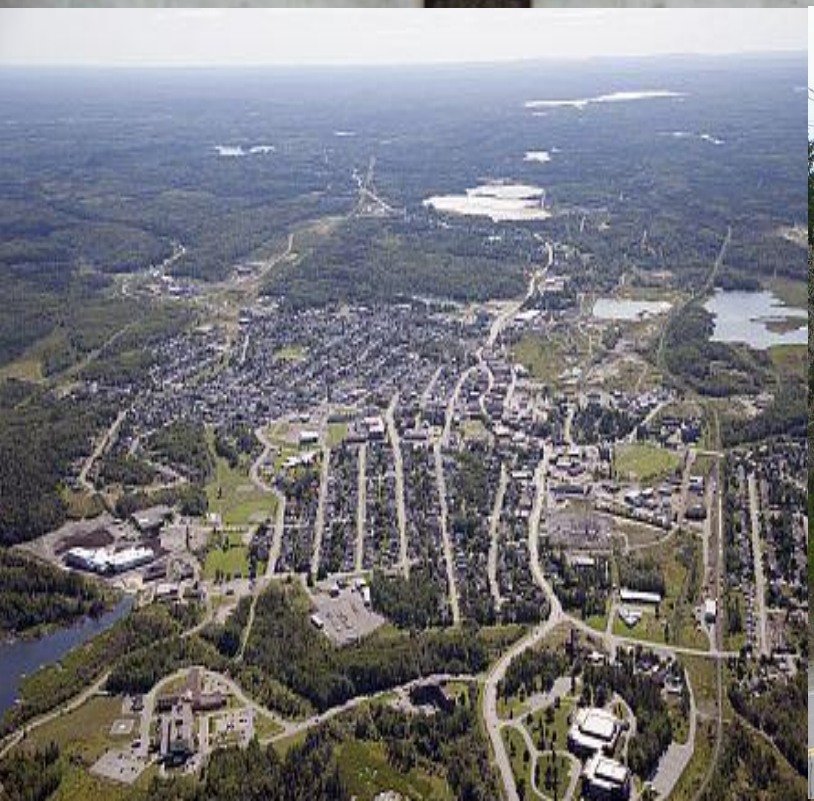
Infrastructure Solutions Inc

• On Budget - On Time •

Asset Management Plan

KIRKLAND LAKE

THE RIGHT ENVIRONMENT



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1 EXECUTIVE SUMMARY

The Province of Ontario, through its MIII Capital program, has provided funding designed to help municipalities address necessary road, bridge, and other priority projects identified through the assembly of an Asset Management Plan. This program is the second phase of the Province's Municipal Infrastructure Strategy which aims to:

- Further strengthen municipal asset management practices;
- Support the most critical roads, bridges, sewer and water network; and
- Provide funding to municipalities that are unable to undertake projects without provincial support.

Infrastructure Solutions (Engineering) Inc., was contracted to build Asset Management Plan for the Town. We were well supported by Jennifer Elder and the Kirkland Lake staff, to accumulate the Town of Kirkland Lake's geometric and condition assessment data where available, and uploaded tangible capital assets into Ontario Good Roads Association's asset management application, Municipal DataWorks (MDW).

Infrastructure Solutions (Engineering) Inc. based its Asset Management Plan on all asset types and their current replacement costs. Asset lifespans, condition and project requirements were determined by engineering assessments, and degradation curves (not accounting depreciation rates determined within the PSAB 3150 exercise). Where condition assessments were unavailable, ISI applied an age-based analysis. By replacement value, 81.6% of the Town's assets are in the Roads, Sewer and Water Network, Bridges and Culverts, with 35% of Sewer Network being the largest value out of total assets.

Through a comprehensive analysis of all asset types, ISI has calculated the Town's "infrastructure deficit", defined as the added investment that would be required to maintain a Town's infrastructure at appropriate service levels and in a good state of repair today. The Town has an infrastructure deficit of approximately $36.51 MM in 2013. The Town of Kirkland Lake`s 2013 infrastructure deficit is determined to be $4,500 per person, serious for a small community and growing rapidly.

On average over the next ten years, Kirkland Lake's capital investment should be $7.79 MM per annum. The Town is currently contributing $2.29 MM to the capital program, resulting in a large infrastructure funding gap which will continue to grow without corrective action. As highlighted in the Report Card within, the Town's major linear asset, its Roads, are generally in fair condition. On average, Bridges and Culverts are in good and poor condition respectively. The Water and Sewer assets are in poor and fair condition respectively.

Significant benefits could be gained by adhering to the tenets of an Asset Management Plan. We quote Gordon Sparks, Ph.D., P.Eng., and Professor of Civil Engineering University of Saskatchewan who states that "managing existing, capital intensive, public sector infrastructure asset such as roads, bridges, sewer and water systems, buildings, etc. could provide very significant benefits (i.e. 20 – 40% reductions in life cycle costs) associated with managing the maintenance of public sector infrastructure It is recognized that finding and operating in this "sweet spot" is no easy task and it is advocated that to do so successfully will require public sector agencies to abandon traditional departmental and professional silos and develop multidisciplinary, cross functional teams that can effectively exploit the collective wisdom of all. This includes politicians, chief administrative officers, chief financial officers, planners, accountants, engineers and others."

The optimal outcome involves doing the right thing, at the right time, consistently. In the case of managing existing infrastructure, doing the right thing, at the right time, involves knowing and actually doing the most cost-effective maintenance, repair, rehabilitation or replacement activity at the right time throughout the entire life cycle of the asset. The process for prioritizing, establishing levels of service and operating performance indicators are defined in this report and attached Appendices.

Asset management is a philosophy and may require a significant change in organizational culture. The State of the Infrastructure Report (SOTI), Capital Plan, financial projections and recommendations within this Asset Management Plan will provide Town staff with critical information and analytical tools to begin the education/communication process for the Town's asset management strategy.

2 SOTI REPORT

2.1 HISTORICAL OVERVIEW

All of the World's urban cities and municipalities are underpinned by a vast network of roads, water supply, sewage, drainage, power supply, flood protection, recreational and real estate assets. These assets, predominantly managed by local governments, constitute a major investment over many generations and represent the world's largest portfolio of assets.

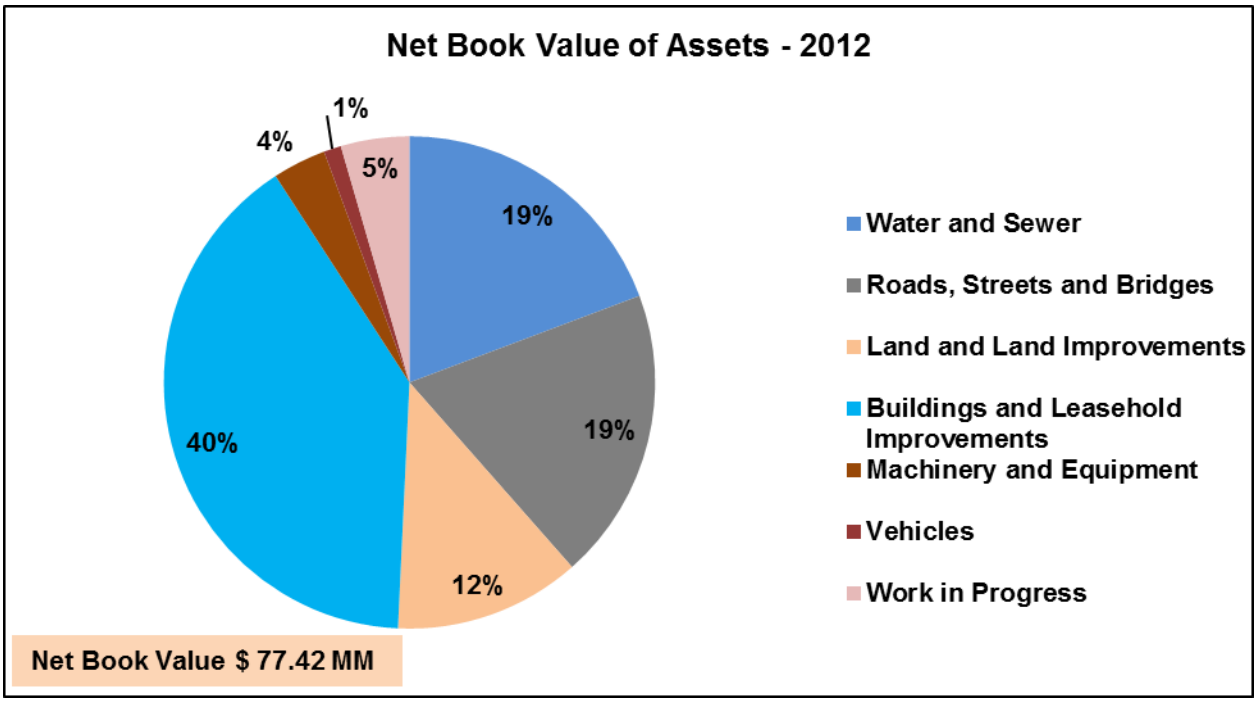
In Canada, we are in a deficit. It is the deficit that involves the deterioration of our infrastructure, the roads and bridges we drive on, the water treatment facilities we depend on for clean drinking water, and the sewer systems that take away tainted water. Most Canadian municipalities are struggling to maintain existing infrastructure under current tax and rate levels. They continue to deal with new reporting responsibilities and expenses downloaded by both the Province and Federal Government. Municipalities are facing a growing need to maintain and renew aged infrastructure, without the tax base to do so. In 1962, 22 cents of every dollar was spent on infrastructure by the Federal Government and by 2002, only 12 cents. Public infrastructure has suffered from decades of extensive neglect and overuse. In Canada, it is estimated that the average infrastructure deficit is in excess of $10,000 for every man, woman and child. Much of this infrastructure deficit is found in the major urban centers, but the National deficit will double over the next 10 years as projects undertaken in the 1950's/1960's reach their projected lifespan.

This State of the Infrastructure (SOTI) assessment is based on an analysis of the replacement, rehabilitation, and maintenance requirements of the Town's asset inventory and its current condition. We include a Report Card on the current state of the major linear assets within the Town. The Capital Plan provides both a high-level assessment of projected Capital expenses and a detailed future project by project costing for the Town's review and confirmation. Our objective is to give the Town the analytical tools and information necessary to implement a comprehensive and cohesive asset management program.

Asset management is a philosophy and may require a significant change in organizational culture, as well as at the community and political levels. This change will not occur overnight; however, the State of the Infrastructure Report, Capital Plan, financial projections and detailed recommendations will provide Town staff with critical information and analytical tools begin the education/communication process for the Town's asset management strategy. The document was written in plain language, with explanatory text; it is a communication document, which is based upon proven engineering and carefully calculated financial assumptions.

2.2 DATA ACCUMULATION AND VERIFICATION

The first step in the analysis of the Town's asset inventory was to understand geometric and condition assessment data, where available, and the uploaded asset types in Ontario Good Roads Association's asset management application, Municipal DataWorks. This information included all data pertaining to the lifespan and depreciated historical value of the assets. Once the upload was complete, the reconciliation against the Financial Statements was the responsibility of the Town. The verification established that no assets were missing from data provided by the Town, that the financial statements were correct, and verified that the accurate upload of the entire asset inventory was available in Municipal DataWorks.



Assets Type	NBV of Assets
Water and Sewer	$14,926,879
Roads, Streets and Bridges	$14,871,607
Land and Land Improvements	$9,495,303
Buildings and Leasehold Improvements	$31,034,738
Machinery and Equipment	$2,720,345
Vehicles	$888,581
Work in Progress	$3,491,609
Total	**$77,429,062**

2.3 STATE OF THE INFRASTRUCTURE REPORT (SOTI)

Infrastructure Solutions has been contracted to assist the Town of Kirkland Lake in analyzing the State of the Infrastructure (SOTI) and the assembly of a Capital Plan as the initial components of a comprehensive Asset Management Plan. We have determined that the Town has a significant backlog of assets in need of betterment or replacement.

Dealing with aging infrastructure requires that the Town assess long-term capital project requirements and establish the funding of high-priority projects in an efficient, timely and cost-effective manner. With our engineering analysis and project identification, the Town can monitor, track and manage infrastructure assets to ensure that policy makers obtain sufficient funding in order to maintain, at minimum, and potentially enhance future service levels. Through capital budgeting, the Town of Kirkland Lake can plan the future operating budget expenses and reserve funds to manage its financial position over a long term period. Capital planning also provides the core information needed for the Council's planning and fiscal policies.

The Report Card produced within the SOTI has been developed to provide an easily understood reference that can be regularly updated to document investment gaps and progress the Town is making towards sustainability. The SOTI and associated analysis are strategic documents that identify trends and highlight possible issues involved in delivering services and maintaining the assets for those services. The SOTI will also assist in the development of more detailed tactical and operational plans aimed at identifying expenditures needed to provide service in a cost-effective, sustainable manner. Wherever provided, engineering assessments were used.

Encapsulated within this report ISI presents the Town's State of the Infrastructure report (SOTI), and a description of our methodology. The draft Capital Plan contains a more detailed asset data and calculation process. All source information is readily available within the Municipal DataWorks software application for verification of asset conditions and lifespans by individual asset or by asset type and contain all data available and provided by the Town including asset location, a segmenting of linear assets into manageable lengths, asset ID's, geometrics of the asset (length, width and other appropriate dimensions). The comprehensive asset inventory in the Municipal DataWorks application includes PSAB data, the year constructed/purchased, estimated useful life, general description of asset, and other asset specific geometrics.
The direction of this project was influenced by the Town's requirement for Asset Management Plan and the work of the National Guide for Sustainable Municipal Infrastructure. In November 2003, the National Guide to Sustainable Municipal Infrastructure published a Best Practice for Municipal Infrastructure Asset Management. It stated that the framework for an asset management plan can be described in terms of seven questions:

1. What do you have and where is it? (Inventory and Location)
2. What is it worth? (Costs/Replacement Rates)
3. What is its condition and expected remaining service life? (Condition and Capability)
4. What is the service level expectation? (Capital & Operating Plans)
5. When do you need to do it? (Capital and Operating Plans)
6. How much will it cost and what is the acceptable level of risk? (Short/Long-term Financial Plan)
7. How do you ensure long-term affordability? (Short- and Long-term Financial Plan)

This report answers these questions.

2.4 INVENTORY AND THE VALUATION OF ASSETS

The aim of this section of the report is to provide an overview of the State of the Infrastructure (SOTI) by an analysis of the available data on the condition and/or age of the Town. The MIII SOTI requirements are restricted to linear assets only. Within the Capital Plan, ISI has included other critical asset types in its analysis for the Town's review. The grouping of these assets and asset replacements were taken from the PSAB files provided by the Town, and the current replacement value of the assets is comprised of these factors:

- Value of all the existing assets
- New assets acquired prior to 2013
- Adjustments in unit costs based on improved knowledge and inflationary impacts

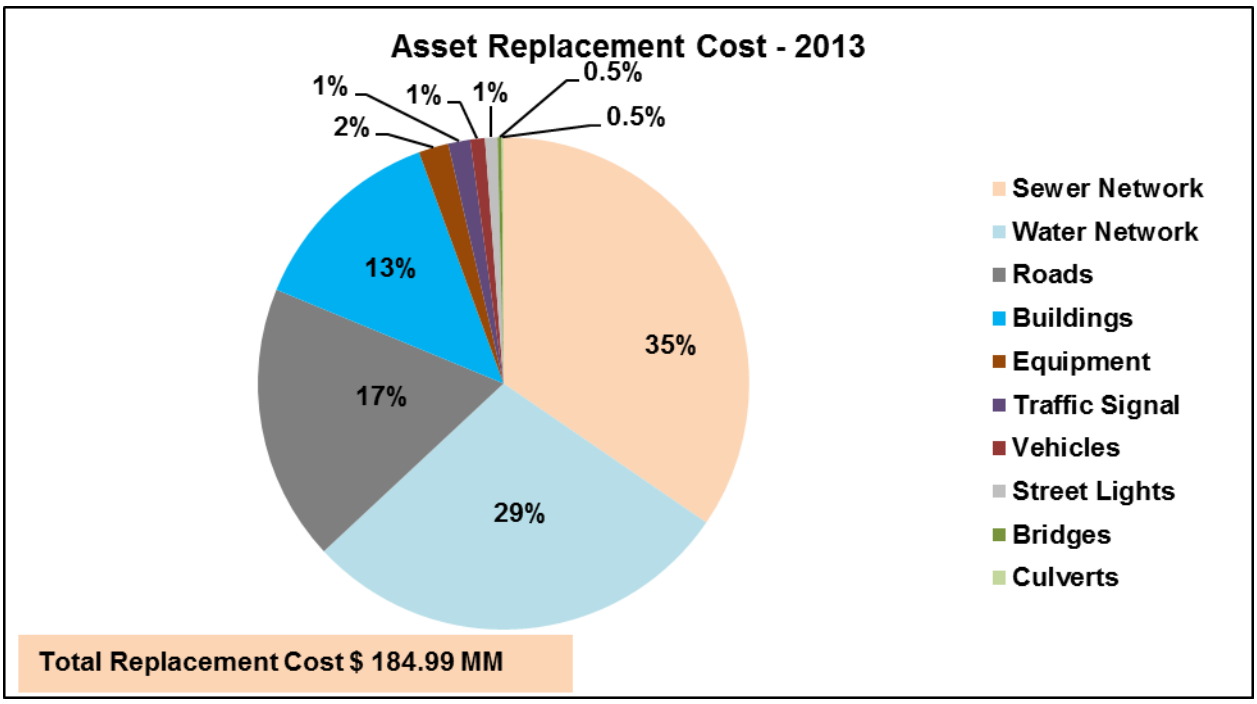
For the purpose of the Asset Management Plan report, we have grouped the assets as follows:
Linear Assets:

- Sewer Network - Catchbasins (Storm), Manhole (Storm), Manholes (Waste Water), Pump Stations (Waste Water), Sanitary Forcemain, Sewer Structure (Waste Water), Sewerlines (Storm), Sewerline (Waste Water), Sewage Treatment Plant
- Water Network – Hydrants, Water Valves, Waste Disposal System (Leachate Monitoring Well), Water Equipment, Waterlines, Water Treatment Plant
- Roads - Paved (HCB) and Gravel
- Structures – Bridges, Culverts

Non-linear assets have not been included in the SOTI report but have been dealt with in the Capital Plan:

- Buildings – Belonging to various departments
- Equipment – Heavy equipment (Loader, Grader, Tractors, Snow blower, Sander) etc.
- Traffic – Traffic Signals
- Vehicles – Heavy and Light Vehicles
- Streetlights

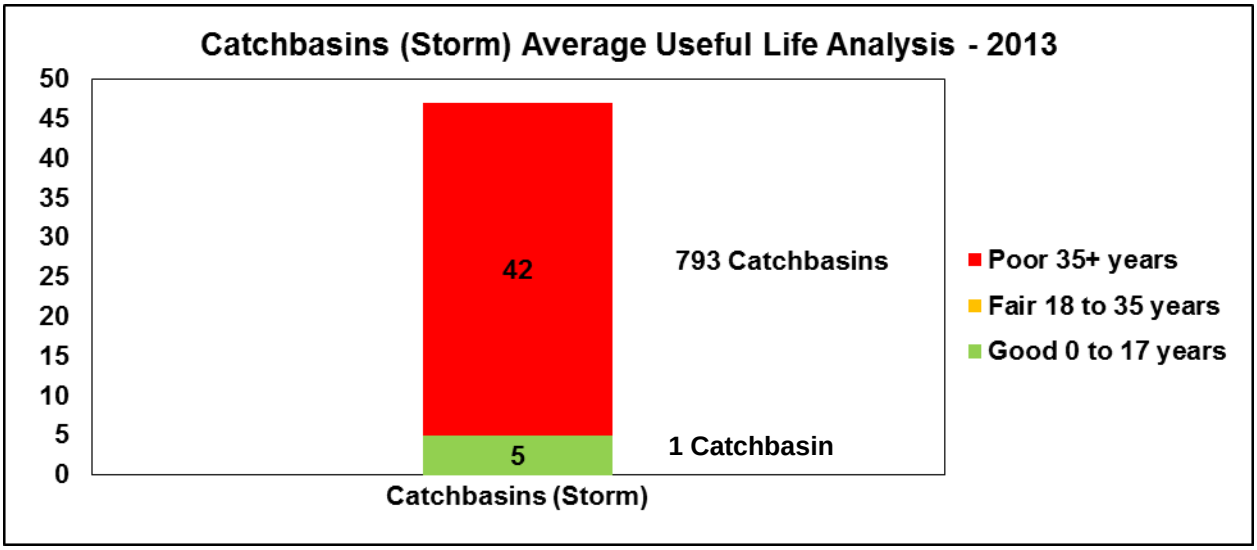
Assets Type	Replacement Cost
Sewer Network	$63,920,793
Water Network	$52,740,064
Roads	$33,592,989
Buildings	$24,391,101
Equipment	$3,641,837
Traffic Signal	$2,687,784
Vehicles	$1,777,740
Street Lights	$1,527,657
Bridges	$495,650
Culverts	$223,848
Total	**$184,999,464**

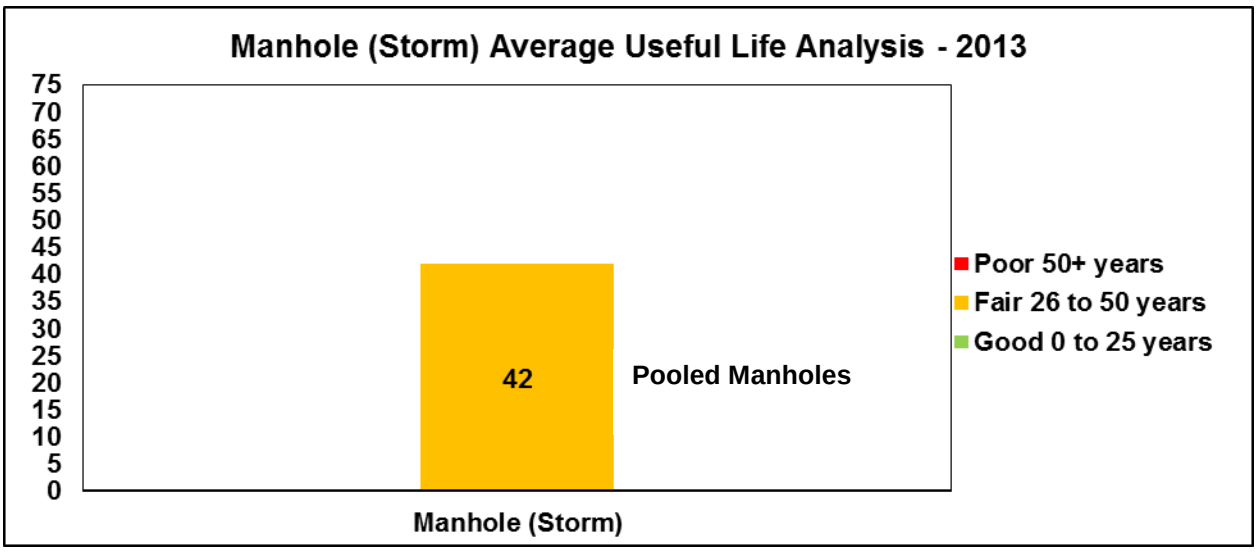


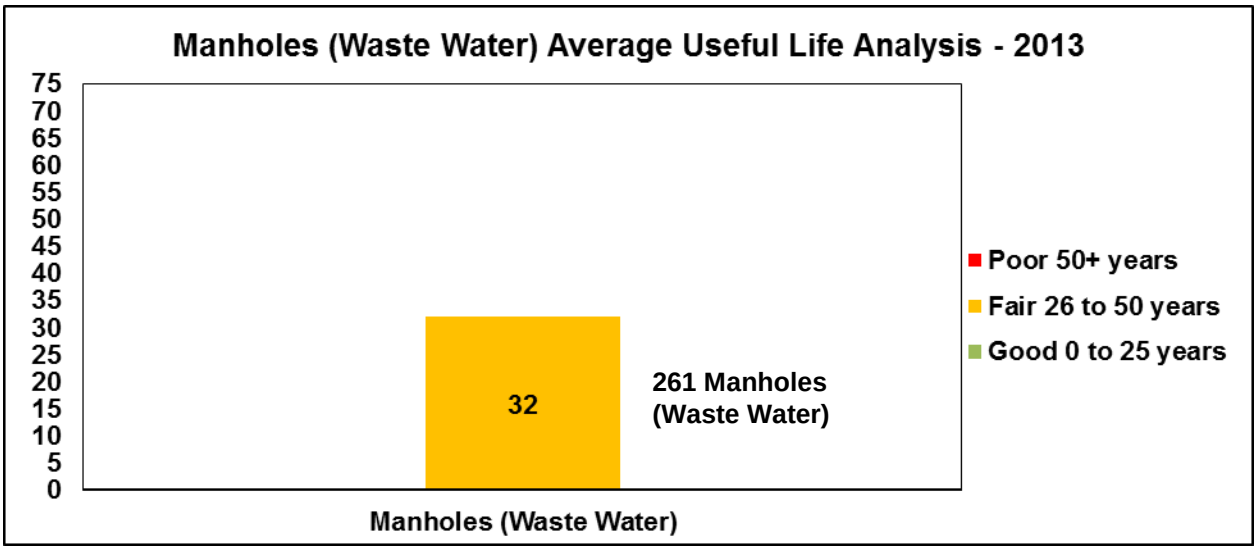
2.4.1 SEWER NETWORK

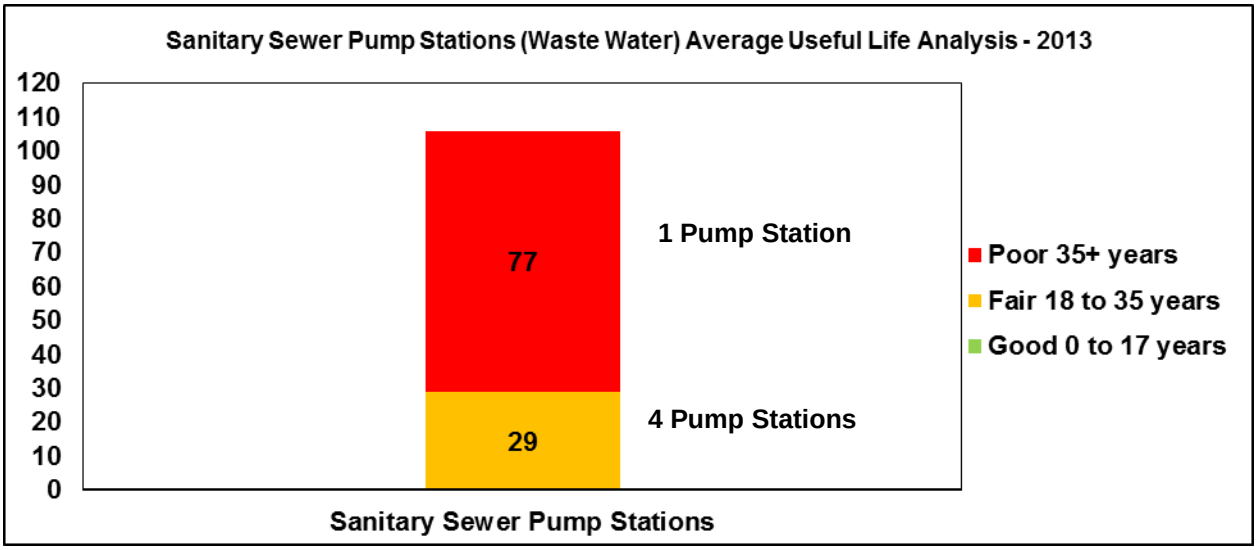
- Catchbasins (Storm)
- Manhole (Storm) – Pooled Manhole in the inventory
- Manholes (Waste Water) – 261 Manholes
- Pump Stations (Waste Water)
- Sanitary Forcemain
- Sewer Structure (Waste Water) – consists of Tunnel entrance structure and Sewer 'diversion' chamber
- Sewerlines (Storm) - consists of total length of 35,331.30 meters, having diameter ranges from 150mm to 1500mm
- Sewerline (Waste Water) – consists of total length 54,103.02 of meters, having diameter ranges from 135mm to 900mm
- Sewage Treatment Plant

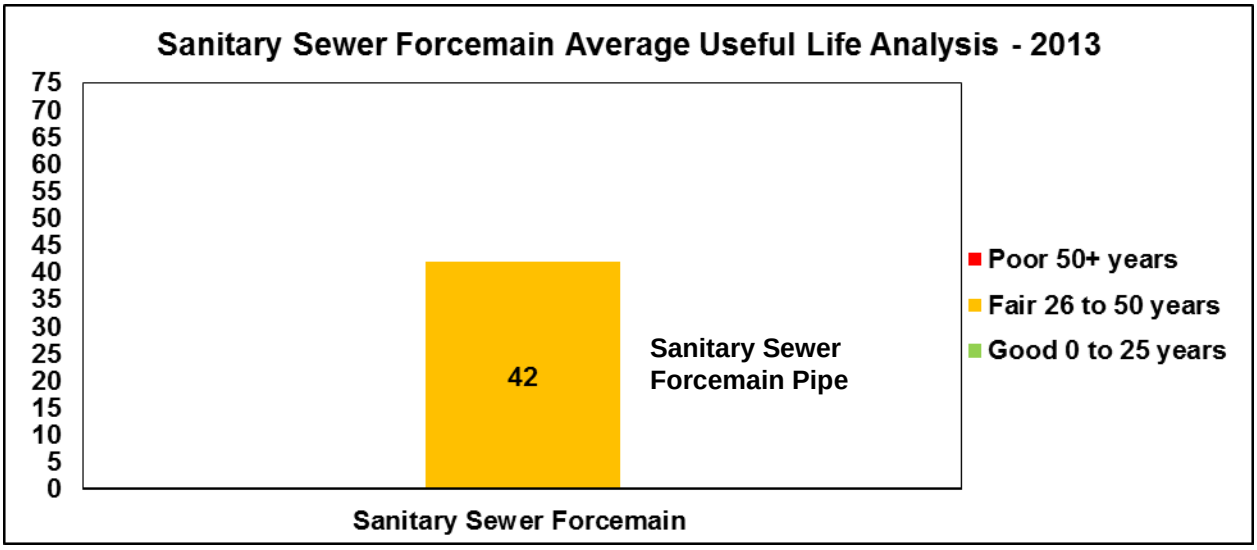
An age-based analysis is done on the Sewer assets due to non-availability of conditions. The calculations, undertaken in this circumstance, were to determine the remaining life of the asset on age-based analysis with pre-defined criteria. Age-based condition assessment has the least level of confidence to determine the current State of Infrastructure. The graphs below shows the age-based analysis for each asset mentioned above. The diameter and length of a few of the Sewerlines (Storm) and Sewerlines (Waste Water) have not been provided by the Town and these are not included in the SOTI analysis.

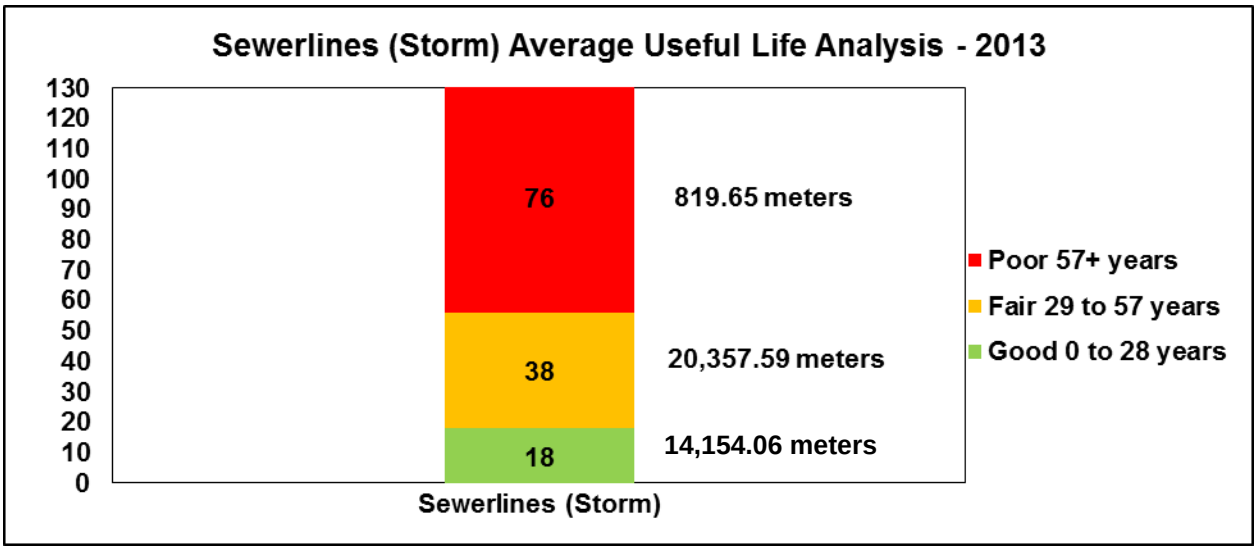

Catchbasins (Storm) Average Useful Life Analysis - 2013
50
45
40
35
30
25
20
15
10
5
0
42
5
793 Catchbasins
1 Catchbasin
Poor 35+ years
Fair 18 to 35 years
Good 0 to 17 years
Catchbasins (Storm)

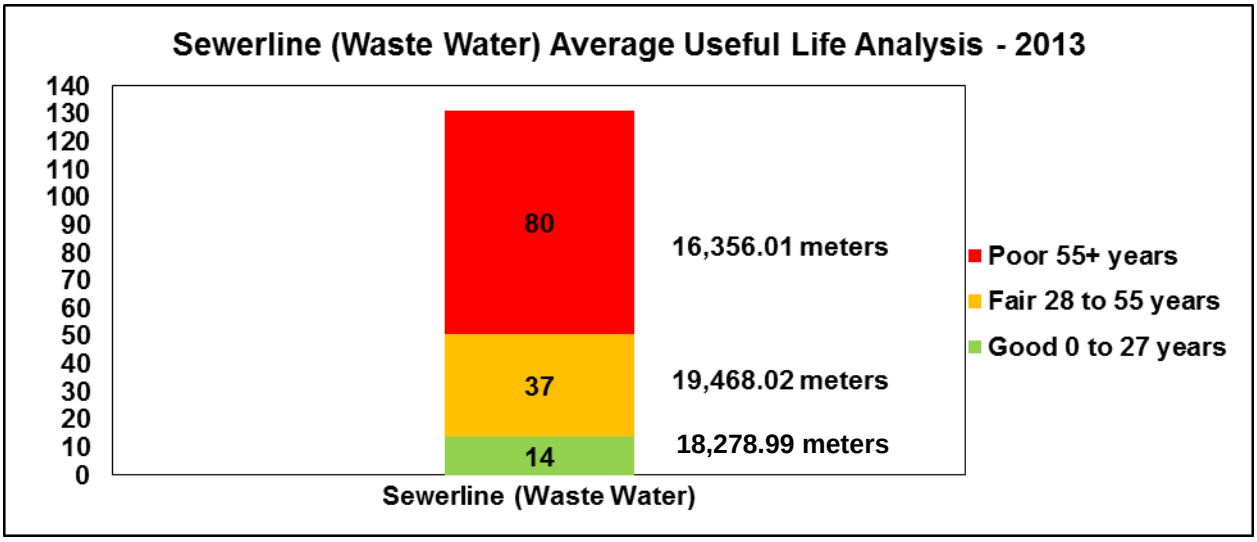

Manhole (Storm) Average Useful Life Analysis - 2013
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
42
Pooled Manholes
Poor 50+ years
Fair 26 to 50 years
Good 0 to 25 years
Manhole (Storm)

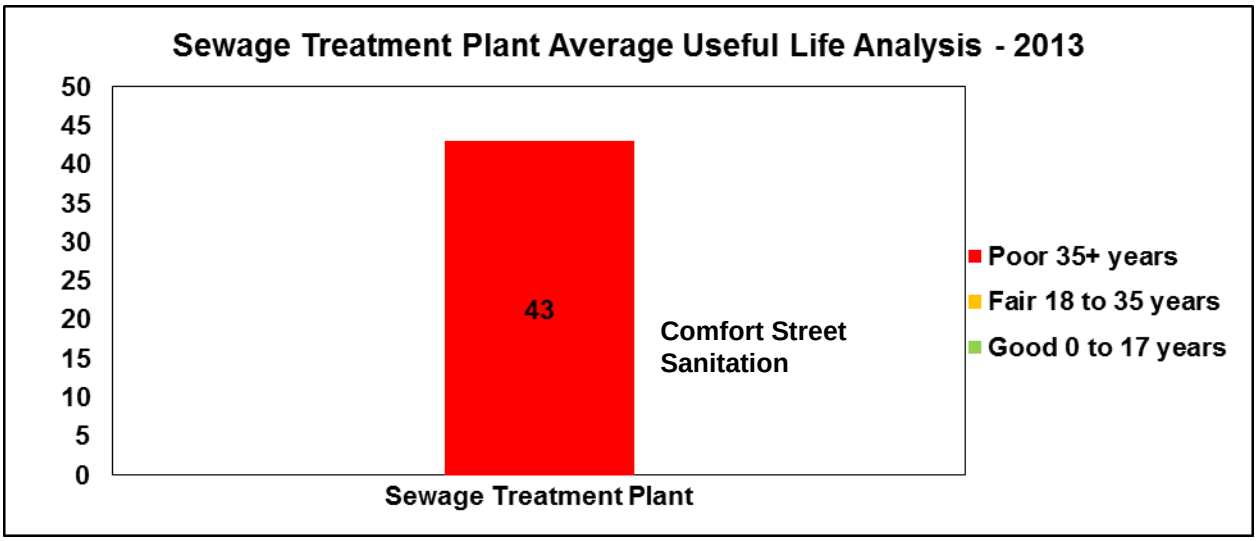

Manholes (Waste Water) Average Useful Life Analysis - 2013
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
32
261 Manholes
(Waste Water)
Poor 50+ years
Fair 26 to 50 years
Good 0 to 25 years
Manholes (Waste Water)


Sanitary Sewer Pump Stations (Waste Water) Average Useful Life Analysis - 2013
120
110
100
90
80
70
60
50
40
30
20
10
0
77
29
1 Pump Station
4 Pump Stations
Poor 35+ years
Fair 18 to 35 years
Good 0 to 17 years
Sanitary Sewer Pump Stations


Sanitary Sewer Forcemain Average Useful Life Analysis - 2013
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
42
Sanitary Sewer Forcemain Pipe
Poor 50+ years
Fair 26 to 50 years
Good 0 to 25 years
Sanitary Sewer Forcemain


Sewerlines (Storm) Average Useful Life Analysis - 2013
130
120
110
100
90
80
70
60
50
40
30
20
10
0
76
38
18
819.65 meters
20,357.59 meters
14,154.06 meters
Poor 57+ years
Fair 29 to 57 years
Good 0 to 28 years
Sewerlines (Storm)

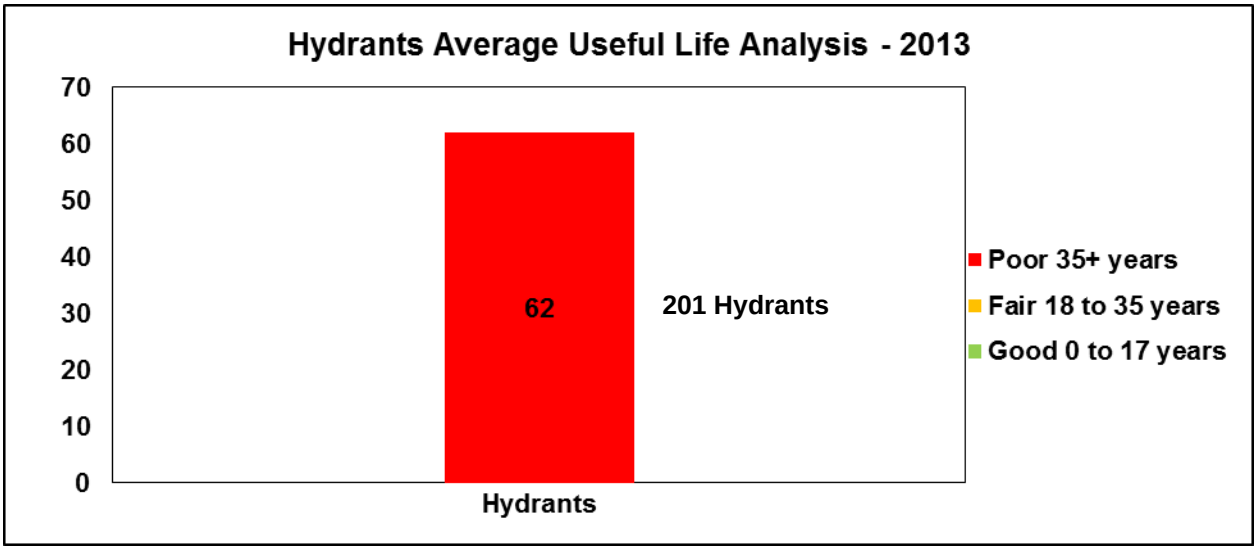


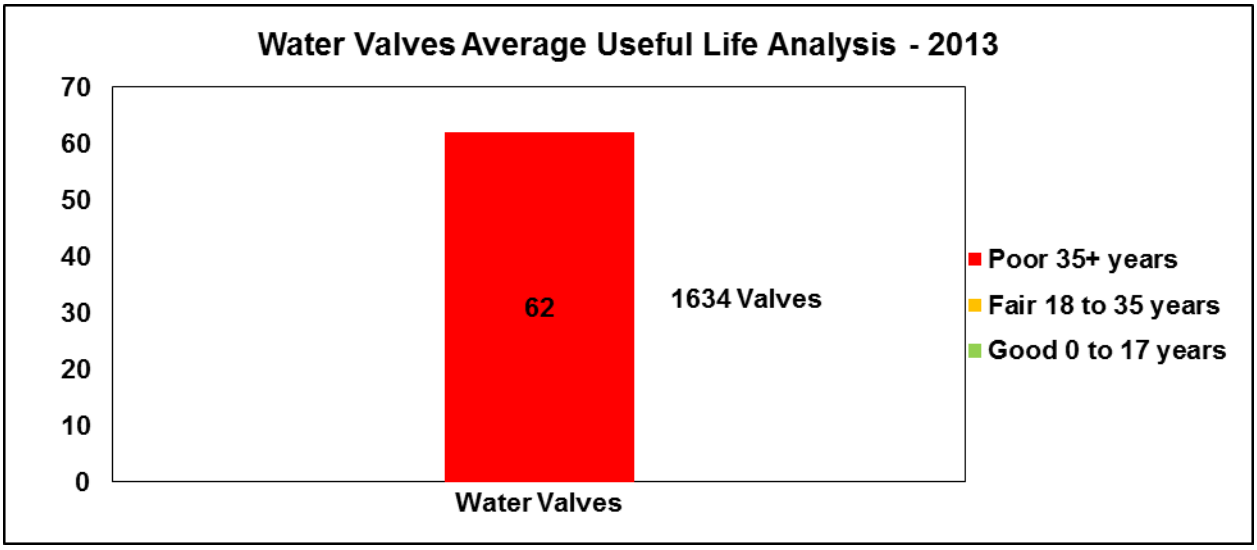


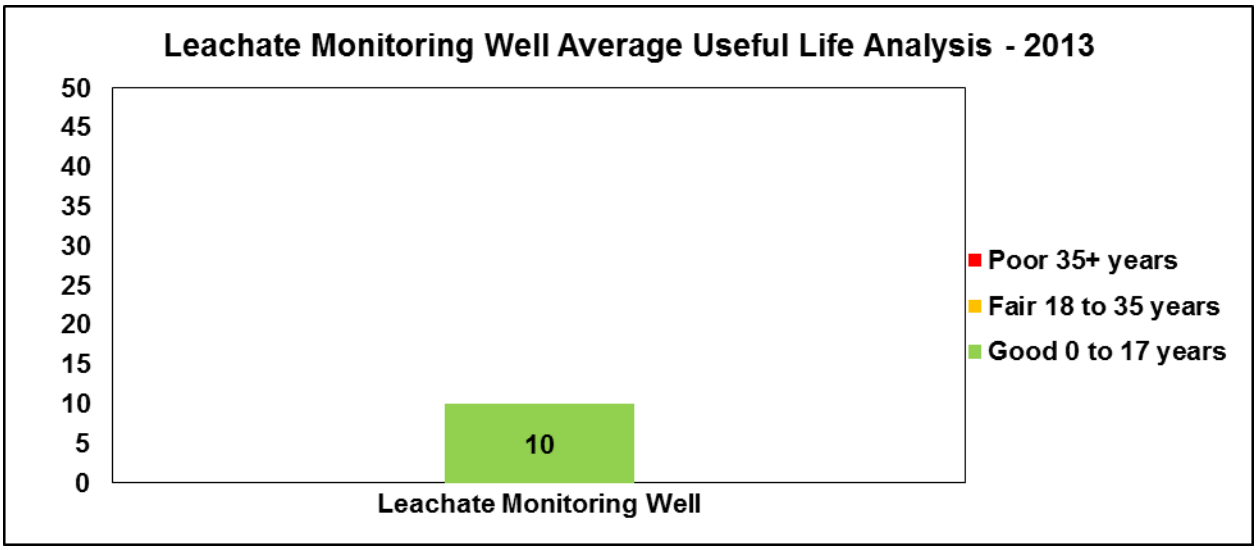
2.4.2 WATER NETWORK

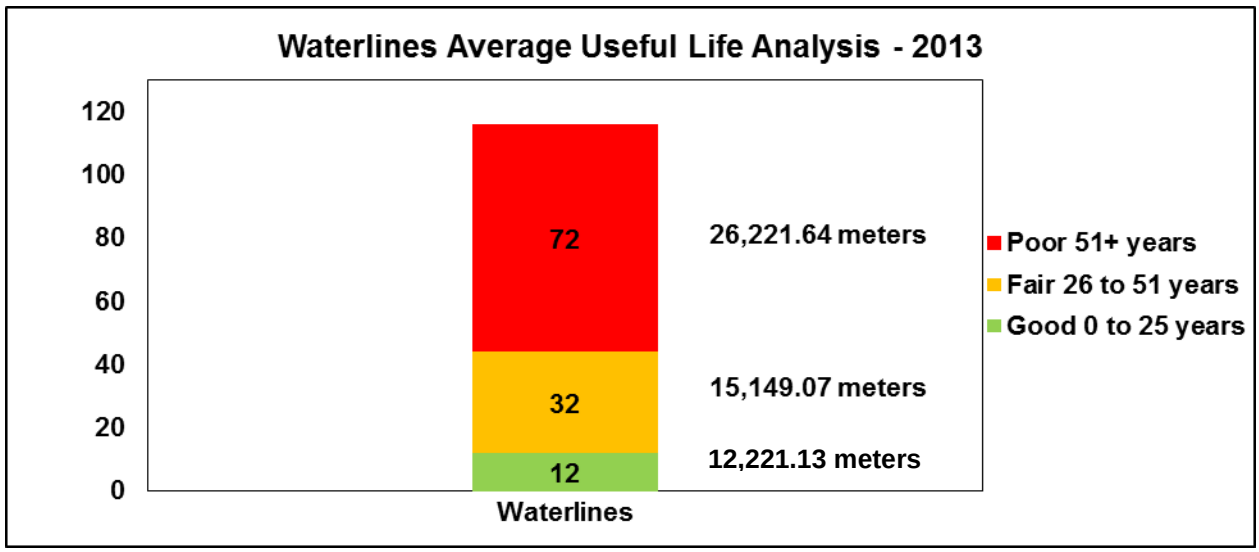
- Hydrants
- Water Valves
- Waste Disposal System (Leachate Monitoring Well)
- Water Equipment
- Waterlines – consists of total length of 53,591.84 meters, having diameter ranges from 19mm to 900mm
- Water Treatment Plant

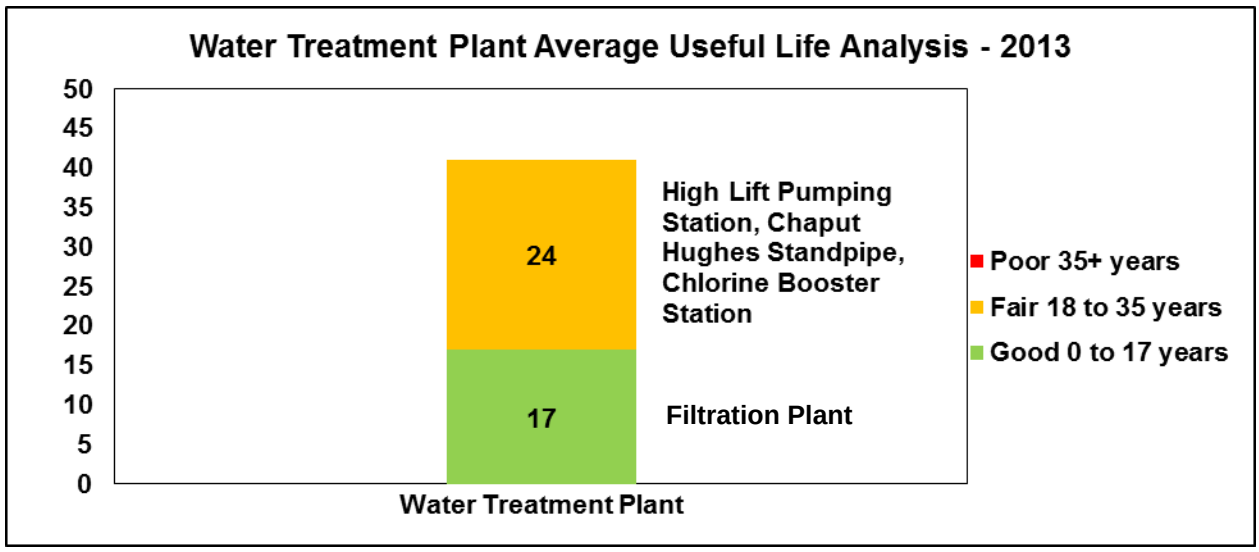
An age-based analysis is done on the Water assets due to non-availability of conditions. The calculations, undertaken in this circumstance, were to determine the remaining life of the asset on age-based analysis with pre-defined criteria. Age-based condition assessment has the least level of confidence to determine the current State of Infrastructure. The graphs below show the age-based analysis for each asset mentioned above except Water Equipment due to variation in the useful life. The diameter and length of a few of the Waterlines have not been provided by the Town and these are not included in the SOTI analysis.


Hydrants Average Useful Life Analysis - 2013
70
60
50
40
30
20
10
0
62
201 Hydrants
Hydrants
Poor 35+ years
Fair 18 to 35 years
Good 0 to 17 years


Water Valves Average Useful Life Analysis - 2013
70
60
50
40
30
20
10
0
62
1634 Valves
Water Valves
Poor 35+ years
Fair 18 to 35 years
Good 0 to 17 years


Leachate Monitoring Well Average Useful Life Analysis - 2013
50
45
40
35
30
25
20
15
10
5
0
10
Leachate Monitoring Well
Poor 35+ years
Fair 18 to 35 years
Good 0 to 17 years



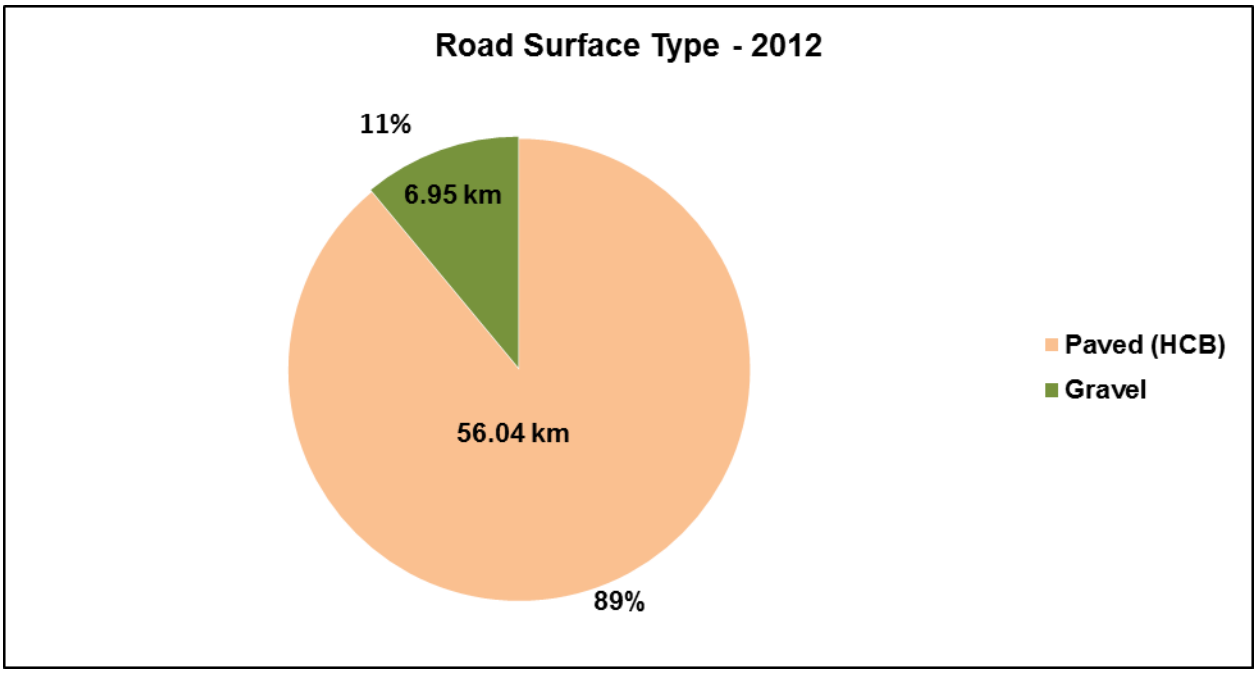


2.4.3 ROADS

The Town of Kirkland Lake has a total of 62.99 km of roads. The following summarizes the road surface types within the Town.

Road Surface Type:

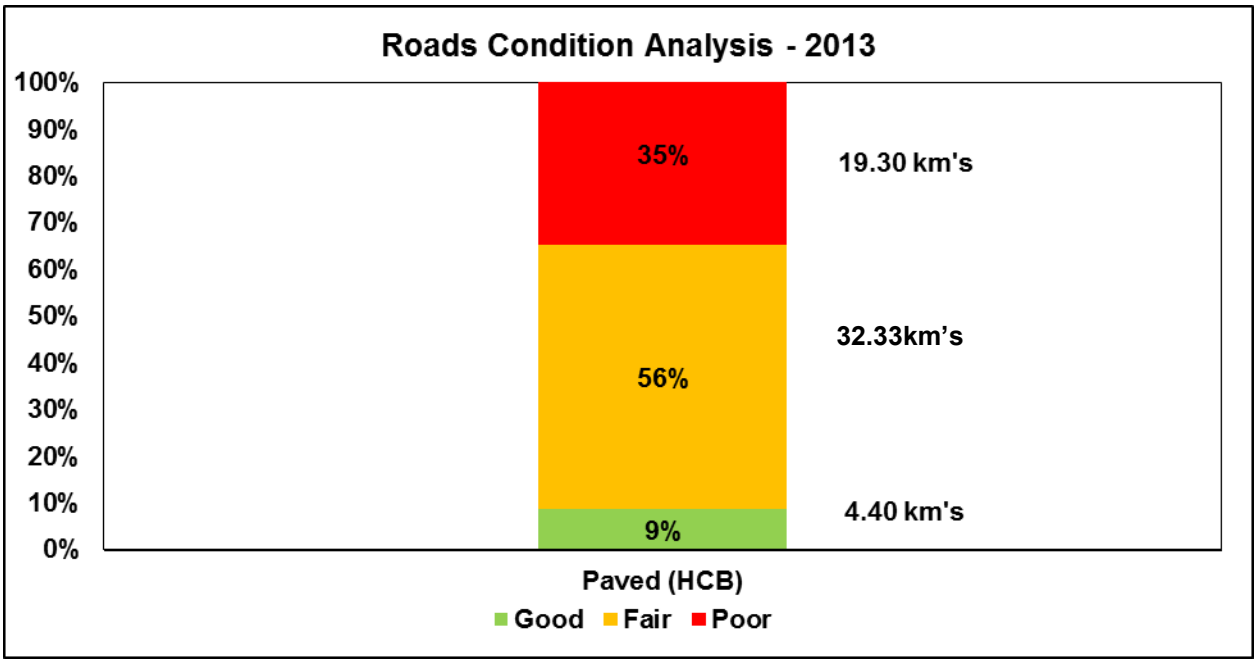
Road Surface Type	Length (km)	%
Paved (HCB)	56.04	89%
Gravel	6.95	11%



The Town has Paved (HCB) and Gravel roads. The State of the Infrastructure for roads is based upon condition ratings (2013 Ride Comfort Ratings) provided by the Town for each type of road. The Paved (HCB) roads are generally in fair condition. The Gravel roads are assumed to be maintained periodically; therefore, no condition analysis has been done on them.

Road Average Condition:

Road Surface Type	Average Condition Rating
Paved (HCB)	5



2.4.4 BRIDGES

This group comprises:

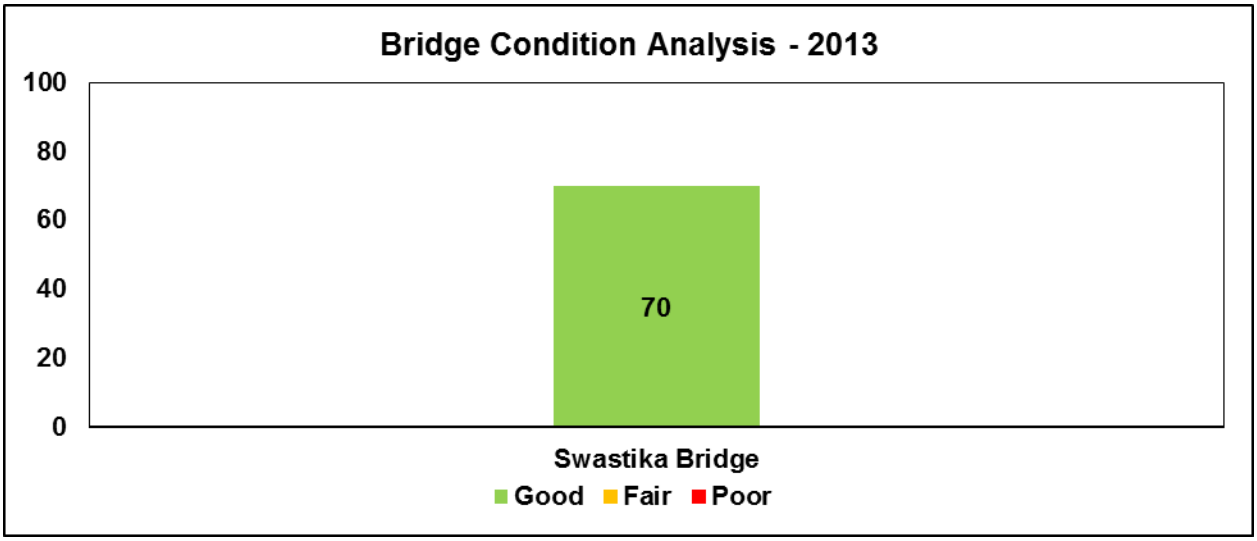
- Bridges – consists of 1 bridge

The most current bridge inspection was completed by the Town in 2010. There are a number of improvements recommended in the bridge inspection report for Swastika Bridge, including repair of the damaged handrail pipe, slab cracking, sidewalk and slab deterioration, etc. The recommended work is assumed not to be completed and is placed as a project in 2014 in the Appendix A.

Bridges Condition Index

Condition assessment data was provided to ISI by the Town, and was uploaded into Municipal DataWorks. Municipal DataWorks calculates the Bridge Condition Index based on the consultant's report and condition assessments. Deterioration curves were used to determine the 2013 condition of these assets. The MTO Bridge Condition Index rating is provided by the Ontario Ministry of Transportation which describes maintenance requirements within each range as follows:

Good: BCI Range 70 - 100: It is usually not required to perform any maintenance work within the next five years
Fair: BCI Range 60 - 69: Maintenance work is usually required within the next five years
Poor: BCI Less than 60: Maintenance work is usually required within one year



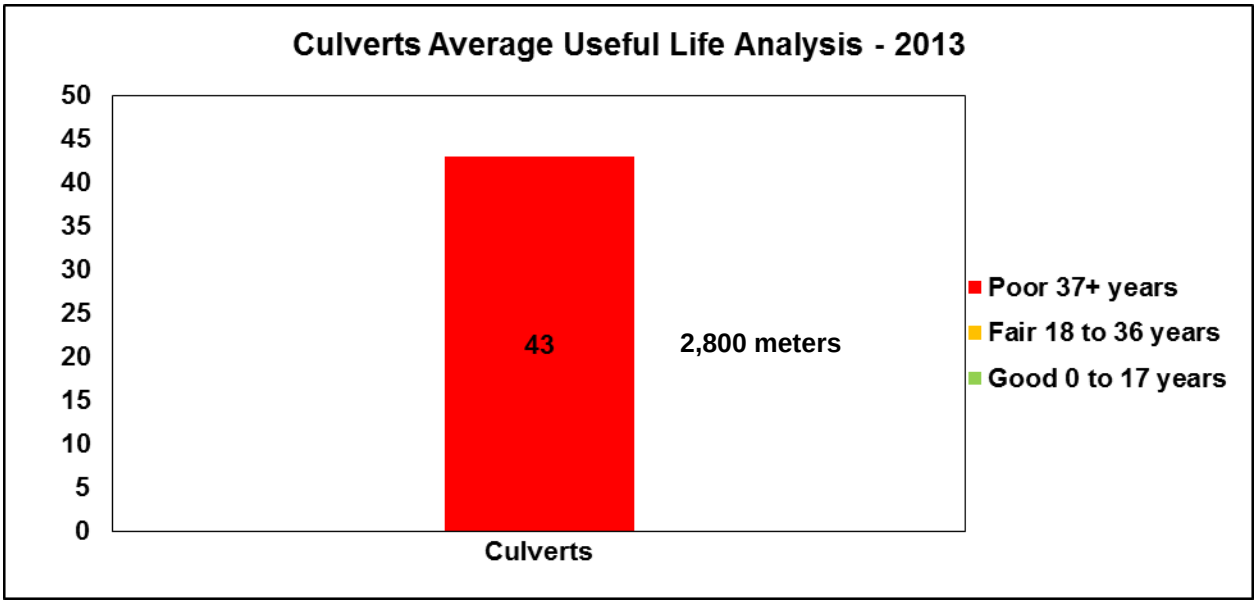
2.4.5 CULVERTS

This group comprises:

- Culverts - consists of culverts having length of 2,800 meters in total

An age-based analysis has been done on the culverts due to unavailability of condition ratings. The calculations, undertaken in this circumstance, were to determine the remaining life of the

asset on an age-based analysis with pre-defined criteria. An age-based condition assessment has the least level of confidence to determine the current State of the Infrastructure.



2.5 SOTI REPORT CARD

Asset Group	Overall Condition Rating	Rating		Range (Years)	Comments
Sewer Network	B	A	Good	Different ranges based upon total useful life for each asset type	Condition rating based on age-based analysis
		B	Fair		
		C	Poor		
Water Network	C	A	Good	Different ranges based upon total useful life for each asset type	Condition rating based on age-based analysis
		B	Fair		
		C	Poor		
				Range (Condition)	
Road Network	B	A	Good	8 to 10	Condition rating based on Ride Comfort Rating (RCR)
		B	Fair	5 to 7	
		C	Poor	0 to 4	
Bridges	A	A	Good	70 to 100	Condition rating based on bridge inspection reports
		B	Fair	60 to 69	
		C	Poor	0 to 59	
				Range (Years)	
Culverts	C	A	Good	0 to 17 Years	Condition rating based on age-based analysis
		B	Fair	18 To 36 Years	
		C	Poor	37+	

2.6 SOTI CONCLUSION

As highlighted in the Report Card above, the current state of the linear infrastructure, based on available condition rating analysis, presents a picture of the Town's linear assets. The condition analysis according to the asset type is as follows:

- Paved (HCB) roads are generally in fair condition
- Bridge is in good condition
- Culverts are in poor condition
- Sewer and Water Network are reported in fair and poor condition respectively

The overall or average non-critical state of the linear infrastructure at the Town of Kirkland Lake is in line with the condition of a vast majority of municipalities in this Province. The Town should continue to be proactive in their strategies, so as to extend asset useful life and avoid major rehabilitation/reconstruction or replacement costs.

3 CAPITAL PLAN

3.1 BACKGROUND

Managing the Town's capital assets requires an assessment of the long-term capital project requirements and the establishment of the funding for high-priority projects in an efficient, timely and cost-effective manner. As a result of this analysis, the Town will be able to more effectively monitor, track and manage infrastructure assets, to ensure that policy makers obtain sufficient funding in order to maintain, at minimum, and potentially enhance future service levels. Through capital planning, the Town of Kirkland Lake can plan the future operating budget expenses and reserve funds to manage the financial position over a long term period. Capital planning also provides the core information needed for implementing the Council's planning and fiscal policies.

Support has been provided by the Province of Ontario through its MIII Capital program, designed to help municipalities address necessary road, bridge, and other priority projects identified through their asset management plans. This program is the second phase of the Province's recently released Municipal Infrastructure Strategy which aims to:

- Further strengthen municipal asset management practices;
- Support the most critical roads, bridges, and drainage projects; and
- Provide funding to municipalities that are unable to undertake projects without provincial support.

The Provincial strategy relies heavily on the requirement for municipalities to demonstrate how proposed projects fit within an asset management plan, which is a key component to ensuring infrastructure sustainability. An Asset Management Plan provides many benefits including:

- A systematic evaluation of all potential projects at the same time.
- The ability to stabilize debt and consolidate projects to reduce borrowing costs.
- To serve as a public relations and economic development tool.
- A focus on preserving a municipal government's infrastructure while ensuring the efficient use of public funds.
- An opportunity to foster cooperation among departments and an ability to inform other units of government of the Town's priorities.

3.2 OVERVIEW

The Capital Plan, an integral part of an Asset Management Plan, is a blueprint for planning a community's capital expenditures and is one of the most important responsibilities of local government officials. It coordinates community planning, financial capacity and physical development. It is a tool to assess the long-term capital project requirements of a Town, to establish funding of high-priority projects in a timely and cost-effective fashion. The development of a Capital Plan is intended to ensure that policy makers are responsible to residents and businesses of the community with respect to the expenditure of public funds. It also promotes the provision of continuous efficient services. This plan identifies and describes capital projects, the years in which funding each project is likely to occur and the method of funding. While a Capital Plan may be designed to forecast any period of time, it generally extends beyond the current operating cycle and usually covers a five to ten year time frame. The Town of Kirkland Lake has requested a 10 year Capital Plan.

The Capital Plan provides a detailed understanding of anticipated investments into tangible capital assets. These assets include basic facilities, services and installations needed for the functioning of the community. The development of a CIP that will insure sound fiscal and capital planning requires effective leadership and the involvement and cooperation of all municipal departments. A complete, properly developed CIP has the following benefits:

- Facilitates coordination between capital needs and the operating budgets
- Enhances the community's credit rating, control of its tax rate, and avoids sudden changes in its debt service requirements
- Identifies the most economical means of financing capital projects
- Increases opportunities for obtaining federal and provincial aid
- Relates public facilities to other public and private development and redevelopment policies and plans
- Focuses attention on community objectives and fiscal capacity
- Keeps the public informed about future needs and projects
- Encourages careful project planning and design to avoid costly mistakes and help a community reach desired goals

A municipal government must take care of two key responsibilities in managing its infrastructure:

- The first major responsibility is the maintenance and repair of existing infrastructure. Given the high cost to replace linear assets and the fact that they are essential to providing programs and services to the public, it is extremely important that regular maintenance and periodic refurbishments be done to keep facilities and other assets in good working condition for as long as possible.
- The second major responsibility that municipal governments have is to plan and construct new community infrastructure. This involves several steps including deciding what services are to be provided, identifying community needs, careful planning, determining priority investments, figuring out how to finance projects and good management to ensure projects are completed on time and on budget.

Typically, a municipal government manages many diverse assets. Each asset type is considered a “capital” asset if it has the following characteristics:

- It is held for the purposes of delivering a program or service or to produce something
- It is to be used on a continuing basis and is not intended for sale

- It has a life expectancy of greater than one year
- It has as a value greater than a certain minimum threshold (as established in the TCA policy)

Common examples, such as roads, buildings and equipment, all meet these criteria and are considered capital assets from a planning and financial perspective. Other types of expenses, such as salaries, purchased services (e.g. janitorial), consumable items (coffee, office supplies etc.) or regular maintenance, do not meet these criteria and are categorized as expenses. These types of expenditures are paid for from operations budgets.

Local governments can make significant capital expenditures, sometimes undertaking projects without first analyzing the impact such expenditures may have on future operations and expenditures for other important capital projects. A Capital Plan is intended to assist municipalities in making choices about which projects should be implemented, how they should be financed and when, to establish priorities for its spending on services, while controlling the ultimate impact on the tax rate or user fees. It also provides a mechanism for controlling future debt levels, thereby ensuring that a reasonable amount of financial flexibility is maintained.

Although the Capital Plan is generally maintained separately from the operating budget, they do work in unison since the debt charges on funds borrowed for capital expenditures become expense items in the annual operating budget. In addition, operating and maintenance costs of capital assets have an impact on the operating budget. In order to have a realistic, workable Capital Plan, therefore, it is necessary to estimate the effect that debt service and operating costs will have on future tax rates. In this way, non-essential capital expenditures will not be undertaken at the expense of pending essential capital projects and the Town or commission will thus be in a better position to control future debt levels.

To determine how much money should be allocated to existing infrastructure, the following factors need to be considered:

- **Inventory** – keep an up-to-date inventory of all physical assets that the municipal government owns or manages including fixed assets (buildings, facilities, etc.) and mobile assets (heavy equipment, trucks, smaller equipment.)
- **Condition rating** – complete an assessment of the condition of each significant asset and determine what needs to be repaired and when.
- **Upgrades** – existing facilities may need to be upgraded to meet new standards or legislative requirements or to meet increasing demands due to population growth or new programming.
- **What does the community need for new infrastructure?** This can be a tricky subject to resolve as a Council and community residents may have very different opinions about what the community needs most. This stage of the process requires community consultation which can include meetings, surveys etc. One approach is to organize needs starting with the basics (survival, safety, and shelter) and moving to more advanced needs (recreation, social / cultural, leisure). Once an initial list of potential projects is identified, it can be further refined on the basis of urgency.
- **Immediate or short term** – these are needs that won't wait such as water shortages, equipment breakdowns, etc.
- **Predictable growth** – these are needs driven by population growth and increasing demands on infrastructure that will need to be addressed in the next few years. Examples include housing supply, water treatment and delivery capacity, need for expanded recreation facilities etc.

- **Future** – these are long term needs that will occur in the next 20 years, often as a result of priorities established in other community plans (Strategic Plan, Recreation Plan, Land Use Plan etc.). An example may be the development of new residential lots or the refurbishment or replacement of an old building.

3.3 METHODOLOGY

The Town of Kirkland Lake's Capital Plan addresses infrastructure deficiencies and future capital expenditures. It includes existing service infrastructure not meeting engineering standards, the cost of renovation or replacement of infrastructure which has exceeded its service life and which as a consequence, is not meeting required service standards. Provision is required to renovate or replace infrastructure constructed previously, when it reaches the end of its service life. These costs do not include on-going operational and regular maintenance (which typically represent the greatest cost component of a facility's service life, for example). Unless informed by the Town, requirements such as investments required to support industrial, commercial and residential development in accordance with the growth projections required to serve the community and social needs as well as supply the increasing population and to service to the boundaries of new subdivisions have not been analyzed.

The Town's Capital Plan includes:

- Development of parameters for each asset class
- Development of rehabilitation and replacement unit costs
- Identifying the asset types to be included in the Capital Plan
- Determining and confirming the components of each asset class
- Identification of services to be provided and the capital expenditures to be incurred
- Determination of secondary cost estimates of capital expenditures (consideration of such cost elements as land, architect/engineering fees, construction, legal fees, taxes, etc.) The non-rebatable portion of HST at 1.76% has been applied, for example
- Determination of the time periods over which the asset is to be constructed or acquired and the costs prorated accordingly

The Municipal DataWork's Capital Infrastructure Planning (CIP) module allows municipalities to plan necessary rehabilitation work on the right asset at the right time. The CIP module also allows municipalities to produce a Capital Expenditure Plan for all asset types included in the Kirkland Lake's MDW asset repository. The CIP allows different work or renewal strategies to be selected for each asset type or category.

The trigger for a strategy within the Municipal DataWork's capital planning tool can be age-based or condition-based. For the most part, age-based triggers were used for this study, although condition-based recommendations from Bridge studies were incorporated in our report. The Capital Planning parameters, subsequent to the timeline within the road needs studies were condition-based on degradation curves developed by OGRA and the Ministry of Transportation, as defined within a Road Strategy document earlier circulated to the Town for its review and attached as Appendix F to the Asset Management Plan report.

The Life Expectancy parameters, the estimated useful life or number of years before an asset needs to be replaced, were provided by the Town. The Condition Trigger Point, the number of years after initial installation that the renewal strategy is triggered or the rehabilitation work is to take place, were thoroughly researched, based on engineering principles and established

standards. Also, the Life Expectancy Gain, the number of years that the useful life of the asset is extended, were based on engineering principles and established standards.

All analysis to measure the impact of this Capital Plan on future operating budgets will be considered in the final report taking into consideration. The capital costs required for each year were determined using MDW's Capital Investment Plan (CIP) module.
The methodology used for building this Capital Plan was to:

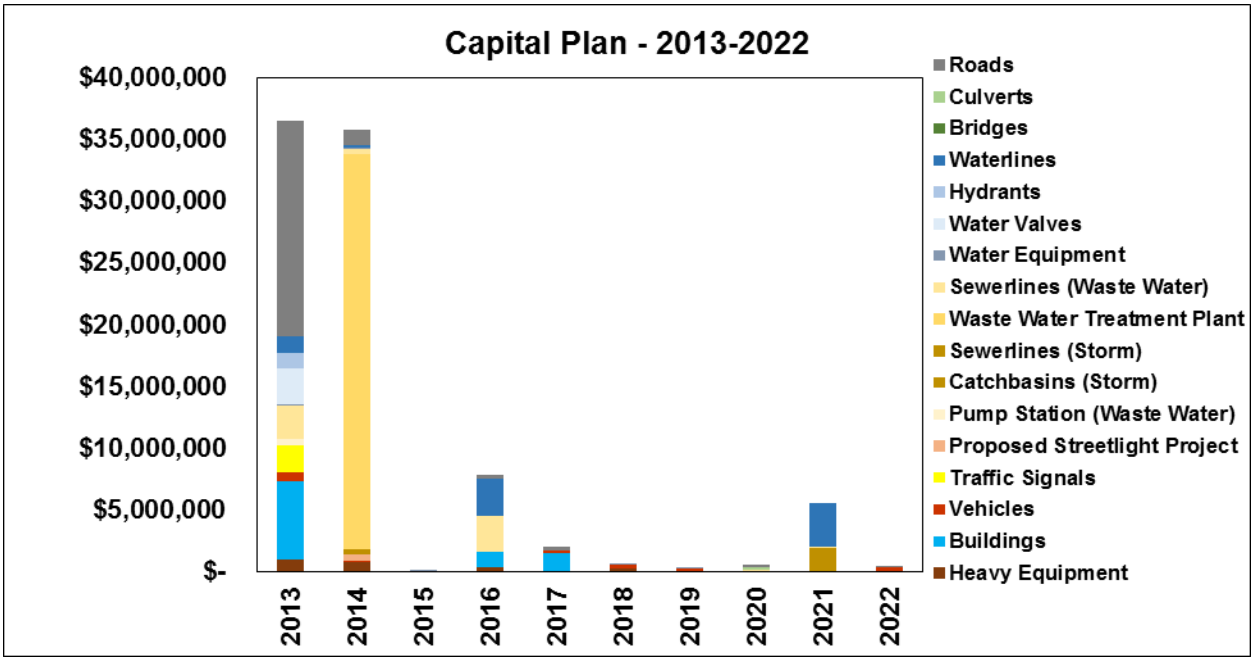
1) Use the tools within MDW for error checking and data gap analysis
2) Determine the "unconstrained" rate of capital expenditure (assuming an unlimited budget). A constrained rate of capital expenditure will be provided in the final report.
3) Identify the Town's current infrastructure deficit.
4) Determine the Town's future capital requirements using MDW's CIP module
5) Prepare a report detailing the capital required for each asset class based on current rehabilitation and replacement unit costs
6) Establish the cost of maintaining existing infrastructure while addressing the infrastructure deficit

3.4 RESULTS

The Town of Kirkland Lake's infrastructure deficit is determined to be approximately $4,500 per person (2013 figure), much below the national average, but very serious for a smaller Town. The vast majority of the deficit is in dealing with the roads, buildings, water and sewer infrastructures. Like most other local governments in this province, the Town of Kirkland Lake will struggle with aging infrastructure and constrained budgets.

Upon completion of the collection of all the pertinent data, the capital plan was generated using MDW's Capital Investment Plan (CIP) module. A 10 Year Capital Plan, broken down by asset class for the years 2013 to 2022 (with PST and without inflationary factor), was developed. Inflation will be incorporated in the financial analysis. The results are as follows:

Timeframe	Year	Total Capital Projects *(Incl. PST)*
Year 2013-2022	2013	$36,517,841
	2014	$35,778,270
	2015	$205,460
	2016	$7,783,774
	2017	$2,006,986
	2018	$679,014
	2019	$295,750
	2020	$519,729
	2021	$5,549,193
	2022	$405,872
Total		**$89,741,888**

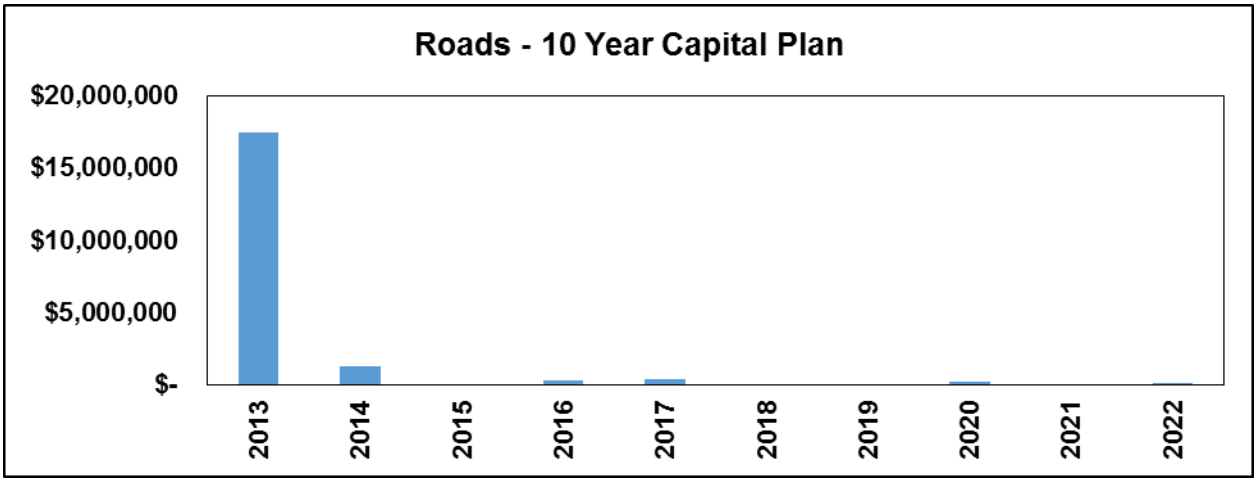


A detailed, project-by-project breakdown of this draft Capital Plan is provided in an Excel spreadsheet and will be added to Appendix A for the final report. All proposed or study recommended projects, if any, are included in the detail capital project list in Appendix A.

3.5 BREAKDOWN BY ASSET TYPES

3.5.1 ROADS

The roads replacement cost is based on the cost provided by the Town of Kirkland Lake. ISI used numerous deterioration curves for the various roads. ISI also used the general OGRA road management strategy. The Gravel road expenses are treated as operating expenses and not included the Capital Plan expenses. An expression of interest has been submitted to the Ministry of Infrastructure, Ontario in 2013 for the project on Wood Street for the replacement of asphalt, curb and gutter. Asphalt within this area has deteriorated past its useful life. The road conditions are based on the Ride Comfort Rating provided by the Town in 2013 and will be updated using the Road Needs Study that will be conducted in 2014.



LIFECYCLE ACTIVITIES – LOOSETOP (UNPAVED)

We are only dealing with Paved (HCB) in your Capital Plan. Gravel road expenses are being captured in your operating expenses, and inserting them into your Capital Plan would be a redundant entry.

The OGRA strategy for Gravel roads is to re-gravel roads 75 mm every 3 to 5 years depending on the AADT. Almost every Town we work with, does annual maintenance rather than a 5 year resurfacing to 75 mm Granular A.

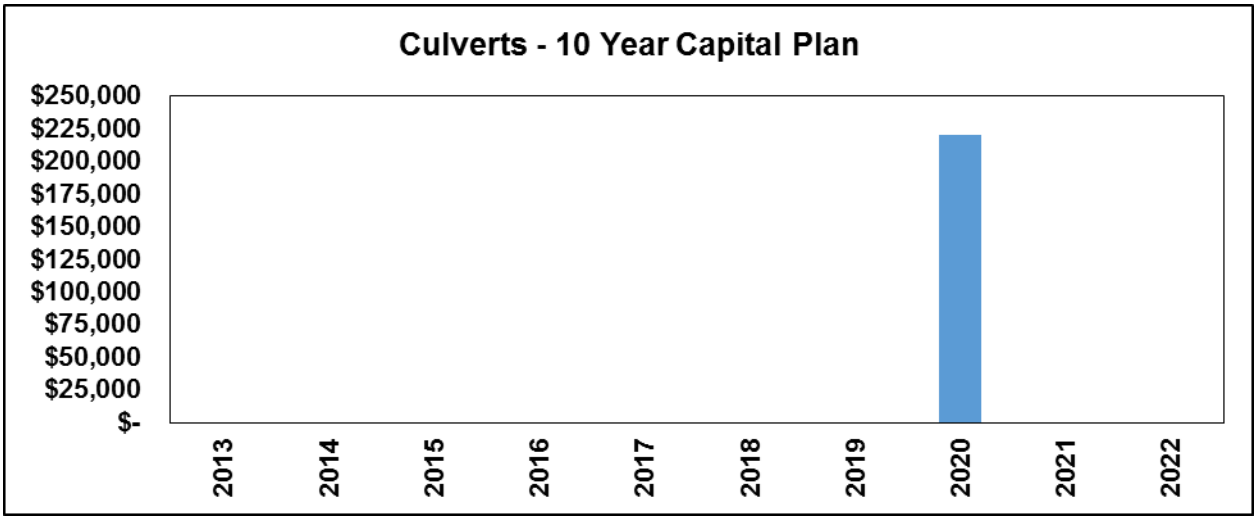
Timing	Activity	Activity Quantity		
		Class of Road		
		4	5	6
Annual	Grading Dust suppression Ditching Culvert cleaning Safety devices	8 x per year 4t per kilometer 1 x per year as required	6 x per year 4t per kilometer 1 x per year as required	6 x per year 4t per kilometer 1 x per year as required
3 years	75mm Granular A	All roads	All roads	
5 years	75mm Granular A			All roads
6 years	75mm Granular A Spot repairs Drainage replacement	All roads 10% 12%	All roads 10% 12%	
10 years	75mm Granular A Spot repairs Drainage replacement			All roads 10% 12%

3.5.2 CURBS

The Curbs have not been included in the Asset Management Plan according to Town's advice.

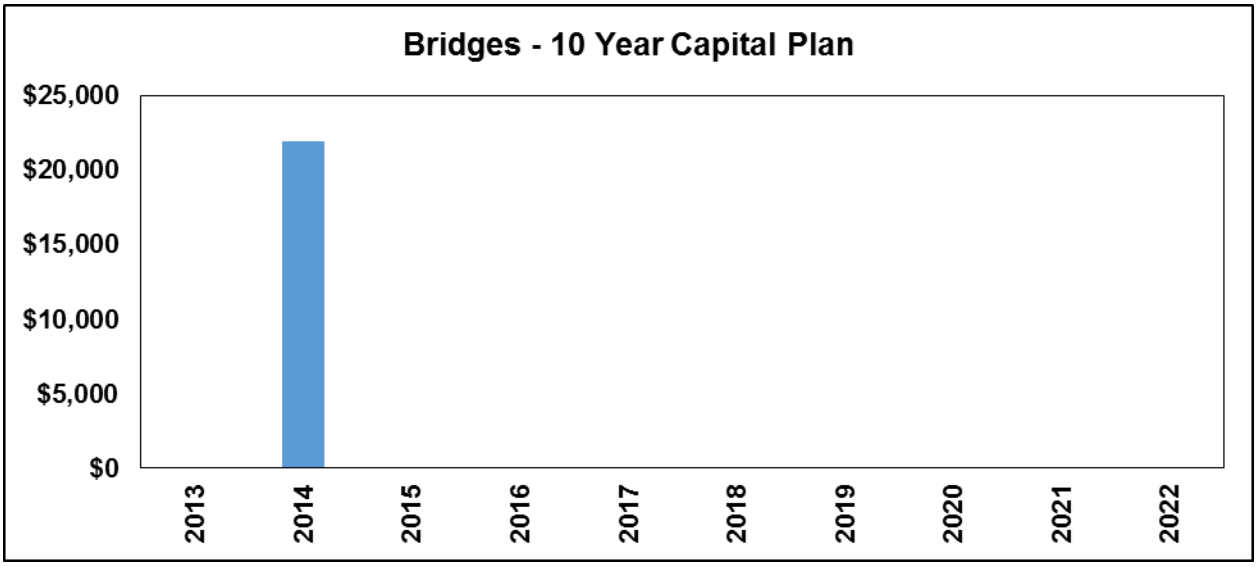
3.5.3 CULVERTS

The replacement costs for the Culverts is based on the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



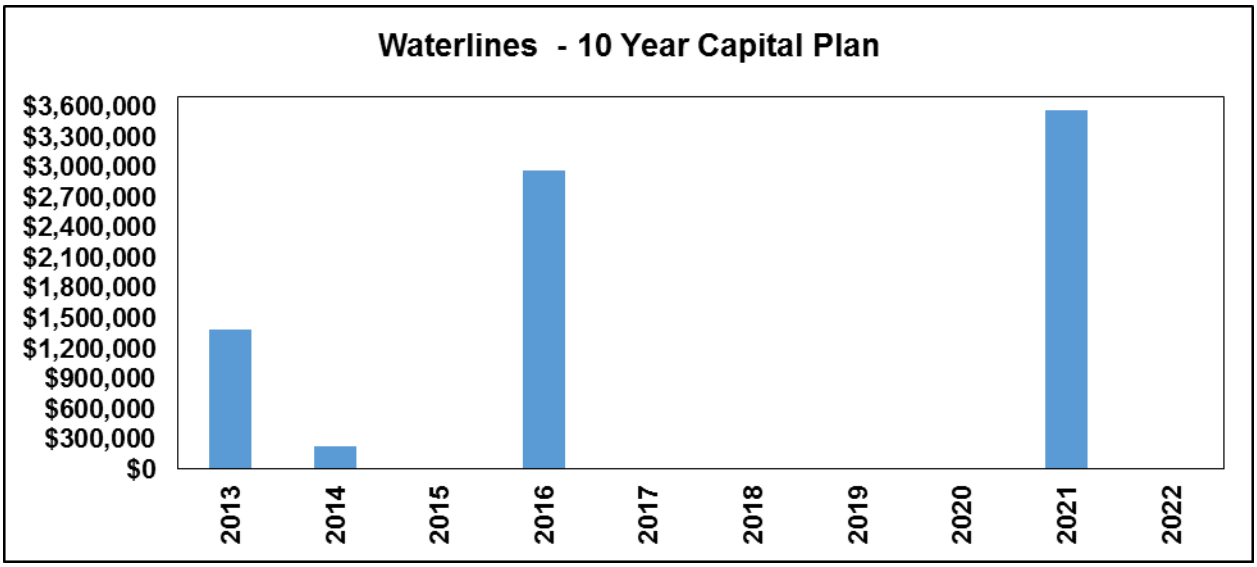
3.5.4 BRIDGES

The replacement cost for Swastika Bridge is based on the inspection report conducted in 2010, provided by the Town that has been indexed using the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



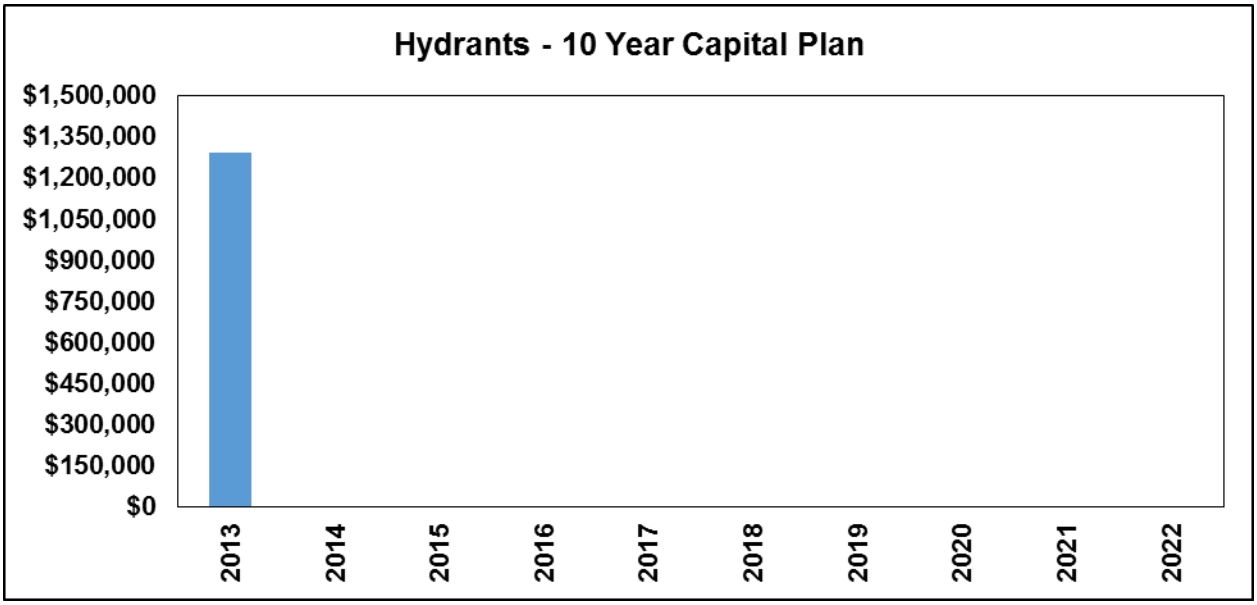
3.5.5 WATERLINES AND PROPOSED PROJECT

The replacement costs for Waterlines is taken from similar geographic areas that has been indexed to 2013 based on the “Consumer Price Index” and the “Municipal Cost Index”. All costs have PST of 1.76% added to the base costs. This graph also shows the reconstruction of the Waterlines on Wood Street. An expression of interest has been submitted to the Ministry of Infrastructure, Ontario in 2013 for the project of Waterline system on Woods Street, which was constructed in 1935 with Cast Iron. The replacement is required due to age related factors, (Waterline breaks and corrosion within the pipes causing discolored water).



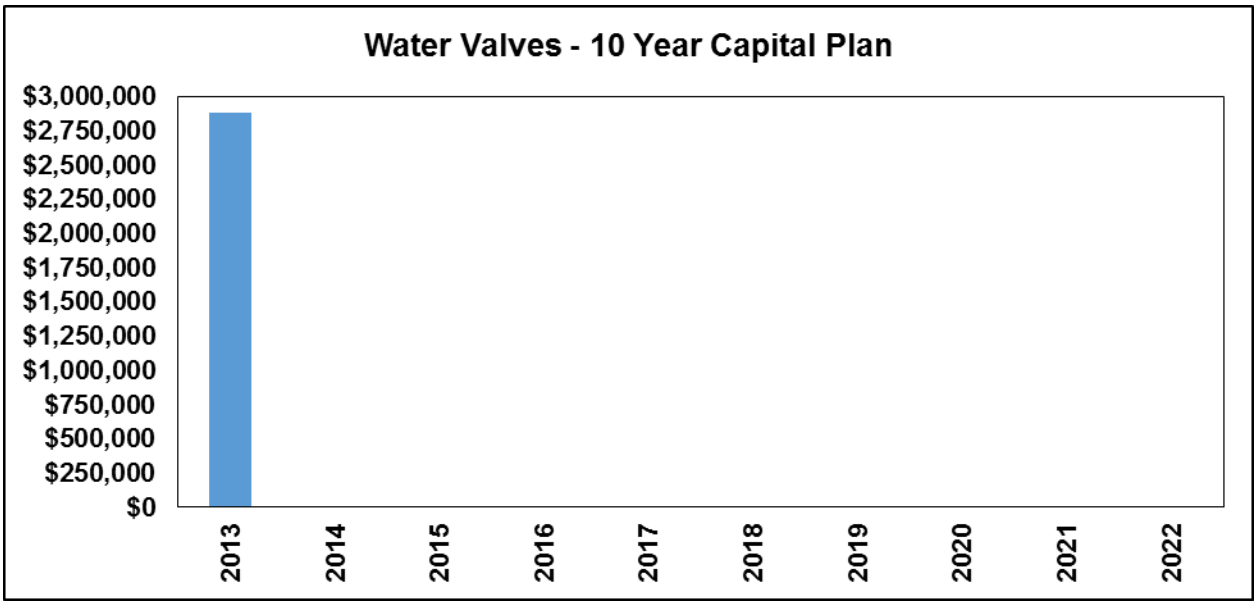
3.5.6 HYDRANTS

The replacement costs for Hydrants is taken from similar geographic areas that has been indexed to 2013 based on our “Municipal Cost Index”. All costs have PST of 1.76% added to the base costs.



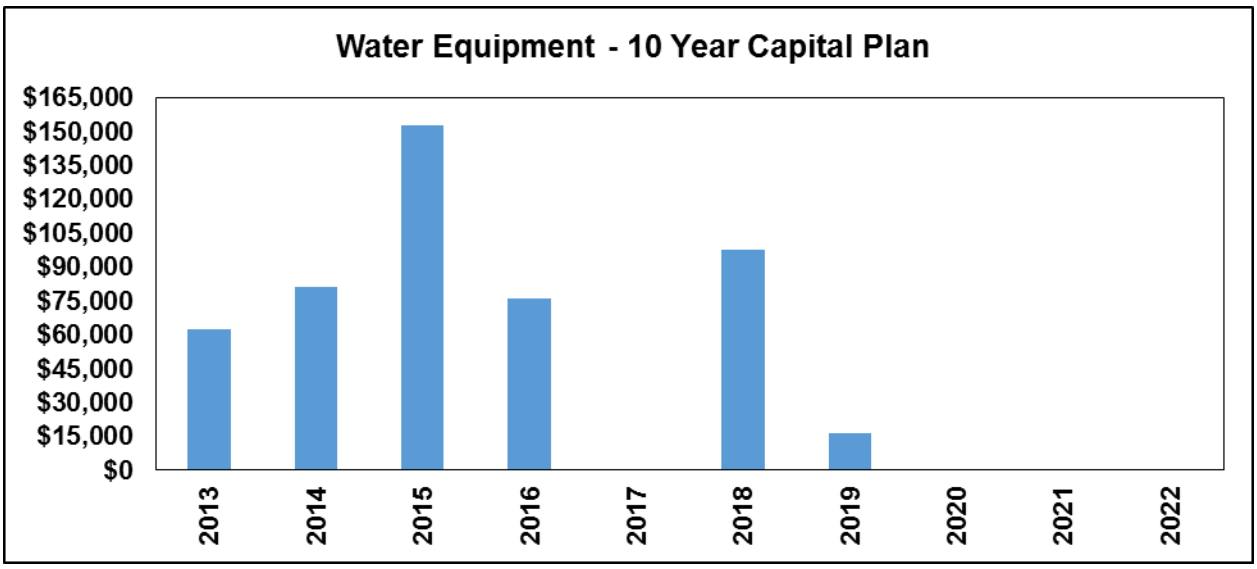
3.5.7 WATER VALVES

The replacement costs for Water Valves is taken from similar geographic areas that has been indexed to 2013 based on our “Municipal Cost Index”. All costs have PST of 1.76% added to the base costs.



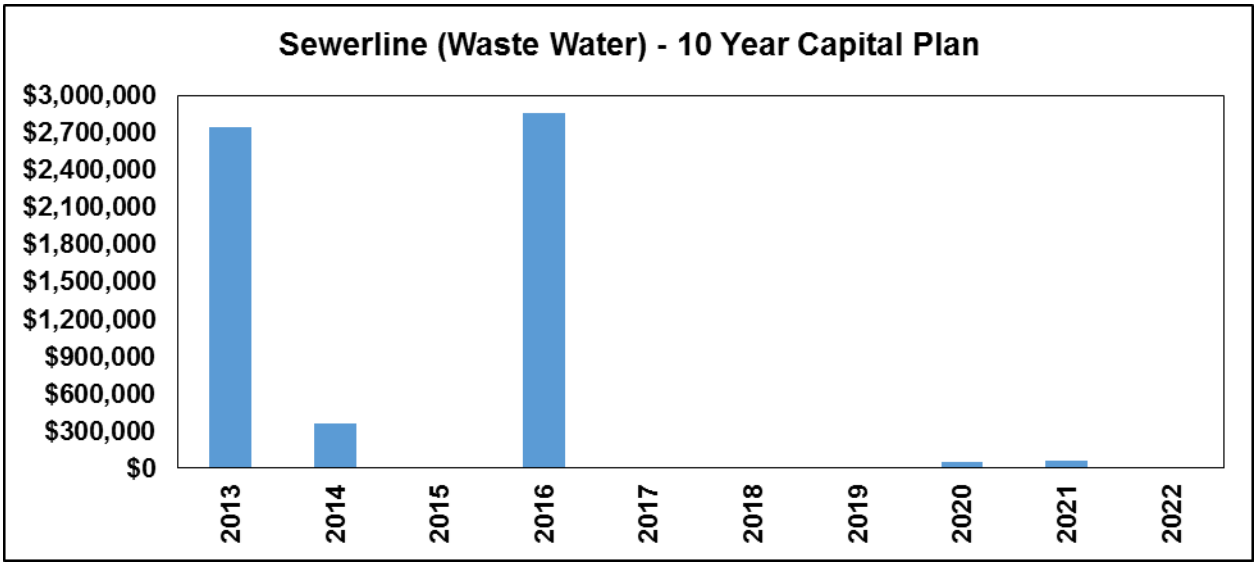
3.5.8 WATER EQUIPMENT AND PROPOSED PROJECT

The replacement costs for the Water Equipment is based on the insurance document 2013 and the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs. This graph also shows the proposed projects for Chlorinator, SCADA Hardware and Water Filter Replacement, provided by the Town.



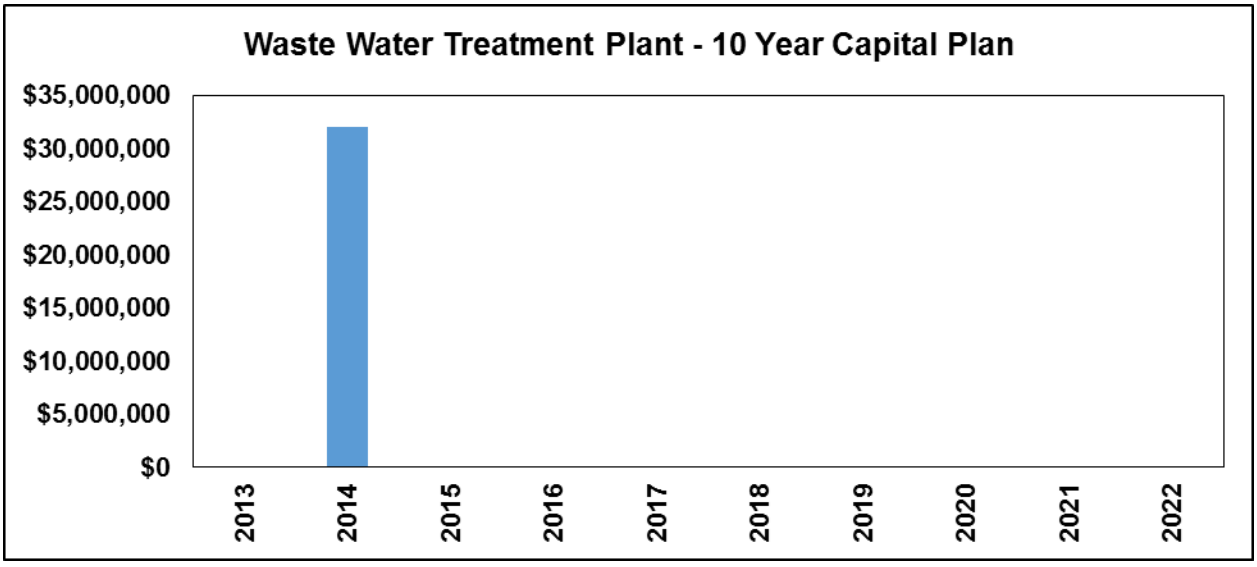
3.5.9 SEWERLINE (WASTE WATER) AND PROPOSED PROJECT

The replacement costs for Sewer line (Waste Water) is taken from similar geographic areas that has been indexed to 2013 based on the “Consumer Price Index” and the “Municipal Cost Index”. All costs have PST of 1.76% added to the base costs. An expression of interest has been submitted to the Ministry of Infrastructure in 2013 for the project of Sanitary Sewer System on Woods Street, which was constructed in 1935 with Clay Tile. The replacement is required due to the age-related factors (deterioration and blocked sewers within the area).



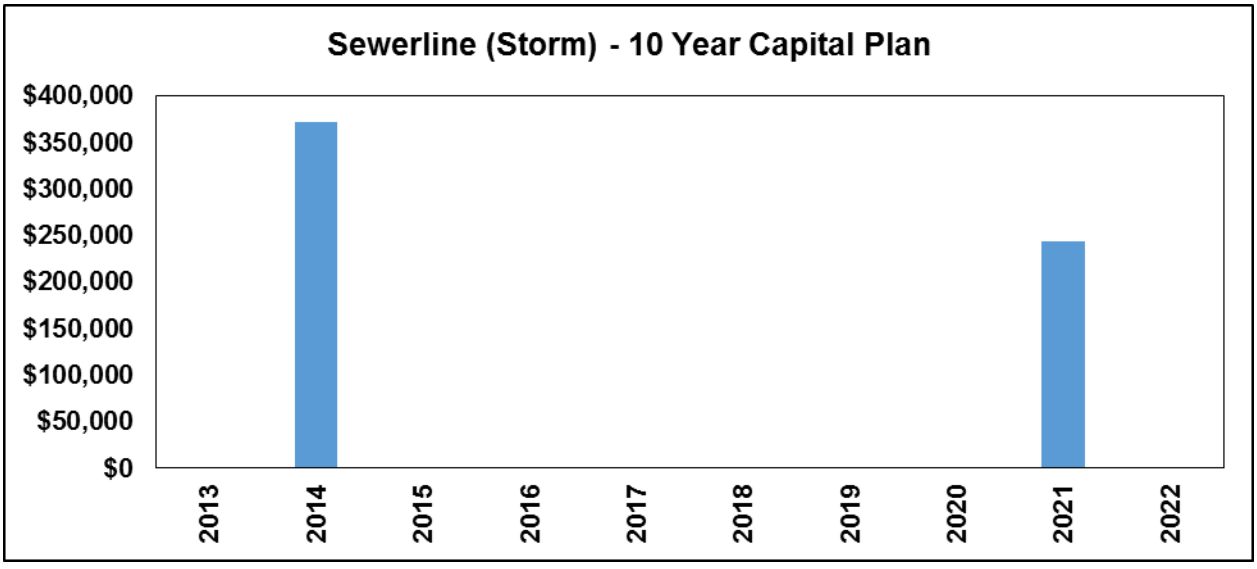
3.5.10 WASTE WATER TREATMENT PLANT PROPOSED PROJECT

This graph shows the proposed project for the construction of a new Waste Water Treatment Plant in 2014, including the conversion of the old plant to a lift station. The cost has been provided by the Town.



3.5.11 SEWERLINE (STORM) AND PROPOSED PROJECT

The replacement costs for Sewerline (Storm) is taken from similar geographic areas that has been indexed to 2013 based on the “Consumer Price Index” and the “Municipal Cost Index”. All costs have PST of 1.76% added to the base costs. An expression of interest has been submitted to the Ministry of Infrastructure in 2013 for the project of Storm Sewer System on Woods Street, which was constructed in 1970. The sizing of the system needs to be increased leading to the outlet at the end of Wood street to accommodate the drainage volumes within the drainage area D2.



3.5.12 MANHOLES (WASTE WATER)

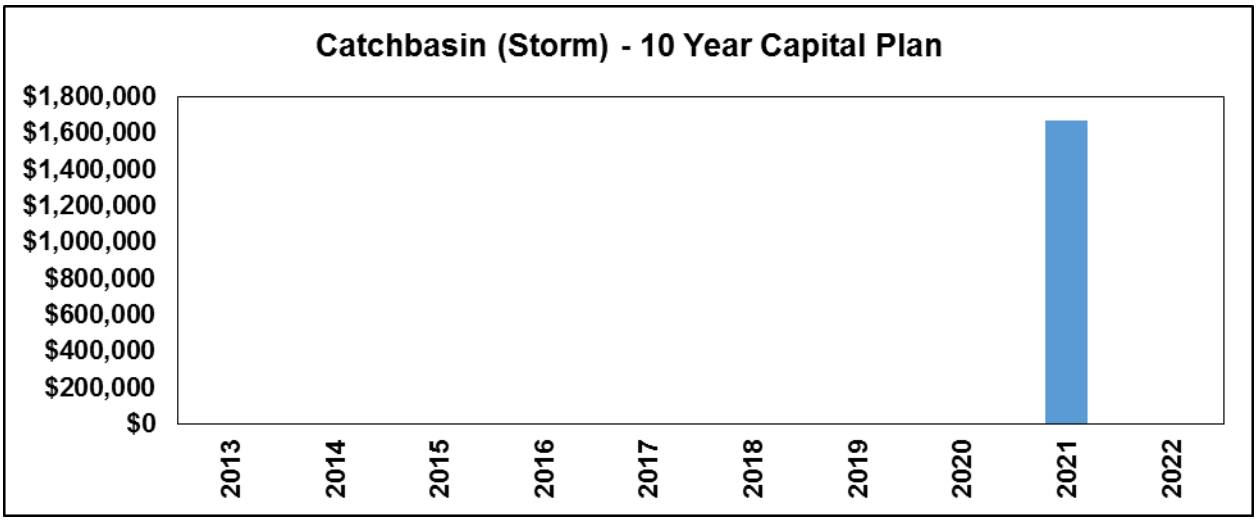
No Manholes (Waste Water) fall into the window of this Asset Management Plan.

3.5.13 MANHOLES (STORM)

No Manholes (Storm) fall into the window of this Asset Management Plan.

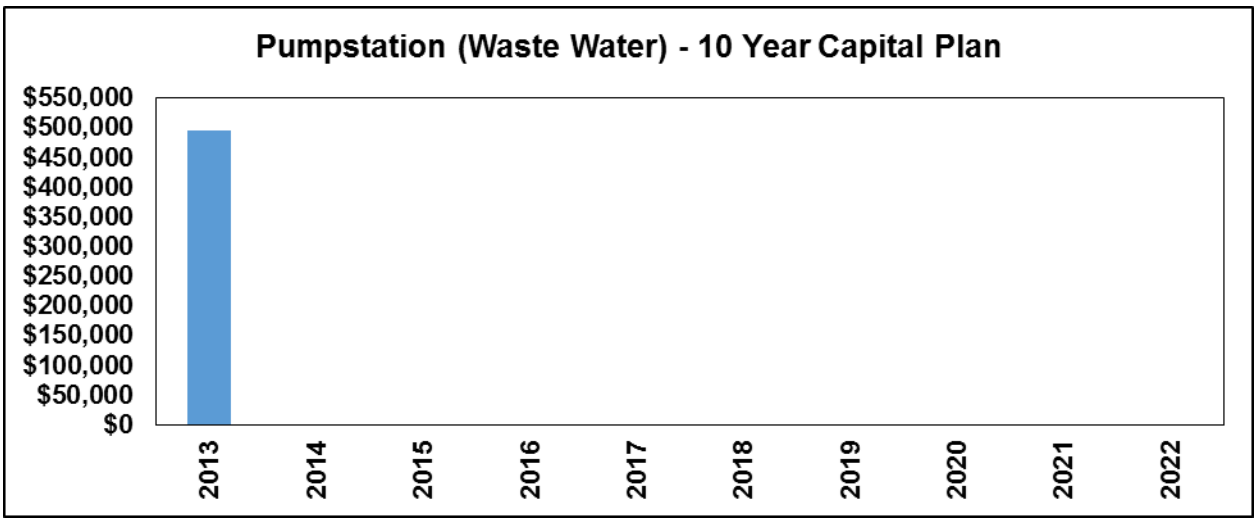
3.5.14 CATCHBASIN (STORM)

The replacement costs for Catchbasin (Storm) is taken from similar geographic areas that has been indexed to 2013 based on the "Municipal Cost Index". All costs have PST of 1.76% added to the base costs.



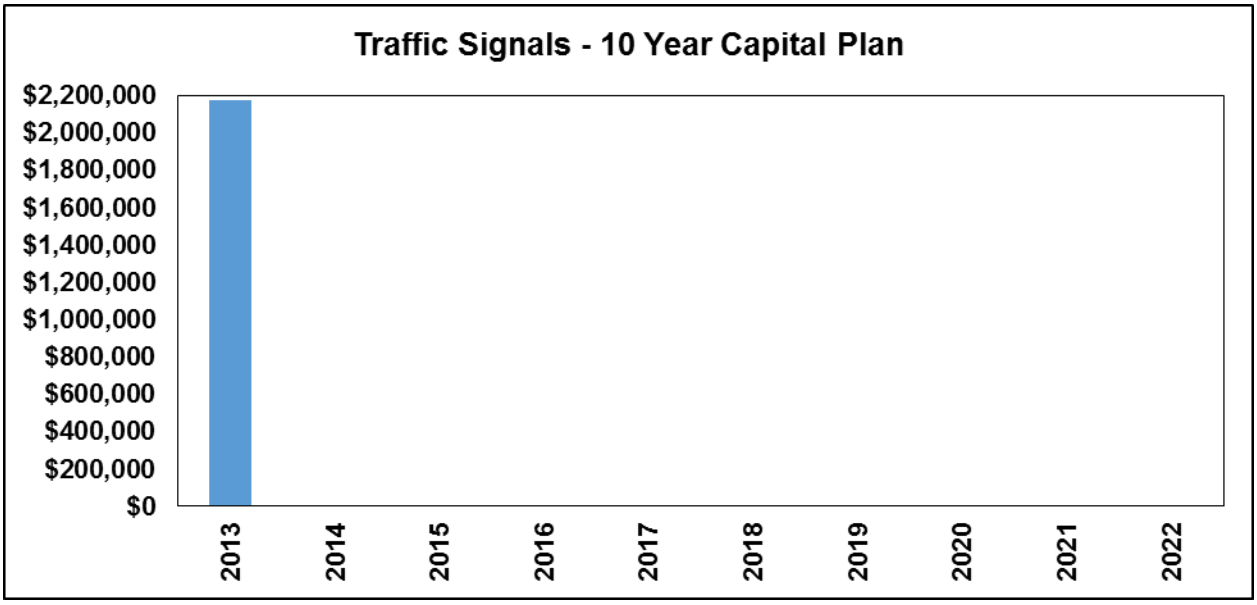
3.5.15 PUMPSTATION (WASTE WATER)

The replacement cost for the Pumpstation (Waste Water) is based on the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



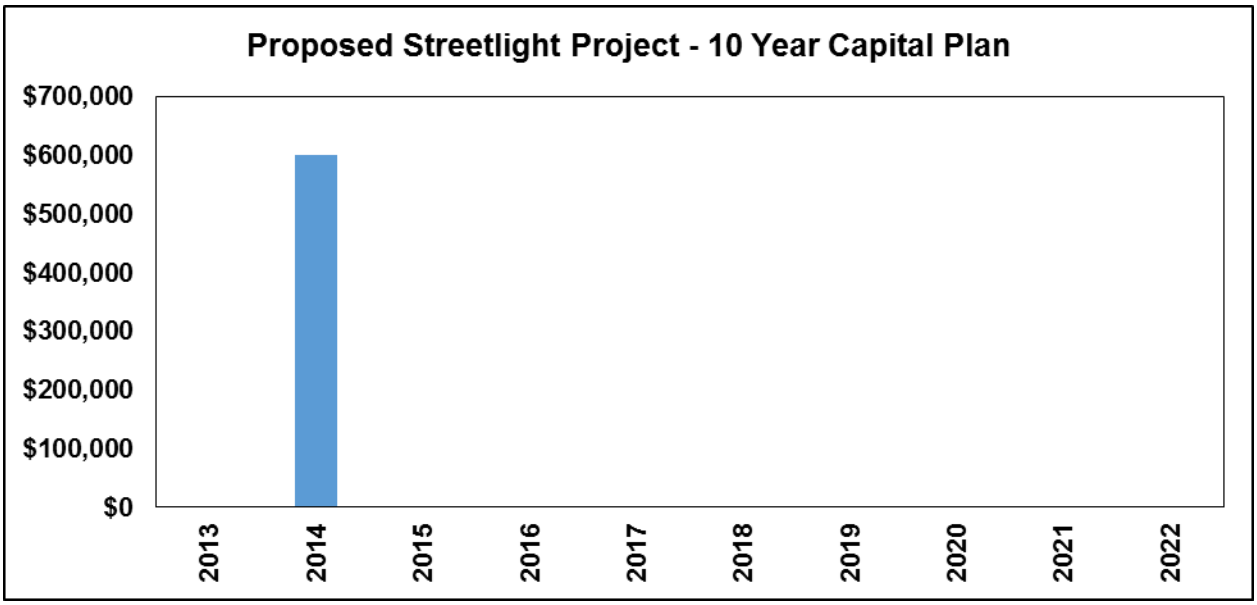
3.5.16 TRAFFIC SIGNALS

The replacement costs for the Traffic Signals is based on the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



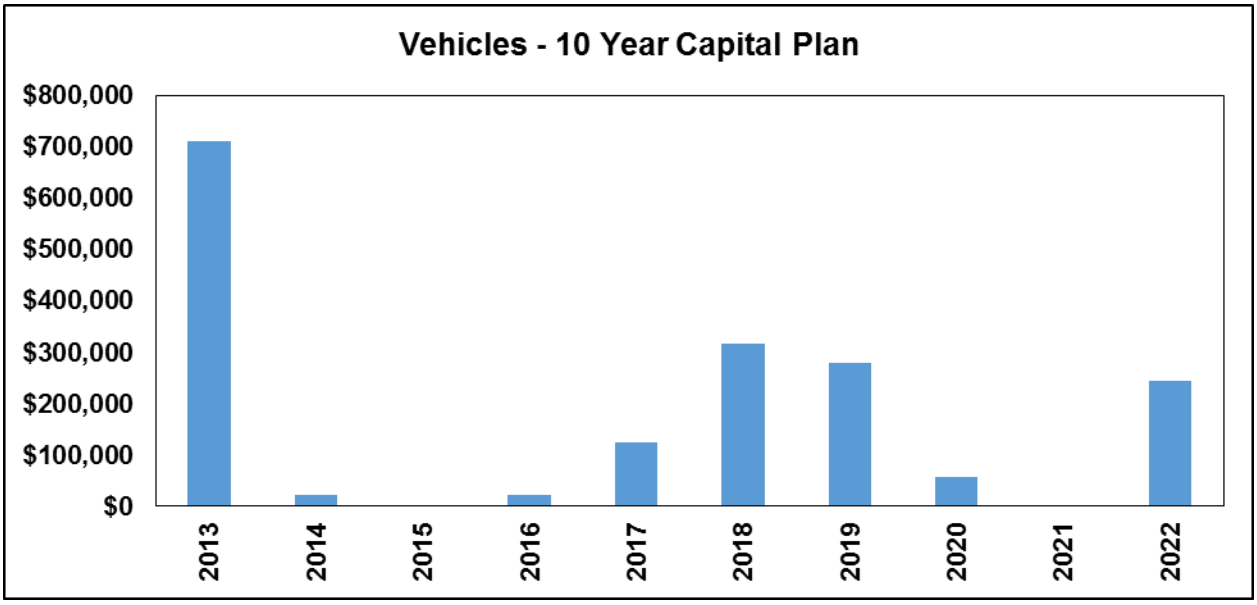
3.5.17 STREETLIGHTS AND PROPOSED PROJECT

No Streetlights fall into the window of this Asset Management Plan. However, the Town is proposing a project to replace lights to LED in the year of 2014, and is placed as an “Approved” project in the Appendix A.



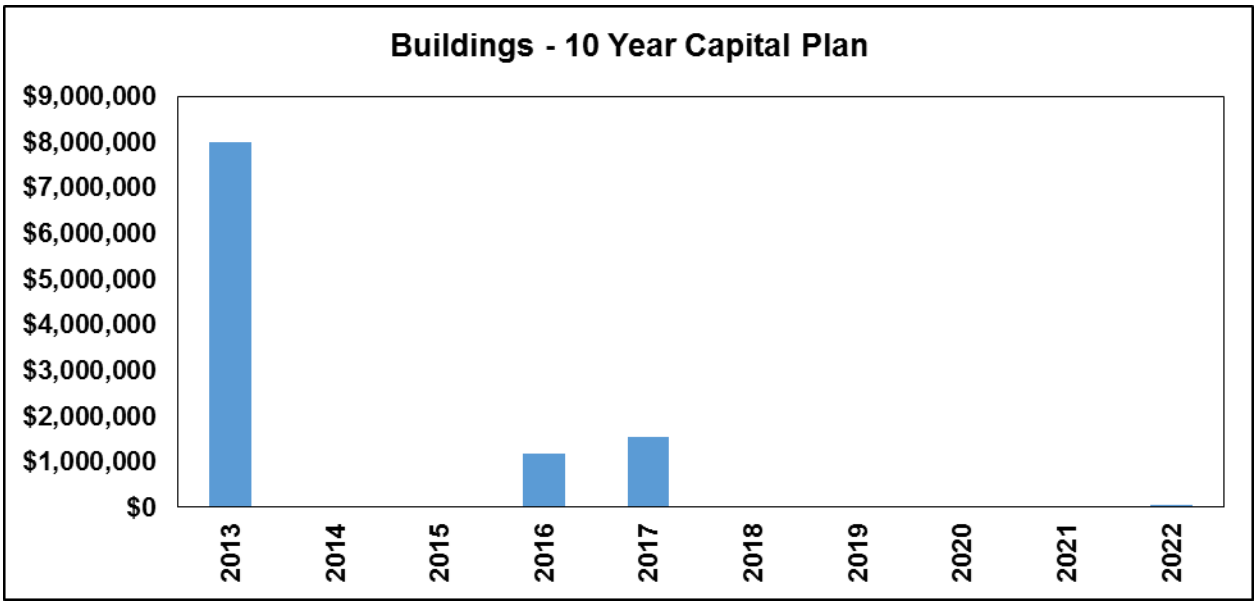
3.5.18 VEHICLES

The replacement costs for the Vehicles is based on the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



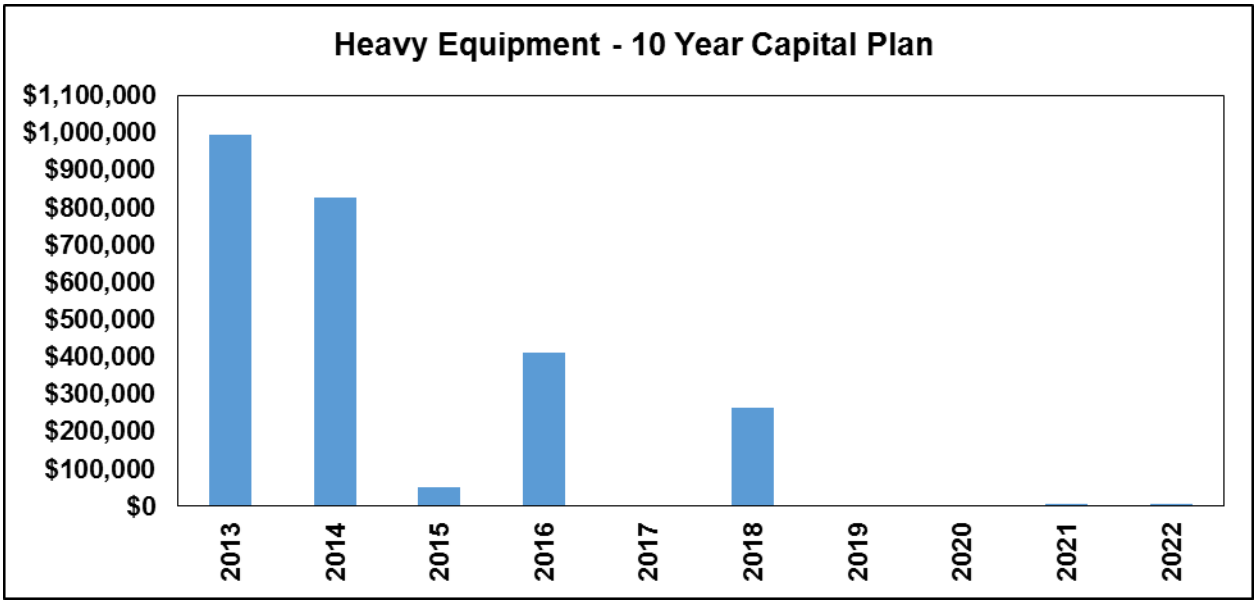
3.5.19 BUILDINGS

The replacement costs for the Buildings is based on the 2013 insurance document and the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



3.5.20 HEAVY EQUIPMENT

The replacement costs for the Heavy Equipment is based on the insurance document 2013 and the historical cost provided by the Town that has been indexed using the Consumer Price Index and the Municipal Cost Index. All costs have PST of 1.76% added to the base costs.



4 LEVELS OF SERVICE

4.1 OVERVIEW

Levels of Service (LOS) are statements of service performance delivery. LOS is established based on Council direction, the needs or wants of the community as well as legislative and regulatory requirements. This report includes Operating Performance Indicators (OPI's) for current levels of service. Through the ongoing Asset Management process LOS will be further defined for the Town, the Town's assets, and the community. All are interconnected.

Asset management, at its root, is really about balancing between the full life cycle costs of various services and the levels of service being provided. It is about knowing what levels of service customers expect and what they are willing to pay. The level of service is a reflection of the quality, function and capacity of the services being provided. As a Town, you might consider:

- The level of service you are currently providing to users
- The annual cost to continue to provide the current level of service
- How the current level of service is expected to change in the future given current funding levels
- If you are meeting the level of service expectations of your users given the costs to provide current, increased or decreased levels of service

Many municipalities cannot currently answer these questions, although many are working towards this goal. If you can't answer questions about the current, future and desired levels of service (with associated costs), then it will be difficult to understand the financial implications of

owning the asset going forward. The levels of service that you provide as a Town directly impact many parts of asset management including both life cycle costs and risk management. As a rough generalization, the higher the level of service provided, the higher the life cycle costs of providing that service. Levels of service drive the expected treatments in the management of infrastructure. Customer levels of service outline the overall quality, function, capacity and safety of the service being provided. Technical levels of service outline the operating, maintenance, rehabilitation, renewal and upgrade activities expected to occur within the Town. When practicing asset management it is important to first document the current level of service being provided. As asset management becomes more established within your Town, levels of service may be set through consultation with the community. However, it is critical that prior to consulting with the public, the current levels of service along with associated life cycle costs are understood.

It is also important to discuss how various levels of service may have different risks associated with them. These risks may play an important role in determining if certain levels of service are acceptable. As with all economic analysis, a sensitivity analysis should be carried out on those parameters which are more likely to be beyond the control of the organization, such as market forces affecting the opportunity cost of capital, community expectations/perception on risk and factors in the long-term, health and safety effects, community economic effects, environmental and social effects, feasibility including public support and the Town's readiness.

4.2 METHODOLOGY

The implementation of a formal Maintenance Management System (MMS), among many other items, measures the response time, lag time, total time to resolution, resources involved, and communication logs for all issues identified internally and by customers. Going forward, this type of information not only provides the basis of resource and program management decisions, but is key information that will provide council and the public with the service level information in relation to the cost of service. Historically a significant portion of activities have been provided at a 'best we can do with what we have' basis. Through a review of design guidelines, and metrics being captured by the MMS, the Town of Kirkland Lake can re-orientate service delivery that is driven by service level expectations that incorporate Level of Service factors.

Benchmarking and other comparison management techniques are used both internally and for external regulation and monitoring, to assess the performance of infrastructure groups and asset owners. Each Town needs to consider developing rating systems to judge the assets from both a Town's perspective with the values that it brings to the organization, and also from a user's or regulator's perspective, in terms of the functionality, suitability, cost and service performance of the asset.

4.3 LEVELS OF SERVICE

Some Levels of Service (LOS) for the Town can be attained through documents developed in the industry and by internally focusing on technical requirements that meet generally expected levels of operation and safety:

- Provincial Minimum Maintenance Standards (MMS) for roads, drainage and water network
- Drinking Water Quality Management System (DWQMS)
- Engineering Standards Manuals

Operating Performance Indicators – These are the main activities within each operating budget cost center. These activities (OPI's) link directly to the level of service provided by the Town. The OPI's also include maintenance tasks that help extend asset life. A good balance between asset replacement through capital funding and ongoing maintenance provides the best-cost efficiency and service productivity.

Please review attached Appendix D for the process.

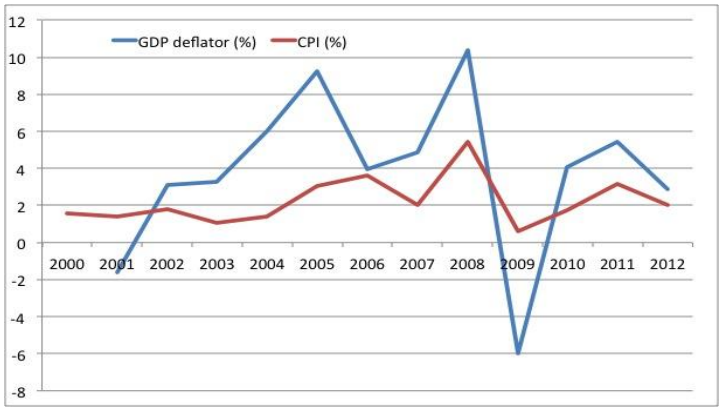
5 FINANCIAL PROJECTIONS

Our first steps in Financial Forecasting include compounding/inflating historical costs to Present Value (2012/13) number and then further compounding/inflating these numbers to meet future requirements. To maximize the accuracy of our projections, we have developed a comprehensive "*Municipal Cost Index (MCI)".* To further fine-tune our projections, we do a micro analysis of your geographic region.

Our basic assumptions and calculations, included within this document, are key to the planning process and serve as the base for the forecasting and predicting your future budgetary requirements and needs.

5.1 CONSUMER PRICE INDEX: OUR PERSPECTIVE

A price index measures the change in the costs of purchasing a fixed basket of goods and services in the current period, compared to a base period, typically month-over month or year-over-year. The most widely applied measure of inflation/price index is the Consumer Price Index (CPI). Given its pervasive use in setting cost-of-living adjustments, it can be the appropriate metric when calculating the rate of consumer inflation at the national level. Major components within the CPI include housing, food, and transportation.



Source: www.marketmonetarist.com

Extending the use of the CPI into discussions about the appropriate level of tax and fee rate increases becomes problematic, however, because a government's actual experience with inflation can differ greatly from the CPI. This is because the largest expenditures for governments are typically labor, materials, and contractual services — different factors than those found in the CPI. Spending patterns that are different than those of other economic sectors. A price index that does not reflect the municipal purchasing structure does not truly reflect changes in the cost experience, and thus the purchasing power, of local governments. For instance, the CPI reflects household spending patterns that focus on shelter (27.7 percent of the Statistics Canada CPI basket), transportation (19.5 percent), food (15.5 percent), and recreation (12.9 percent) — none of which registers as leading purchase categories for local governments.

There are two main parts to the MCI calculation: the weightings of the expenditure categories (showing the relative importance of items in the index), and the inflation factor used for each component. The inflation factors for expected price changes are based on economic data from two main sources, the Conference Board of Canada (CBOC) and Statistics Canada. The key issue is to match an appropriate inflator from these external sources to the types of expenditures in each budget category. MCI can be used in the following ways:

- To measure the increase in overall municipal expenditures attributed to inflation;
- To allow managers to more closely monitor the increase in spending by expenditure category, thus making inflationary price increases or decreases more visible;
- To provide an indication of the historical, current, and future direction of prices relative to municipal expenditures;
- To explain increased expenditures attributed to inflation when submitting annual budgets.

5.2 MUNICIPAL COST INDEX

Municipal Cost Index (MCI), entails both inflationary and non-inflationary components along with their Weight and Inflators. MCI has been created in such a way that it focuses on the overall yearly impacts of basket of goods that our clients has maximum exposure to and represents the operational/working capital needs on an ongoing basis. MCI will be used to a part of the assumptions in the following calculations:

- Municipal Cost Index is used as an integral part of Capital Planning Module, MCI served as the base for inflating/compounding historical costs to Present Value
- Financial Forecasting Municipal Cost Index will be used as an compounding/inflation factor till 2013 financial year and then the compounding/inflationary factor will be based upon the reliable research reports like RBC, TD, Scotia Bank, Stats Canada to predict rest of the years (basis Inflation rate, GDP growth rate, Population, Risk Free Rate, Market Premium Rate etc. will be considered for a constant growth rate)
- Break down of revenue and expenditure and predicting the sources of funds and expenses.

Kirkland Lake's Municipal Cost Index is attached as Appendix E.

5.3 FINANCIAL STRATEGY ASSUMPTIONS

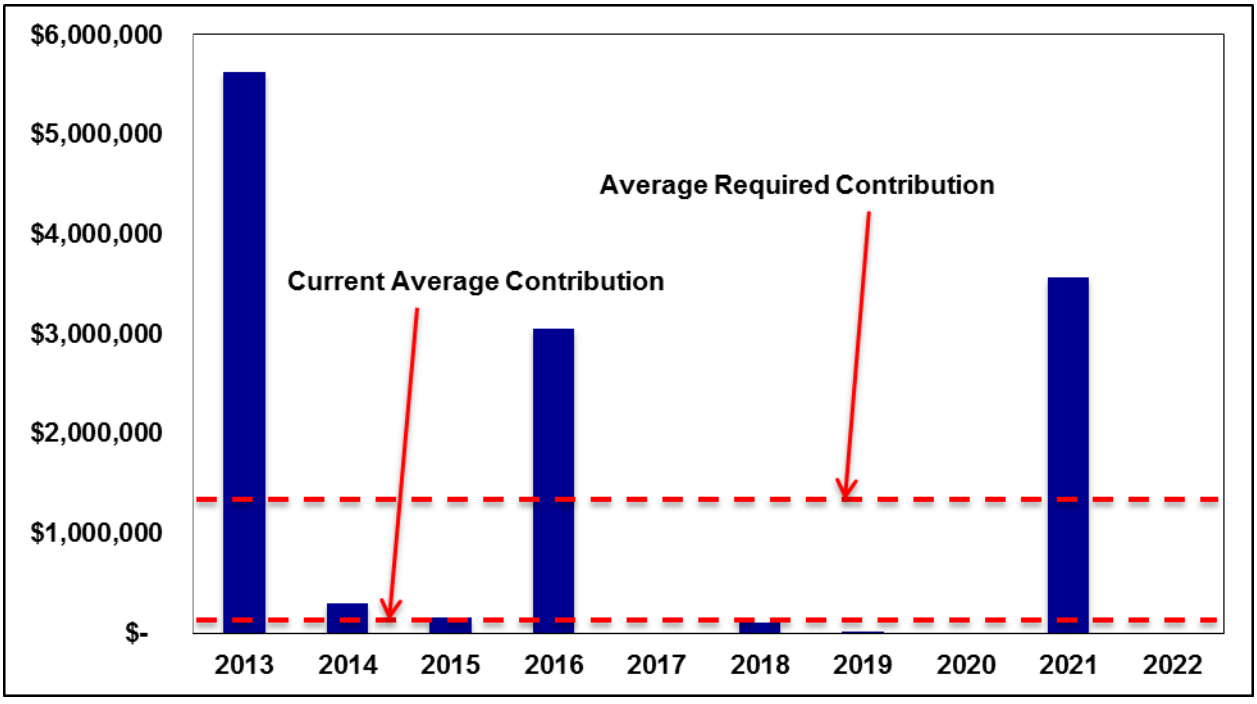
The following summarizes the key assumptions used in the preparation of the financial strategy for water, wastewater, roads and bridges:

- 2.3% annual operating income increase (property taxation, base scenario)
- 2% annual increase in User fees and 1% increase in other revenues
- 2% annual operating expenditure increase
- 2% annual increase in capital replacement costs
- Gas Tax Fund $506,015 (not inflated)
- Existing funding sources, as identified in the 2012 FIR
- No growth related capital has been included in analysis as the financial strategy relates to the replacement of existing assets.
- Capital replacement needs as identified in the previous section of this report

It is important to keep in mind that assumptions may significantly change over time. In addition, capital replacement cost estimates may vary from current projections. As such, there is a need to monitor the financial strategy over time.

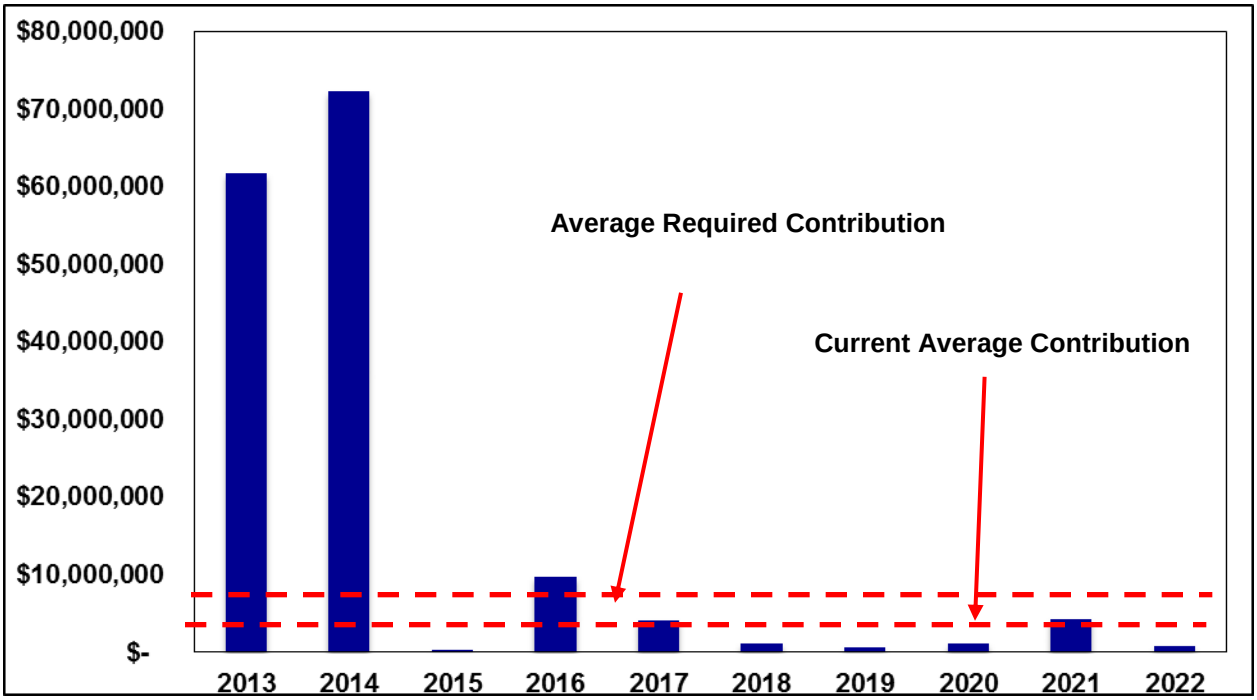
5.4 EXISTING WATER FUNDING REQUIREMENTS

The following graph reflects the annual requirements over the next 10 years to provide an understanding of the timing of the replacement requirements for water services. Over the next 10 years, the average annual replacement requirement for water is $1.28 MM, however the requirements vary on an annual basis. As illustrated below the average annual capital contributions in water are not sufficient to address the existing backlog over the next 10 years. A ten year plan is an insufficient timeframe to determine water rates and annual contributions. This system should be reviewed over a 40-50 year time frame.



5.5 FUNDING REQUIREMENTS

By our calculations, the average capital requirement is $7.79 MM and the existing contribution to the capital program is approximately $2.29 MM. This has resulted into a large infrastructure funding deficit. The Town is facing an infrastructure deficit like many other similarly-sized Towns. The Town needs to maintain current contribution and to continue to build reserves so that it can prepare to maintain service levels and meet capital requirements in future. Town strategies to close/reduce the gap will be discussed in the next section of the report.



5.6 FINANCIAL STRATEGIES – THE INFRASTRUCTURE GAP

Financial sustainability requires that a Town ensure that there are sufficient resources to support the delivery of services for which the Town bears responsibility. Given the need and benefit for further infrastructure investment in order to protect, sustain, and maximize the use of Kirkland Lake's infrastructure assets, a number of options and strategies have been considered.

5.6.1 STRATEGY 1: SPECIAL INFRASTRUCTURE LEVY

An option that could be implemented is to establish a special infrastructure levy for the replacement of existing infrastructure. For example, a special infrastructure annual levy increase of 3% would generate sufficient revenues to reduce the tax related infrastructure gap beyond 10 years. The Town will have positive cash flows, and Town should continue using additional funds to create healthy reserves to sustain infrastructure and service levels. These contributions would be dedicated to the replacement of existing reserves. By increasing the levy by an additional 3% annually will increase the funds available over the 10-year period by approximately $14.45 MM. This reflects the significant power of compounding:

- In year one, the additional 3% special levy would generate an additional $262,167.
- In year 10, with an assumed 3% special infrastructure levy, this would generate an additional $3.18 MM.

The following table is provided for illustrated purposes to help explain the significant potential through a modest levy increase to address the tax infrastructure gap:

3% Special Infrastructure Levy	
2014	$262,167
2015	$544,259
2016	$847,470
2017	$1,173,062
2018	$1,522,365
2019	$1,896,786
2020	$2,297,807
2021	$2,726,994
2022	$3,185,997
Total	***$14,456,907***
Average Income	***$1,606,323***

Water Services

Following the same strategy for water services, a special water infrastructure levy can be established for the replacement of existing infrastructure. For example, a special infrastructure annual levy increase of 3% would generate sufficient revenues to reduce the tax related infrastructure gap beyond 10 years. These additional contributions would be dedicated to the replacement of existing reserves. By increasing the levy by an additional 3% annually will increase the funds available over the 10-year period by approximately $3.56 MM.

The following table is provided for illustration purposes to help explain the significant potential through a modest levy increase to address the user fee gap:

3% Special Water Levy	
2014	$108,594
2015	$169,093
2016	$234,057
2017	$303,753
2018	$378,460
2019	$458,474
2020	$544,108
2021	$635,692
2022	$733,572
Total	***$3,565,803***
Average Income	***$396,200***

Water capital expenditures are generally dealt with by undertaking a long term, 40-50 year capital and operating plan and determining an appropriate “rate” to charges system users within the community.

5.6.2 STRATEGY 2: RETHINKING INFRASTRUCTURE

There is the potential to reduce infrastructure spending by determining the most cost-effective options for all capital programs for new or rehabilitated infrastructure by pursuing life cycle costing analysis, discussed earlier in the report. For example, the municipality would be greater served in the long run by properly maintaining paved or surface-treated roads in good condition than by rebuilding roads in poor condition, if the budget didn’t allow for both. Further, the timing to replace assets is based on the analysis undertaken, using theoretical assumptions in some cases. Local knowledge is best to identify where the replacement or refurbishment of some assets may be deferred. A strategy frequently used by municipalities is to establish short term priorities based on funds available and with a gradual increase in spending and contributions to reserves. Benefits and efficiencies can be gained by improved prioritization, developing rehabilitation and replacement programs on a long term system-wide program basis versus a short term, project by project and asset-type basis.

5.6.3 STRATEGY 3: STRATEGIC USE OF DEBT

Due to the backlog in the tax-supported programs, there is a need to examine the cost/benefit of addressing these needs through the issuance of debt. Using debt strategically can provide capital funding flexibility by allowing certain infrastructure to be built and used before sufficient revenue has accumulated to offset the needed investment. Debt is frequently issued and considered a standard practice in municipalities for capital projects that are long term in nature and that benefit future taxpayers, thereby spreading the costs across future years. As such, debt promotes inter-generational equity in that infrastructure is paid for by those who use it. With favorable interest rates and significant backlog, the Town may wish to consider the need to issue debt to expedite capital replacement. Infrastructure Ontario interest rates at the time of this report are as follows:

- 10 year – 3.11%
- 15 year – 3.62%
- 20 year – 3.93%

For example, if the Town were to issue $1 million in debt to address a portion of the backlog deemed to be highest priority that was beyond reserve availability, the debt payments would be approximately $88,000 (assuming 15 year term).

A debt management policy improves the quality of decisions, identifies policy goals and demonstrates a commitment to long-term financial planning, including a multi-year plan. Adherence to a debt management plan signals to rating agencies and capital markets that the Town is well managed and is well positioned to meet its obligations in a timely manner. The Province regulates the amount of debt municipalities issue by setting an annual repayment limit for each Town (25% of a Town’s own source revenues). Based on our experience, municipalities typically establish thresholds below the Provincial limit to take into consideration taxpayer affordability and to ensure flexibility.

In addition to a debt guideline, monitoring also becomes important when considering the idea of the increased use of debt as a funding source to ensure that it is being used in a fiscally

responsible manner. Government Finance Officers Association recommends that municipalities adopt policies that specify appropriate uses for debt.

The following strategies are recommended to determine the most appropriate time to issue debt

- Debt will be proportionate to the Town's tax base and will not put an excessive burden on operating expenditures.
- Outstanding and planned debt levels will not exceed an amount that can be supported by the existing and projected tax revenue base. Debt policies will focus on:
  - projected debt requirement
  - limits and benchmarks
  - term and structure of debt
  - use of reserves to offset debt issuance
- Long term debt for the replacement and refurbishment of existing capital assets will be reduced and a planned process will be developed whereby an annual contribution will be made to meet lifecycle needs of all assets.

The following policies are recommended to manage debt within the Town

- Tax Debt Charges as a percentage of Tax Own Source Revenues will not exceed 10%.
- Long term debt financing will be restricted to specific project types:
  - Increased/new services to residents for new initiatives
  - New, non-recurring infrastructure requirements
  - Projects which are supported by a business plan that show revenues will cover capital and interest costs
  - Projects where the cost of deferring expenditures exceeds debt servicing costs
  - Projects tied to third party matching funding

Note: These restrictions may have to be phased in to meet short term budget challenges.

- The length of the term of debt will not exceed the useful life of the underlying asset.
- The Town will monitor and report on all forms of debt annually.

5.6.4 STRATEGY 4: USE OF GRANTS

It is well established that the condition of Canada's municipal infrastructure is one of the keys to underpinning, maintaining and enhancing Canada's economic productivity and competitiveness. It is therefore clearly in the national and provincial interests for the federal and provincial government to institute permanent and sustainable infrastructure funding. Along with the strategic use of debt, Town can also apply for the grants available from the Provincial and Federal governments. Some significant component of the infrastructure deficit can be dealt with through a close monitoring of grant programs and a careful expression of interest to access these funds.

Kathleen Wynn's Provincial Liberal minority government passed its budget bill this past spring, with plans to inject $13.5 billion in 2013-14 toward the province's infrastructure deficit. The Province, with its partners, plans to continue to revitalize infrastructure in Ontario with programs like the Building Together and the Small, Rural and Northern Municipal Infrastructure Fund.

Steven Harper's Conservative majority government has just announced the New Federal Building Canada Plan with $53 billion over the next 10 years including over $47 billion in new funding including the Gas Tax Fund ($21.8 billion), now indexed and will now give municipalities flexibility for a broader range of infrastructure priorities, an incremental Goods and Services Tax Rebate for Municipalities ($10.4 billion), a new Building Canada Fund with two components:

- A $4-billion, merit-based, National Infrastructure Component
- A $10-billion Provincial-Territorial Infrastructure Component

Finally, the Federal Government is adding an additional $1.25 billion in funding for **P3 Canada**, which will continue to be administered by PPP Canada Inc.

6 RECOMMENDATIONS

6.1 SOTI RECOMMENDATIONS

The SOTI/Capital Plan identifies a number of asset-specific recommendations. However, there are six recurring recommendations that should be addressed in future strategic asset management initiatives:

1. Develop, through more detailed analysis, a plan for allocating the additional funds to the operating and/or capital budgets, as required, in order to successfully develop, implement, and maintain the required asset management plans;
2. Develop a policy and implement a strategy to reach long term sustainable funding for each of the assets covered in this SOTI Report;
3. Implement a comprehensive budget structure along service delivery lines, so that service managers can adequately know what the true total cost of their service is (including asset management, operations, capital, and borrowing costs).
4. Review the selection and use of rehabilitation strategies on life-cycle costing and on a return-on-investment (ROI) basis.
5. Review operating and maintenance practices balancing least life-cycle cost against level of service and risk exposure, on a business-case basis using InfraGuide Best Practices and other industry sources;
6. Provide regular updates to the SOTI Report Card and Analysis

6.2 CAPITAL PLAN RECOMMENDATIONS

1) That asset condition assessment of capital assets should be considered wherever feasible. The application of a standard life expectancy of an asset reflects a financial approach (PSAB 3150). Age-based condition assessment has **the least level of confidence for building a capital plan**.
2) That the Town of Kirkland Lake could consider releasing a policy defining its strategy and intention as it pertains to the infrastructure deficit, including communications to the general public.
3) That the Town address their infrastructure deficit.
4) That the Town proactively define organizational responsibilities to maintain the asset inventory including proposed and actual project cost information, updating the data as assets are acquired or betterments are added to existing assets and projects are

started and completed. In this manner, the accuracy of future Capital Plans will increase over time.

5) That the Town consider establishing as policy the following guiding principles, that it be:
    a) **Customer Focused:** To have clearly defined Levels of Service and applying asset management practices to maintain the confidence of residents in how the Town of Kirkland Lake assets are managed.
    b) **Forward Looking**: To make the appropriate decisions and provisions to better enable its assets to meet future challenges, including changing demographics and populations, customer expectations, legislative requirements, technological and environmental factors.
    c) **Service Focused**: To consider all the assets in a service context and taking into account their interrelationships as opposed to optimizing individual assets in isolation.
    d) **Risk-based**: To manage the asset risk associated with attaining the agreed levels of service by focusing resources, expenditures, and priorities based upon risk assessments and the corresponding cost/benefit recognizing that public safety is the priority.
    e) **Value-Based/Affordable**: To choose practices, interventions and operations that aim at reducing the life cycle cost of asset ownership, while satisfying agreed levels of service. Decisions are based on balancing service levels, risks, and costs.
    f) **Holistic**: To take a comprehensive approach that looks at the “big picture” and considers the combined impact of managing all aspects of the asset life cycle.
    g) **Systematic**: To adopt a formal, consistent, repeatable approach to the management of its assets that will ensure services are provided in the most effective manner.
    h) **Innovative**: To continually improve its asset management approach, by driving innovation in the development of tools, practices, and solutions.
6) To meet the goals and objectives of this policy, senior management could consider:
    a) The creation and maintenance of a Comprehensive Asset Management (CAM) governance structure to lead the development of AM tools and practices and to oversee their application across the organization.
    b) Adopt a Comprehensive Asset Management Strategy (AMS) to:
        - Establish, document and continually adhere to industry recognized asset management protocols;
        - Develop asset management knowledge and competencies aligned with recognized competency frameworks;
        - Entrench lifecycle costing when evaluating competing asset investment needs across the Town assets;
        - Monitor the performance of the assets and track the effectiveness of AM practices with a view to continuous improvement;
        - Where practical, strive to go beyond minimum legislative requirements as an enabler to make the Town of Kirkland Lake assets more resilient to changing social, environmental and economic conditions.
        - **Establish a capital projects prioritization matrix, as per Appendix C**

6.3 LEVEL OF SERVICE RECOMMENDATIONS

1. We recommend that the Town incorporate a Level of Service analysis prior to resolving the infrastructure deficit in order to maximize the impact of their capital investments and impact of their capital investments with the objective to:
    - Refine levels of service that balance customer expectations with risk, affordability and timing constraints as it pertains to the Town's unique requirements;
    - Adopt risk-based decision-making processes that consider the likelihood of asset failure and the consequence of a failure with regards to impacts on safety and levels of service;
2. To assist in better establishing Levels of Service, the Town should consider collecting technical performance measures need to provide information on:
    - the types of failure
    - the number of customers affected
    - the duration of the failure
    - the severity of the failure
3. To support decision-making for effective management of the assets, the Town should consider technical performance measurement and monitoring, undertaken by the Town such as:
    - Assessing the effectiveness of the operational, maintenance and capital works program
    - Review and refinement of maintenance and rehabilitation strategies and standards
    - Assistance in strategic decision-making through definition of remaining life, based on the measure being assessed
    - **The Town should use the Appendix D document as an example of how they might establish reasonable Levels of Service for the community.**

6.4 FINANCIAL STRATEGY RECOMMENDATIONS

It is well recognized that a Financial Strategy to support the asset management plan is a dynamic document that should be updated and re-evaluated on an ongoing basis. The Town should give due consideration to the following points:

- The Town has insufficient funds from existing sources to proactively manage its infrastructure and will need to prioritize its requirements to maximizing the impact of existing financial resources.
- The Town has a growing infrastructure deficit which is serious considering its population and tax base. A special infrastructure levy will help the Town to reduce the gap over time and should be taken into consideration.
- In the event that the Town implements an infrastructure levy, a percentage of the additional funds should be transferred into a reserve so that the Town has some flexibility to prioritize and sustain future infrastructure and service level requirements
- The Town requires a rate review and should consider for a special infrastructure levy for its Water Projects based on a detailed analysis, so as to create reserves to be able to sustain the current and future service levels and begin to close the infrastructure deficit.
- The Town needs to be proactive in reviewing and capitalizing on the upcoming Province and Federal programs, as the Town will need financial assistance to close its

infrastructure deficit. It should seek government grants to be able to undertake the capital projects outlined in this Asset Management Plan.

- The Town needs to be proactive in reviewing funding options including Infrastructure Ontario Lending Policies, Private Public Partnerships, user fees and other funding options to have understanding of financing options.
- The Town needs to embrace the principles of Asset Management to formulate assumptions, projections and strategies going forward. The Plan should be modified on an ongoing basis based on changes in the municipal environment
- The Town should track and build awareness of the results of its projections on current operating and capital spending and funding levels with the objective of fine tuning the forecasting process
- The Town should continue the analysis and examination of key financial goals and strategies that guide future priorities and expenditures

7 CONCLUSION

As a general comment, the Town of Kirkland Lake is hampered by limited revenue and extensive infrastructure. ISI worked with staff who were knowledgeable and committed. The information we received was, by in large, accurate and well organized. The overall state of the linear infrastructure at the Town of Kirkland Lake is in line with the vast majority of municipalities in this Province.

As highlighted in the Report Card, the current state of the linear infrastructure, based on available condition rating and age analysis, presents a picture of the Town's linear assets to be in need of substantial work and the Town should continue to be proactive in their strategies, so as to extend asset useful life and avoid major rehabilitation/reconstruction or replacement costs.

It is highly recommended that the Town of Kirkland Lake embrace the principles of Asset Management. Managing existing infrastructure, doing the right thing, at the right time, involves knowing and actually doing the most cost-effective maintenance, repair, rehabilitation or replacement activity at the right time throughout the entire life cycle of the asset. Beyond cost savings, assets need to be viewed in terms of their ability to enhance quality, function, capacity and safety of the service being provided.

The process of implementing Asset Management is rife with challenge. It requires clear direction from Council. It requires significant cross-departmental cooperation. It requires the allocating of time, energy, and resource to assume new responsibilities. It requires consultation with the community. It requires working with constrained budgets to balance priorities. Because infrastructure management deals with assets that have long lifespans, it may take years before a substantial financial return on investment (ROI) becomes apparent. Still, managing existing, capital intensive, public sector infrastructure asset could provide very significant benefits (i.e. 20 – 40% reductions in life cycle costs).

Finally, the Town will likely be faced with difficult decisions over the next years, and the infrastructure deficit continues to widen. The council should put together a public communication program to engage the community in discussing the true cost of services and the assets required to provide those services. Develop and implement service levels that are in line with public expectations and willingness to pay. ISI is providing a communication strategy.

We appreciate having been awarded the contract to build your Asset Management Plan and trust that this work is the beginning of a long and positive relationship with Kirkland Lake. Infrastructure Solutions Engineering provides Strategic Plans, condition assessments, financial analysis, and consulting/engineering services. Please consider us a resource.

APPENDIX A - DETAILED LIST OF CAPITAL PROJECTS

CNTL + left click to view the detailed list of Capital Projects:

APPENDIX A - DETAILED LIST OF CAPITAL PROJECTS

APPENDIX B – ASSET USEFUL LIFE

Departments	Assets	Useful Life as per CIP	Source
Transportation Network	**Road Section**		
	Paved (HCB)	50 (Total Reconstruction)	ISI Infrastructure
	Gravel	(Recurrent Resurfacing)	ISI Infrastructure
	Street Lights	60	ISI Infrastructure
Bridges	Concrete	75	ISI Infrastructure
Culverts	Culverts	50	ISI Infrastructure
Sewer Network	Catchbasin (Storm)	50	As per the TCA Policy
	Manhole (Waste Water)	75	ISI Infrastructure
	Manhole (Storm)	75	ISI Infrastructure
	Sanitary Forcemain	75	ISI Infrastructure
	Pump Station (Waste Water)	50	As per the TCA Policy
	Sewerlines (Storm)	85	ISI Infrastructure
	Sewerlines (Waste Water)	80	ISI Infrastructure
	Sewage Treatment Plant	50	As per the TCA Policy
Water Network	Hydrants	50	As per the TCA Policy
	Water Valves	50	ISI Infrastructure
	Water Service	30	As per the TCA Policy
	Waterlines	75	ISI Infrastructure
	Water Treatment Plant	50	As per the TCA Policy
	Water Equipment	Varies	As per the TCA Policy
Fleet	Vehicles	Varies	As per the TCA Policy
Facility	Buildings	50	As per the TCA Policy
Equipment	Equipment	Varies	As per the TCA Policy
Traffic	Traffic Signal	25	As per the TCA Policy

APPENDIX C – CAPITAL PLAN PRIORITIZATION MATRIX

	Definition	Maximum Points	Percentage Weightage
Goals/Objectives	**Extent to which project meets goals & objectives of the Town's council**	**25**	**15.9**
Safety	Extent to which project eliminates, prevents, or reduces an immediate hazard to safety	14	8.9
Mandates	Extent to which project helps council meet existing or new mandates	13	8.3
Timing/Linkages	Extent to which is project is timely, a continuation of project currently underway, related to other high priority projects etc.	12	7.6
Economic Impact	Extent to which project enhances economic development in Town or directly/indirectly adds to tax base	11	7
Efficiencies	Extent to which project contributes to savings in Town's operating/capital expending	10	6.4
Maintain Current Level of Service	Extent to which project is necessary for Town to continue to provide one or more services at current standards	9	5.7
Improving Access	Extent to which project improves citizen access to current services	8	5.1
Service Improvement	Extent to which project improves the quality of exiting services	7	4.5
Service Addition	Extent to which project increases the quantity of exiting services	3	1.9
Operating Budget Impact	Projects that lower future operating expenses receive a positive score, ranging from 0 to 15. Projects that have no effect on operating expenses receive a score of 0. Projects that increase operating expenses score anywhere from 0 to -15	0-15, 0, 0-(15)	9.5
Community Support	Extent to which project has broad and/or strong support from the community	10	6.4
Financing	Extent to which project can be financed with non-general fund revenue sources	15	9.5
Timeliness of Submission	Extent to which project request is submitted in a timely way	5	3.2
		142	**100**

APPENDIX D - OPERATING PERFORMANCE INDICATORS

ROADS				
Service	**Operating Performance Indicators (OPI)**	**Current Performance**	**Target Performance**	**Timeframe**
Examples for Roads below:				
Road Maintenance & Repairs	Complete approximately 1000 activity requests per year for service requests including pot hole repair, minor asphalt patching, alley maintenance, sightline improvement, MVA clean-up.	1000	800	present
Major Asphalt Patching	Annual repair of approximately 4000 square meters of asphalt pavement resurfacing.	4000	4000	2014
Utility Patching	Complete approximately1000 square meters of utility cuts annually.	1000	1000	2014
	On major roads target to complete hot mix asphalt patch in seven working days.	as necessary	as necessary	present
Boulevard Maintenance	Twice per year cut every boulevard in the city.	yes	yes	present
	Four times per year minimum cut the boulevards and traffic islands on major community entrance ways.	n/a	n/a	n/a
	Annual weeding, cleaning and caulking of 3 km of sidewalk and curb.	3	6	2014
	Maintain sight lines at intersections for vehicle and pedestrian safety.	as necessary	as necessary	present
	Annual cleaning and maintenance of all hard surfaced traffic islands.	n/a	n/a	n/a
Crack seal Preventative Maintenance	Annual Crack sealing of 5 km of road	5	5	2014
	One year in advance of scheduled road rehab work video inspect all affected underground utilities.	yes	yes	present
Curbing/Shoulders	Annual repair, by August, of all curbing damage in previous winter.	yes	yes	present
Sidewalks & Walkways	Annual Weeding, brush removal and cleaning all walkways.	yes	yes	present
	Every two years power wash downtown paver sidewalks including curb face	no	yes	2014

Street Lighting	Service requests for street light repair completed within 48 hours.	48	48	present
Traffic Signals	Every two years inspect and maintain all traffic signals.	as necessary	as necessary	present
	Annual testing of all traffic signal conflict monitors.	yes	yes	present
	Annual inspection and maintenance of all pedestrian beacons. Includes cleaning lenses, and inspecting batteries and solar power supply batteries and solar power supply	yes	yes	present
Signs	Annual inspection and maintenance of all stop signs.	yes	yes	present
	Annual inspection of crosswalk, pedestrian, school and playground signs and beacons.	yes	yes	present
	Annual Upgrade of all signs to diamond grade	no	yes	2014
Street Marking	Annual repaint of all 10 km of directional centre lines.	yes	yes	2014
	Twice per year repaint all directional centre lines on major collectors and arterials.	no	no	
	Annual repaint of all 2 km of trim line.	yes	yes	2014
	Annual painting, prior to May long weekend, of all downtown street markings.	no	no	
	Annual inspection and repair of all X crosswalks and thermal plastic markings.	yes	yes	2014
Bridge Maintenance	Annual engineering inspection of bridges and completion of repairs as recommended	no	yes	2014
Snow and Ice Control	Major roads including emergency routes during winter events.	yes	yes	present
	Residential areas – through roads first then cul-de-sacs and dead ends.	yes	yes	present
	Residential areas will be ploughed and maintained within 12 hours unless snow and icy conditions return crews back to major roads.	yes	yes	present

VEHICLES - FLEET				
Service	**Operating Performance Indicators (OPI)**	**Current Performance**	**Target Performance**	**Timeframe**
Examples for Fleet below:				
Fleet Maintenance	Undertake preventative maintenance and repairs to meet industry standards for safety and operation.	yes	yes	present
	Maintain fleet availability at 90%.	90	90	present
Small Equipment	Inventory, maintain and repair of pieces of small equipment for use by all departments.	yes	yes	present
Preventative Maintenance Services	30 units inspected every 3 months to maintain safety and fleet efficiency.	3	3	present
Communications	License, repair and purchase fleet and handheld communications to maintain dependable operation	yes	yes	present

WATER				
Service	**Operating Performance Indicators (OPI)**	**Current Performance**	**Target Performance**	**Timeframe**
Examples for Water below:				
Valves & Air Valves	Exercise all line valves once per year with yearly reporting	1	1	present
Water Main Breaks	Upon notification emergency response and water shut down within 45 minutes.	45	45	present
	Repair completed and water service re-instated within 2 hours.	2	2	present
	Currently experiencing 10 breaks per year on average	10	>8	present
Service Connection Renewals	30 renewals completed each year on average.	30	20	
	Service connections associated with Road Rehab Program and capital projects are checked and replaced as necessary.	at that time	at that time	present
Water Towers - Reservoirs	Weekly inspections	no	every 6 months	2014
	1 year cycle - drain, inspect, clean and repair	every year	every 2 years	present

Pump Stations	Annual painting	no	yes	2014
	Annual vegetation control	yes	yes	present
	20 year cycle – rebuild control valves.	as necessary	10 years	2014
	20 year cycle – rebuild or replace pumps.	as necessary	15 years	2025
	Weekly trouble shooting and repairs	yes	yes	present
	5 weekly visual inspections	5	5	present
Stations	Maintain all pressure reducing stations to operate without failure.	as necessary	every 5 years	2013
	30 year cycle - complete replacement of each station	as necessary	as necessary	present
	10 year cycle - complete rebuild of system.	as necessary	every 10 years	2015/2020
	Annual painting and vegetation control.	n/a	n/a	n/a
Water Testing	100% of water samples contain no bacteriological contaminants.	100%	100%	present
	Monthly reporting	yes	yes	present
WPC Chlorination	Disinfects 100% of City supply.	100%	100%	present
	Daily data acquisition and inspection	yes	yes	present
	Daily water testing	yes	yes	present
	Monthly chlorine cylinder replacement.	as necessary	as necessary	present
	Semi-annual chlorination equipment replacement and repairs	n/a	n/a	n/a
	Annual painting and vegetation removal	yes	yes	present
	10 year cycle - replacement of small piping and control valves.	as necessary	every 10 years	2014
Reservoir Chlorination	Disinfects 100% of City supply	100%	100%	present
Water Main Flushing	Twice Annually flush all supply lines.	Twice annual	Twice annual	present
Service Call-outs	Provide 24/7 on call coverage for emergency response.	yes	yes	present

DRAINAGE				
Service	**Operating Performance Indicators (OPI)**	**Current Performance**	**Target Performance**	**Timeframe**
Examples for Drainage below:				
Flushing	Annual flushing of 100 m of the 236 m storm system	50	100	2014
Video Inspections	Annual video inspection of 10m of the storm system.	5	10	2014
Manholes / Cleanouts	Install and repair manholes and cleanouts.	yearly	yearly	present
Catch Basins	Annual inspection and cleaning of all 793 catch basins	150	250	2014
Detention Systems	Annual inspection of all X detention systems.	N/A		
Inlet / Outlet Structures	As needed Inspect and clean all critical inlet and outlet structures and service before, during and post-storm events.	yes	yes	present
	Annual inspection and maintenance of inlet and outlet structures.	yes	yes	present
Ditch Cleaning	Annual inspection of all ditches and clean as needed.	yes	yes	present
Culverts	Repair driveway and road crossing culverts as assigned through work orders.	yes	yes	present
Service Call-outs	Provide 24/7 on call coverage for sewer and drainage emergency response.	yes	yes	present

APPENDIX E – MUNICIPAL COST INDEX

MCI(Region 4)								
COMPONENTS	Weights	Inflators for Each Component						
		2006	2007	2008	2009	2010	2011	2012
Wages and Salaries and Benefits	28%		2%			-4%	3%	
Interest on Long Term Debt	1%							
Materials	28%		9%	2%	-3%	5%	0%	
Contracted Services	13%		-4%					
Rents and Financial Expenses	0%			-1%				
External Transfers	20%							
Amortization	10%					-4%	18%	
Average MCI	**2.65%**							

Notes:

- Municipal Cost Index**,** is calculated to better represent the municipal purchasing power and cost experience, so ISI will use 2.65% as the compounding/inflationary factor up until 2013
- Municipal Cost Index represents the basket of goods and services which is consumed/used by municipalities and represents the operational/working capital needs on an on-going basis
- Assigned weights represents the percentage of services/goods consumed out of total spend
- Inflators represent the year on year changes in the components
- Component's weight and inflators, sum all represents the overall cost experience for the municipalities/region as compared to CPI
- MCI is created as to minimize the variation/deviations of cost/purchasing experience in the region
- The source of Municipal Cost Index are the Financial Statements for your specific region
- Outliers have been removed from the data for Municipal Cost Index calculation to average out/standardized data

APPENDIX F – ROAD MANAGEMENT STRATEGY

Road Management

Infrastructure Solutions Inc. is incorporating a road management strategy in your Asset Management Plan. Our primary tool for this analysis is the Capital Planning Module (CIP) built into Municipal Data Work's (MDW). MDW tracks and costs the various road maintenance, rehabilitation and construction strategies over your road network's life-cycle. This strategy forms the major component of the Capital Plan which, in turn, serves as one of the core components of the Asset Management Plan. This document does not deal specifically with your Township but does outline our approach to analyzing your road network to provide you with insight and ask for your concurrence.

The Relevance of a Road Management Plan

The deterioration curve below demonstrates the need for implementing a road management plan. It involves mapping a road section over the course of its life-cycle to determine where age and condition intersect to create a trigger point for action. A comprehensive road management plan will establish the most cost effective approach and associated benefits (level of service, safety, extended life of the asset) associated with timely corrective action.

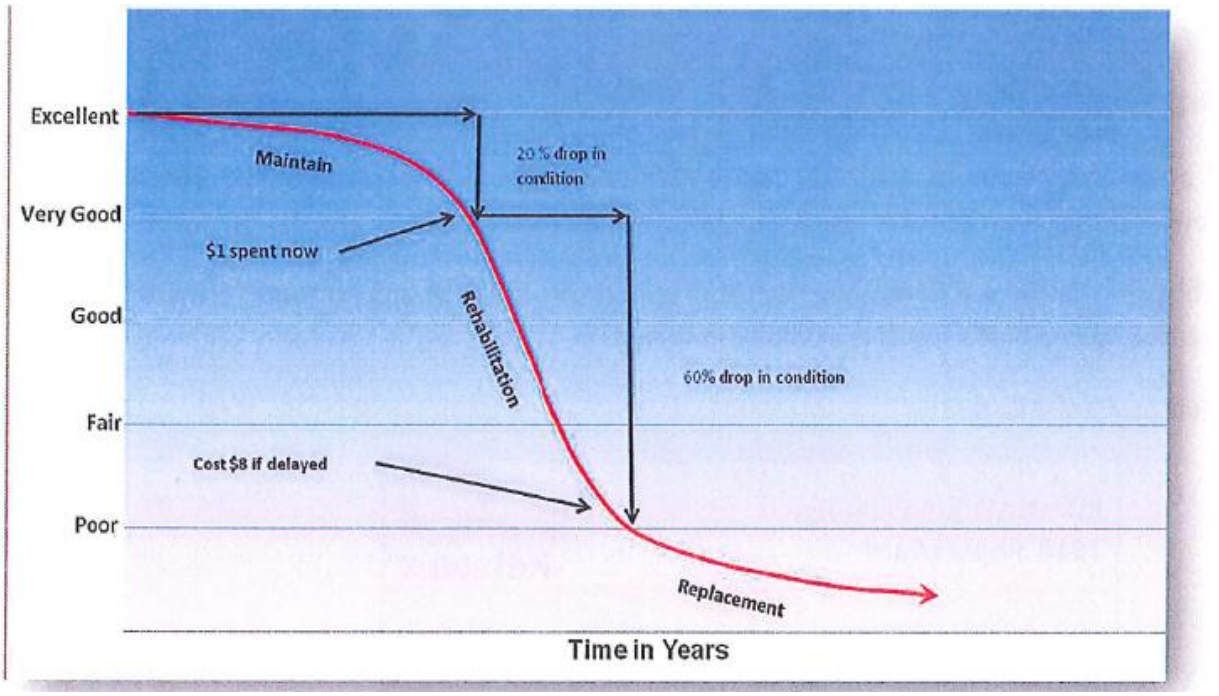
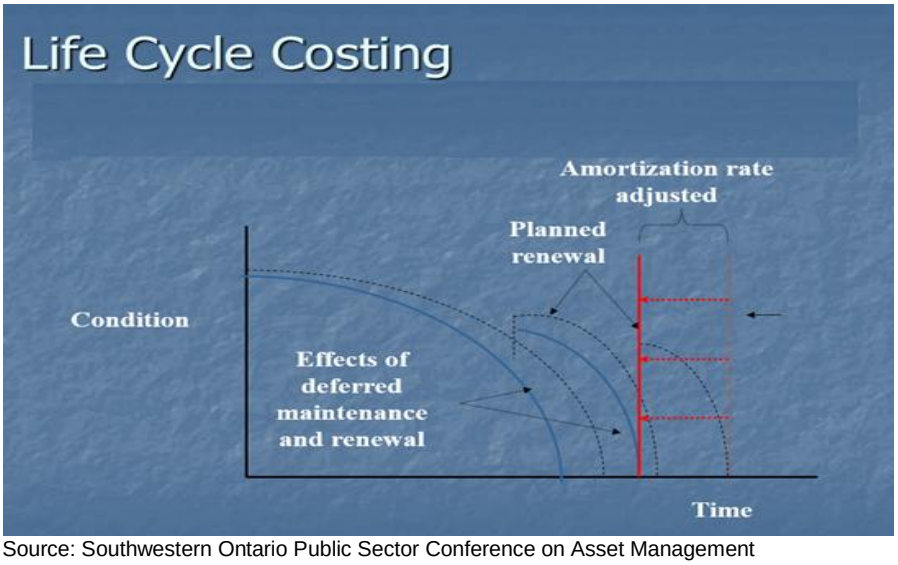


Figure 1: Typical Deterioration Curve

Life-Cycle Costing

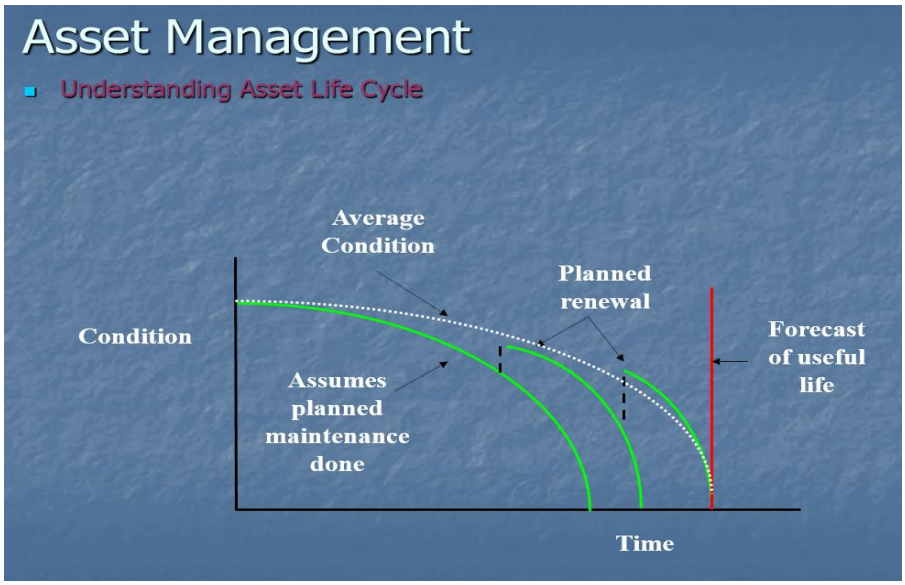
Effective life-cycle costing will optimize scarce financial resources by prolonging roads service life, while maintaining safe and secure levels of service. Our Capital Plan provides a detailed description of a road's life-cycle costs including operation, maintenance, renewal and replacement. While our draft Capital Plan will assume unlimited funding, the final road strategy will recommend treatment strategies according to the service level balanced with the availability of funding.

Figure 2 - Life-Cycle Costing



Source: Southwestern Ontario Public Sector Conference on Asset Management

Figure 3: Asset Management



Source: Southwestern Ontario Public Sector Conference on Asset Management

Road Treatment Strategies

The options for road preservation treatments involve a wide range of applications, grouped into four major categories:

1. **Preventative Maintenance Treatments** – These are low cost maintenance treatments applied to preserve, retard future deterioration, and maintain or improve the functional condition of road surfaces without significantly increasing structural strength. These treatments could be applied to a road surface over its entire service life.
2. **Surface Treatments** – These include surface seals and treatment applied to address surface deficiencies such as general raveling, segregation, or fatigue cracking distresses. These treatments could be applied to mid-life pavements to retard future surface or structural deterioration.
3. **Rehabilitation Treatments** – These are rehabilitation treatments such as structural overlays or mill and inlay treatments applied to increase structural capacity and restore serviceability. These treatments could be applied to mid-life and late-life pavements and could be major or minor depending on the percentage of base repair required.
4. **Reconstruction Treatment** – This high cost treatment would be used as a rehabilitation strategy under the circumstances where the existing pavement has completely failed. In this case, the original roadbed may be the cause of reduced serviceability. Excessive maintenance cost and other rehabilitation treatment may provide only very short term solution and a reconstruction of the entire road would be more feasible.

Road Condition Assessment

The basis of implementing a road management plan is having a clear understanding of the state and condition of your network. There are several methods of establishing condition assessment depending on the level and scope of information needed to be collected. Generally, road condition assessments will provide a rating scheme (usually from 0-10 or 0-100), reflecting the degree of road or pavement degradation, where, under the RCR or PCI rating system, zero indicates the end-of service and 10 or 100 would indicate a newly constructed road.

Road Needs Studies

The purpose of a Road Needs Study requires a qualified engineer to provide an analysis of the overall condition of the road system, including such factors as road condition ratings, traffic counts analysis for road classification, road condition description and geometry, repair/reconstruction strategies and priorities etc. The study would also provide statistical information on the road system.

Visual Inspection

Visual inspection involves the evaluation of surface cracks and other physical deficiencies within road system to determine the condition rating of the roads. It requires a qualified engineer to measure and evaluate the type and extent of deterioration to rate the roads, such as the PCR (Pavement Condition Rating) as per MTO (SP024) or the PCI (Pavement Condition Index).

Ride Comfort Rating (RCR)

This involves driving along a road length or network at the posted speed while recording the level of discomfort due to the degree of roughness. It is the least expensive option for assessing road conditions and would be usually carried out by the public works department.

Age-based Condition Reporting

Where a Township chooses not to undertake a road condition assessment by any of the aforementioned processes, ISI has the capability to model road condition maintenance and renewal strategies using engineering deterioration curves determined by road age. This is the least accurate method for determining a road's condition and recommended strategies.

Infrastructure Solutions Approach

Road Maintenance, Rehabilitation and Reconstruction Strategy
Infrastructure Solutions Inc., will generate a draft Capital Plan formulated on the above pavement strategies modelled in MDW for all road types. We have also developed a capital plan forecasting module, utilizing cost indices unique to each regional municipality in Ontario.

Based on MTO guidelines, Infrastructure Solutions Inc., has selected the use of the following road and pavement condition triggers to formulate maintenance, rehabilitation and reconstruction strategies in the MDW capital planning module. In the table below, the RCR triggers are shown. MDW can accommodate various rating schemes such as PCI, which is out of 100. However, even if PCI is used, the same trigger pattern ranges (0-20, 30-40, etc.) and the associated strategies at each trigger, will be employed. For HCB roads, the following triggers and maintenance, rehabilitation and reconstruction strategies apply:

Condition Assessment Ratings (HCB)		
Condition	**Ratings Trigger (RCR)**	**Road Preservation/Reconstruction Strategies**
EXCELLENT	9 – 10	Preventative Maintenance Treatments *(i.e. crack repairs)*
GOOD	7 - 8	Minor-Low Cost Spot Repairs *(i.e. 10% spot base repairs)*
FAIR	5 - 6	Minor-Low Cost Rehabilitation (resurfacing with 20% spot base repairs)
POOR	3 - 4	Major-High Cost Rehabilitation *(resurfacing with 50% base repairs)*
VERY POOR	0 - 2	Total Road Reconstruction *(100% of surface and base)*

LCB roads require regular resurfacing, with spot base repairs, as the road reaches a lower condition ratings as shown in the table below:

Condition Assessment Ratings – LCB (Surface Treated)		
Condition	**Ratings Trigger (RCR)**	**Road Preservation/Reconstruction Strategies**
EXCELLENT	9 – 10	Single Surface Treatment
GOOD	7 - 8	Single Surface Treatment *(Spot base repairs 10%)*
FAIR	5 - 6	Single Surface Treatment *(Spot base repairs 15%)*
POOR	3 - 4	Single Surface Treatment *(Spot base repairs 20%)*
VERY POOR	0 - 2	Total Road Reconstruction *(100% of surface and base)*

The remaining service life of gravel roads is determined by the gravel thickness. A properly maintained unsealed gravel road theoretically has an indefinite service life. Cyclical maintenance through re-graveling the surface and spot base repairs can therefore prolong the life of the road for many decades, not requiring reconstruction. The cyclical maintenance/rehabilitation of gravel roads is shown below; such maintenance enables the roads to remain in excellent/good condition:

Condition Assessment Ratings - Gravel		
Condition	**Ratings Trigger (RCR)**	**Road Preservation/Reconstruction Strategies**
EXCELLENT	9 – 10	Preventative Maintenance Treatments *(Resurfacing: 75mm Granular A)*
GOOD	7 - 8	Preventative Maintenance Treatments *(Resurfacing: 75mm Granular A)*
FAIR	5 - 6	Preventative Maintenance Treatments *(Resurfacing: 75mm Granular A and 10% spot base repairs)*
POOR	3 - 4	Preventative Maintenance Treatments *(Resurfacing: 75mm Granular A and 10% spot base repairs)*
VERY POOR	0 - 2	Preventative Maintenance Treatments *(Resurfacing: 75mm Granular A and 20% spot base repairs)*

Using information collected from the road condition assessment report, an inventory is created with road service life and other road attributes potentially including annual average daily traffic (AADT) counts, if available. From our consultations, along with applying MTO and OGRA guidelines, ISI has determined the following service life for the different road types:

Road Design and Functional Class		
Type	AADT	Service Life
Urban (HCB)	>3000	30-40
Semi-Urban (HCB)	<3000 - >1000	40
Urban (LCB) and (HCB)	<1000 - >400	50
Rural (LCB) and (HCB)	< 400	60
Gravel	< 1000	Unlimited
Dirt	< 1000	Unlimited

Where AADT information and/or information on rural/urban classification is not available, we assume a service life of 60 years for both LCB and HCB roads.

HCB Road Treatment
For road treatment described as a single lift, we assume a 50 mm layer of HCB for rural and urban roads. Major rehabilitation would involve two 50 mm lifts and 50% spot base repairs.

LCB (Surfaced Treated) Road Treatment
A single surface treatment is applied for all trigger points except reconstruction where double surface treatment would be applied.

Performance Prediction Curves
The screenshots provided in Figures 4-7 following, are taken from the MDW Capital Planning Module and are for demonstrative purposes only. The vertical axis is the condition rating, and the horizontal axis reflects the age of the road. The capitalization indices (CapIndex/CapIndices) are points along the deterioration curve corresponding to specific road treatments at condition/age intercepts. These indices are trigger points for maintenance/rehabilitation/reconstruction activities with their associated life expectancy gain.

The Capital Planning module within MDW uses these trigger points to generate the type of repairs required and the associated costs. Road construction costs are entered into the system based on either cost per km or cost per square meter (see Fig. 6). ISI always establishes current treatment costs by gathering recent invoices from our client, neighboring municipalities, or by direct contact with local contractors.

Sources

- Ministry of Transportation's (MTO) Inventory Manual for Municipal Roads (1991).
- Ontario Good Roads Association (OGRA) publication; "A Guide to Road and Bridge Asset Management Plan Development, June 2011.
- Ministry of Infrastructure's "Guide for Municipal Asset Management Plans".
- Ministry of Transportation's (MTO SP-24) Manual for Condition Rating of Flexible Pavements 1989, and Pavement Condition Index (PAV-86-02), 1986.
- InfraGuide, National Research Council of Canada

Figure 5 - (MDW Screenshot): Low Class Bituminous (Surface Treated) Roads

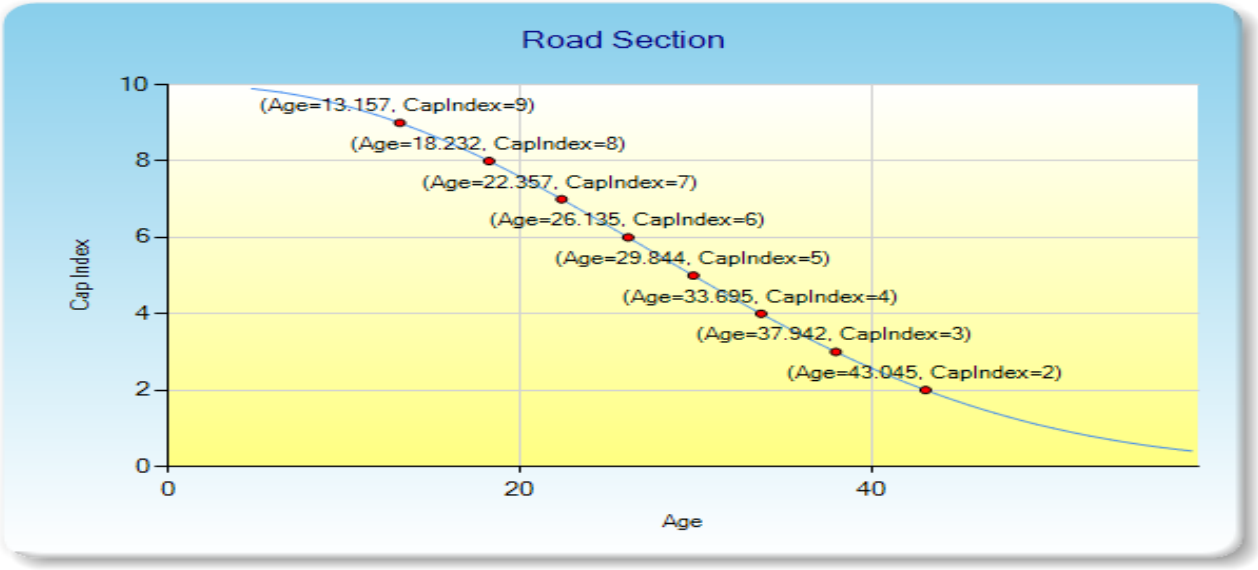
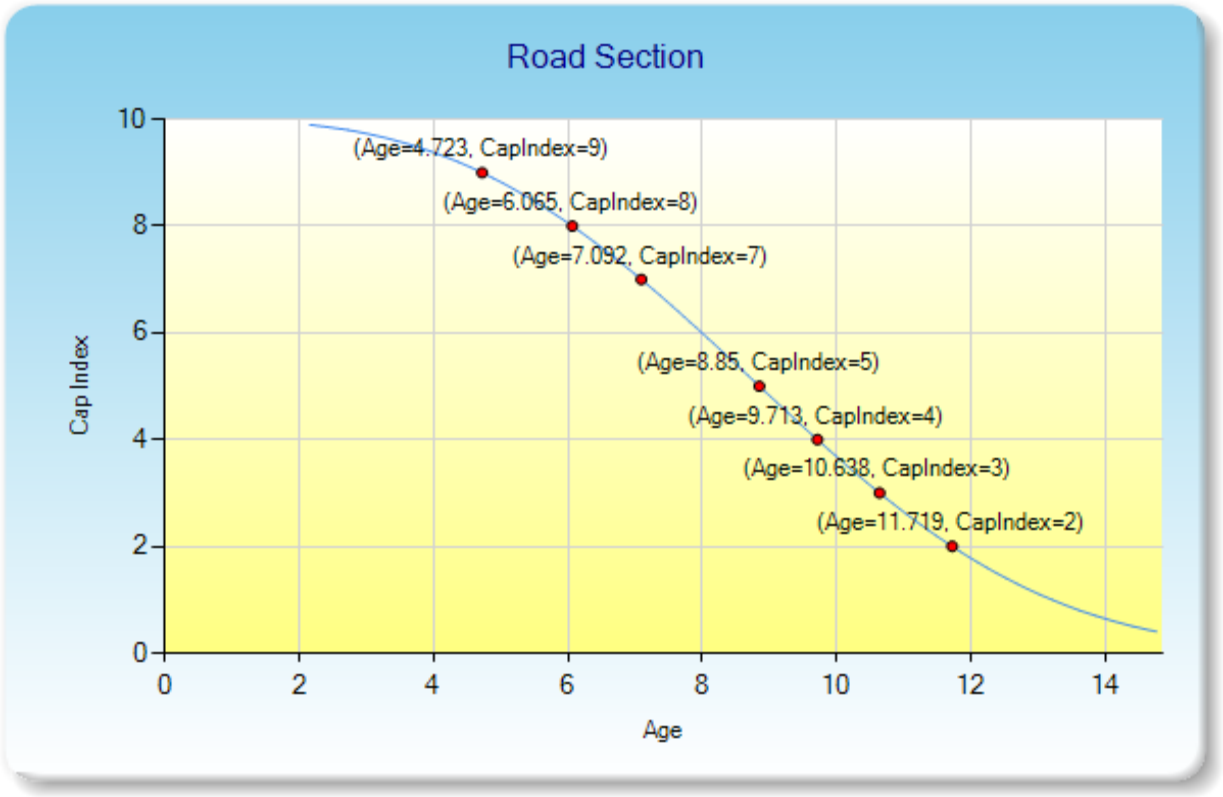


Figure 6 - (MDW Screenshot): Gravel Roads



3 - Road Section: Useful Life=15 - (Number of Assets: 25)

Curve Type: S Curve Formula
Name: Road Section
CAP Index Type: Ride Comfort Rating
CAP Index Maximum Value: 10
Life Expectancy: 15
Last Modified Date: 8/6/2013
Modified By: Nadeem Haque

View Chart

Add Curve

Cap Index	Renewal Strategy	Life Expectancy Gain	Unit Cost ($)	Units	Dimensions 1
2	Maintenance Year	10	70000.00	km	Length (km)
3	Maintenance Year	10	60000.00	km	Length (km)
4	Maintenance Year	10	60000.00	km	Length (km)
5	Maintenance Year	10	60000.00	km	Length (km)
7	Maintenance Year	10	48288.63	km	Length (km)
8	Maintenance Year	10	48288.63	km	Length (km)
9	Maintenance Year	10	48288.63	km	Length (km)

Tables: Ontario Good Roads Pavement Reservation Matrix

Lifecycle Activities – Flexible (Asphalt-HCB) Pavement	Activity	Activity Quantity					
		Class of Road					
		1	2	3	4	5	6
Annual	Potholes	0.5t/ln km	0.5t/ln km	0.5t/ln km	0.5t/ln km	0.5t/ln km	0.5t/ln km
	Shoulder grading	6x per year	6x per year	6x per year	2x per year	2x per year	NA
	Washout Repair	10t/year	10t/year	10t/year	10t/year	10t/year	10t/year
	Culvert Cleaning	1x per year	1x per year	1x per year	1x per year	1x per year	1x per year
	Cleaning MH, CB	1x per year	1x per year	1x per year	1x per year	1x per year	1x per year
	Cleaning C&G	1x per year	1x per year	2x / month (summer)	2x / month (summer)	1x / month (summer)	1x per year
				as required	as required	as required	
	Safety devices	as required	as required				as required
3 years	Crack seal	All roads	All roads	All roads	Roads with >400 AADT	Roads with >400 AADT	
5 years	Crack seal				Roads with <400 AADT	Roads with <400 AADT	All roads
8 years	Spot base repairs	10% of system	10% of system	10% of system	10% of system	10% of system	10% of system
15 years	50mm resurfacing	All roads	All roads	All roads	Roads with >400 AADT	Roads with >400 AADT	
18 years	Crack seal	All roads	All roads	All roads	Roads with >400 AADT	Roads with >400 AADT	
25 years	Spot base repairs	20% of system	20% of system	20% of system	20% of system	20% of system	N/A
	50mm resurfacing	all roads	all roads	all roads	all roads	all roads	
							all roads
28 years	Crack seal	all roads	all roads	all roads	Roads with >400 AADT	Roads with >400 AADT	
30 years	Crack seal				Roads with <400 AADT	Roads with <400 AADT	all roads
35 years	50mm resurfacing			Roads with <4000	Roads with >400 AADT	Roads with >400 AADT	
	reconstruct	all roads	all roads	Roads with >4000			
	Storm sewer repl.	35%	35%	35%			
	Open ditch repl.	70%	70%	70%			
38 years	Crack seal			Roads with <4000	Roads with >400 AADT	Roads with >400 AADT	
40 years	Spot base repairs				20%	20%	20%
	50mm resurfacing				Roads with <400 AADT	Roads with <400 AADT	all roads
50 years	reconstruct			Roads with <4000	Roads with >400 AADT	Roads with >400 AADT	

	Storm sewer repl.			50%	50%	50%	
	Open ditch repl.			100%	100%	100%	
60 years	reconstruct				Roads with <400 AADT	Roads with <400 AADT	all roads
	Storm sewer repl.				50%	50%	50%
	Open ditch repl.				100%	100%	100%

Lifecycle Activities – Low Class Bituminous (Surface Treated)

Timing	Activity	Activity Quantity		
		Class of Road		
		4	5	6
Annual	Potholes	0.5t/ln km	0.5t/ln km	0.5t/ln km
	Washout Repair	10t/year	10t/year	10t/year
	Culvert Cleaning	1x per year	1x per year	1x per year
	Safety devices	as required	as required	as required
3, 13, 23, 33. 43 years	Single surface treatment	All roads <1000AADT	All roads <1000AADT	
5,15,25,35, 45,55 years	Single surface treatment			All roads
8, 18,28 years	Single surface treatment	All roads <1000AADT	All roads <1000AADT	
	Spot Base Repairs	10% of system	10% of system	
10,20,30,50 years	Single surface treatment			All roads
	Spot Base Repairs			10% of system
38 years	Pulverize & double surface treat	All roads <1000AADT	All roads <1000AADT	
	Drainage replacement	70% of system	70% of system	
40 years	Pulverize & single surface treat			All roads
	Drainage replacement			70% of system
50 years	Reconstruct	All roads <1000AADT	All roads <1000AADT	
	Drainage replacement	100% of system	100% of system	
60 years	Reconstruct			All roads
	Drainage replacement			100% of system

List of Projects - 2013 to 2022

Project Name	Asset ID	Asset Name	Location	Lifecycle Event Type	Total Cost (Incl.PST)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Town Project Plan Status	Town Planned Replacement Date	Comments
Proposed Waterline Project	New	Waterline Woods Street - Proposed Project		Reconstructed	$223,419		$223,419									Proposed	July 1, 2014	EOI submitted 2013
Proposed Sewerline(Waste Water) Project	New	Sewerline (Waste Water) Woods Street - Proposed Project		Reconstructed	$362,888		$362,888									Proposed	July 1, 2014	EOI submitted 2013
Proposed Sewerline (Storm) Project	New	Sewerline (Storm) Woods Street - Proposed Project		Reconstructed	$371,261		$371,261									Proposed	July 1, 2014	EOI submitted 2013
Proposed Treatment Plant Project	New	Waste Water Treatment Plant - Proposed Project	600 Archer Dr.	New Construction	$32,000,000		$32,000,000									Proposed	July 1, 2014	
Proposed Equipment Project	EQ03	Chlorinator - Proposed Project		Purchased	$81,408		$81,408									Proposed	January 1, 2014	Water Equipment
Proposed Equipment Project	New	SCADA Hardware and Water Filter Replacement - Proposed Project		Purchased	$152,640			$152,640								Proposed	January 1, 2015	Water Equipment
Proposed Equipment Project	New	Water Filter Replacement - Proposed Project		Purchased	$76,320				$76,320							Proposed	January 1, 2016	Water Equipment
Proposed Streetlights Project	New	Streetlights	Changing of LED's	Rehabilitation	$600,000		$600,000									Approved	July 1, 2014	Changing of LED Lights
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Headworks (Screen, Grit Tank & Comminutor)	Swastika Water Pollution Control Plant	Reconstructed	$407,040				$407,040							Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Headworks channel	Swastika Water Pollution Control Plant	Reconstructed	$101,760				$101,760							Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Pumps (RAS/WAS)	Swastika Water Pollution Control Plant	Reconstructed	$127,200					$127,200						Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant UV disinfection system (new ECA requirement)	Swastika Water Pollution Control Plant	Reconstructed	$305,280						$305,280					Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Samplers	Swastika Water Pollution Control Plant	Reconstructed	$50,880						$50,880					Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Automation/PLC/SCADA	Swastika Water Pollution Control Plant	Reconstructed	$508,800					$203,520	$305,280					Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Aeration system upgrade	Swastika Water Pollution Control Plant	Reconstructed	$152,640				$152,640							Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Exterior modification	Swastika Water Pollution Control Plant	Reconstructed	$508,800			$50,880		$203,520	$203,520	$50,880				Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Odour control	Swastika Water Pollution Control Plant	Reconstructed	$101,760					$101,760						Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Roof Replacement	Swastika Water Pollution Control Plant	Reconstructed	$117,024			$117,024								Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Health and Safety:-Class 1/Div. 1 compliance (classification of respective hazardous a	Swastika Water Pollution Control Plant	Reconstructed	$2,544,000			$2,544,000								Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant - Retrofit - Standby (backup) treatment system	Swastika Water Pollution Control Plant	Reconstructed	$508,800				$203,520	$305,280						Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant - Retrofit - Other misc. retrofits	Swastika Water Pollution Control Plant	Reconstructed	$254,400					$101,760	$50,880	$101,760				Proposed		
Proposed Treatment Plant Project	New	Swastika Water Pollution Control Plant Engineering & Project Management and Approvals (15%)	Swastika Water Pollution Control Plant	Reconstructed	$835,704			$152,640	$356,160	$203,520	$101,760	$21,624				Proposed		
Proposed Road Project	1101	Wood Street Project	From McCamus Avenue To Government Road West	Reconstruction	$123,444		$123,444									Proposed	July 1, 2014	EOI submitted 2013
Proposed Road Project	1102	Wood Street Project	From Taylor Avenue To McCamus Avenue	Reconstruction	$95,467		$95,467									Proposed	July 1, 2014	EOI submitted 2013
Proposed Road Project	1103	Wood Street Project	From Poplar Avenue To Taylor Avenue	Reconstruction	$60,463		$60,463									Proposed	July 1, 2014	EOI submitted 2013
Proposed Road Project	1105	Wood Street Project	From Queen Street To King Street	Reconstruction	$650,443		$650,443									Proposed	July 1, 2014	EOI submitted 2013
Proposed Road Project	1106	Wood Street Project	From South End To Queen Street	Reconstruction	$340,182		$340,182									Proposed	July 1, 2014	EOI submitted 2013
Road Section: Folger	2078	Folger	From Woods to End	Basic Resurfacing - Proposed Project	$122,112			$122,112								Proposed	July 1, 2015	
Road Section: King St	1216	King St Proposed Project	From Woods St To Comfort St	Reconstruction including Storm Sewers	$343,610	$343,610										Proposed		
Road Section: Airport Rd	1696	Airport Rd	From Harvey Dr To East End	Pulverizing and Resurfacing	$141,456							$141,456						
Road Section: Airport Rd	1688	Airport Rd	From South End To Harvey Dr	Pulverizing and Resurfacing	$532,316							$532,316						
Road Section: Al Wende Dr	1108	Al Wende Dr	From Government Rd W To 0.24 km N of Government Rd W	Basic Resurfacing	$33,655									$33,655				
Road Section: Alexander Ave	1576	Alexander Ave	From Tweedsmuir Rd To Algonquin Ave	Reconstruction including Storm Sewers	$308,629				$308,629									
Road Section: Algonquin Ave	1570	Algonquin Ave	From Tweedsmuir Rd To Alexander Ave	Basic Resurfacing	$96,373								$96,373					
Road Section: Algonquin Ave	1578	Algonquin Ave	From Alexander Ave To Tweedsmuir Rd	Basic Resurfacing	$61,478										$61,478			
Road Section: Allen Ave	1442	Allen Ave	From South End To Fifth St	Basic Resurfacing	$113,849								$113,849					
Road Section: Archer Dr	1062	Archer Dr	From Highway 66 To Main St	Pulverizing and Resurfacing	$716,093				$716,093									
Road Section: Athenia Blvd	1044	Athenia Blvd	From 0.5 Km W of Riverside Dr To Riverside Dr	Basic Resurfacing	$169,137							$169,137						
Road Section: Atkins Ave	1604	Atkins Ave	From Harding Ave To North End	Basic Resurfacing	$82,298				$82,298									
Road Section: Balsam Ave	1334	Balsam Ave	From Spruce St To Furlong Ave	Basic Resurfacing	$190,135										$190,135			
Road Section: Balsam Ave	1330	Balsam Ave	From Carter Ave To Spruce St	Basic Resurfacing	$74,869										$74,869			
Road Section: Balsam Ave	1337	Balsam Ave	From Furlong Ave To 147m East of Furlong Ave	Basic Resurfacing	$92,148										$92,148			
Road Section: Baron St	1186	Baron St	From Prince St To Rand Ave W	Basic Resurfacing	$40,691			$40,691										
Road Section: Blomfield Dr	1104	Blomfield Dr	From Chateau Dr To East End	Basic Resurfacing	$36,821									$36,821				
Road Section: Boisvert St	1014	Boisvert St	From South End To Cameron Ave	Basic Resurfacing	$25,645										$25,645			
Road Section: Brant St	1662	Brant St	From Wilson Ave To East End	Reconstruction including Storm Sewers	$118,703			$118,703										
Road Section: Brookbank Ave	1370	Brookbank Ave	From Omeara Blvd To Duncan Ave S	Reconstruction including Storm Sewers	$277,182	$277,182												
Road Section: Brookbank Ave	1372	Brookbank Ave	From Duncan Ave S To Pollock St	Reconstruction including Storm Sewers	$267,252			$267,252										
Road Section: Brookbank Ave	1374	Brookbank Ave	From Pollock St To Carter Ave	Reconstruction including Storm Sewers	$226,554					$226,554								
Road Section: Brown Ave	1674	Brown Ave	From Federal St To Wishman St	Reconstruction including Storm Sewers	$189,925						$189,925							
Road Section: Brown Ave	1628	Brown Ave	From Grierson Rd To Federal St	Reconstruction including Storm Sewers	$213,069					$213,069								
Road Section: Burnside Court	1610	Burnside Court	From Burnside Dr to South End	Reconstruction including Storm Sewers	$391,075							$391,075						
Road Section: Burnside Dr	1612	Burnside Dr	From Burside Court to Foss Ln	Basic Resurfacing	$69,249							$69,249						
Road Section: Foss Ln	1630	Burnside Dr	Federal St	Basic Resurfacing	$29,263							$29,263						
Road Section: Cameron Ave	1010	Cameron Ave	From Swastika Ave To Boisvert St	Pulverizing and Resurfacing	$27,959			$27,959										
Road Section: Cameron Ave	1016	Cameron Ave	From Boisvert St To Hays St	Basic Resurfacing	$39,521								$39,521					
Road Section: Carter Ave	1326	Carter Ave	From Balsam Ave To Dixon Ave	Basic Resurfacing	$62,879								$62,879					
Road Section: Carter Ave	1376	Carter Ave	From Brookbank Ave To Churchill Dr	Basic Resurfacing	$59,314								$59,314					
Road Section: Chaput Ave	1070	Chaput Ave	From McCool Street To 0.17 km E of Inn Street	Basic Resurfacing	$95,485				$95,485									
Road Section: Chaput Ave	1068	Chaput Ave	From Government Rd W To McCool Street	Basic Resurfacing	$90,057										$90,057			
Road Section: Childs	1056	Childs	From Westinghouse To west end	Reconstruction including Storm Sewers	$215,766		$215,766											
Road Section: Churchill Dr	1436	Churchill Dr	From Carter Ave To Fifth St	Reconstruction including Storm Sewers	$218,537								$218,537					
Road Section: Churchill Dr	1434	Churchill Dr	From Pollock St To Carter Ave	Reconstruction including Storm Sewers	$289,573	$289,573												
Road Section: Churchill Dr	1432	Churchill Dr	From Duncan Ave S To Pollock St	Reconstruction including Storm Sewers	$353,648	$353,648												
Road Section: Comfort St	1222	Comfort St	From King St To Poplar Ave	Reconstruction including Storm Sewers	$448,602	$448,602												
Road Section: Comfort St	1210	Comfort St	From Queen St To King St	Basic Resurfacing	$54,018	$54,018												
Road Section: Comfort St	1180	Comfort St	From Rand Ave W To Queen St	Basic Resurfacing	$22,494		$22,494											
Road Section: Comfort St	1182	Comfort St	From South End To Rand Ave W	Basic Resurfacing	$22,906			$22,906										
Road Section: Conroy Ave	1052	Conroy Ave	From Westinghouse To East end	Basic Resurfacing	$61,634					$61,634								
Road Section: Conroy Ave	1026	Conroy Ave	From Riverside Dr To Hays St	Basic Resurfacing	$45,050										$45,050			
Road Section: Conroy Ave	1028	Conroy Ave	From Hays St To westinghouse	Basic Resurfacing	$33,264										$33,264			
Road Section: Culver Park	1008	Culver Park	From Hays St To 0.10 km E of Hays St	Pulverizing and Resurfacing	$29,545							$29,545						
Road Section: Dark Street	2076	Dark Street	From Various To Queen St	Tolerable standard for lower volume roads	$2,840	$2,840												
Road Section: Day Ave	1625	Day Ave	From Grierson Rd To Federal St	Basic Resurfacing	$46,999										$46,999			
Road Section: Day Ave	1666	Day Ave	From Federal St To 152m North End	Reconstruction including Storm Sewers	$360,858					$360,858								
Road Section: Dixon Ave	1352	Dixon Ave	From Duncan Ave S To Pollock St	Basic Resurfacing	$30,913								$30,913					
Road Section: Dixon Ave	1344	Dixon Ave	From Furlong Ave To Calbeck Ave	Basic Resurfacing	$135,740										$135,740			
Road Section: Dixon Ave	1350	Dixon Ave	From Pollock St To Carter Ave	Basic Resurfacing	$69,995										$69,995			
Road Section: Dixon Ave	1346	Dixon Ave	From Spruce St To Furlong Ave	Reconstruction including Storm Sewers	$709,717			$709,717										
Road Section: Dixon Ave	1348	Dixon Ave	From Carter Ave To Spruce St	Reconstruction including Storm Sewers	$260,522					$260,522								
Road Section: Dodge Dr	1020	Dodge Dr	From Peck Ave To North End	Reconstruction	$30,836						$30,836							
Road Section: Duncan Ave N	1534	Duncan Ave N	From Prospect Ave To Wright Hargreaves Ave	Basic Resurfacing	$80,475									$80,475				
Road Section: Duncan Ave N	1540	Duncan Ave N	From Wright Hargreaves Ave To Goodfish Rd	Reconstruction including Storm Sewers	$933,446	$933,446												
Road Section: Duncan Ave S	1364	Duncan Ave S	From Dixon Ave To Brookbank Ave	Basic Resurfacing	$50,350							$50,350						
Road Section: Duncan Ave S	1380	Duncan Ave S	From Brookbank Ave To Churchill Dr	Basic Resurfacing	$48,133								$48,133					
Road Section: Duncan Ave S	1430	Duncan Ave S	From Churchill Dr To Hudson Bay Ave	Reconstruction including Storm Sewers	$553,197		$553,197											
Road Section: Dunfield Rd	1446	Dunfield Rd	From South End To Fifth St	Tolerable standard for lower volume roads	$92,442								$92,442					
Road Section: Durrell St	1298	Durrell St	From Rowan Ave To Poplar Ave	Basic Resurfacing	$30,941		$30,941											
Road Section: Durrell St	1292	Durrell St	From Poplar Ave To Taylor Ave	Basic Resurfacing	$26,963									$26,963				
Road Section: Earl St	1194	Earl St	From Prince St To Rand Ave W	Reconstruction including Storm Sewers	$415,349	$415,349												
Road Section: Earl St	1200	Earl St	From Rand Ave W To Premier Ave W	Reconstruction including Storm Sewers	$240,039	$240,039												
Road Section: Earl St	1192	Earl St	From South End To Prince St	Basic Resurfacing	$12,779			$12,779										
Road Section: Federal St	1640	Federal St	From Day Ave To Green Ave	Basic Resurfacing	$37,910								$37,910					
Road Section: Federal St	1638	Federal St	From Green Ave To Brown Ave	Basic Resurfacing	$60,847								$60,847					
Road Section: Federal St	1636	Federal St	From Brown Ave To Foss Ln	Basic Resurfacing	$55,260									$55,260				
Road Section: Federal St	1642	Federal St	From Wilson Ave To Day Ave	Basic Resurfacing	$27,840									$27,840				
Road Section: Federal St	1644	Federal St	From 185m West End To Wilson Ave	Basic Resurfacing	$58,208										$58,208			
Road Section: Federal St	1632	Federal St	From Foss Ln To East End	Basic Resurfacing	$8,111			$8,111										
Road Section: First St	1508	First St	From Allen Ave To Dunfield Rd	Basic Resurfacing	$45,831								$45,831					
Road Section: Foss Ln	1634	Foss Ln	From Foss Ln To Foss Ln	Basic Resurfacing	$3,289										$3,289			
Road Section: Foss Ln	1686	Foss Ln	From Wishman St To 0.10 km N of Wishman St	Reconstruction including Storm Sewers	$285,857		$285,857											
Road Section: Foss Ln	1680	Foss Ln	From Federal St To Wishman St	Reconstruction including Storm Sewers	$189,925	$189,925												
Road Section: Fourth St	1448	Fourth St	From Churchill Dr To Young Ave	Reconstruction including Storm Sewers	$591,773			$591,773										
Road Section: Fourth St	1450	Fourth St	From Young Ave To Allen Ave	Reconstruction including Storm Sewers	$590,804					$590,804								
Road Section: Gold Ave	1006	Gold Ave	From Swastika Ave To Hays St	Reconstruction	$487,271		$487,271											

Road Section: Goldthorpe Rd	1091	Goldthorpe Rd	From 1.69 km W of Government Rd To Government Rd W	Pulverizing and Resurfacing	$440,020	$440,020												
Road Section: Goodfish Rd	1543	Goodfish Rd	From Tweedsmuir Rd To 0.12km East of Duncan Ave N	Basic Resurfacing	$174,111										$174,111			
Road Section: Goodfish Rd	1558	Goodfish Rd	From Goodfish Rd To Brant Ave	Reconstruction	$798,403		$798,403											
Road Section: Goodfish Rd	1560	Goodfish Rd	From Brant Ave To North End	Reconstruction	$3,621,868		$3,621,868											
Road Section: Goodfish Rd	1542	Goodfish Rd	From Duncan Ave N To 0.12km East of Duncan Ave N	Reconstruction including Storm Sewers	$408,808			$408,808										
Road Section: Government Rd E	2058	Government Rd E	Sylvanite Ave to Burnside Dr	Pulverizing and Resurfacing	$80,211					$80,211								
Road Section: Government Rd E	2052	Government Rd E	From Allen Ave To Dunfield Rd	Pulverizing and Resurfacing	$54,706					$54,706								
Road Section: Government Rd E	2054	Government Rd E	From Dunfield Rd To Sylvanite Ave	Pulverizing and Resurfacing	$32,603						$32,603							
Road Section: Government Rd E	2056	Government Rd E	From Sylvanite Ave To Sylvanite Ave	Pulverizing and Resurfacing	$33,155						$33,155							
Road Section: Government Rd W	2026	Government Rd W	From Hilltop Dr To Chateau Dr	Basic Resurfacing - double lift	$488,979	$488,979												
Road Section: Government Rd W	2032	Government Rd W	From Al Wende Dr To Water Ln	Basic Resurfacing - double lift	$378,045							$378,045						
Road Section: Government Rd W	2028	Government Rd W	From Chateau Dr To Oakes Avenue	Basic Resurfacing - double lift	$104,459							$104,459						
Road Section: Government Rd W	2030	Government Rd W	From Oakes Avenue To Al Wende Dr	Basic Resurfacing - double lift	$386,180							$386,180						
Road Section: Government Rd W	2024	Government Rd W	From Hilltop Dr To Hilltop Dr	Basic Resurfacing - double lift	$79,970							$79,970						
Road Section: Government Rd W	2022	Government Rd W	From Marcassa To Hilltop Dr	Basic Resurfacing - double lift	$259,769							$259,769						
Road Section: Government Rd W	2018	Government Rd W	From Goldthorpe Rd To Macassa Ln	Basic Resurfacing - double lift	$221,878								$221,878					
Road Section: Government Rd W	2020	Government Rd W	From Macassa Ln To Inn St	Basic Resurfacing - double lift	$53,378								$53,378					
Road Section: Government Rd W	1064	Government Rd W	From Archer Dr To 0.26 km N of Archer Dr	Basic Resurfacing	$157,167								$157,167					
Road Section: Government Rd W	1066	Government Rd W	From 0.26 km N ofArcher Dr To Highway 66	Basic Resurfacing	$535,878								$535,878					
Road Section: Government Rd W	2034	Government Rd W	From Water Ln To Main St	Tolerable standard for lower volume roads	$106,127	$106,127												
Road Section: Green Ave	1626	Green Ave	From Grierson Rd To Federal St	Basic Resurfacing	$45,606										$45,606			
Road Section: Green Ave	1670	Green Ave	From Wishman St To North End	Reconstruction including Storm Sewers	$127,263			$127,263										
Road Section: Green Ave	1668	Green Ave	From Federal St To Wishman St	Reconstruction including Storm Sewers	$260,889					$260,889								
Road Section: Grenfell Ave	1040	Grenfell Ave	From Riverside Dr To Hays St	Basic Resurfacing	$136,235								$136,235					
Road Section: Grierson Rd	1614	Grierson Rd	From Brown Ave To Foss Ln	Reconstruction including Storm Sewers	$386,973							$386,973						
Road Section: Grierson Rd	1616	Grierson Rd	From Green Ave To Brown Ave	Reconstruction including Storm Sewers	$554,563							$554,563						
Road Section: Grierson Rd	1618	Grierson Rd	From Day Ave To Green Ave	Reconstruction including Storm Sewers	$285,857							$285,857						
Road Section: Grierson Rd	1620	Grierson Rd	From Wilson Ave To Day Ave	Basic Resurfacing	$25,230								$25,230					
Road Section: Grierson St	1622	Grierson St	From West End To Wilson Ave	Basic Resurfacing	$12,767										$12,767			
Road Section: Harding Ave	1602	Harding Ave	From Summit Ave To Atkins Ave	Reconstruction including Storm Sewers	$211,292	$211,292												
Road Section: Harding Ave	1574	Harding Ave	From Tweedsmuir Rd To McPhee Ave	Reconstruction including Storm Sewers	$562,654						$562,654							
Road Section: Harding Ave	1590	Harding Ave	From McPhee Ave To Summit Ave	Reconstruction including Storm Sewers	$688,480						$688,480							
Road Section: Heath St	1652	Heath St	From West End To Wilson Ave	Reconstruction including Storm Sewers	$379,851							$379,851						
Road Section: Hillcrest Drive	1566	Hillcrest Drive	From West End To Tweedsmuir Rd	Pulverizing and Resurfacing	$173,849										$173,849			
Road Section: Hudson Bay Ave	1394	Hudson Bay Ave	From Prospect Ave To Duncan Ave S	Reconstruction including Storm Sewers	$420,210	$420,210												
Road Section: Hudson Bay Ave	1282	Hudson Bay Ave	From Lebel Ave To Prospect Ave	Reconstruction including Storm Sewers	$477,382		$477,382											
Road Section: Hudson Bay Ave	1262	Hudson Bay Ave	From West End To Lebel Ave	Reconstruction including Storm Sewers	$311,794			$311,794										
Road Section: Hughes Ave	1074	Hughes Ave	From McCool Street To East End	Basic Resurfacing	$55,910		$55,910											
Road Section: Inn St	1090	Inn St	From Government Rd W To Wye St	Basic Resurfacing	$28,123						$28,123							
Road Section: King George Court	2077	King George Court	From Dark Street To End of Cul de Sac	Tolerable standard for lower volume roads	$2,653	$2,653												
Road Section: King St	1220	King St	From Park St To Lebel Ave	Reconstruction including Storm Sewers	$417,384	$417,384												
Road Section: King St	1218	King St	From Comfort St To Park St	Reconstruction including Storm Sewers	$317,447	$317,447												
Road Section: Kirkland Ave	1058	Kirkland Ave	From Government Rd W To East End	Basic Resurfacing	$28,426					$28,426								
Road Section: Kirkland Ave	1032	Kirkland Ave	From Riverside Dr To Hays St	Basic Resurfacing	$610,765										$610,765			
Road Section: Kirkland St E	1412	Kirkland St E	From Duncan Ave S To Station Rd S	Basic Resurfacing	$232,000										$232,000			
Road Section: Kirkpatrick St	1402	Kirkpatrick St	From Prospect Ave To Duncan Ave S	Reconstruction including Storm Sewers	$285,857	$285,857												
Road Section: Kirkpatrick St	1265	Kirkpatrick St	From West end To Lebel Ave	Reconstruction including Storm Sewers	$134,854				$134,854									
Road Section: Kirkpatrick St	1266	Kirkpatrick St	From Lebel Ave To Lebel Ave	Reconstruction including Storm Sewers	$108,191						$108,191							
Road Section: Kirkpatrick St	1278	Kirkpatrick St	From Teck Ave To Prospect Ave	Reconstruction including Storm Sewers	$247,937						$247,937							
Road Section: Kirkpatrick St	1276	Kirkpatrick St	From Lebel Ave To Teck Ave	Reconstruction including Storm Sewers	$238,893						$238,893							
Road Section: Lakeshore Rd	1148	Lakeshore Rd	From South End To McCamus Ave	Tolerable standard for lower volume roads	$72,278				$72,278									
Road Section: Lakeshore Rd	1150	Lakeshore Rd	From McCamus Ave To North End	Tolerable standard for lower volume roads	$51,452				$51,452									
Road Section: Lebel Ave	1228	Lebel Ave	From Rowan Ave To Poplar Ave	Basic Resurfacing	$27,446	$27,446												
Road Section: Lebel Ave	1264	Lebel Ave	From Hudson Bay Ave To Kirkpatrick St	Basic Resurfacing	$74,843					$74,843								
Road Section: Lebel Ave	1226	Lebel Ave	From Queen St To Rowan Ave	Basic Resurfacing	$32,426							$32,426						
Road Section: Lebel Ave	1238	Lebel Ave	From Poplar Ave To Taylor Ave	Basic Resurfacing	$56,589									$56,589				
Road Section: Lebel Ave	1246	Lebel Ave	From Taylor Ave To McKelvie Ave	Basic Resurfacing	$48,593									$48,593				
Road Section: Lebel Ave	1254	Lebel Ave	From McKelvie Ave To McCamus Ave	Basic Resurfacing	$65,491										$65,491			
Road Section: Lebel Ave	1260	Lebel Ave	From McCamus Ave To Hudson Bay Ave	Reconstruction including Storm Sewers	$268,144	$268,144												
Road Section: Lebel Ave	1523	Lebel Ave	From Government Rd E To Kirkland St w	Reconstruction including Storm Sewers	$188,795			$188,795										
Road Section: Lebel Ave	1270	Lebel Ave	From Kirkpatrick St To Kirkland St W	Reconstruction including Storm Sewers	$224,923						$224,923							
Road Section: Macassa Ln	1092	Macassa Ln	From 0.06 Km W of Gold Property Ave To Gold Property Ave	Reconstruction including Storm Sewers	$167,218		$167,218											
Road Section: MacPherson Ave	1592	MacPherson Ave	From McPhee Ave To Summerset Dr	Basic Resurfacing	$52,346									$52,346				
Road Section: MacPherson Ave	1596	MacPherson Ave	From Summerset Dr To Summit Ave	Basic Resurfacing	$32,201										$32,201			
Road Section: Main St	1126	Main St	From Birch St To Queen St	Basic Resurfacing	$159,534							$159,534						
Road Section: Main St	1132	Main St	From King St To Porteous Ave	Basic Resurfacing	$32,859								$32,859					
Road Section: Main St	1136	Main St	From Porteous Ave To Poplar Ave	Basic Resurfacing	$75,924								$75,924					
Road Section: Main St	1063	Main St	From Birch To Archer Dr	Basic Resurfacing	$115,743								$115,743					
Road Section: Main St	1140	Main St	From Poplar Ave To Taylor Ave	Basic Resurfacing	$731,120								$731,120					
Road Section: Main St	1128	Main St	From Queen St To King St	Basic Resurfacing	$141,448									$141,448				
Road Section: Market St	1524	Market St	From Government Rd W To Water Ln	Basic Resurfacing	$51,440										$51,440			
Road Section: McCamus Ave	1258	McCamus Ave	From Park St To Lebel Ave	Basic Resurfacing	$68,556			$68,556										
Road Section: McCamus Ave	1256	McCamus Ave	From Woods St To Park St	Basic Resurfacing	$57,744								$57,744					
Road Section: McCamus Ave	1388	McCamus Ave	From Prospect Ave To Omeara Blvd	Basic Resurfacing	$30,635								$30,635					
Road Section: McCamus Ave	1156	McCamus Ave	From Main St To Woods St	Basic Resurfacing	$30,356									$30,356				
Road Section: McCamus Ave	1284	McCamus Ave	From Lebel Ave To Prospect Ave	Basic Resurfacing	$63,208										$63,208			
Road Section: McCamus Ave	1146	McCamus Ave	From Lakeshore Rd To Main St	Tolerable standard for lower volume roads	$40,877			$40,877										
Road Section: McCool Street	1076	McCool Street	From Hughes Ave To Wye St	Basic Resurfacing	$12,947		$12,947											
Road Section: McCool Street	1072	McCool Street	From Chaput Ave To Hughes Ave	Basic Resurfacing	$24,716			$24,716										
Road Section: McKelvie Ave	1248	McKelvie Ave	From Woods St To Park St	Reconstruction including Storm Sewers	$524,960	$524,960												
Road Section: McKelvie Ave	1250	McKelvie Ave	From Park St To Lebel Ave	Reconstruction including Storm Sewers	$540,868				$540,868									
Road Section: McKelvie Ave	1286	McKelvie Ave	From Lebel Ave To Prospect Ave	Reconstruction including Storm Sewers	$560,280					$560,280								
Road Section: McPhee Ave	1588	McPhee Ave	From Harding Ave To MacPherson Ave	Reconstruction including Storm Sewers	$197,048				$197,048									
Road Section: McPhee Ave	1586	McPhee Ave	From MacPherson Ave To Tweedsmuir Rd	Reconstruction including Storm Sewers	$187,551					$187,551								
Road Section: Nipissing Ln	1548	Nipissing Ln	From West End To Station Rd N	Basic Resurfacing	$126,392								$126,392					
Road Section: Omeara Blvd	1392	Omeara Blvd	From McCamus Ave To Hudson Bay Ave	Basic Resurfacing	$41,650								$41,650					
Road Section: Omeara Blvd	1382	Omeara Blvd	From Brookbank Ave To McCamus Ave	Reconstruction including Storm Sewers	$509,052		$509,052											
Road Section: Park St	1224	Park St	From King St To Poplar Ave	Reconstruction including Storm Sewers	$524,960	$524,960												
Road Section: Park St	1236	Park St	From Poplar Ave To Taylor Ave	Reconstruction including Storm Sewers	$231,948	$231,948												
Road Section: Park St	1212	Park St	From Queen St To King St	Basic Resurfacing	$46,594				$46,594									
Road Section: Park St	1252	Park St	From McKelvie Ave To McCamus Ave	Reconstruction Nominal Storm Sewers	$131,407						$131,407							
Road Section: Park St	1244	Park St	From Taylor Ave To McKelvie Ave	Reconstruction Nominal Storm Sewers	$166,056						$166,056							
Road Section: Peck Ave	1022	Peck Ave	From Dodge Dr To 56m West of Riverside Dr	Reconstruction	$460,049								$460,049					
Road Section: Peck Ave	1023	Peck Ave	From 56m West of Riverside Dr. To Riverside Dr	Basic Resurfacing	$22,345										$22,345			
Road Section: Peck Ave	1018	Peck Ave	From West End To Dodge Dr	Reconstruction	$401,638			$401,638										
Road Section: Pollock St	1366	Pollock St	From Dixon Ave To Brookbank Ave	Reconstruction including Storm Sewers	$451,784				$451,784									
Road Section: Pollock St	1378	Pollock St	From Brookbank Ave To Churchill Dr	Reconstruction including Storm Sewers	$435,876					$435,876								
Road Section: Poplar Ave	1230	Poplar Ave	From Woods St To Comfort St	Reconstruction Nominal Storm Sewers	$115,978	$115,978												
Road Section: Poplar Ave	1232	Poplar Ave	From Comfort St To Park St	Reconstruction including Storm Sewers	$353,155	$353,155												
Road Section: Poplar Ave	1234	Poplar Ave	From Park St To Lebel Ave	Reconstruction including Storm Sewers	$470,873	$470,873												
Road Section: Poplar Ave	1138	Poplar Ave	From George St To Main St	Basic Resurfacing	$74,134		$74,134											
Road Section: Poplar Ave	1166	Poplar Ave	From Main St To Woods St	Basic Resurfacing	$24,832							$24,832						
Road Section: Poplar Ave	1114	Poplar Ave	From West End To George St	Reconstruction including Storm Sewers	$199,583		$199,583											
Road Section: Porteous Ave	1134	Porteous Ave	From George St To Main St	Basic Resurfacing	$157,428										$157,428			
Road Section: Premier Ave E	1320	Premier Ave E	From Pollock St To Rand Ave E	Pulverizing and Resurfacing	$46,091				$46,091									
Road Section: Premier Ave E	1312	Premier Ave E	From Prospect Ave To Pollock St	Basic Resurfacing	$64,754										$64,754			
Road Section: Prince St	1188	Prince St	From West End To Baron St	Reconstruction including Storm Sewers	$326,346	$326,346												
Road Section: Prince St	1190	Prince St	From Baron St To Earl St	Reconstruction including Storm Sewers	$229,251	$229,251												
Road Section: Prospect Ave	1396	Prospect Ave	From Hudson Bay Ave To Second St W	Basic Resurfacing	$26,937							$26,937						
Road Section: Prospect Ave	1386	Prospect Ave	From McKelvie Ave To McCamus Ave	Basic Resurfacing	$40,518								$40,518					

Road Section: Prospect Ave	1390	Prospect Ave	From McCamus Ave To Hudson Bay Ave	Basic Resurfacing	$63,241								$63,241				
Road Section: Prospect Ave	1400	Prospect Ave	From Second St W To Kirkpatrick St	Basic Resurfacing	$49,696								$49,696				
Road Section: Prospect Ave	1384	Prospect Ave	From Omeara Blvd To McKelvie Ave	Reconstruction including Storm Sewers	$229,267			$229,267									
Road Section: Queen St	1306	Queen St	From Lebel Ave To Rowan Ave	Basic Resurfacing	$101,491							$101,491					
Road Section: Rand Ave E	1318	Rand Ave E	From Pollock St To Premier Ave E	Basic Resurfacing	$71,967			$71,967									
Road Section: Rand Ave W	1184	Rand Ave W	From Comfort St To Baron St	Basic Resurfacing	$59,028		$59,028										
Road Section: Rand Ave W	1196	Rand Ave W	From Baron St To Earl St	Basic Resurfacing	$26,562								$26,562				
Road Section: Rand Ave W	1198	Rand Ave W	From Earl St To Premier Ave W	Basic Resurfacing	$82,182								$82,182				
Road Section: Riverside Dr	1024	Riverside Dr	From Peck Ave To Hays St	Basic Resurfacing	$54,629									$54,629			
Road Section: Rowan Ave	1300	Rowan Ave	From Lebel Ave To Durrell St	Reconstruction including Storm Sewers	$318,254							$318,254					
Road Section: Rowan Ave	1302	Rowan Ave	From Durrell St To Queen St	Basic Resurfacing	$28,168									$28,168			
Road Section: Rowan Ave	1304	Rowan Ave	From Queen St To Prospect Ave	Basic Resurfacing	$15,544									$15,544			
Road Section: Second St E	1480	Second St E	From Dunfield Rd To East End	Reconstruction including Storm Sewers	$232,255		$232,255										
Road Section: Short St	1088	Short St	From Hughes Ave To Chaput Ave	Basic Resurfacing	$12,177	$12,177											
Road Section: Spruce St	1332	Spruce St	From Balsam Ave To Dixon Ave	Basic Resurfacing	$56,754									$56,754			
Road Section: St Peters Lane	1418	St Peters Lane	From Second St E To North End	Reconstruction including Storm Sewers	$194,448		$194,448										
Road Section: Station Rd	1482	Station Rd	From Second St E To Tower St	Reconstruction including Storm Sewers	$316,827	$316,827											
Road Section: Summerhayes Ave	2080	Summerhayes Ave	From Duncan Ave N To Prospect Ave	Pulverizing and Resurfacing	$33,266				$33,266								
Road Section: Summerset Dr	1594	Summerset Dr	From MacPherson Ave To North End	Reconstruction including Storm Sewers	$178,007						$178,007						
Road Section: Summit Ave	1600	Summit Ave	From Harding Ave To MacPherson Ave	Reconstruction including Storm Sewers	$223,162						$223,162						
Road Section: Summit Ave	1598	Summit Ave	From MacPherson Ave To North End	Reconstruction including Storm Sewers	$156,689						$156,689						
Road Section: Swastika Ave	1000	Swastika Ave	From Boundary To Hays St	Basic Resurfacing	$36,771							$36,771					
Road Section: Taylor Ave	1240	Taylor Ave	From Woods St To Park St	Reconstruction including Storm Sewers	$243,361	$243,361											
Road Section: Taylor Ave	1241	Taylor Ave	From Park St To 80m east	Reconstruction including Storm Sewers	$241,013							$241,013					
Road Section: Taylor Ave	1142	Taylor Ave	From George St To Main St	Basic Resurfacing	$62,505		$62,505										
Road Section: Taylor Ave	1110	Taylor Ave	From West End To George St	Reconstruction including Storm Sewers	$323,019		$323,019										
Road Section: Taylor Ave	1162	Taylor Ave	From Main St To Woods St	Reconstruction including Storm Sewers	$280,443	$280,443											
Road Section: Teck Ave	1280	Teck Ave	From South End To Kirkpatrick St	Reconstruction including Storm Sewers	$232,207			$232,207									
Road Section: Tower St	1490	Tower St	From Station Rd To Young Ave	Basic Resurfacing	$43,435							$43,435					
Road Section: Tower St	1494	Tower St	From Young Ave To Allen Ave	Basic Resurfacing	$61,859							$61,859					
Road Section: Tweedsmuir Rd	1544	Tweedsmuir Rd	From Wright Hargreaves Ave To Goodfish Rd	Reconstruction including Storm Sewers	$245,285							$245,285					
Road Section: Tweedsmuir Rd	1538	Tweedsmuir Rd	From Government Rd E To Wright Hargreaves Ave	Basic Resurfacing	$26,804							$26,804					
Road Section: Tweedsmuir Rd	1582	Tweedsmuir Rd	From McPhee Ave To Algonquin Ave	Basic Resurfacing	$15,733							$15,733					
Road Section: Tweedsmuir Rd	1584	Tweedsmuir Rd	From Algonquin Ave To Grierson Rd	Basic Resurfacing	$35,400							$35,400					
Road Section: Tweedsmuir Rd	1568	Tweedsmuir Rd	From Hillcrest Drive To Harding Ave	Reconstruction including Storm Sewers	$150,865	$150,865											
Road Section: Tweedsmuir Rd	1572	Tweedsmuir Rd	From Algonquin Ave To Alexander Ave	Reconstruction including Storm Sewers	$372,296	$372,296											
Road Section: Tweedsmuir Rd	1546	Tweedsmuir Rd	From Goodfish Rd To Hillcrest Drive	Reconstruction Nominal Storm Sewers	$537,027		$537,027										
Road Section: Tweedsmuir Rd	1580	Tweedsmuir Rd	From Alexander Ave To McPhee Ave	Reconstruction including Storm Sewers	$282,263					$282,263							
Road Section: Water Ln	1522	Water Ln	From Government Rd W To Market St	Basic Resurfacing	$158,977							$158,977					
Road Section: Wilson Ave	1660	Wilson Ave	From Brant St To North End	Reconstruction including Storm Sewers	$240,572							$240,572					
Road Section: Wilson Ave	1624	Wilson Ave	From Grierson St To Federal St	Basic Resurfacing	$27,840								$27,840				
Road Section: Wilson Ave	1648	Wilson Ave	From Federal St To Wishman St	Basic Resurfacing	$26,972									$26,972			
Road Section: Wilson Ave	1650	Wilson Ave	From Wishman St To Heath St	Basic Resurfacing	$14,843									$14,843			
Road Section: Wishman St	1646	Wishman St	From West End To Wilson Ave	Reconstruction including Storm Sewers	$394,095							$394,095					
Road Section: Wishman St	1672	Wishman St	From Green Ave To Brown Ave	Reconstruction including Storm Sewers	$598,136						$598,136						
Road Section: Wishman St	1678	Wishman St	From Brown Ave To Foss Ln	Reconstruction including Storm Sewers	$424,958						$424,958						
Road Section: Wishman St	1682	Wishman St	From Foss Ln To Foss Ln	Reconstruction including Storm Sewers	$118,703						$118,703						
Road Section: Wishman St	1684	Wishman St	From Foss Ln To East End	Reconstruction including Storm Sewers	$85,757						$85,757						
Road Section: Wright Hargreaves Ave	1536	Wright Hargreaves Ave	From Duncan Ave N To Tweedsmuir Rd	Reconstruction including Storm Sewers	$703,936				$703,936								
Road Section: Wye St	1078	Wye St	From McCool Street To Inn St	Basic Resurfacing	$29,470		$29,470										
Road Section: Young Ave	1492	Young Ave	From Tower St To North End	Basic Resurfacing	$13,153									$13,153			
Road Section: Young Ave	1456	Young Ave	From Fourth St To Third St	Reconstruction including Storm Sewers	$229,251				$229,251								
Sewerline (Waste Water): SS10_Sewerline (Waste Water)	SS10	Sewerline (Waste Water)		Reconstructed	$726,534				$726,534								
Sewerline (Waste Water): SS11_Sewerline (Waste Water)	SS11	Sewerline (Waste Water)		Reconstructed	$52,439							$52,439					
Sewerline (Waste Water): SS115_Sewerline (Waste Water)	SS115	Sewerline (Waste Water)		Reconstructed	$61,768	$61,768											
Sewerline (Waste Water): SS162_Sewerline (Waste Water)	SS162	Sewerline (Waste Water)		Reconstructed	$22,567	$22,567											
Sewerline (Waste Water): SS164_Sewerline (Waste Water)	SS164	Sewerline (Waste Water)		Reconstructed	$23,317	$23,317											
Sewerline (Waste Water): SS165_Sewerline (Waste Water)	SS165	Sewerline (Waste Water)		Reconstructed	$14,610	$14,610											
Sewerline (Waste Water): SS2_Sewerline (Waste Water)	SS2	Sewerline (Waste Water)		Reconstructed	$10,731	$10,731											
Sewerline (Waste Water): SS25_Sewerline (Waste Water)	SS25	Sewerline (Waste Water)		Reconstructed	$43,987	$43,987											
Sewerline (Waste Water): SS26_Sewerline (Waste Water)	SS26	Sewerline (Waste Water)		Reconstructed	$491,173	$491,173											
Sewerline (Waste Water): SS27_Sewerline (Waste Water)	SS27	Sewerline (Waste Water)		Reconstructed	$16,118				$16,118								
Sewerline (Waste Water): SS29_Sewerline (Waste Water)	SS29	Sewerline (Waste Water)		Reconstructed	$26,810	$26,810											
Sewerline (Waste Water): SS3_Sewerline (Waste Water)	SS3	Sewerline (Waste Water)		Reconstructed	$161,429	$161,429											
Sewerline (Waste Water): SS38_Sewerline (Waste Water)	SS38	Sewerline (Waste Water)		Reconstructed	$78,643	$78,643											
Sewerline (Waste Water): SS4_Sewerline (Waste Water)	SS4	Sewerline (Waste Water)		Reconstructed	$51,327				$51,327								
Sewerline (Waste Water): SS43_Sewerline (Waste Water)	SS43	Sewerline (Waste Water)		Reconstructed	$15,629				$15,629								
Sewerline (Waste Water): SS44_Sewerline (Waste Water)	SS44	Sewerline (Waste Water)		Reconstructed	$74,164				$74,164								
Sewerline (Waste Water): SS46_Sewerline (Waste Water)	SS46	Sewerline (Waste Water)		Reconstructed	$41,838				$41,838								
Sewerline (Waste Water): SS49_Sewerline (Waste Water)	SS49	Sewerline (Waste Water)		Reconstructed	$25,500				$25,500								
Sewerline (Waste Water): SS51_Sewerline (Waste Water)	SS51	Sewerline (Waste Water)		Reconstructed	$164,585	$164,585											
Sewerline (Waste Water): SS52_Sewerline (Waste Water)	SS52	Sewerline (Waste Water)		Reconstructed	$69,006	$69,006											
Sewerline (Waste Water): SS53_Sewerline (Waste Water)	SS53	Sewerline (Waste Water)		Reconstructed	$17,158				$17,158								
Sewerline (Waste Water): SS54_Sewerline (Waste Water)	SS54	Sewerline (Waste Water)		Reconstructed	$170,268	$170,268											
Sewerline (Waste Water): SS55_Sewerline (Waste Water)	SS55	Sewerline (Waste Water)		Reconstructed	$180,063	$180,063											
Sewerline (Waste Water): SS56_Sewerline (Waste Water)	SS56	Sewerline (Waste Water)		Reconstructed	$816,387				$816,387								
Sewerline (Waste Water): SS57_Sewerline (Waste Water)	SS57	Sewerline (Waste Water)		Reconstructed	$61,419								$61,419				
Sewerline (Waste Water): SS61_Sewerline (Waste Water)	SS61	Sewerline (Waste Water)		Reconstructed	$132,508	$132,508											
Sewerline (Waste Water): SS62_Sewerline (Waste Water)	SS62	Sewerline (Waste Water)		Reconstructed	$424,518	$424,518											
Sewerline (Waste Water): SS63_Sewerline (Waste Water)	SS63	Sewerline (Waste Water)		Reconstructed	$389,753				$389,753								
Sewerline (Waste Water): SS66_Sewerline (Waste Water)	SS66	Sewerline (Waste Water)		Reconstructed	$48,857				$48,857								
Sewerline (Waste Water): SS67_Sewerline (Waste Water)	SS67	Sewerline (Waste Water)		Reconstructed	$68,332	$68,332											
Sewerline (Waste Water): SS68_Sewerline (Waste Water)	SS68	Sewerline (Waste Water)		Reconstructed	$77,008	$77,008											
Sewerline (Waste Water): SS69_Sewerline (Waste Water)	SS69	Sewerline (Waste Water)		Reconstructed	$259,040				$259,040								
Sewerline (Waste Water): SS71_Sewerline (Waste Water)	SS71	Sewerline (Waste Water)		Reconstructed	$56,002				$56,002								
Sewerline (Waste Water): SS75_Sewerline (Waste Water)	SS75	Sewerline (Waste Water)		Reconstructed	$81,603				$81,603								
Sewerline (Waste Water): SS77_Sewerline (Waste Water)	SS77	Sewerline (Waste Water)		Reconstructed	$239,327				$239,327								
Sewerline (Waste Water): SS8_Sewerline (Waste Water)	SS8	Sewerline (Waste Water)		Reconstructed	$83,726	$83,726											
Sewerline (Waste Water): SS9_Sewerline (Waste Water)	SS9	Sewerline (Waste Water)		Reconstructed	$444,922	$444,922											
Hydrant: HD1_Hydrants	HD1	Hydrants		Reconstructed	$1,290,864	$1,290,864											
Water Valve: WV1_Curb stop and box	WV1	Curb stop and box		Reconstructed	$2,351,461	$2,351,461											
Water Valve: WV2_Watermain Valves	WV2	Watermain Valves		Reconstructed	$531,169	$531,169											
Waterline: WL1_Waterline	WL1	Waterline: WL1_Waterline		Reconstructed	$114,297								$114,297				
Waterline: WL10_Waterline	WL10	Waterline: WL10_Waterline		Reconstructed	$20,007								$20,007				
Waterline: WL11_Waterline	WL11	Waterline: WL11_Waterline		Reconstructed	$141,358								$141,358				
Waterline: WL12_Waterline	WL12	Waterline: WL12_Waterline		Reconstructed	$523,751	$523,751											
Waterline: WL124_Waterline	WL124	Waterline: WL124_Waterline		Reconstructed	$37,052								$37,052				
Waterline: WL13_Waterline	WL13	Waterline: WL13_Waterline		Reconstructed	$1,965,984				$1,965,984								
Waterline: WL136_Waterline	WL136	Waterline: WL136_Waterline		Reconstructed	$10,205				$10,205								
Waterline: WL137_Waterline	WL137	Waterline: WL137_Waterline		Reconstructed	$61,104								$61,104				
Waterline: WL14_Waterline	WL14	Waterline: WL14_Waterline		Reconstructed	$1,584,727								$1,584,727				
Waterline: WL145_Waterline	WL145	Waterline: WL145_Waterline		Reconstructed	$11,940				$11,940								
Waterline: WL26_Waterline	WL26	Waterline: WL26_Waterline		Reconstructed	$20,518								$20,518				
Waterline: WL27_Waterline	WL27	Waterline: WL27_Waterline		Reconstructed	$122,506	$122,506											
Waterline: WL28_Waterline	WL28	Waterline: WL28_Waterline		Reconstructed	$123,803				$123,803								
Waterline: WL29_Waterline	WL29	Waterline: WL29_Waterline		Reconstructed	$772,792								$772,792				
Waterline: WL3_Waterline	WL3	Waterline: WL3_Waterline		Reconstructed	$170,098	$170,098											
Waterline: WL36_Waterline	WL36	Waterline: WL36_Waterline		Reconstructed	$17,750								$17,750				
Waterline: WL37_Waterline	WL37	Waterline: WL37_Waterline		Reconstructed	$180,301	$180,301											
Waterline: WL38_Waterline	WL38	Waterline: WL38_Waterline		Reconstructed	$592,794				$592,794								

Waterline: WL39_Waterline	WL39	Waterline: WL39_Waterline		Reconstructed	$165,014								$165,014					
Waterline: WL44_Waterline	WL44	Waterline: WL44_Waterline		Reconstructed	$54,460								$54,460					
Waterline: WL45_Waterline	WL45	Waterline: WL45_Waterline		Reconstructed	$51,827				$51,827									
Waterline: WL46_Waterline	WL46	Waterline: WL46_Waterline		Reconstructed	$257,713								$257,713					
Waterline: WL48_Waterline	WL48	Waterline: WL48_Waterline		Reconstructed	$118,286	$118,286												
Waterline: WL5_Waterline	WL5	Waterline: WL5_Waterline		Reconstructed	$205,561	$205,561												
Waterline: WL50_Waterline	WL50	Waterline: WL50_Waterline		Reconstructed	$7,269				$7,269									
Waterline: WL51_Waterline	WL51	Waterline: WL51_Waterline		Reconstructed	$13,283								$13,283					
Waterline: WL52_Waterline	WL52	Waterline: WL52_Waterline		Reconstructed	$24,225	$24,225												
Waterline: WL53_Waterline	WL53	Waterline: WL53_Waterline		Reconstructed	$26,157				$26,157									
Waterline: WL54_Waterline	WL54	Waterline: WL54_Waterline		Reconstructed	$11,239								$11,239					
Waterline: WL57_Waterline	WL57	Waterline: WL57_Waterline		Reconstructed	$45,602								$45,602					
Waterline: WL58_Waterline	WL58	Waterline: WL58_Waterline		Reconstructed	$17,390	$17,390												
Waterline: WL59_Waterline	WL59	Waterline: WL59_Waterline		Reconstructed	$33,960				$33,960									
Waterline: WL6_Waterline	WL6	Waterline: WL6_Waterline		Reconstructed	$9,273				$9,273									
Waterline: WL62_Waterline	WL62	Waterline: WL62_Waterline		Reconstructed	$58,395				$58,395									
Waterline: WL64_Waterline	WL64	Waterline: WL64_Waterline		Reconstructed	$45,029				$45,029									
Waterline: WL7_Waterline	WL7	Waterline: WL7_Waterline		Reconstructed	$103,115								$103,115					
Waterline: WL73_Waterline	WL73	Waterline: WL73_Waterline		Reconstructed	$22,481	$22,481												
Waterline: WL74_Waterline	WL74	Waterline: WL74_Waterline		Reconstructed	$35,830				$35,830									
Waterline: WL75_Waterline	WL75	Waterline: WL75_Waterline		Reconstructed	$48,089								$48,089					
Waterline: WL96_Waterline	WL96	Waterline: WL96_Waterline		Reconstructed	$101,967								$101,967					
Swastika Bridge	BR_01	Swastika Bridge		Rehabilitation	$21,954		$21,954											
Culvert: CUL3_Culvert	CUL3	Culvert		Reconstructed	$26,465							$26,465						
Culvert: CUL4_Culvert	CUL4	Culvert		Reconstructed	$193,818							$193,818						
Catchbasin (Storm): CB1_Catch basins	CB1	Catch basins		Reconstructed	$1,557,352								$1,557,352					
Catchbasin (Storm): CB2_Double Catch Basins	CB2	Double Catch Basins		Reconstructed	$109,288								$109,288					
Pumpstation (Waste Water): SPS3_Sanitary sewer pump station	SPS3	Sanitary sewer pump station		Reconstructed	$495,069	$495,069												
Sewerline (Storm): SSL1_Sewerline (Storm) Section	SSL1	Sewerline (Storm) Section		Reconstructed	$243,085								$243,085					
Traffic Signal: TS1_Traffic Signals	TS1	Traffic Signals		Reconstructed	$1,591,369	$1,591,369												
Traffic Signal: TS2_Traffic Signals	TS2	Traffic Signals		Reconstructed	$586,254	$586,254												
Building: BD109_Building	BD109	Building	Location Description: 8 O'Meara Blvd	Reconstructed	$1,515,512	$1,515,512												
Building: BD11_Chapel & Vault	BD11	Chapel & Vault	Location Description: 1409 Gov't Rd	Reconstructed	$169,837	$169,837												
Building: BD110_Building	BD110	Building	Location Description: Government Road	Reconstructed	$169,532	$169,532												
Building: BD112_Police Garage	BD112	Police Garage	Location Description: 3 Duncan Ave N	Reconstructed	$66,551	$66,551												
Building: BD114_Garage	BD114	Garage	Location Description: 1 Dunfield	Reconstructed	$30,528	$30,528												
Building: BD118_Works - Offices	BD118	Works - Offices	Location Description: 1 Dunfield	Reconstructed	$1,180,111				$1,180,111									
Building: BD12_Office & Workshop	BD12	Office & Workshop	Location Description: 1409 Gov't Rd	Reconstructed	$65,126	$65,126												
Building: BD65_Libraries	BD65	Libraries	Location Description: 10 Kirkland St	Reconstructed	$1,545,124					$1,545,124								
Building: BD92_Animal Control Bldg	BD92	Animal Control Bldg	Location Description: 1A Dunfield Rd	Reconstructed	$60,954									$60,954				
Building: BD98_Town Hall	BD98	Town Hall	Location Description: 3 Kirkland St	Reconstructed	$4,316,659	$4,316,659												
Vehicle: VH03_W206 - 2002 FORD	VH03	W206 - 2002 FORD	Location Description: 1 Dunfield Rd.	Purchased	$41,337	$41,337												
Vehicle: VH06_W202 - 2001 FORD	VH06	W202 - 2001 FORD	Location Description: 1 Dunfield Rd.	Purchased	$21,461		$21,461											
Vehicle: VH08_W204 - 1993 GMC VACCUUM	VH08	W204 - 1993 GMC VACCUUM	Location Description: 1 Dunfield Rd.	Purchased	$75,907	$75,907												
Vehicle: VH09_T204 - 2000 CHEV	VH09	T204 - 2000 CHEV	Location Description: 1 Dunfield Rd.	Purchased	$33,596	$33,596												
Vehicle: VH13_W203 - 2008 Ford Van	VH13	W203 - 2008 Ford Van	Location Description: n/a	Purchased	$55,363						$55,363							
Vehicle: VH14_W208 - 2009 GMC	VH14	W208 - 2009 GMC	Location Description: n/a	Purchased	$22,714							$22,714						
Vehicle: VH15_R201 - 2009 GMC	VH15	R201 - 2009 GMC	Location Description: n/a	Purchased	$20,994							$20,994						
Vehicle: VH16_T201 - 2008 FORD	VH16	T201 - 2008 FORD	Location Description: 1 Dunfield Rd.	Purchased	$18,989								$18,989					
Vehicle: VH17_C201 - 2000 Ford F150	VH17	C201 - 2000 Ford F150	Location Description: 1409 Gov't Rd	Purchased	$7,608							$7,608						
Vehicle: VH18_C202 to W212 2004 GMC	VH18	C202 to W212 2004 GMC	Location Description: 1409 Gov't Rd	Purchased	$17,384							$17,384						
Vehicle: VH19_B201 - 2005 FORD	VH19	B201 - 2005 FORD	Location Description: 1 Dunfield Rd.	Purchased	$25,621					$25,621								
Vehicle: VH20_R202 - 2003 Ford F150	VH20	R202 - 2003 Ford F150	Location Description: 55 Allen Ave.	Purchased	$16,492					$16,492								
Vehicle: VH21_W209 - 2009 GMC	VH21	W209 - 2009 GMC	Location Description: n/a	Purchased	$20,994							$20,994						
Vehicle: VH23_F203 - 1997 FREIGHTLINER 2ND LINE	VH23	F203 - 1997 FREIGHTLINER 2ND LINE	Location Description: 8 O'Meara Blvd	Purchased	$260,785						$260,785							
Vehicle: VH24_F202 - 1974 INTERNATIONAL AERIAL	VH24	F202 - 1974 INTERNATIONAL AERIAL	Location Description: 8 O'Meara Blvd	Purchased	$368,457	$368,457												
Vehicle: VH25_F206 - 1972 FORD KING	VH25	F206 - 1972 FORD KING	Location Description: 202 Gov't Rd W	Purchased	$58,017	$58,017												
Vehicle: VH27_F205 - 2004 CHEV RESCUE	VH27	F205 - 2004 CHEV RESCUE	Location Description: 8 O'Meara Blvd	Purchased	$42,811					$42,811								
Vehicle: VH29_F204 - 2010 GMC	VH29	F204 - 2010 GMC	Location Description: 8 O'Meara Blvd	Purchased	$39,506								$39,506					
Vehicle: VH32_A226 - 1999 Freightliner	VH32	A226 - 1999 Freightliner	Location Description: Airport Rd	Purchased	$189,477							$189,477						
Vehicle: VH33_A201 - 2002 CHEV	VH33	A201 - 2002 CHEV	Location Description: Airport Rd	Purchased	$34,874	$34,874												
Vehicle: VH34_E201 - 2006 FORD TAURUS	VH34	E201 - 2006 FORD TAURUS	Location Description: 1 Dunfield Rd.	Purchased	$22,276				$22,276									
Vehicle: VH35_E202 - 2000 FORD	VH35	E202 - 2000 FORD	Location Description: 1 Dunfield Rd.	Purchased	$39,193	$39,193												
Vehicle: VH36_E203 - 2001 GMC	VH36	E203 - 2001 GMC	Location Description: 1 Dunfield Rd.	Purchased	$17,541					$17,541								
Vehicle: VH41_T230 - 2002 Freightliner	VH41	T230 - 2002 Freightliner	Location Description: 1 Dunfield Rd.	Purchased	$214,158									$214,158				
Vehicle: VH42_T205 - 2003 Ford F450	VH42	T205 - 2003 Ford F450	Location Description: 1 Dunfield Rd.	Purchased	$60,047	$60,047												
Vehicle: VH44_T202 - 2004 FORD	VH44	T202 - 2004 FORD	Location Description: 1 Dunfield Rd.	Purchased	$21,148					$21,148								
Vehicle: VH51_W201 - 2008 Ford Truck	VH51	W201 - 2008 Ford Truck		Purchased	$13,751									$13,751				
Vehicle: VH52_W207 - 2009 GMC Sierra	VH52	W207 - 2009 GMC Sierra		Purchased	$17,241									$17,241				
Equipment: EQ239_Water Pump	EQ239	Water Pump	Location Description: 8 O'Meara Blvd	Purchased	$62,330	$62,330												Water Equipment
Equipment: EQ02-1_Variable Speed Pumps	EQ02-1	Variable Speed Pumps	Location Description: n/a	Purchased	$16,579							$16,579						Water Equipment
Equipment: EQ02_Variable Speed Pumps	EQ02	Variable Speed Pumps	Location Description: n/a	Purchased	$97,476						$97,476							Water Equipment
Equipment: EQ08_Planters	EQ08	Planters	Location Description: 1409 Gov't Rd	Purchased	$7,962								$7,962					
Equipment: EQ09-1_Servery Renovations Equip	EQ09-1	Servery Renovations Equip		Purchased	$6,353									$6,353				
Equipment: EQ09_Major Equipment	EQ09	Major Equipment	Location Description: 145A Gov't Rd E	Purchased	$825,879		$825,879											
Equipment: EQ114_Starting Blocks	EQ114	Starting Blocks	Location Description: 55 Allen Ave.	Purchased	$252,363	$252,363												
Equipment: EQ223_Bunker Suit	EQ223	Bunker Suit	Location Description: 8 O'Meara Blvd	Purchased	$23,295			$23,295										
Equipment: EQ227_Rescue Equipment - Hydraulic pump	EQ227	Rescue Equipment - Hydraulic pump	Location Description: 8 O'Meara Blvd	Purchased	$231,464	$231,464												
Equipment: EQ228_Rescue Equipment - Speader/Cutter	EQ228	Rescue Equipment - Speader/Cutter	Location Description: 8 O'Meara Blvd	Purchased	$10,179	$10,179												
Equipment: EQ229_Rescue Equipment - Spreader	EQ229	Rescue Equipment - Spreader	Location Description: 8 O'Meara Blvd	Purchased	$62,289	$62,289												
Equipment: EQ230_Rescue Equipment - Cutter	EQ230	Rescue Equipment - Cutter	Location Description: 8 O'Meara Blvd	Purchased	$75,777	$75,777												
Equipment: EQ01_Thawing Machine - 1995 DBH	EQ01	Thawing Machine - 1995 DBH	Location Description: 1 Dunfield Rd.	Purchased	$134,323	$134,323												
Equipment: EQ06_4WD Tractor	EQ06	4WD Tractor	Location Description: n/a	Purchased	$59,224				$59,224									
Equipment: EQ07_Scissor Lift	EQ07	Scissor Lift	Location Description: n/a	Purchased	$48,743				$48,743									
Equipment: EQ252_Loader - 1998 621B	EQ252	Loader - 1998 621B	Location Description: Airport Rd	Purchased	$161,900						$161,900							
Equipment: EQ253_Snowblower - 1998 TC-202-LM	EQ253	Snowblower - 1998 TC-202-LM	Location Description: Airport Rd	Purchased	$103,490						$103,490							
Equipment: EQ254_Fuel Tanks & Pumps (100LL, Jet) -	EQ254	Fuel Tanks & Pumps (100LL, Jet) -	Location Description: n/a	Purchased	$56,509	$56,509												
Equipment: EQ258_Compressor - 1973 SP150DK	EQ258	Compressor - 1973 SP150DK	Location Description: 1 Dunfield Rd.	Purchased	$29,676	$29,676												
Equipment: EQ260_Loader - 1992 544E	EQ260	Loader - 1992 544E	Location Description: 1 Dunfield Rd.	Purchased	$123,859	$123,859												
Equipment: EQ262_Rockbreaker - 1990 440	EQ262	Rockbreaker - 1990 440	Location Description: 1 Dunfield Rd.	Purchased	$17,299	$17,299												
Equipment: EQ265_Street Sweeper - 1995 Pelican	EQ265	Street Sweeper - 1995 Pelican	Location Description: 1 Dunfield Rd.	Purchased	$222,854				$222,854									
Equipment: EQ267_Trackless - 1995 MT5	EQ267	Trackless - 1995 MT5	Location Description: 1 Dunfield Rd.	Purchased	$80,899				$80,899									
Equipment: EQ270_GPS Management System	EQ270	GPS Management System	Location Description: 1 Dunfield	Purchased	$29,525			$29,525										
				Total (Incl. PST)	**$127,293,411**	**$29,769,225**	**$44,728,042**	**$7,097,895**	**$12,453,175**	**$6,593,782**	**$6,165,211**	**$5,745,221**	**$5,196,438**	**$6,389,060**	**$3,155,361**			
				Total (Incl. PST+Inflation)	**$129,243,894**	**$29,769,225**	**$45,622,603**	**$7,239,853**	**$12,702,239**	**$6,725,658**	**$6,288,515**	**$5,860,125**	**$5,300,367**	**$6,516,841**	**$3,218,468**			

Inflation @ 2% from 2014-2022

Note: Proposed projects are based upon the recommended future projects by the Town and/or Consultant's Reports