical description, location, expected useful life, etc.) and information that will require regular updates (e.g. replacement cost, condition, performance, etc.);
- Records of all assumptions are to be incorporated into the asset inventory; and,
- A data verification policy and a condition assessment policy (see Appendix) that set out when and how asset information will be verified and when and how assets will be assessed to determine their condition.
- An amortization policy which uses a straight-line method of amortization designed to amortize the cost, less any residual value, of the tangible capital assets over their estimated useful lives as follows:

	Years
Buildings	40 - 50
Roads, bridges and culverts	15 - 70
Vehicles	5 - 25
Equipment	10 - 45
Water & Sewer infrastructure	< 75

Throughout this section the criteria used in condition reporting is:

Critical	Asset is at the end of its life cycle
Poor	< 20% of estimated useful life remaining
Fair	< 40% of estimated useful life remaining
Good	< 60% of estimated useful life remaining
Excellent	> 80% of estimated useful life remaining

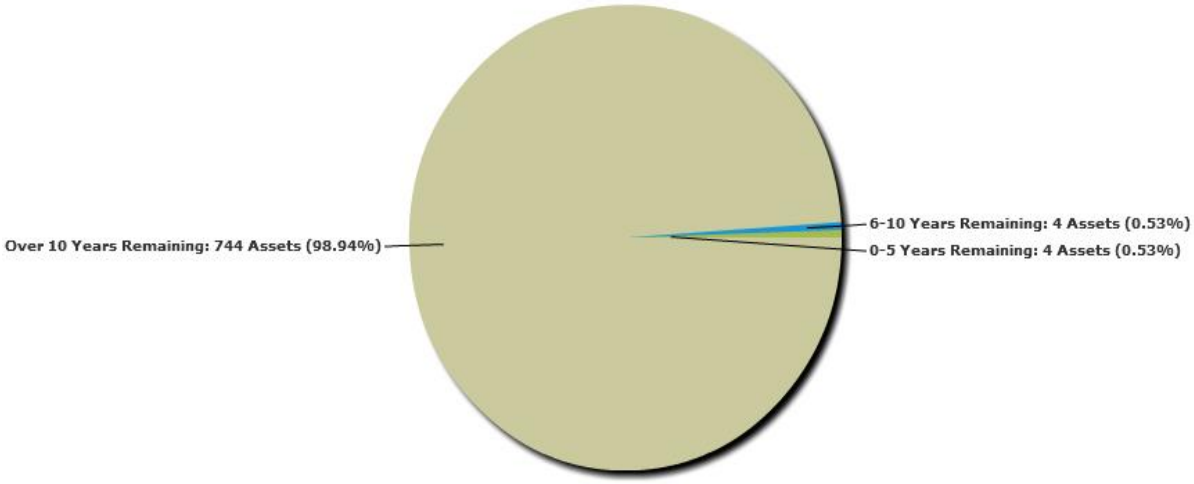
3.1 Water System

This section does not include Water Treatment Plant or Water Tower. They will be accounted for as Buildings.

Water System Inventory

Asset Type	Quantity / Extent	Replacement Cost 2014[4]
Waterlines	38.0142 km	$13,654,059
Hydrants	208 items	$1,173,993
Water Valves	297 items	$533,367
Water Services	19.62245 km or 1,912 items	$3,242,028
Total Water		$18,603,446

Age Report:



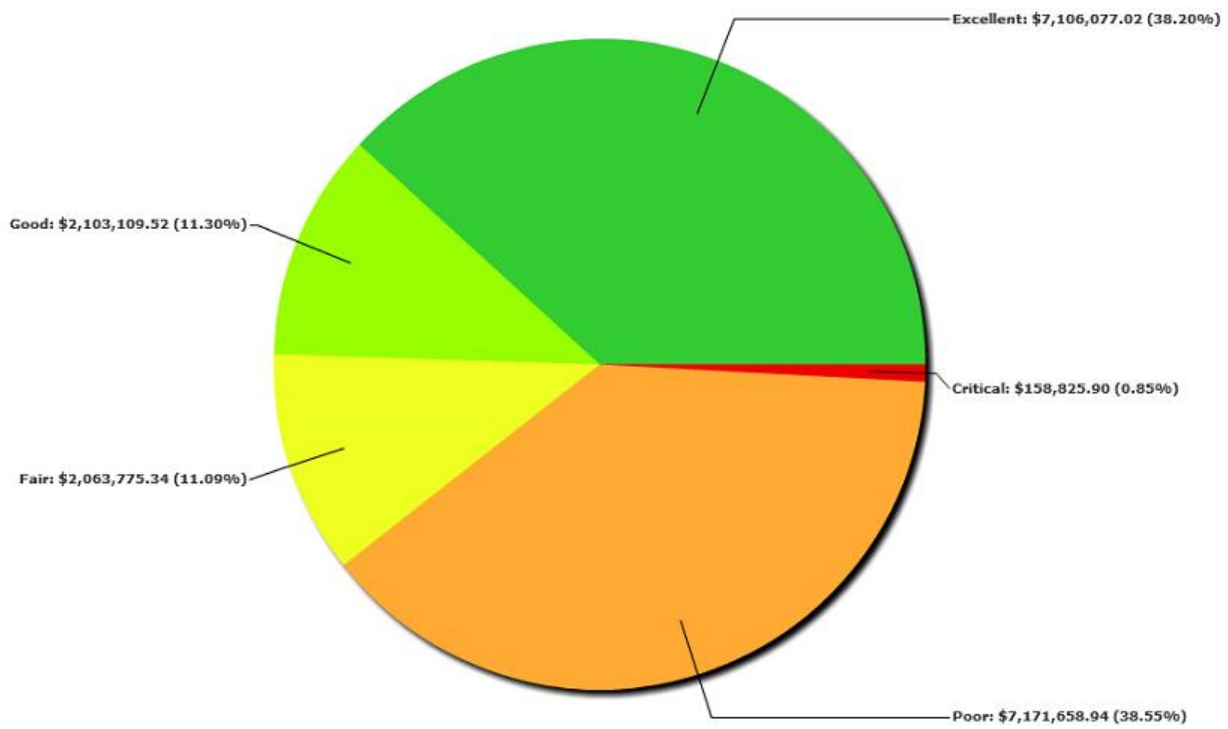
[5]

Asset Condition:

The initial Asset Management Plan will be based on the age of the asset and not on the condition because that information is unavailable. Condition of Water Assets will be entered into the system as information becomes available.

[4] "Replacement Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).

[5] Years remaining is based on an assets age and not based on the condition of the asset



[6]

Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis.

3.2 Wastewater System

This section does not include the Sewage Treatment Plant. It will be accounted for as a Building.

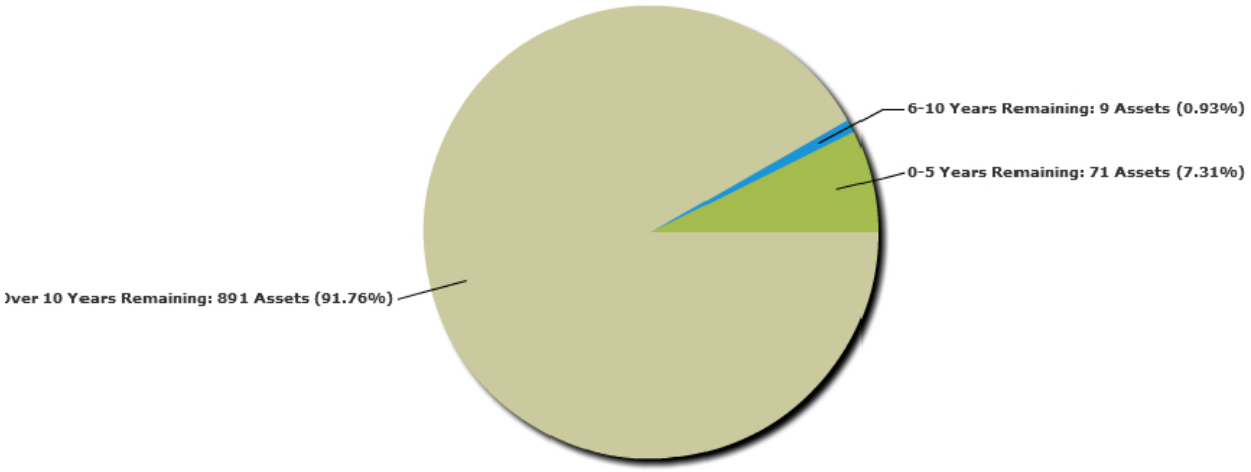
Wastewater System Inventory

Asset Type	Quantity / Extent	Replacement Cost 2014[7]
Manholes	411 items	$1,887,685
Sanitary Lines	36.24795 km	$10,805,633
Sanitary Services	19.56125 km or 1,862 items	$2,527,556
Pump Stations	4 Items	$3,381,049

[6] "Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).
[7] "Replacement Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).

Total Wastewater	**$18,601,923**

Age Report:

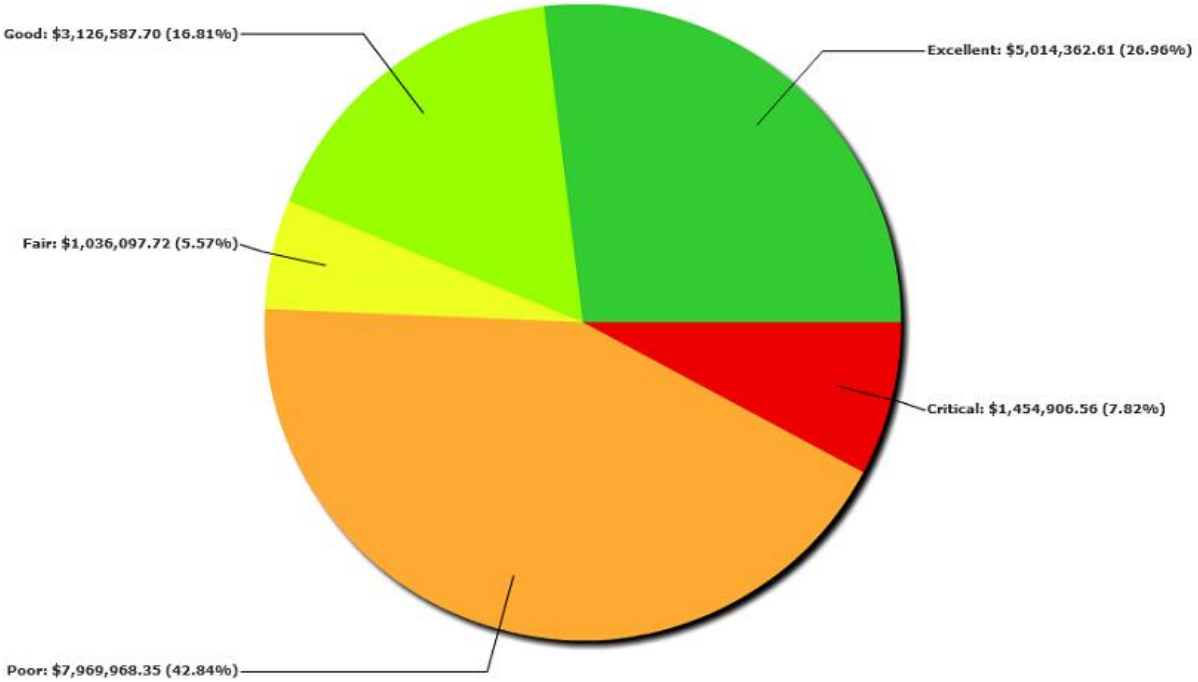


[8]

Asset Condition:

The initial Asset Management Plan will be based on the age of the asset and not on the condition because that information is unavailable. Condition of Wastewater Assets will be entered into the system as information becomes available.

[8] Years remaining is based on an assets age and not based on the condition of the asset



[9]

Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis.

[9] "Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life). Areas that are coming due to be replaced are (based on age alone): from Hwy 6 to Avery Drive (through the school yard); Read Street; Burk Street; and some sections of Spruce.

3.3 Storm Sewer System

Storm Sewer System Inventory

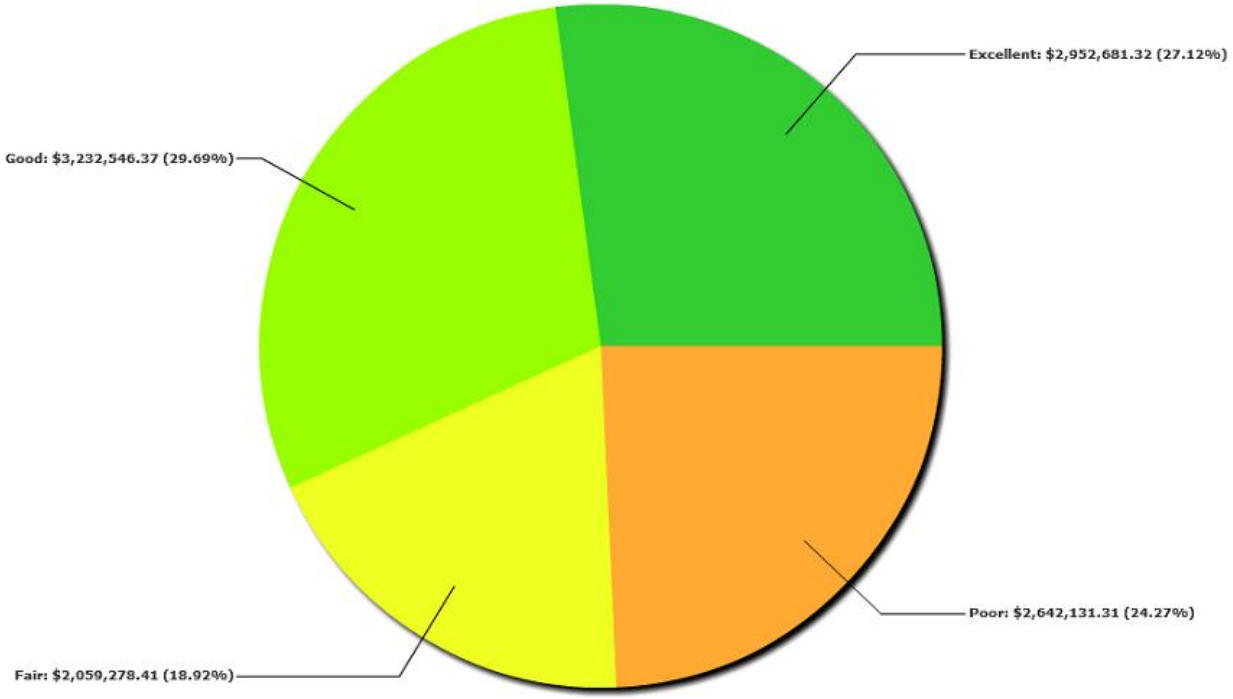
Asset Type	Quantity / Extent	Replacement Cost 2014[10]
Catch Basins	708 items	$1,383,863
Manholes	252 items	$916,913
Storm Lines	29.92665 km	$8,491,403
Drainage & Ditching	3 items	$94,458
Total Storm		**$10,886,637**

Age Report:

All Storm Sewer Assets have over 10 years of useful life remaining. [11]

Asset Condition:

The initial Asset Management Plan will be based on the age of the asset and not on the condition because that information is unavailable. Condition of Storm Assets will be entered into the system as information becomes available.



Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis.

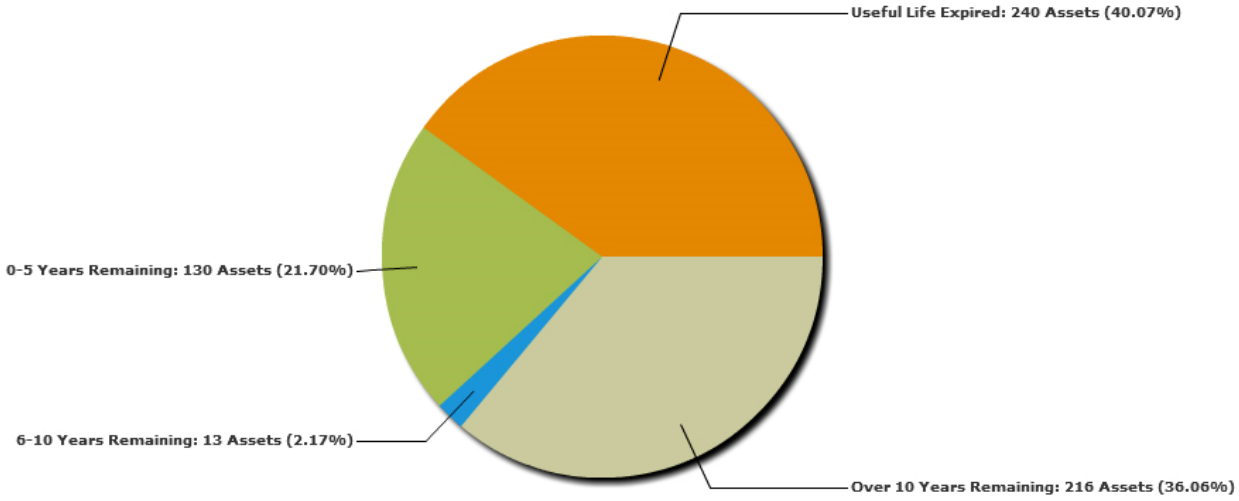
[10] "Replacement Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).
[11] Years remaining is based on an assets age and not based on the condition of the asset

3.4 Transportation System

Transportation System Inventory

Asset Type	Quantity / Extent	Replacement Cost 2014[12]
Curbs	30.40535 km	$2,490,910
Sidewalks	29.36919 km	$3,865,634
Roads Paved	65.4 km	$13,282,869
Roads Unpaved	16.824 km	$1,719,937
Total Transportation System		**$21,359,350**

Age Report:



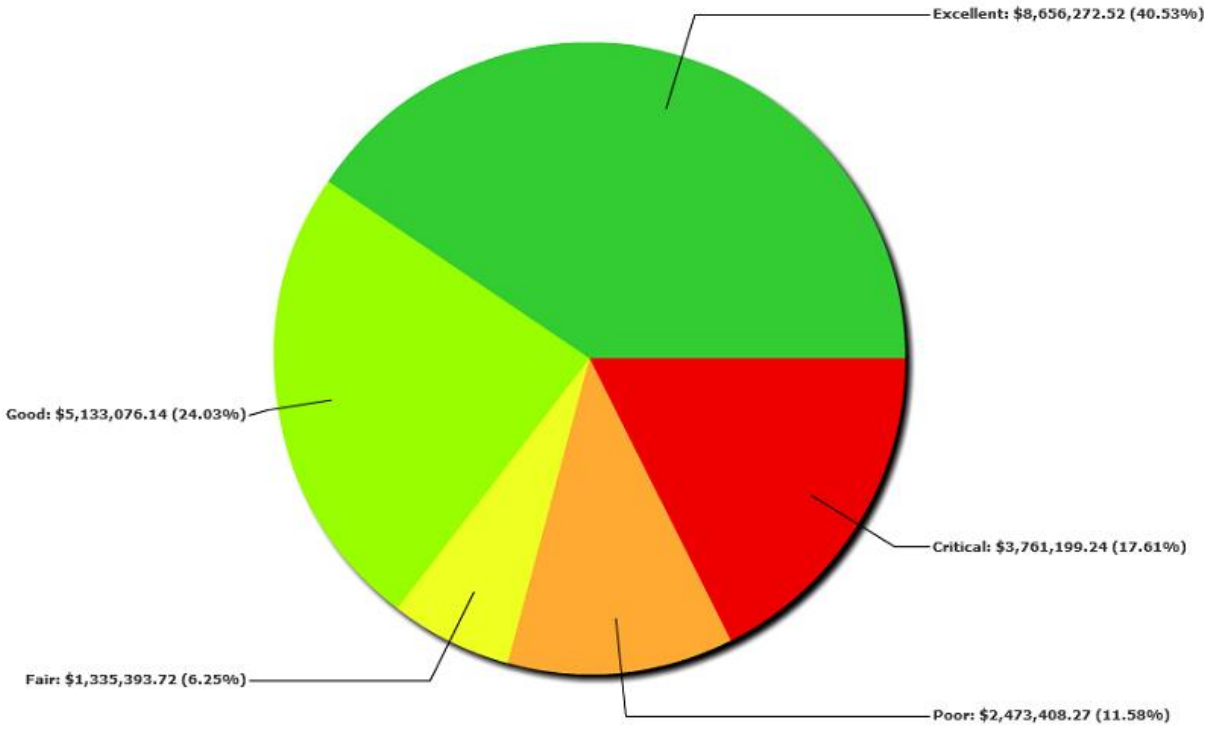
[13]

Asset Condition:

The initial Asset Management Plan will be based on the age for all assets (except for Roads – Paved) because the condition information is unavailable for those assets. Condition of Transportation Assets will be entered into the system as information becomes available.

The condition analysis for all Roads – Paved will be once every two calendar years, with the inspection taking place not more than 28 months from the previous inspection. The condition will be based using the Pavement Condition Index (PCI).

[12] "Replacement Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).
[13] Years remaining is based on an assets age and not based on the condition of the asset



[14]

The Pavement Condition Index was last taken in 2012, these will be updated in 2016 and it is expected that even a greater percentage of roads will fall in the critical category as there has not been a significant amount invested.

The following analysis of assets with a condition rating of Critical or Poor indicates that 11% of the assets in these categories are dedicated connecting link related assets. Although the estimated replacement cost used indicates a cost of $1,931,422 preliminary estimates suggests this is low and the actual cost is over $3 million.

	Curbs	Sidewalks	Asphalt & Hard Surfacing	Total
Connecting Link Highway 6	$469,379	$585,963	$876,080	$1,931,422
All other roads	$1,042,355	$1,289,113	$1,971,718	$4,303,186
Total				**$6,234,608**

Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis by the person(s) who is/are maintaining the Capital Asset Inventory.

[14] "Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life).

3.5 Bridge & Culverts

Bridges & Culverts Inventory

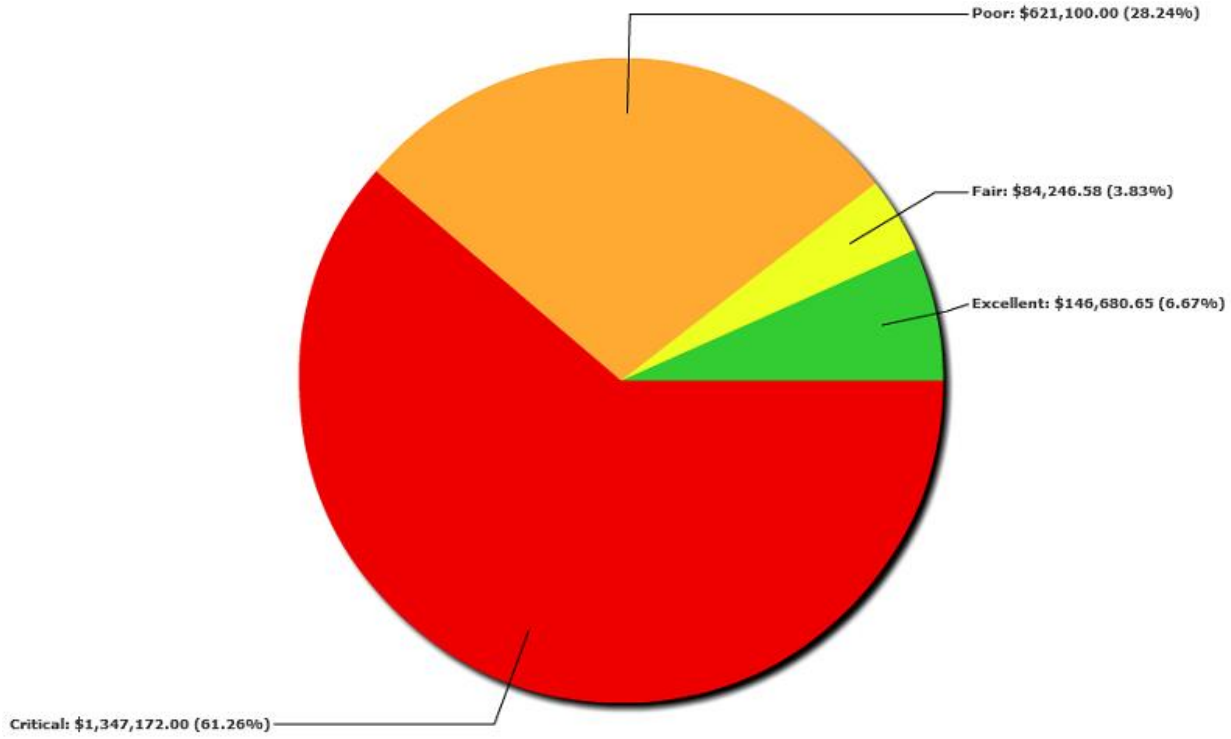
Asset Type	Quantity / Extent	Replacement Cost 2014[15]
Bridge	1 item	$84,246
Culverts	5 items	$2,114,952[16]
Total Bridges & Culverts		**$2,199,199**

Age Report:

The Bridge located at Black Creek on Panage Lake Road has over 10 years of useful life remaining. The dates of installation of the culverts are unknown.

Asset Condition:

The condition assessment of the bridge is taken from the "Black Creek Bridge Inspection" completed by EXP Services Inc. in 2012. The Public Transportation and Highway Improvement Act require all municipal bridges be inspected every two years under the direction of a professional engineering using the Ministry's OSIM.



17

[15] "Replacement Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life). The replacement cost valuation for the Culverts are based on the "Municipal Culvert Inspection 2012" completed by EXP Services Inc.

[16] The estimated cost of the Black Creek Culvert/Highway Project is $1,347,172.

The condition assessments of the culverts are taken from the "Municipal Culvert Inspection 2012" completed by EXP Services Inc.

Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis by the person(s) who are maintaining the Capital Asset Inventory.

3.6 Buildings

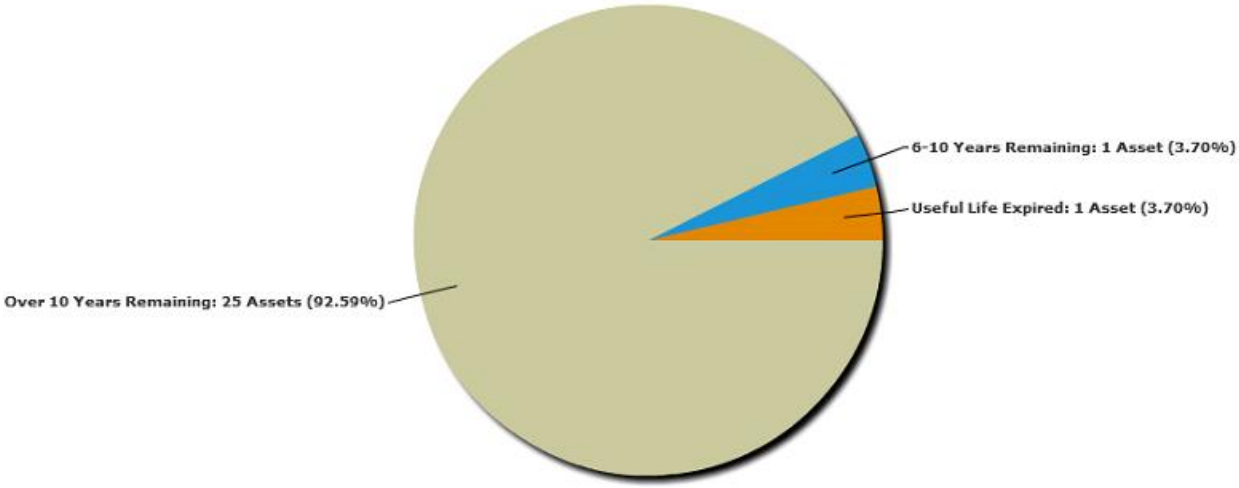
Buildings Inventory

Asset Type	Includes	Replacement Cost 2014[18]
General Government	Town Office Community Resource Building	$5,039,841
Protective Services	Fire Station Police Station	$4,925,728
Transportation	Office & Garage Recycle Building Sand Dome Storage Shed (Pipefitter) Storage Shed (Boat) Cold Storage Shed #1 Cold Storage Shed #2 Cold Storage Shed #3 Storage Shed (Salt)	$4,564,543
Health Services	Cemetery Vault	$65,000
Recreation & Cultural Services	Recreation Facility Recreation Storage Building Library Ball Field Canteen Ball Field Pavilion	$14,062,295
Water Treatment Plant	1 item	$10,000,002
Water Tower	1 item	$2,333,542
Sewage Treatment Plant	1 item	$10,000,000
Total Buildings	**23 items**	**$50,990,951**

[17] "Cost" is the inflated historical cost of the asset to date (not inflated cost at end of life) unless an estimated cost of replacing is known.

[18] The "Replacement Cost" of all buildings is an estimate, excluding the Ball Field Canteen and Pavilion which is based on inflated historical cost of construction. The assumed estimated replacement cost of the Water Treatment Plant and the Sewage Treatment Plant are $10,000,000.

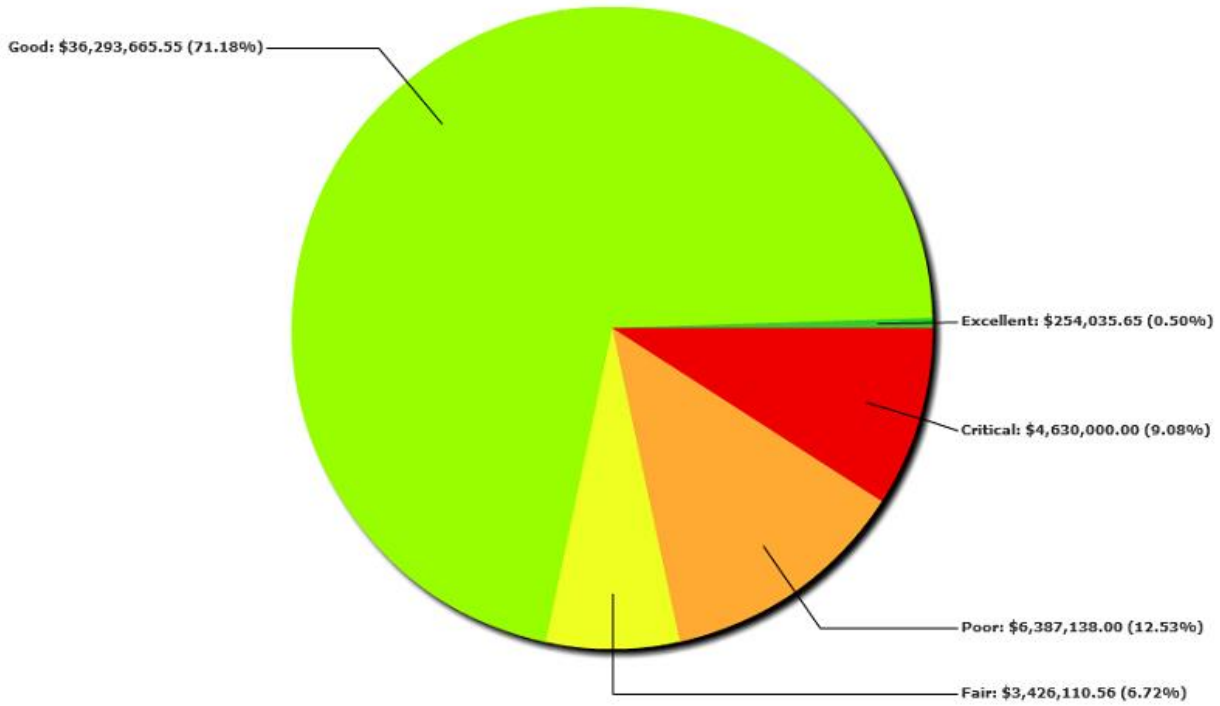
Age Report:



[19]

Asset Condition:

The initial Asset Management Plan will be based on the age of the asset and not on the condition because that information is unavailable. Building condition in future years will be determined by the Building Department and will be entered into the system as information becomes available.



[19] Years remaining is based on an assets age and not based on the condition of the asset. There are 27 assets in the list and only 23 buildings as upgrades were recorded as an individual items.

Updating Information:

Information regarding the characteristics, value and condition of assets will be updated on a regular basis.

3.7 Vehicles and Equipment

Inventory - Vehicles

Department	Quantity	Replacement Cost
By-law	1 item	$30,613
Fire	4[20] items	$621,982
Police	6[21] items	$186,711
Public Works	10 items	$480,272
Care Van	1 item	$65,326
Recreation	1 item	$22,587
Storm Sewer	1 item	$143,377
Winter Control	3 items	$330,270
	27	**$1,881,138**

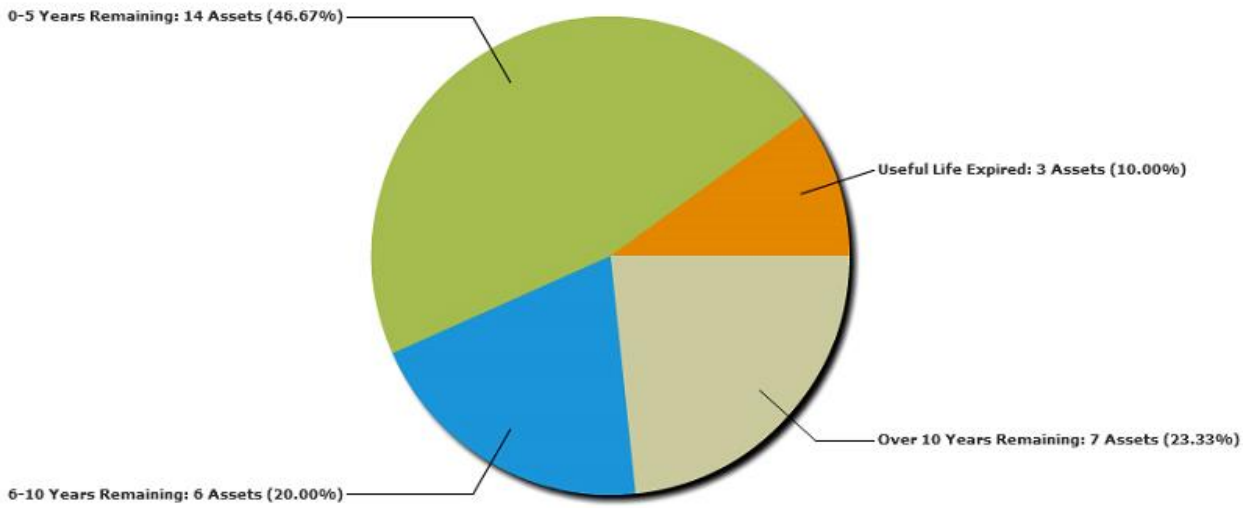
Inventory - Equipment

Department	Quantity	Replacement Cost
Cemetery	1 item	$49,004
Protection Services	2 items	$126,320
Economic Development	1 item	$42,889
Public Works	8 items	$846,455
Recreation	10 items	$3,778,252
Roads – Unpaved	2 items	$42,015
Storm System	2 items	$26,500
Wastewater Treatment	38 items	$4,429,099
Water Distribution	1 items	$118,615
Water Treatment	49 items	$4,186,724
Winter Control	4 items	$384,472
	118	**$14,030,345**

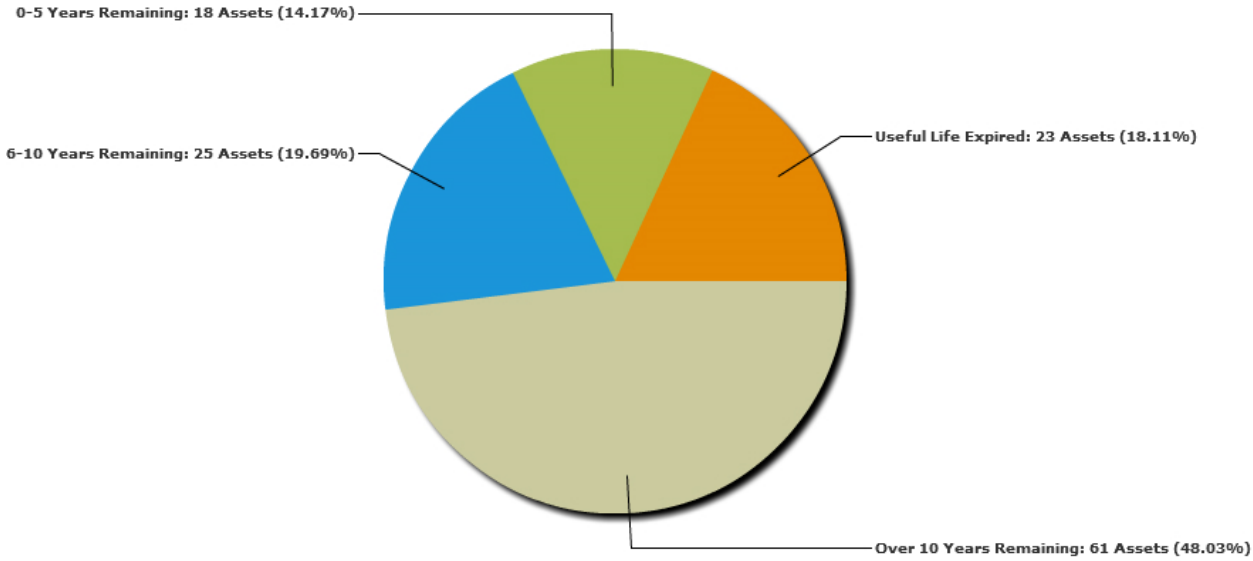
Age Reports:

Vehicles:

[20] The 1984 Rescue Van was disposed of in 2015, subsequent to the year-end for reporting purposes.
[21] Includes 2 snowmobiles.

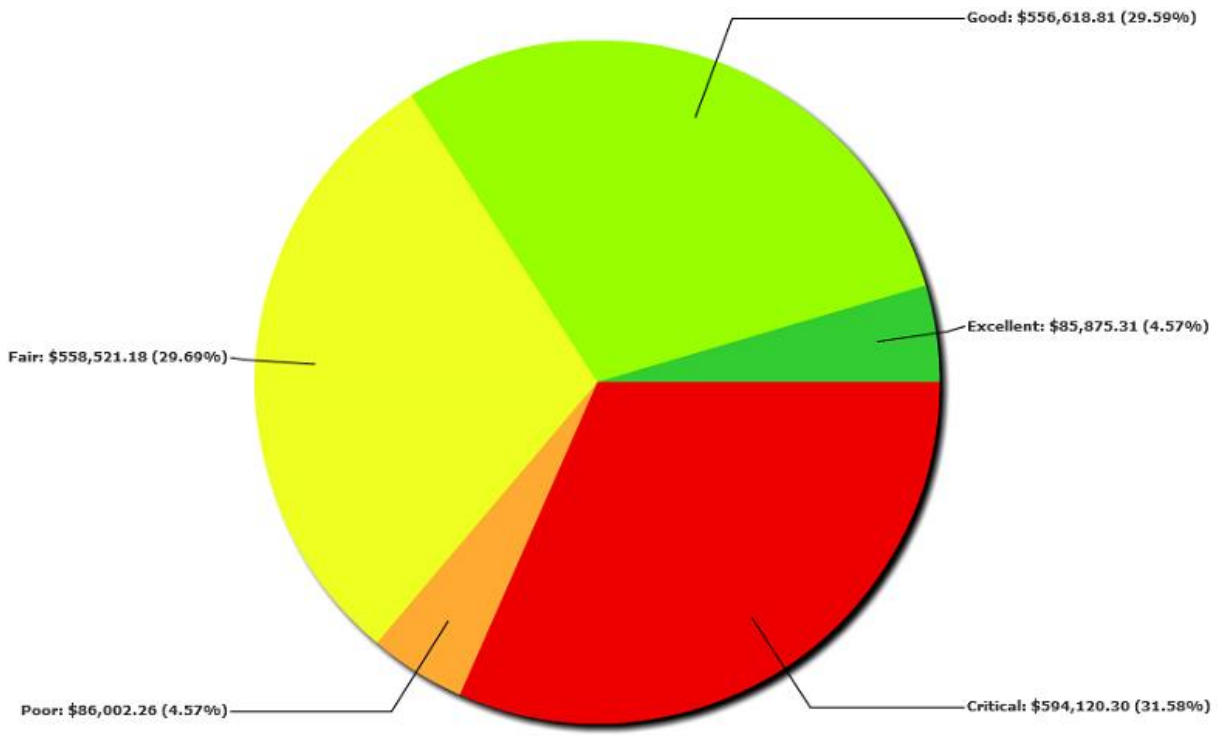


Equipment:

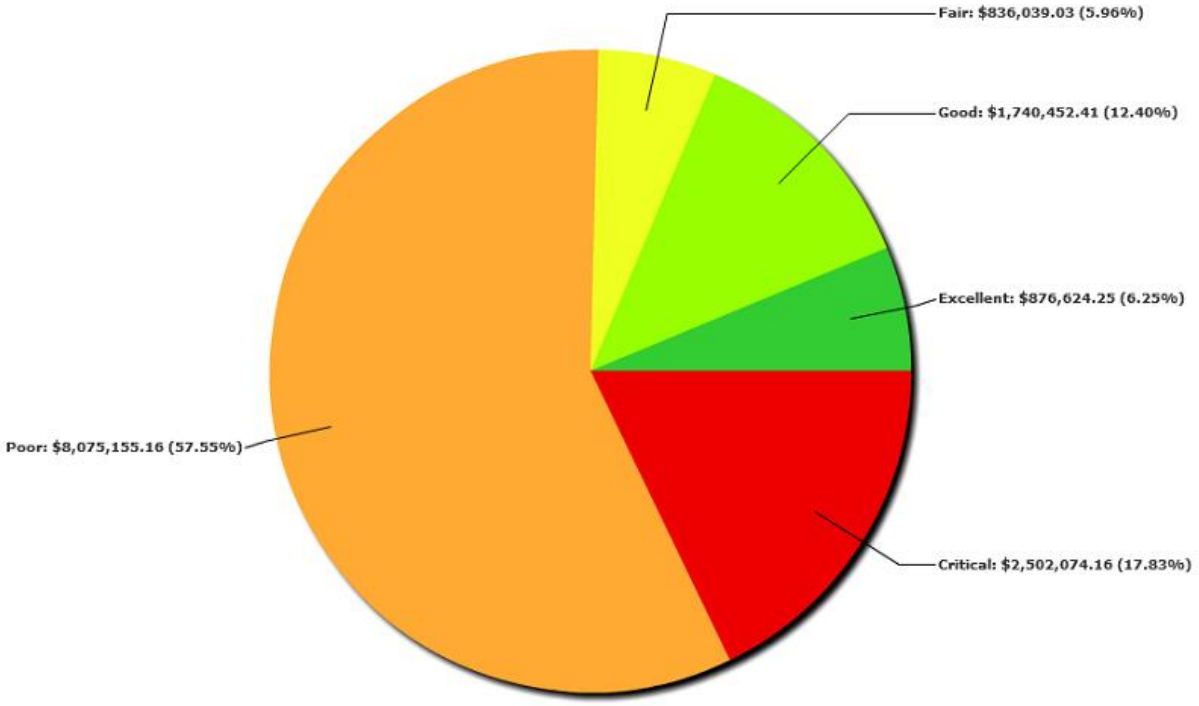


Asset Condition:

Vehicles:


Good: $556,618.81 (29.59%)
Excellent: $85,875.31 (4.57%)
Fair: $558,521.18 (29.69%)
Poor: $86,002.26 (4.57%)
Critical: $594,120.30 (31.58%)

Equipment:


Fair: $836,039.03 (5.96%)
Good: $1,740,452.41 (12.40%)
Excellent: $876,624.25 (6.25%)
Poor: $8,075,155.16 (57.55%)
Critical: $2,502,074.16 (17.83%)

4.0 Expected Levels of Service

Desired levels of service support the organization's strategic goals and are based on customer expectations, statutory requirements, standards and the financial capacity to deliver those levels of service.

Key performance measures have been identified for each service level as outlined below.

4.1 Water System

Water Distribution & Collection: Expected Levels of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Boil Water Advisories: Weighted number of days when a boil water advisory issued by the Medical Officer of Health, applicable to a municipal water supply, was in effect = (# of boil water days x the # of connections affected)/Total connections in the service area [MPMP]	6.6% is acceptable	2014 Performance = 11% This appearance of poor performance is the result of construction activities and our own municipal policy of how we deal with said activities. The municipality places itself on a boil water advisory in the immediate area of a water main break or construction hook up. Since O. Regulation 170/03 has been in effect the municipality has not had a municipal wide boil water advisory placed on the community by the Ministry of Health.
Water Main Breaks: Number of water main breaks per 100 km of water distribution pipe in a year = # of water main breaks in a year / (total km of water distribution pipe/100) [MPMP]	5% or 2 main breaks per year are acceptable	2014 Performance = 1 Breaks or 2.57/100km of main The municipality repairs main breaks as they occur. Due to our aging infrastructure we can expect up to 2 main breaks per year. As the water distribution system is upgraded to PVC it is anticipated that this number will decrease.
Repair Times For Water Main Breaks	Water main breaks will be repaired within 16 hours of initiation of repair 95% of the time	Once the department is made aware of a water main break resources are allocated to secure the site and protect the public. Emergency locates are requested (takes approximately 4 hours) then the repair is completed. Time lines may be effected by:

		1. Time of year (frost in the ground) 2. High water table 3. Insufficient repair material 4. Location and other physical challenges like nearby infrastructure
Maintenance Costs	A 15% fluctuation in amount budgeted per year is acceptable[22]	2014 Performance = R&M 11% over budget of $151,850 Water distribution has many of the following as a fixed cost: 1. Swabbing 15% of the system/year 2. Hydrant flushing 100% of the system/year 3. Hydrant inspection, winterizing and marking Current level of service also includes the following cyclical maintenance events: 1. Water tower inspection every 3 years with deficiencies address in subsequent years 2. Water tower painting every 10 years (recommended AWWA standard)
Customer Complaints	Investigated and responded to in the same day	There were 14 complaints related to water in 2013, down from 16 in 2012. Due to the potential for serious health concerns, water complaints are investigated and responded to in the same day.
The Meeting of all Regulatory Requirements	100% of the time	We currently meet the regulatory requirements 100% of the time.

[22] The value is set at 15% to account for water main breaks that will have a huge impact on the budget with the cost of asphalt repair being the highest portion. In addition, there are maintenance events that are cyclical. See level of service.

4.2 Wastewater System

Wastewater Collection & Treatment: Expected Levels of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Wastewater Main Backups: Number of wastewater main backups per 100 km of wastewater main in a year = total # of backed up wastewater mains/(total km of wastewater mains/100) [MPMP]	1 backup/year or a performance rating of 2.75 is acceptable	2014 Performance: 4 Backups/36.345km of collection/100 = 11 In 2013, 2 backups or 5.5 per 100km, in 2012 it was 8.25, however all years are below the targeted level of service. This is indicative of the overall condition of the infrastructure and demonstrates the need for replacement of aging pipes.
Wastewater Bypasses Treatment: % of wastewater estimated to have by-passed treatment = Estimated mega litres of untreated wastewater/ (total mega litres of treated wastewater + estimated mega litres of untreated wastewater) [MPMP]	0 wastewater bypasses/year is acceptable	2014 Performance = 18/1208.7 mega litres of water treated This was the first bypass in three years and was the result of significant amounts of rainfall as has been noted in the past (2-3 occurrences.) There is concern with climate change that this could happen more frequently if not incorporated into future planning. The plant is designed to handle normal operational load.
Wastewater Maintenance Costs	A 15% fluctuation in amount budgeted per year is acceptable[23]	2014 Maintenance Cost = 6% over budgeted $76,400 Current level of service includes: 1. Weekly checks for problematic areas 2. Flush collection system once per year 3. Repair manhole structures & lids Attend to complaints ASAP to assist in trouble shooting the problem and mitigating potential liability
Customer Complaints	Investigated and responded to as soon as physically possible	There were 19 complaints in 2013, the same number as 2012. Due to the potential for serious health concerns, sewer complaints are investigated and responded to as soon as physically possible (includes after office hours).
The Meeting of all Regulatory Requirements	100% of the time	We currently meet the regulatory requirements 100% of the time. Wastewater Treatment is handled by a third party. Operators are certified and subject to yearly MOE inspections. Wastewater Collection is handled by the Public Works Department. Operators are certified. Currently there are no inspections for

[23] The value is set at 15% to account for capital expenditures at the Sewage Treatment Plant and the number of service lines being repaired every year.

		compliance.

4.3 Storm Sewer System

Storm Sewer System: Expected Levels of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Number and Duration of Street Flooding Incidents	1-2 incidents per year is acceptable	No known incidents for 2014 Street flooding is relatively new to the municipality and is the result of climate change. We are receiving more significant rain volumes for a short duration exceeding the capacity of storm sewers.
Storm Sewer Maintenance Costs	A 15% fluctuation in amount budgeted per year is acceptable[24]	2014 Cost = $81,481 a 10% variance over budget Current levels of service: 1. There are no immediate plans for storm sewer upgrades or extensions. 2. Repair as many catch basin structures as we can every year (20-30 structures/year). This reflects an approximate loss of 20-30 catch basin structures per year 3. Flush storm lines once every 2 years. 20-30% of storm lines are flushed per year 4. Shouldering is completed 2-3 times per year to mitigate ponding in gravel shoulders

[24] The value is set at 15% to account for maintenance and repairs done to the system every year.

4.4 Transportation System

Transportation System: Expected Levels of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Adequacy of Roads: Percentage of paved lane km where the condition is rated as good to very good = # of paved lane km where the condition is rated as good to very good / total # of paved lane km [MPMP]	Having 50% of our paved roads rated good to very good is acceptable.	2014 – 64.56% of paved roads are rated good to very good[25]
Effective Snow and Ice Control for Winter Roads =# of winter events where the response met or exceeded locally determined municipal service levels for road maintenance / total # of winter events [MPMP]	The Town has to meet/exceed the locally determined municipal service levels for road maintenance 100% of the time. Residents expect to have their roads plowed when they get up for work.	In 2014, there were a total of 51 winter events, each of which the town met or exceeded locally determined municipal service levels for road maintenance. The Town uses the Minimum Maintenance Standards (MMS) as its Winter Control Policy. Hours of operation that restrict operator driving time to 13 hours can make following the MMS a challenge and is based on the duration of the winter event and the volume of snow.
% of Sidewalks rated as good to very good	100% of sidewalks rated good to very good is acceptable	As per MMS sidewalks are inspected once per year. Deficiencies are noted and repaired. Only a portion of the sidewalks are maintained in the winter months. Sidewalks were identified and approved by council. Winter maintenance on sidewalks is maintained to the same level of service as the road.[26]
Maintenance Costs	A 7.5% fluctuation in amount budgeted per year is acceptable	2014 Maintenance costs – under budget by 4% Road upgrades/improvements have been the result of upgrades to the water distribution system. It is expected that future upgrades to the road network will be coordinated with other system upgrades like water/sewer The department spends approximately $14,000 on crack sealing per year to preserve asset life Pot holes are repaired using hot-mix asphalt. This type of repair is an improvement over cold patch which is considered a short term

[25] A PCI index of 70-100 was used to classify a road as good to very good.
[26] An example of which is a sidewalk on a Class 4 road will be cleared of snow and sanded within the same allotted time frame for a Class 4 road.

		solution. Some deficiencies require spot patching i.e. road sections are removed and replaced.
Customer Complaints	Complaints will be investigated and dealt with depending on the severity of the issue. [27]	A complaint is investigated through a site inspection. It is assessed and if warranted the complaint is prioritized and responded between immediate to within 5 business days.

4.5 Bridges & Culverts

Bridges & Culverts: Expected Levels of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Adequacy of Bridges: # of Structures where the condition of primary components is rated as good to very good, requiring only repair/ Total # of bridges [MPMP]	100% of bridges rated good to very good is acceptable	Black Creek Bridge rated good to very good. Bridges are to be inspected by a professional engineer once every 2 years (as per legislation)
Customer Complaints	Complaints will be investigated and dealt with depending on the severity of the issue.	A complaint is investigated through a site inspection. It is assessed and if warranted the complaint is prioritized and responded between immediate to within 5 business days.

[27] An example of which is, a car accident with an oil spill on the road demands an immediate response. A pot hole, is defined under the MMS has its own response time and could take a number of days before it is repaired.

4.6 Buildings

Buildings Level of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Accessibility of building: The Accessibility Act states municipally owned buildings have to be accessible by 2025	100% of municipally owned buildings will be accessible by 2025 All new buildings will be accessible	The Recreation Complex, Police Building and the Library are accessible. The Town Hall will be accessible by early 2015.
Energy Efficiency	All new buildings to comply to minimum requirements of the Ontario Building Code	Future buildings to comply.
Customer Complaints	Complaints will be investigated and dealt with depending on the severity of the issue.	A complaint is investigated through a site inspection. It is assessed and if warranted the complaint is prioritized and responded to as required.

4.7 Vehicles & Equipment

Level of Service

Performance Measure / Targets / Timeframes	***Expected Level of Service***	***Current Level of Service***
Vehicles & Equipment		
Percentage of fleet replacement value spent on operations and maintenance	Less than 10%	Expenditures of $232,404 represent 9.9% of the total replacement value of "rolling stock", this is within expectations
Average age of fleet vehicles	7.5 years plus or minus 1 year	8 years is within expectations
Average age of equipment	15 years plus or minus 2 years	14 years 11 months is within expectations

Vehicles are amortized over their useful lives of 5 – 20 years, depending on their usage, the majority of vehicles are 10 years or less where fire trucks are at the 20 year life span, therefore an average of 7.5 was assumed as appropriate.

5.0 Asset Management Strategy

5.1 Water System Management Strategy

Water System Lifecycle Schedule

Activity	***Definition***	***Asset Age***
Minor Maintenance	Planned activities such as inspections, monitoring, cleaning and flushing. Hydrant flushing, pressure tests, visual inspections, preventive maintenance, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities are generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget. These would include such events as repairing water main breaks, repairing valves, replacing individual sections of pipe, etc.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the system so that it can continue to provide service for an additional time period. In water systems, the basic activities considered as the rehabilitation events are the lining of cast and ductile iron pipes	50-75% of Asset Life
Replacement	Assets will reach the end of their structural and/or service useful life and require replacement. Experience in other communities has shown that the expected life of an asset will vary greatly, depending upon a number of environmental factors.	75-100% of Asset Life

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Water assets may be integrated with road resurfacing, road reconstruction work and other utilities such as wastewater, hydro, telephone, natural gas and cable. It may also be a standalone replacement with a trench cut and repair if the road surface, wastewater, and/or storm sewer are not due to be replaced and the water assets are required to be replaced.

Rehabilitation & Replacement Criteria

The criteria for prioritizing the replacement schedule for water mains are the break history of the pipe, age of pipe, material type of pipe, size of pipe, soil conditions surrounding the pipe, pressure related issues and hydrant spacing. The road rehab program may bump up the replacement of a pipe segment if replacement is scheduled in the near future. The replacement criteria is difficult to define but studying break histories and failure trends can determine when maintenance costs are increasing at a high enough rate that economically it makes sense to simply replace or rehab the pipe.

Rehabilitation & Replacement Strategies

The driving force of recent capital investment has been to upgrade the water system to meet fire code standards. Waterman rehabilitation will be based on the current condition of the pipe because it is difficult to determine the condition since it is buried. For this reason, the replacement strategy to date

has been based on the age/size and material type of pipe and integrated with road projects. There are numerous methods of rehabilitation for water mains such as complete replacement, cleaning and re-lining and potential pipe bursting.

Maintenance Schedule/Life Cycle Costs

- Main Breaks are repaired as they occur (approximately 2 per year) the cost of which varies depending on the diameter of pipe, the location and other physical challenges, the time of the year and other unforeseen issues.
- At least 20% of the water distribution system is swabbed per year. In 2013 the cost of swabbing was $3.25/m (though the length of pipes swabbed varies year to year) with a total cost of $14,950. The average amount of metres swabbed per year is 5 kilometres.
- All hydrants are flushed every year.
- The water tower is inspected once every 3 years with deficiencies addressed in subsequent years. The cost of the Espanola Upgrades and Inspection Report was completed in 2015 and identified the need for relining of the water tower in 2016.
- The water tower should be painted every 10 years.

Lifecycle Consequences

Catastrophic failures can occur at undetermined and unexpected times. Some pipe material with 100 year life expectancies are in need of replacement after 30 years whereas some 100 year old pipe can be simply maintained or rehabilitated to gain +50 years of additional service life.

Risk Report:

Consequence of Failure (High)					
5	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
4	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
3	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
2	14 Assets 2,326 m $2,245,820.18	2 Assets 1,516 m $500,957.91	No Assets - N/A	No Assets - N/A	No Assets - N/A
1	402 Assets 8,460.6 units, m $4,860,256.84	85 Assets 3,999.4 m, units $1,602,151.61	72 Assets 5,586.6 m, units $2,063,775.34	169 Assets 18,058.6 m, units $7,171,658.94	8 Assets 484 m, units $158,825.90
Low	1	2	3	4	5 (High)

Probability of Failure

Integrated Asset Priorities

Replacement is a high priority where fire protection, water quality and disrupted service can result in water loss and collateral damage. Some problem areas are less of a priority and disruption to service and repairing the mains is tolerable. Waterman replacement is usually coordinated across multiple

assets. Other utilities such as wastewater, hydro, telephone, gas and cable may be integrated into the work as well. Often road rehabilitation projects help to accelerate the project priority.

5.2 Wastewater System

Wastewater System Lifecycle Schedule

Activity	***Definition***	***Asset Age***
Minor Maintenance	Planned activities such as inspections such as Zoom Camera and CCTV inspections, monitoring, cleaning and flushing, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities are generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget. These would include such events as repairing manholes and replacing localized sections of pipe, etc.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the system so that it can continue to provide service for an additional time period. Unlike the water network, there are many viable rehabilitation options that can be applied to sewer mains, which will, in effect, increase the asset's useful life by an additional 75-100 years, if they are applied at the right point in the life-cycle.	50-75% of Asset Life
Replacement	Some assets will reach the end of their structural and/or service useful life and require replacement. Experience has shown that the expected life of an asset will vary greatly, depending upon a number of environmental factors: however, by gathering data from the use of Zoom Camera and CCTV inspection, a better understanding can be gained of the performance of these assets.	75-100% of Asset Life

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Wastewater assets may be integrated with road resurfacing, road reconstruction work and other utilities such as water, hydro, telephone, natural gas and cable. It may also be a standalone replacement with a trench cut and repair if the road surface, water, and/or storm sewer are not due to be replaced and the wastewater assets are required to be replaced.

Rehabilitation & Replacement Criteria

The criteria for prioritizing the replacement schedule for sanitary sewers are based upon an assessment through a CCTV inspection. The camera work will allow staff to rate the condition of the infrastructure. Other factors affecting the criteria will include localized collapses, material type, upsizing requirements as well as the coordination with the roads replacement program.

Rehabilitation & Replacement Strategies

Sanitary sewer rehabilitation will be based on the current condition of the pipe. It is difficult to determine the condition since it is buried and the Town may use videotaping to determine condition. When the pipe has been inspected and given a condition rating, town staff can determine the best method or rehabilitation. Replacement will be the most common method for collapsed or heavily deteriorating pipe. Other methods include Cured in Place Pipe (CIPP), spot repairs and joint sealing.

Maintenance Schedule/Life Cycle Costs

- Weekly checks for problematic areas is approximately 10% of the annual sanitary budget
- Manhole repairs is approximately 15% of the annual sanitary budget
- Inspecting and repairing sewer backups is approximately 5% of the annual sanitary budget
- 100% of the sanitary collection system is flushed per year. 70% of the annual sanitary budget goes towards the annual flushing program.

Lifecycle Consequences

Sanitary sewers will deteriorate in much the same manner as storm sewers although the consequences of failure for sanitary sewers are usually much more significant. The structural deterioration can result in infiltration of groundwater into the sewer that results in an accumulation of debris and sediment therefore lessening the amount of wastewater that can flow. Another big consequence of groundwater infiltration is the added volume of sewage to be treated at the wastewater treatment plant which results in added costs. As with any buried infrastructure, maintenance and rehabilitation are the keys to the longevity of the system.

Risk Report:

Consequence of Failure (High)					
5	1 Asset 1 units $1,130,969.59	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
4	No Assets - N/A	1 Asset 1 units $1,065,002.57	No Assets - N/A	No Assets - N/A	No Assets - N/A
3	1 Asset 720 m $487,010.67	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
2	2 Assets 2 units $307,690.32	2 Assets 2 units $549,663.60	No Assets - N/A	1 Asset 1 units $1,007,977.30	No Assets - N/A
1 (Low)	168 Assets 4,006.15 units, m $3,088,692.03	124 Assets 145 units, m $1,511,921.53	88 Assets 293.4 units, m $1,036,097.72	503 Assets 1,214.05 units, m $6,961,991.05	80 Assets 390.5 units, m $1,454,906.56
Probability of Failure	1	2	3	4	5 (High)

Integrated Asset Priorities

A deteriorated sanitary sewer is replaced or rehabilitated depending on the condition. Should replacement be the method used, then other assets such as sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as hydro, telephone, natural gas and cable may be integrated into the work as well. Often road rehabilitation projects help to dictate the project priority.

5.3 Storm Sewer System

Storm Sewer System Lifecycle Schedule

Activity	*Definition*	*Asset Age*

Minor Maintenance	Planned activities such as inspections, monitoring, cleaning and flushing, visual inspections, preventative maintenance, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities are generally unplanned; however, they can be anticipated and would generally be accounted for within the Town's annual operating budget. These would include such events as repairing, replacing localized sections of pipe, etc.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the system so that it can continue to provide service for an additional time period	50-75% of Asset Life
Replacement	Some assets will reach the end of their structural and/or service useful life and require replacement. Experience has shown that the expected life of an asset will vary greatly, depending upon a number of environmental factors; however, by gathering data from the use of Zoom Camera and CCTV inspection, a better understanding can be gained of the performance of these assets.	75-100% of Asset Life

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Storm sewer assets may be integrated with road resurfacing, road reconstruction work and other utilities such as water, hydro, telephone, natural gas and cable. It may also be a standalone replacement with a trench cut and repair.

Rehabilitation & Replacement Criteria

The criteria for prioritizing the replacement schedule for storm sewers are based upon an assessment through a CCTV inspection. The camera work will allow staff to rate the condition of the infrastructure. Other factors affecting the criteria will include localized collapses, material type, upsizing requirements as well as the coordination with the roads replacement program. Climate change has also increased the frequency and intensity of storms creating potential storm water management issues in the future.

Rehabilitation & Replacement Strategies

Storm sewer rehabilitation will be based on the current condition of the pipe. It is difficult to determine the condition since it is buried and the Town may use videotaping to determine condition. When the pipe has been inspected and given a condition rating, town staff can determine the best method or rehabilitation. Replacement will be the most common method for collapsed or heavily deteriorating pipe.

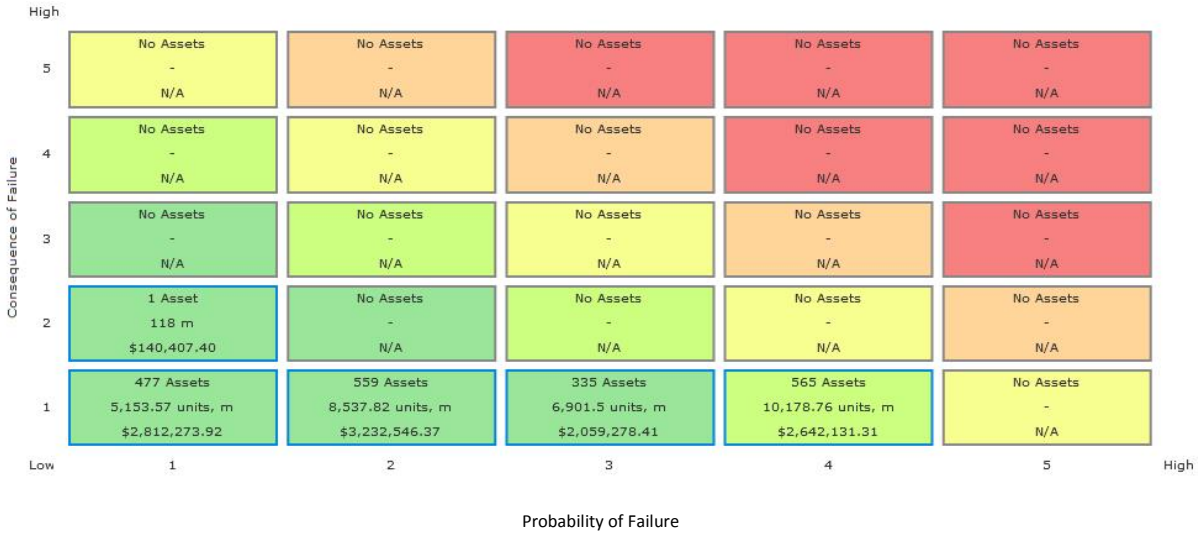
Maintenance Schedule/Life Cycle Costs

- There are no immediate plans for storm sewer upgrades or extensions.
- The Town repairs approximately 20-30 catch basin structures per year.
- The storm collection system is flushed once every 2 years (20-30% of system per year).
- Shouldering is completed 2-3 times per year to mitigate ponding in gravel shoulders.

Lifecycle Consequences

Storm sewers will deteriorate in much the same manner as sanitary sewers although the consequences of failure for storm sewers are not usually as significant as those of a sanitary system. The structural deterioration can result in infiltration of groundwater into the sewer that results in an accumulation of debris and sediment therefore lessening the amount of water that can flow. As with any buried infrastructure, maintenance and rehabilitation are the keys to the longevity of the system.

Risk Report:



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 sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as hydro, telephone, natural gas and cable may be integrated into the work as well. Often road rehabilitation projects help to dictate the project priority.

5.4 Transportation System

Transportation System Lifecycle Schedule

Activity	***Definition***	***Asset Age***
Minor Maintenance	Planned activities such as inspections, pavement crack sealing, street sweeping, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities, generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget. These would include such events as pothole repair, cold patching etc.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the system so that it can continue to provide service for an additional time period. Cost-effective pavement management planning identifies rehabilitation to the pavement surface so no pavement condition is every below a PCI of 40-55 depending on the road class	50-75% of Asset Life
Replacement	Some assets will reach the end of their structural and/or service useful life and require replacement. Experience in other communities has shown that the expected life of an asset will vary greatly depending upon a number of environmental factors	75-100% of Asset Life

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Transportation assets will be integrated with buried assets located under the surface such as water, sanitary sewer, storm sewer, hydro, telephone, natural gas and cable.

Rehabilitation & Replacement Criteria

Pavement Condition Index (PCI) is a pavement condition rating between zero and 100 which measures defects in the pavement. A PCI equal to 100 is new pavement and a PCI equal to zero is pavement that is impassable.

Condition Based Maintenance Paved Road

Condition: Time of Improvement	Paved Roads (PCI)
Excellent	>80
Good: 6 – 10 years	70 – 80
Fair: 1 – 5 years	65 – 70
Poor: Rehabilitate Now	46 – 65
Critical: Reconstruct Now	<45

Rehabilitation & Replacement Strategies

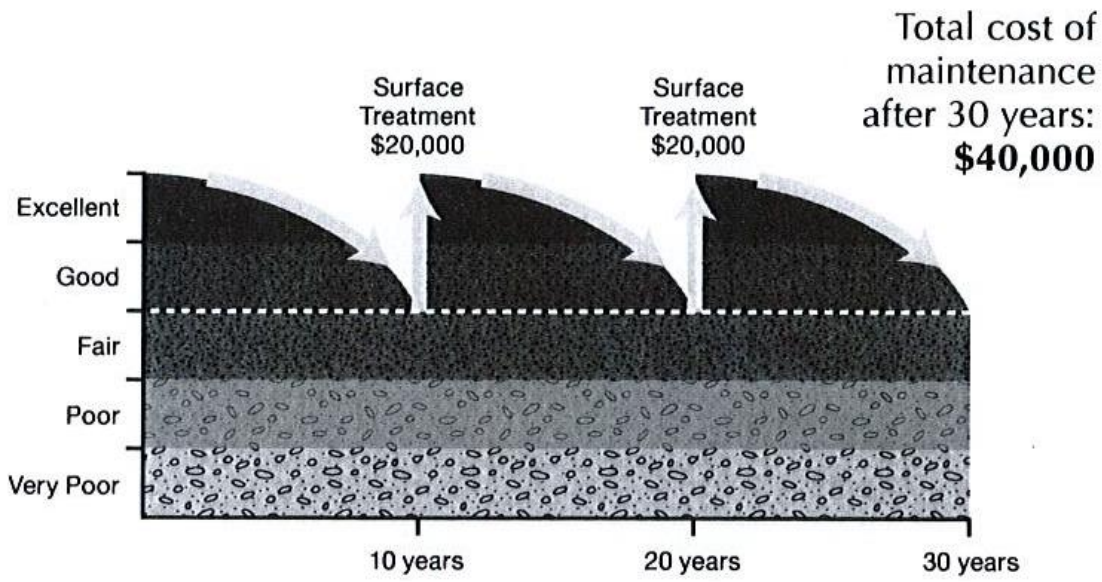
Based on the PCI index, road classification and benefit/cost ratio one of the following rehabilitation strategies is selected:

Maintenance Schedule/Life Cycle Costs

- Recent road upgrades/improvements have been the result of upgrades to the water distribution system.
- The Town spends approximately $14,000 on crack sealing per year to preserve asset life.
- Pot holes are repaired using hot-mix asphalt. This type of repair is an improvement over cold patch which is considered a short term solution.

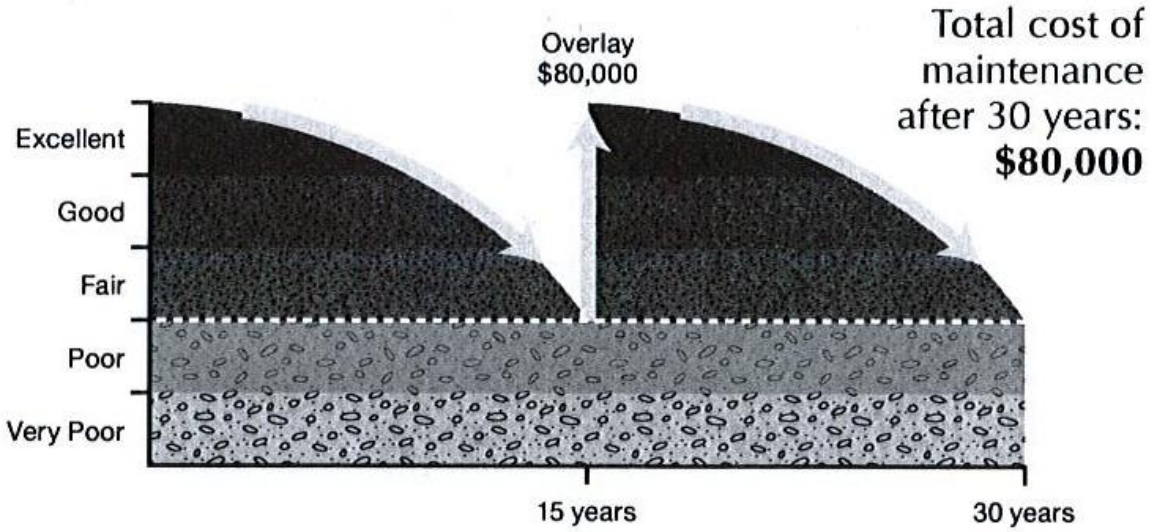
Proactive Method

Our management approach would be to use a proactive method. Instead of waiting for the pavement to reach poor condition, treatments are applied at the right time. These proactive treatments are more minor than those shown in the reactive approach (see below). In the example shown below the proactive approach has a cost of $40,000 of the 30 years with a condition ranging from excellent to fair.



Source: "Pavement Management: A Guide for Local Officials (Delaware) p. 2-16

A reactive approach would be to wait until the road asset fails and requires a major renewal such as overlay. In the example shown below a reactive approach would cost $80,000 over a 30 year useful life and the condition of the asset would range from excellent to poor.



Source: "Pavement Management: A Guide for Local Officials (Delaware) p. 2-16

This example shows that by managing the road in a proactive way by reducing overall costs with improved level of service.

- The total cost of maintenance over the 30 year period is reduced by 50%
- The overall condition was improved over the 30 year period

Lifecycle Consequences

Under funding pavement rehabilitation results in more pavement surfaces falling below a PCI of 60 and results in escalating construction costs. Pavement falling below a PCI of 25 affects level of service, and increases risk and liabilities.

Risk Report:

Consequence of Failure (High)					
5	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
4	1 Asset 3,365.4 m2 $527,793.12	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
3	1 Asset 2,018.25 m2 $298,632.90	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
2	9 Assets 53,116.64 m2 $1,569,678.39	1 Asset 2,622.5 m2 $132,238.36	No Assets - N/A	No Assets - N/A	No Assets - N/A
1	199 Assets 174,149.59 m2, m $6,260,168.11	116 Assets 272,041.954 m2, m $5,000,837.78	38 Assets 51,919.988584 m2, m $1,335,393.72	65 Assets 110,416.55 m2, m $2,473,408.27	169 Assets 67,935.91 m2, m $3,761,199.24
Low	1	2	3	4	5 (High)

Probability of Failure

Integrated Asset Priorities

The pavement rehabilitation forecast will be compared to the water, wastewater and storm sewer forecasts. The integration of projects occurs internally within the Public Works Department and externally with engineering firms, hydro, natural gas and telephone utilities. In general a pavement rehabilitation project drives the replacement of underground water and sewer infrastructure if the infrastructure is near the end of its life cycle.

5.5 Bridges & Culverts

Bridges & Culverts Lifecycle Schedule

Activity	*Definition*	*Asset Age*
Minor Maintenance	Planned activities such as inspections, monitoring, cleaning culverts, bridge joint cleaning, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities, generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget. These would include such events as bridge bearing maintenance, etc.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the system so that it can continue to provide service for an additional time period.	50-75% of Asset Life
Replacement	Some assets will reach the end of their structural and/or service useful life and require replacement. Experience in other communities has shown that the expected life of an asset will vary greatly depending upon a number of environmental factors.	75-100% of Asset Life

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Bridges may be integrated with road resurfacing or road widening projects however they are generally not integrated with other infrastructure. Culverts are usually integrated with other transportation infrastructure projects but may also be a standalone replacement with a trench cut and repair.

Rehabilitation & Replacement Criteria

The bridge is inspected bi-annually where all of its components are evaluated and tested providing severity and extent of deterioration and overall condition is rated. The inspection report recommends what rehabilitation or maintenance has to be performed on the bridge (with recommended timelines) to extend/maintain the expected useful life of the asset. The culverts were inspected in 2012 by EXP Services Inc. and their replacement timing and cost valuation can be found in the "Municipal Culvert Inspection 2012."

Rehabilitation & Replacement Strategies

Bridge rehabilitation or replacement is based on the age and assumed life span of the bridge and the results of the condition survey. The priority of the replacement of the culverts will be based on various criteria such as: class of road, PCI of road, surface type of road, how many people the road services, road side environment etc.

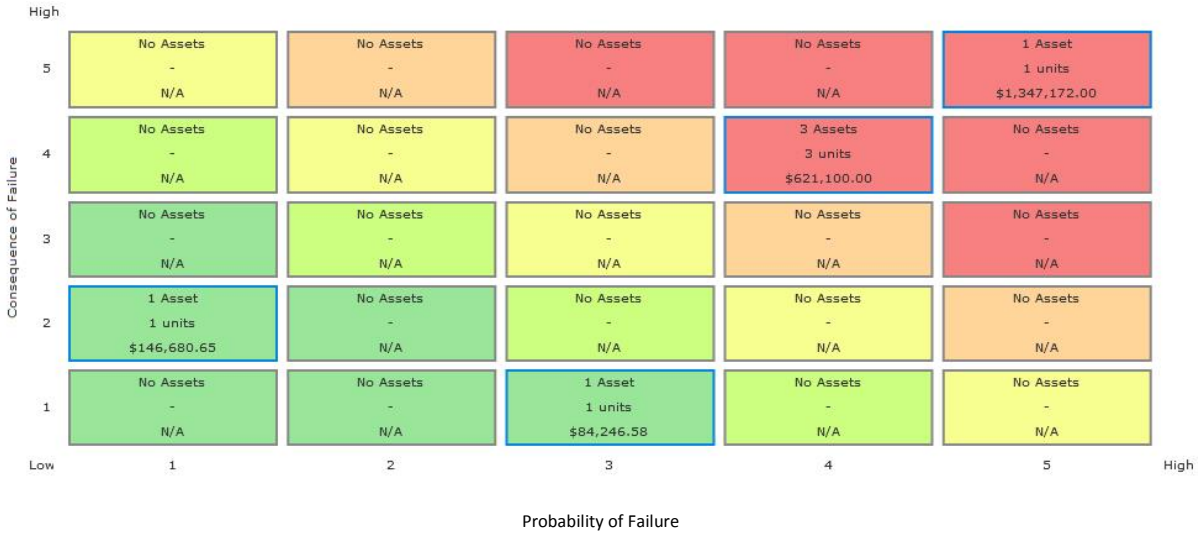
Maintenance Schedule/Life Cycle Costs

- Bridges have to be inspected by a professional engineer once every 2 years as per legislation.

Lifecycle Consequences

Bridge and culvert life cycles will be reduced, level of service is lowered and safety can be compromised.

Risk Report:



Integrated Asset Priorities

A deteriorated culvert is replaced or rehabilitated depending on the condition. Should replacement be the method used, then other assets such as sidewalks, road trench cuts or full pavement may become part of the project. Other utilities such as hydro, telephone, natural gas and cable may be integrated into the work as well. Often road rehabilitation projects help to dictate the project priority.

5.6 Buildings

Building Lifecycle Schedule

Activity	***Definition***	***Asset Age***

Minor Maintenance	Planned activities such as monitoring, cleaning and lubricating, visual inspections, etc.	0-25% of Asset Life
Major Maintenance	Maintenance and repair activities, generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate the asset so that it can continue to provide service for an additional time period.	50-75% of Asset Life
Replacement	Some assets will reach the end of their useful life and require replacement. Experience in other communities has shown that the expected life of an asset will vary greatly depending upon a number of environmental factors.	75-100% of Asset Life

Building Component Life Spans

	Building Component	Estimated Life Span (in years)
Buildings with 40-50 year Life Expectancies	Foundation	50-75
	Electrical Components	5-30
	Roof	20-25
	Floor Finishes	10-20
	Interior Walls	20-30
	Windows	20-35
	Space Heating and Air Treatment	15-20
	Site Works	25-40

Integrated Replacement

Integrated planning will occur to optimize the lifecycle costs. Individual asset components are reviewed; projects are lumped together per asset to take advantage of the "economies of scale" principle. Consideration is given to minimize the disruption of operations to a given asset over time.

Rehabilitation & Replacement Criteria

Presently, the rehabilitation and replacement criteria is aged based but we are going to work towards a condition based system using the Facility Condition Index (FIC) Ratio of total deferred maintenance costs / current replacement value of the asset. FCI is a standard ratio recognized throughout North America. The FCI can be associated with individual assets or grouping of assets.

FCI	CONDITION RATING
0 - 0.05	Excellent Condition
0.05 – 0.10	Good Condition
0.10 – 0.30	Poor Condition
0.30+	Critical Condition – Significant Risk of Failure

Rehabilitation & Replacement Strategies

The FCI will provide asset condition summaries and identify percentage used of individual components and prioritize replacement based on actual condition, and its point in time of its life cycle. Facility roof and HVAC system inventories are generally the most important components to manage and as such industry, technological and safety standards. Upgrading of ingress/egress points may also be required for many facilities as new requirements under the Accessibility for Ontarians with Disabilities Act (AODA)

have set minimum accessibility standards. Along with maintaining and protecting the Town's facility assets, and upgrade program will also include the implementation of energy efficient systems and equipment.

Maintenance Schedule/Life Cycle Costs

Semi-Annual Maintenance Schedule

- Check smoke detectors, CO detectors, fire extinguishers
- Change Air Filters
- Inspect roof and flashing
- Clean gutters, down-pipes, down spouts
- Inspect exterior of building
- Inspect electrical panel, circuit breakers, GFCI outlets and breakers
- Seasonal maintenance on heating system

Annual Maintenance

- Check doors and windows to ensure operation, security and weather resistance
- Annual heating system/furnace/hot water tank maintenance performed by a licensed contractor

Priority Assets	**Condition Assessment**	**Maintenance & Rehabilitation Events**	**Results**
Town Office/Court House	Facility is worn with apparent and increasing deterioration. Occasional building shut down will occur.	Accessibility. Repairs & Replacement of windows. Interior renovations. Brick veneer repair.	Staff time will likely be diverted from regular scheduled maintenance and forced to reactive mode.
Fire Station	Facility is worn with apparent and increasing deterioration.	Accessibility. Repairs & Replacement of windows. Interior renovations. Brick veneer repair.	Staff time will likely be diverted from regular scheduled maintenance and forced to reactive mode.
Public Works Building	Facility is worn with apparent and increasing deterioration.	Accessibility.	Staff time devoted to regular maintenance

Lifecycle Consequences

As FCI increases, the assets will experience:

- Increased risk of component failure
- Increased deterioration of building and properties
- Health and safety concerns
- Inefficient operation
- Increased facility maintenance and operating costs

- Greater negative impacts to staff and residents

Risk Report:

Consequence of Failure	1	2	3	4	5
5	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	1 Asset 1 units $1,347,172.00
4	No Assets - N/A	No Assets - N/A	No Assets - N/A	3 Assets 3 units $621,100.00	No Assets - N/A
3	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
2	1 Asset 1 units $146,680.65	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
1	No Assets - N/A	No Assets - N/A	1 Asset 1 units $84,246.58	No Assets - N/A	No Assets - N/A

Probability of Failure

Integrated Asset Priorities

Replacement is based on actual condition, the point in time within its life cycle and the availability to complete the replacement with minimal disruption to the program/service delivery within the asset.

5.7 Vehicles and Equipment

Lifecycle Schedule

Activity	*Definition*	*Asset Age*
Minor Maintenance	Planned activities such as routine inspections, servicing and an established preventative maintenance program.	0-100% of Asset Life
Major Maintenance	Maintenance and repair activities, generally unplanned; however, they can be anticipated and would generally be accounted for with the Town's annual operating budget.	25-100% of Asset Life
Rehabilitation	Major activity required to upgrade or rehabilitate major components of heavy equipment so that it can continue to provide service for an additional time period.	50-75% of Asset Life
Replacement	Some assets will reach the end of their structural and/or service useful life and require replacement.	75-100% of Asset Life

Life Spans

The estimated useful life of any vehicle or piece of equipment is dependent on the service area. The expected life cycle of most vehicles is up to 10 years, however police vehicles that receive greater use are expected to last 5 years, the expected life for loaders, backhoes and tractors are 10-15 years, 20 years for graders and fire vehciles.

Rehabilitation & Replacement Criteria

Replacement of fleet will be dictated by the results of lifecycle cost analysis considering the following variables, repairs, insurance, fuel, amortization and downtime costs.

Rehabilitation & Replacement Strategies

In the case where vehicular repairs exceed 25% of replacement costs, replacement is the optimal strategy.

Lifecycle Consequences

As the assets age there could be:

- Increased risk of component failure
- Health & safety concerns
- Inefficient operations
- Increased maintenance costs

Risk Report:

Consequence of Failure	1	2	3	4	5
High					
5	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
4	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
3	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
2	1 Asset 1 units N/A	2 Assets 2 units $356,185.33	2 Assets 2 units $381,338.96	No Assets - N/A	1 Asset 1 units $209,685.32
1	2 Assets 2 units $85,875.31	5 Assets 5 units $200,433.48	5 Assets 5 units $177,182.22	4 Assets 4 units $86,002.26	8 Assets 8 units $384,434.98
Low					High

Probability of Failure

Consequence of Failure	1	2	3	4	5
High					
5	No Assets - N/A	No Assets - N/A	No Assets - N/A	1 Asset - $2,929,667.66	No Assets - N/A
4	1 Asset 1 units $578,956.33	No Assets - N/A	No Assets - N/A	No Assets - N/A	No Assets - N/A
3	No Assets - N/A	1 Asset 1 units $277,508.81	No Assets - N/A	9 Assets 9 units $3,216,959.37	3 Assets 3 units $1,046,162.40
2	1 Asset 1 units N/A	5 Assets 5 units $1,045,105.80	No Assets - N/A	4 Assets 4 units $971,029.22	2 Assets 2 units $447,920.05
1	12 Assets 41 units $297,667.92	13 Assets 13 units $417,837.80	22 Assets 22 units $836,039.03	25 Assets 25 units $957,498.91	28 Assets 28 units $1,007,991.71
Low					High

Probability of Failure

It is unlikely that an asset failure in this category would have significant risks of failure. The asset currently in the high risk of failure with high consequences is a group of equipment within the recreational complex, as many of the components were originally installed in 1998 many of these are coming to the end of their useful lives and requiring replacement.

6.0 Financing Strategy

Espanola, like many other organizations has traditionally followed a pay-as-you-go financial approach with hesitation to assume debt as part of an overall financial strategy. Additionally public pressure has resulted in many lower than inflation increases in rates and taxes that resulted in incremental increased deficits in capital renewal and operating programs. Infrastructure, being mostly buried, with service life of more than 50 years continued to perform without obvious effects. A number of public infrastructure failures in other jurisdictions and resulting regulations are changing the understanding of the need to fully finance the full life-cycle cost of infrastructure from both a capital and operating perspective that will continue service delivery of core services to Espanola into the future.

Regulations associated with the Safe Drinking Water Act have required that Asset Management and Sustainable Financial Plans are developed that take into account aging infrastructure and all aspects of the water system. Bill 72, 2011, has recently extended those requirements to the sewage and drainage services. This legislation has provided guidance that has assisted the Town in developing a funding plan that fully addresses the needs of a sustainable safe drinking water supply and sewage services.

At this time, Federal support of infrastructure is being provided through the annual Gas Tax Grant and to date has been directed towards water needs driven reconstruction projects. In this sense, Gas Tax Funding is equally contributing to water, sewer, storm and road renewal backlogs beyond current taxation and rate revenues. A fully funded financial strategy to address a backlog of road renewals, storm water management, bridge, and buildings remains beyond the socially and political acceptable financial capacity of the current property taxation system. Roads, Bridges, and Drainage infrastructure remain significantly under-funded having property taxation as the primary source of funding at this time.

The new Ontario Community Infrastructure Fund – Formula component came into effect for the 2015 budget year, given the state of our culverts and overall risk associated with this asset failure these funds have been designated to replacing our culverts. This has been a much needed contribution to meeting our overall financial challenges and we are hopeful that the Provincial government may consider making this fund permanent and increasing the amount of funding being dedicated to this component.

ANNUAL REQUIREMENTS: The annual funding requirement to maintain our existing infrastructure is outlined in Appendix A. This highlights the need to continually invest in our infrastructure. In challenging economic times, capital budgets are the easiest to cut however the needs do not go away but rather increases the annual requirement for future years. In years where no capital expenditure is required, this amount should be set aside for future use, when projects exceed this capital requirement, the annual requirement for future years will be reduced which is why the AMP will need to be updated annually as part of the capital budgeting process.

The current annual requirement as highlighted in Appendix A is $3,240,496. This would represent approximately 45% of our total levy and is far greater than the current portion of our levy which is designated as capital. Our current sources of funding identified for capital purposes are included in

Appendix B, these include capital projects directly funded from the taxation levy, the use of amortization to fund reserves, user fees and known federal and political grants. Appendix C summarized both the financial requirements and the sources of funds available and calculates the net annual deficit. The municipality is currently not funding our future capital needs by a shortfall of $1,386,348. An increase of 17.85% would be required to meet these financial challenges. This kind of increase in the current political environment would not be tolerated.

DEBT FINANCING: In light of the current infrastructure deficit, debt cannot be avoided. Meaningful investment in rehabilitation and replacement of aging assets can only be achieved with a new approach to debt financing. A debt policy will be developed in 2016 to address the criteria for proactive and prudent debt decisions. The debt component of the financing strategy can be an effective tool to evenly distribute the burden of infrastructure investment to the multiple generations of users.

USER FEES: User fees are only applicable to the water, sanitary sewer and storm sewer components of the asset management plan. The Town of Espanola's Drinking Water Plan which was updated in July 2015 indicates that user rates must increase at a rate of 2.25% per year. This increase has been reflected in this AMP.

RESERVES: The Town of Espanola adopted a reserve policy in 2014 and established among others a capital replacement reserve and a capital tax rate stabilization reserve. In 2015, the Town adopted a budget policy whereby amortization will be included in the operating expenses to be budgeted for as a means to fund future capital replacement of our assets. The use of reserves will be utilized to manage the peaks and valleys in timing of the base capital expenditures.

Reserve balances have and will continue to fluctuate as assets are funded, reserves were considered too low by Ministry of Municipal Affairs and Housing analysis of our Financial Indicators and considered the Town to be at high risk of not being able to meet our current financial obligations in 2009 & 2010. This was the result of significant capital investment in water and sanitary sewer distribution systems made necessary by frequent brown water episodes. Effective use of this reserve strategy will be a key component to managing the infrastructure investments of the future.

Moving Forward

1. Ensure asset inventories and Asset Management Plan is updated annually.
2. Ensure AMP is fully integrated with the capital budgeting process.
3. Optimize the use of existing assets with regular maintenance strategies to prolong the lives of assets.
4. Develop Debt and Capital Investment & Financing Policies in 2016 to guide Council's decisions to continually address infrastructure investment decisions for the future.

APPENDIX A

Town of Espanola
Asset Management Plan - Annual Requirements
2015

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Bridges & Culverts	45,534	45,534	45,534	45,534	45,534	45,534	45,534	45,534	45,534	45,534
Buildings	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487	1,031,487
Equipment	642,942	642,942	642,942	642,942	642,942	642,942	642,942	642,942	642,942	642,942
Roads	747,195	747,195	747,195	747,195	747,195	747,195	747,195	747,195	747,195	747,195
Sewer System	246,845	246,845	246,845	246,845	246,845	246,845	246,845	246,845	246,845	246,845
Storm	145,155	145,155	145,155	145,155	145,155	145,155	145,155	145,155	145,155	145,155
Vehicles	133,292	133,292	133,292	133,292	133,292	133,292	133,292	133,292	133,292	133,292
Water	248,046	248,046	248,046	248,046	248,046	248,046	248,046	248,046	248,046	248,046
Total	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**	**3,240,496**

APPENDIX B

Town of Espanola
AMP - Annual Financing Available
2015

Tax Levy

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Bridges &Culverts	81,200	82,418	83,654	84,909	86,183	87,475	88,788	90,119	91,471	92,843
Buildings	15,000	15,225	15,453	15,685	15,920	16,159	16,402	16,648	16,897	17,151
Equipment	184,000	186,760	189,561	192,405	195,291	198,220	201,194	204,211	207,275	210,384
Roads	149,500	151,743	154,019	156,329	158,674	161,054	163,470	165,922	168,411	170,937
Sewer System	-	-	-	-	-	-	-	-	-	-
Storm	-	-	-	-	-	-	-	-	-	-
Vehicles	76,000	77,140	78,297	79,472	80,664	81,874	83,102	84,348	85,613	86,898
Water	-	-	-	-	-	-	-	-	-	-
Total	**505,700**	**513,286**	**520,985**	**528,800**	**536,732**	**544,783**	**552,954**	**561,249**	**569,667**	**578,212**

* - assume 1.5% increase per annum

Tax Levy - Straight line amortization

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Bridges &Culverts	-	-	-	-	-	-	-	-	-	-
Buildings	273,620	273,620	273,620	273,620	273,620	273,620	273,620	273,620	273,620	273,620
Equipment	10,345	10,345	10,345	10,345	10,345	10,345	10,345	10,345	10,345	10,345
Roads										
Sewer System	-	-	-	-	-	-	-	-	-	-
Storm	-	-	-	-	-	-	-	-	-	-
Vehicles	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000
Water	-	-	-	-	-	-	-	-	-	-
Total	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**	**315,965**

** as amortization is recorded on a straight line basis there is no inflationary index included

User Fees

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Buildings	-	-	-	-	-	-	-	-	-	-
Sewer System	60,000	61,350	62,730	64,142	65,585	67,061	68,570	70,112	71,690	73,303
Storm	-	-	-	-	-	-	-	-	-	-
Water	593,050	606,394	620,037	633,988	648,253	662,839	677,753	693,002	708,595	724,538
Total	**653,050**	**667,744**	**682,768**	**698,130**	**713,838**	**729,899**	**746,322**	**763,114**	**780,284**	**797,841**

** - assume 2.25% increase per annum

Grants

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Federal Gas Tax	310,600	310,600	310,600	310,600	310,600	310,600	310,600	310,600	310,600	310,600
OCIF - Formula	68,833	68,833								
Total	379,433	379,433	310,600	310,600	310,600	310,600	310,600	310,600	310,600	310,600

***The federal government has commited to the federal gas tax as becoming a permanent fund, however the Ontario government has only committed to 2017.

Appendix C
Town of Espanola
AMP - Annual Funding Deficit
2015

Category	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenue:										
Taxation	821,665	829,251	836,950	844,765	852,697	860,748	868,919	877,214	885,632	894,177
User Fees	653,050	667,744	682,768	698,130	713,838	729,899	746,322	763,114	780,284	797,841
Grants	379,433	379,433	310,600	310,600	310,600	310,600	310,600	310,600	310,600	310,600
	1,854,148	1,876,427	1,830,318	1,853,495	1,877,135	1,901,247	1,925,841	1,950,928	1,976,517	2,002,618
Annual Requirements	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496	3,240,496
Annual Deficit	**- 1,386,348**	**- 1,364,069**	**- 1,410,178**	**- 1,387,001**	**- 1,363,361**	**- 1,339,249**	**- 1,314,654**	**- 1,289,568**	**- 1,263,979**	**- 1,237,877**
Annual Deficit as a percentage of tax levy of $7,768,503 (2016 - 1st draft budget)	17.85%	17.56%	18.15%	17.85%	17.55%	17.24%	16.92%	16.60%	16.27%	15.93%