CITY OF WATERLOO
ASSET MANAGEMENT PLAN

NOVEMBER 2016

THE CITY OF Waterloo

This page intentionally left blank.

EXECUTIVE SUMMARY

2016 marks the development of the City of Waterloo's third formal Asset Management Plan and the first version including all assets owned by the corporation.

The City of Waterloo has prepared this asset management plan to meet the guidelines provided in the Ministry of Infrastructure, Building Together: Guide for Municipal Asset Management Plans as well as the anticipated requirements for ongoing federal and provincial funding.

The key elements of the asset management plan are:

- Introduction
- Summary of all assets information
- Funding requirements
- Individual asset information – Appendix A
- 10 year budget information – Appendix B
- Infrastructure Asset Management Analysis Report (IAMAR) - Appendix C

The 2016 Asset Management Plan (AMP) has been developed from information provided in the Infrastructure Asset Management Analysis Report (IAMAR) which was completed in June 2016 and is included in Appendix C. The IAMAR took over a year to complete and resulted in the creation of the Waterloo Asset Management System. The Waterloo Asset Management System contains corporate asset inventories and allows for illustration of how planned expenditures to renew assets effects the performance of the asset over the next 25 years. In order for the Waterloo Asset Management System to inform future asset management plans the data used by the system must be continually kept up to date (operationalize analytical the system). The information from the Waterloo Asset Management System was used to inform the IAMAR.

The 2016 AMP identifies a shortfall between the expenditures that are required to achieve an acceptable level of performance from the City's infrastructure assets and the current planned expenditures in the capital and operating budgets. The financial analysis demonstrates that reserve fund contributions require additional funding of approximately $20 million. The additional infrastructure expenditures are required to achieve a level of service that is anticipated to be acceptable to most stakeholders. The required expenditures have been established based on an analysis of the most granular asset data available in the City combined with operational level decision making strategies about why and how each different type of asset is renewed. Funding requirements will be used to inform the development of the City's Long Term Financial Plan (LTFP) in 2017.

It is anticipated that over the coming years, the City will operationalize the Waterloo Asset Management System and continually review infrastructure needs. This is critical as available information is refined and as technological or business process improvements reduce the cost of renewing infrastructure.

The information presented in this asset management plan illustrates that the City of Waterloo is continuing to manage its assets in a responsible manner.

"The infrastructure challenges facing Waterloo did not materialize overnight, they grew from decades of making decisions about how our infrastructure systems were developed without a comprehensive plan to maintain the systems over the long term. The analytical system that has been developed in the IAMAR has equipped the City with processes that have operationalized asset management at a detailed (operational), tactical, and strategic level throughout the organization. These asset management processes are the key to making Waterloo's infrastructure systems sustainable. It is imperative that these processes are used to provide the evidence that will inform how the City's infrastructure is planned, designed, procured, operated, maintained, and ultimately replaced."

Nick Larson, GM BluePlan
Chair, Canadian Society for Civil Engineering Renewal Committee

Contents

Executive Summary 3
List of Tables 7
List of Figures 7
DEFINITIONS 8
INTRODUCTION 10
1. WATERLOO'S INFRASTRUCTURE 11
1.1 Replacement Value 11
1.2 Measuring Performance of Assets 14
1.3 Expenditure Needs and Asset Performance 15
1.3.1 Target Scenario 16
1.3.2 Budget Scenario 18
1.3.3 Discussion of Scenarios 19
1.4 Maturity of Asset Information 20
2. ASSET MANAGEMNT STRATEGY 21
2.1 Non-infrastructure Solutions 21
2.1.1 Official Plan 21
2.1.2 Master Plans 21
2.1.3 Technology Implementation 21
2.2 Maintenance Activities 22
2.3 Renewal/Rehabilitation or Replacement Activities 22
2.4 Disposal Activities 23
2.5 Expansion Activities 23
2.5.1 Master Plans 23
2.5.2 Monitoring 23
2.6 Procurement Methods 24
2.7 Risks 24

3. FINANCING STRATEGY 25
3.1 Overview 25
3.2 Current Funding sources 26
3.3 Financing strategies 26
3.3.1 Infrastructure levy 26
3.3.2 Increasing the general tax levy 26
3.3.3 Debt 27
3.3.4 Grants 27
3.3.5 User fees / rate model 28
3.4 Infrastructure Funding 29
3.5 Capital Re-investment 32
CONCLUSION 33
Appendix A – Individual Asset Information
Appendix B – 10 Year Budget Information
Appendix C – Infrastructure Asset Management Analysis Report (IAMAR)

LIST OF TABLES

PAGE NO.

Table 1: Asset Groups……11
Table 2: Size and Replacement Value of Waterloo's Infrastructure.....……13
Table 3: Qualitative Description of Percentage Condition Performance Indicators……15
Table 4: Maturity of Asset Information in Waterloo ……...……20
Table 5: Aligning Asset Groups to Appropriate Reserve Funds……..26
Table 6: Distribution of 2016 – 2025 Capital Expenditures……..29
Table 7: Historic Capital Infrastructure Expenditures……30
Table 8: Distribution of Operating Budget by Asset Group……..…31
Table 9: Additional Annual Contributions required to Fund the Target Scenario..……..32

LIST OF FIGURES

PAGE NO.

Figure 1: Replacement Value of Waterloo's Infrastructure……12
Figure 2: Annual Capital Expenditures and Average Performance of All Assets for the Target Scenario……..16
Figure 3: Distribution of Condition of All Assets in Target Scenario……17
Figure 4: Annual Capital Expenditures and Average Performance of All Assets for the Budget Scenario…….....18
Figure 5: Distribution of Condition of All Assets in Budget Scenario……....19
Figure 6: Summary of Capital Budget by Asset Group and Type of Expenditure……..…...30

DEFINITIONS

AMP - An asset management plan is a strategic document that states how a group of assets is to be managed over a period of time. The plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financing strategies to implement the planned actions.

Asset: Item, thing or entity that has potential or actual value to an organization.

Notes:

1. Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life.
2. Physical assets usually refer to equipment, inventory and properties owned by the organization. Physical assets are the opposite of intangible assets which are non-physical assets such as leases, brands, digital assets, use rights, licenses, intellectual property rights, reputation or agreements
3. A grouping of assets referred to as an asset system could also be considered as an asset.

Asset Group: Grouping of assets having common characteristics that distinguish those assets as a group or type.

Asset Life: Period from asset creation to asset end of life.

Asset Management: Coordinated activity of an organization to realize value from assets.

Notes:

1. Realization of value will normally involve a balancing of costs, risks, opportunities and performance benefits.
2. Activity can also refer to the application of the elements of the analysis system.
3. The term "activity" has a groad meaning and can include, for example, the approach, the planning the plans and their implementation.

Corporate Asset Management (CAM): An integrated business approach involving planning, finance, engineering, maintenance and operations geared towards effectively managing existing and new infrastructure to maximize benefits, reduce risk and provide safe and reliable levels of service to community users. This is accomplished in a socially, culturally, environmentally and economically conscious manner

Data (Referring to an asset): Information about an asset or its use which helps to manage the asset.

Infrastructure: The basic equipment and structures (such as roads and bridges) that are needed for a country, region, or organization to function properly.

Infrastructure Asset Management Analysis Report (IAMAR): Refers to a specific document: "Infrastructure Asset Management Analysis Report Phase 3. GM BluePlan Engineering. August 15, 2016".

Level of Service: The defined service quality for a particular activity or service area against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.

Long Term Financial Plan (LTFP): A financial exercise combining financial forecasting with strategizing based on a highly collaborative process that considers future scenarios to help plan for the future.

Monitor: iterative process of observing internal workings of asset management processes and their outputs

Operationalize (the Waterloo Asset Management System): To utilize, maintain and continuously improve the Waterloo Asset Management System through interaction with the city's normal processes.

Performance: Measurable result. For the purpose of asset management, performance relates to the assets ability to fulfil requirements or objectives.

Professionally Managed: Relates to any aspect of planning, designing, developing, implementing, and sustaining of asset management processes and their contents.

Right of way: The road corridor managed by the City or the Region within which is transportation or utility infrastructure. For the purpose of this report a right-of-way can be an easement that contains or could contain an asset.

Subject matter expert: Is a person who is an authority in a particular area or topic.

Sustainable: Achieving or retaining an optimum compromise between performance, costs and risk of the asset life, while avoiding adverse long term impacts to the organization from short term decisions.

Waterloo Asset Management System: An analytical system of technology and organizational processes developed by the City of Waterloo and GMBluePlan for establishing the future levels of infrastructure performance and corresponding expenditure needs. The analytical system contains or has access to corporate asset inventories and allows for illustration of how planned expenditures to renew assets effects the performance of the asset over the next 25 years.

INTRODUCTION

The Provincial document, BUILDING TOGETHER: Guide for Municipal Asset Management Plans describes Asset Management Planning "*as the process of making the best possible decisions regarding the building, operation, maintaining, renewing, replacing and disposing of infrastructure assets. The objective is to maximize benefits, manage risk, and provide satisfactory levels of service to the public in a sustainable manner. Asset management requires a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. It also involves setting strategic priorities to optimize decision making about when and how to proceed with investments. Finally, it requires the development of a financial plan, which is the most critical step in putting the plan into action*".

The City of Waterloo has been actively practicing asset management for more than 40 years in its simplest form. This includes understanding what assets the city owns, their location, asset condition, and when and how to rehabilitate them. For cemeteries, fleet, the water distribution system, sanitary collection system and most recently the stormwater collection system, the City established an enterprise or utility model that promotes sustainability. Funds collected through user fees for each of these are dedicated to the enterprise for system operation, maintenance, rehabilitation and ultimately, replacement.

The City's current 2015 to 2018 Strategic Plan provides a Waterloo Community Vision: "*Waterloo is world-recognized for discovery, and is a city built on the strengths of our people and centered on entrepreneurship and opportunity, creating a vibrant, sustainable, welcoming and prosperous community."* For this vision to be realized, the services of transportation, water distribution and wastewater collection (both sanitary and storm) and the provision of facilities from which to operate and deliver programs are essential and must be in place to provide a solid foundation upon which to build and achieve these higher order goals. The Asset Management Plan supports the Strategic Plan by working to make these services dependable and sustainable. The City's Official Plan also works to facilitate the Vision by setting out the land use policy focusing on intensification for the City and, once again, the Asset Management Plan responds by facilitating the growth and development by providing transportation, water distribution and wastewater collection systems as required. The Region of Waterloo as the upper-tier municipality also provides services that are essential such as regional transportation, water treatment and supply and wastewater (sanitary) treatment and are addressed in their asset management planning.

The 2016 Asset Management Plan is the first to include all assets owned by the corporation and has been developed from information provided in the Infrastructure Asset Management Analysis Report (IAMAR) which was completed in June 2016. A Waterloo Asset Management System was developed to operationalize asset inventories, together with decisions about how the performance of assets are measured and the specific strategies for how different types of asset are renewed, to demonstrate the relationship between planned expenditures to renew assets and the performance of the asset groups over the next 25 years. The information from the Waterloo Asset Management System (WAMS) was used to inform the IAMAR.

1. WATERLOO'S INFRASTRUCTURE

Table 1 – Asset Groups

Waterloo's 15 Asset Groups
Transportation
Facilities
Sanitary
Water Distribution
Storm Collection
Parks
Stormwater Management
Fleet
Parking
Fire Services
Forestry
Information Technology
Furniture and Fixtures
Cemeteries
Lands

As mentioned earlier, the City of Waterloo has been practicing asset management for over 40 years. Computerized maintenance management systems put in place in the 1980's drove the development of maintenance quality standards for infrastructure components such as the method and frequency of inspections and maintenance activities. As a result, the City has several decades of condition data for many of its assets. The information provided in this section is aggregated information that represents all 15 asset groups. The data for the assets included in this plan is managed by dedicated infrastructure management professionals within the City. The data is currently managed through both a Geographic Information System (GIS) and stand-alone data bases. Detailed information on each of the 15 asset groups is provided in Appendix A.

1.1 Replacement Value

Figure 1 and Table 2 summarize the infrastructure owned by the City of Waterloo. The cost to replace every infrastructure asset is approximately $1.6 billion, which equates to approximately $37,600 per household.

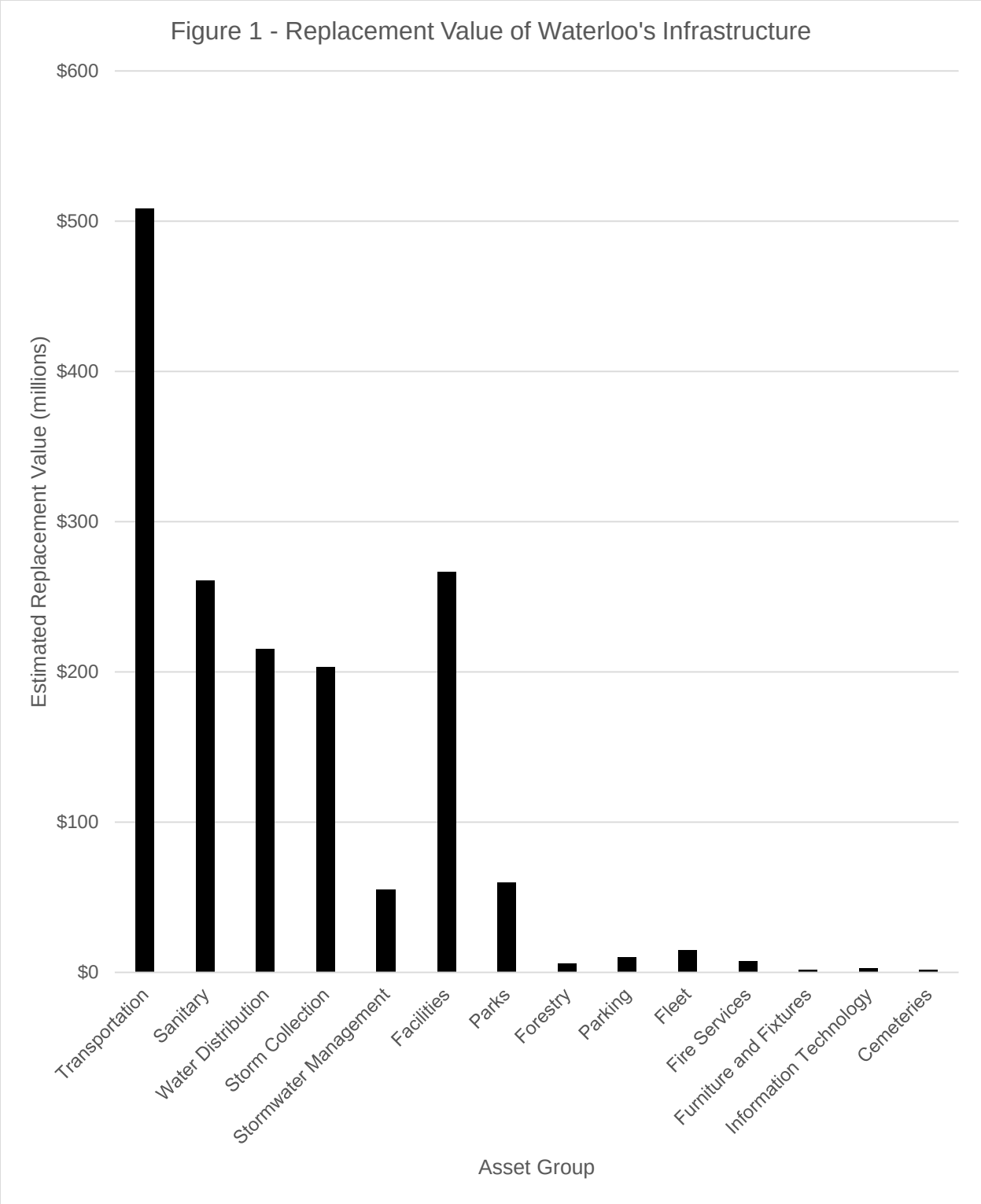


Figure 1 - Replacement Value of Waterloo's Infrastructure
$600
$500
$400
$300
$200
$100
$0
Estimated Replacement Value (millions)
Transportation
Sanitary
Water Distribution
Storm Collection
Stormwater Management
Facilities
Parks
Forestry
Parking
Fleet
Fire Services
Furniture and Fixtures
Information Technology
Cemeteries
Asset Group

Table 2 – Size and Replacement Value of Waterloo's Infrastructure*

Asset Group	Size of Asset Network	Estimated Replacement Value of Entire Asset Group (millions)
Transportation	837 lane-km of roads, 568 km of sidewalks, 113 km of trails/pathways	$509
Sanitary Sewer Collection	409 km of pipes, 6 sewage pumping stations	$261
Water Distribution	431 km of pipes	$215
Storm Sewers	340 km of pipes	$203
Stormwater Management	55 ponds	$55
Facilities	123,371 square meters	$267
Parks	134 parks	$60
Forestry	30,000 street trees	$6
Parking	17 lots & 1 parkade	$10
Fleet	299 assets	$15
Fire Services	1,689 assets	$8
Furniture and Fixtures	10,000 assets	$2
Information Technology	1,536 assets	$3
Cemeteries	2 cemeteries	$2
Land	571 parcels	N/A
	Total	**$1,616**
	$/household**	**$37,580**

*Note 1: Actual costing values are subject to market forces at the time of infrastructure construction / improvement activity, above values are based on historical averages and industry standards.

**Note 2: Approximate number of households in the City of Waterloo: 43,000.

1.2 Measuring Performance of Assets

Measuring the performance of either an asset group or an individual asset is a complex process. There are many different factors that are integrated into the decision making processes of the experts who decide when an asset is not achieving its intended performance targets. The factors that impact the performance of an asset are generally grouped into two categories:

- Condition - The physical condition or state of repair of an asset is often the primary factor used to make decisions about when and how it should be renewed (replaced or rehabilitated).

- Function - The functional performance of an asset can also impact decisions about when and how an asset should be renewed. Types of considerations that are captured in the functional performance of assets include:
    - The size of an asset i.e. is it too big or too small?
    - The maintenance cost of an asset
    - Whether the asset is functionally obsolete i.e. outdated computer hardware
    - Whether the asset is functioning as intended i.e. greenhouse gas emissions from a facility are greater than an established target

Condition

The City of Waterloo's current approach to projecting asset performance starts with a performance measure that can be derived from available data. In most cases this is a measure of the physical condition of the asset. As a result, in most asset groups the physical condition is still the primary driver for deciding when assets need to be renewed.

The performance percentages on the graphs provided in subsequent sections of this AMP and within Appendix A are derived from the scaling of subject matter expert performance indicators to a scale of 0-100 %. Depending on the asset group, the subject matter expert performance indicators typically include actual condition, asset age, or a mix of both. Examples include the Pavement Quality Index for roads, age for water distribution pipes, and assessed condition and age for facility components such as floor or HVAC systems, respectively. Table 3 shows the corresponding qualitative category of the respective percentage range.

Table 3 – Qualitative Description of Percentage Condition Performance Indicators

Percentage Condition Performance Indicators	Qualitative Description
80%-100%	Excellent
60%-80%	Good
40%-60%	Fair
20%-40%	Poor
0%-20%	Very Poor

1.3 Expenditure Needs and Asset Performance

Two scenarios are presented in this Asset Management Plan:

1. The target scenario
2. The budget scenario

These two scenarios are further described in the following paragraphs.

Target Scenario – Achieving the Target Levels of Service for all Asset Groups

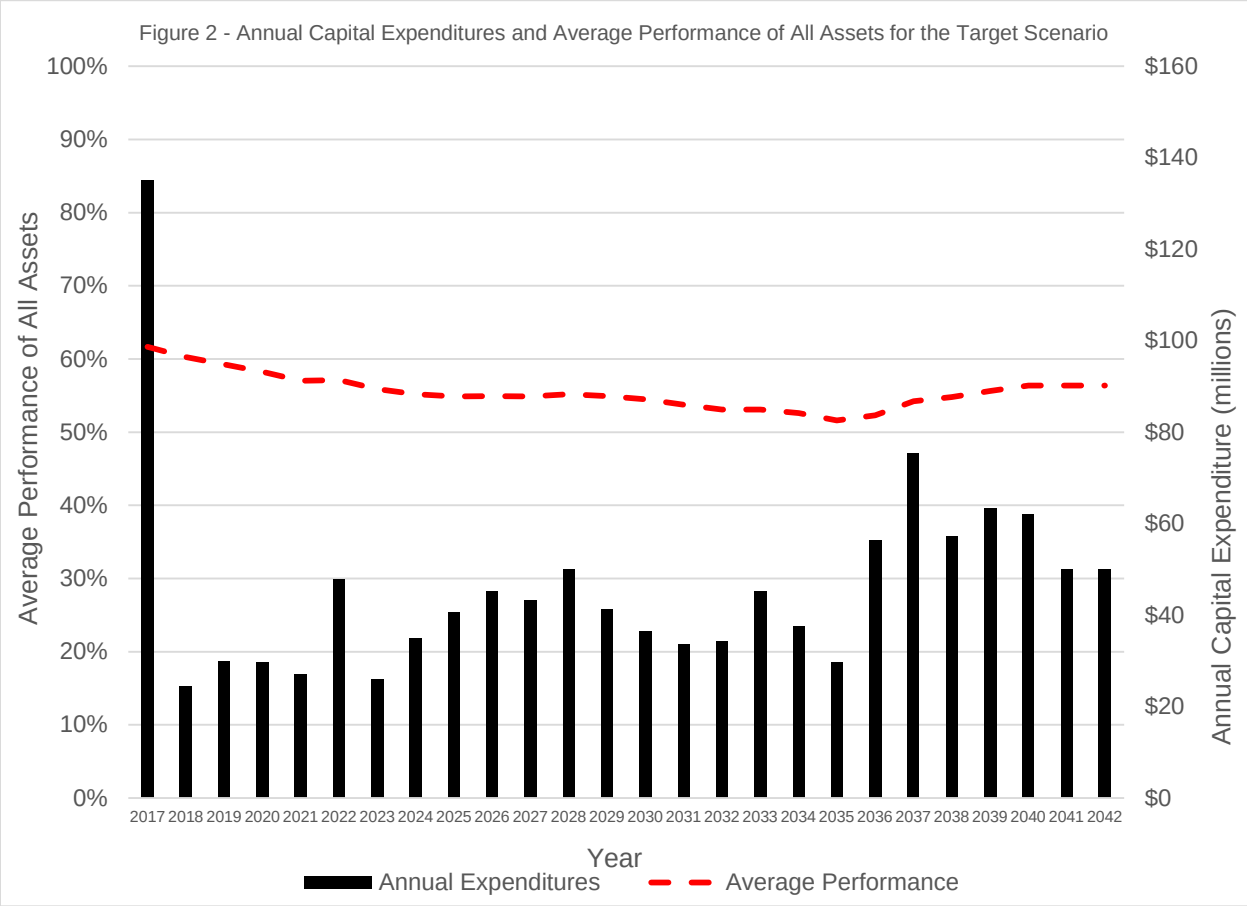
The target scenario is used to generate a list of infrastructure expenditure needs to achieve the target levels of service that have been established in collaboration with the City's subject matter experts for each asset group. This generally relates to replacing an asset when its condition/performance reaches a point where it requires renewal (replacement or rehabilitation). The target scenario is designed to maintain a target proportion of assets in each asset group that are in very good, good, fair, poor or very poor condition/performance.

Current Budget Scenario – What Does it Look Like?

The second scenario that is illustrated provides perspective on the projected performance of the assets based on the planned expenditures from the City's current 2016 - 2018 approved capital budget and 2019 – 2025 capital forecast as well as the 2016 – 2018 approved operating budget.

1.3.1 TARGET SCENARIO

The annual capital expenditures and average performance of all assets are summarized in Figure 2. The aggregate performance for all asset groups is summarized in Figure 3. Both of these figures are for the ***Target Scenario***. Analysis suggests that the expenditures that are required to achieve the ***Target Scenario*** (the vertical bars on Figure 2) would result in a proportion of assets in each condition state that is anticipated to be acceptable to most stakeholders (Figure 3).



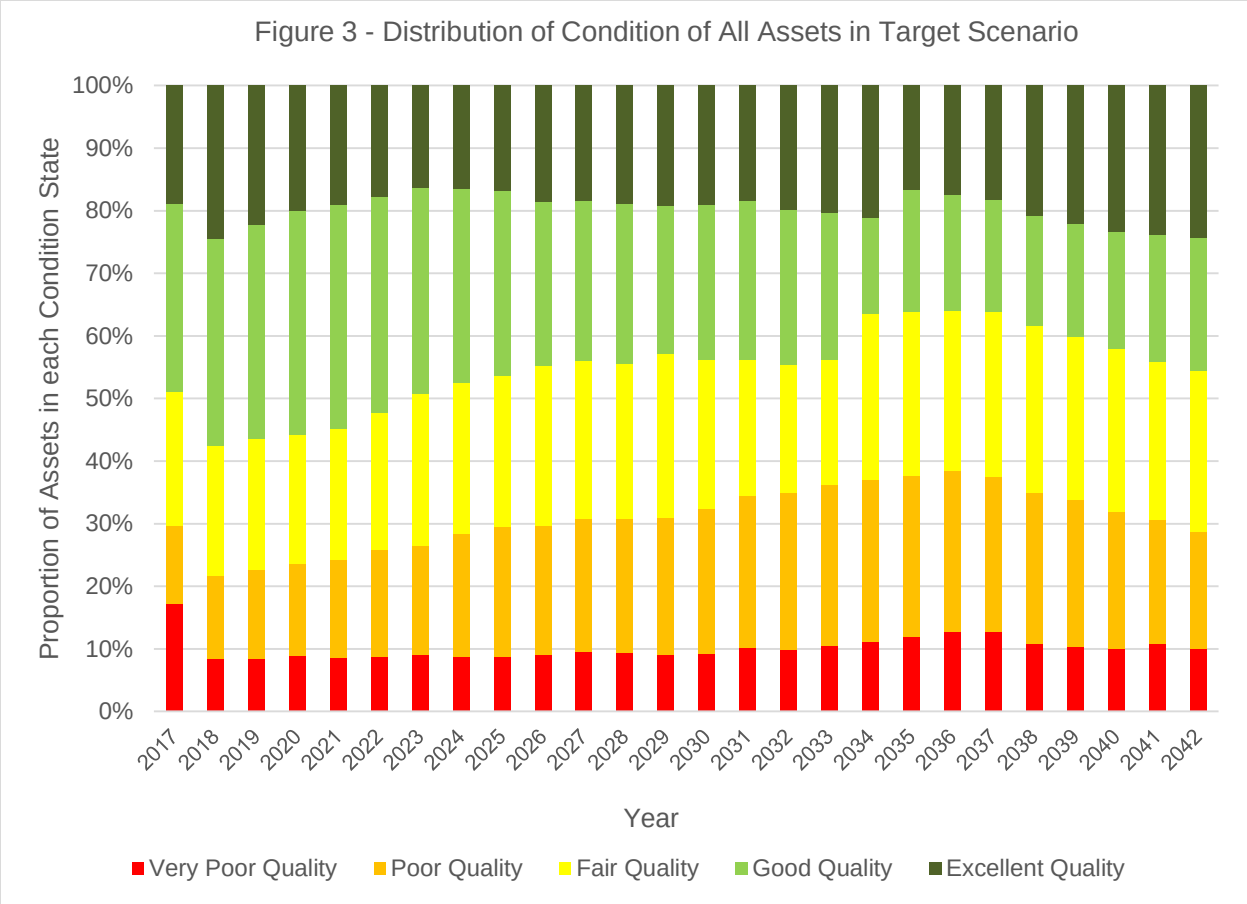
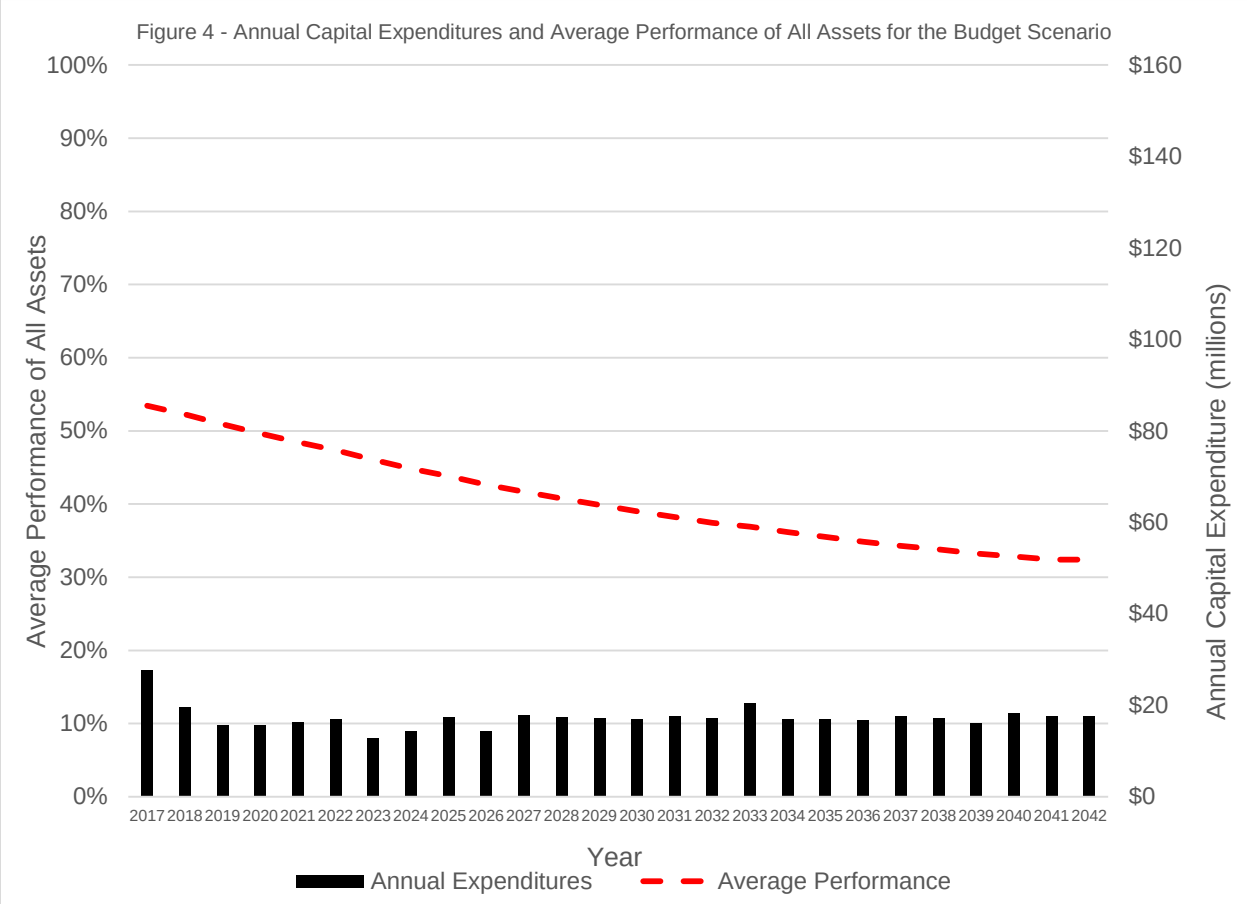
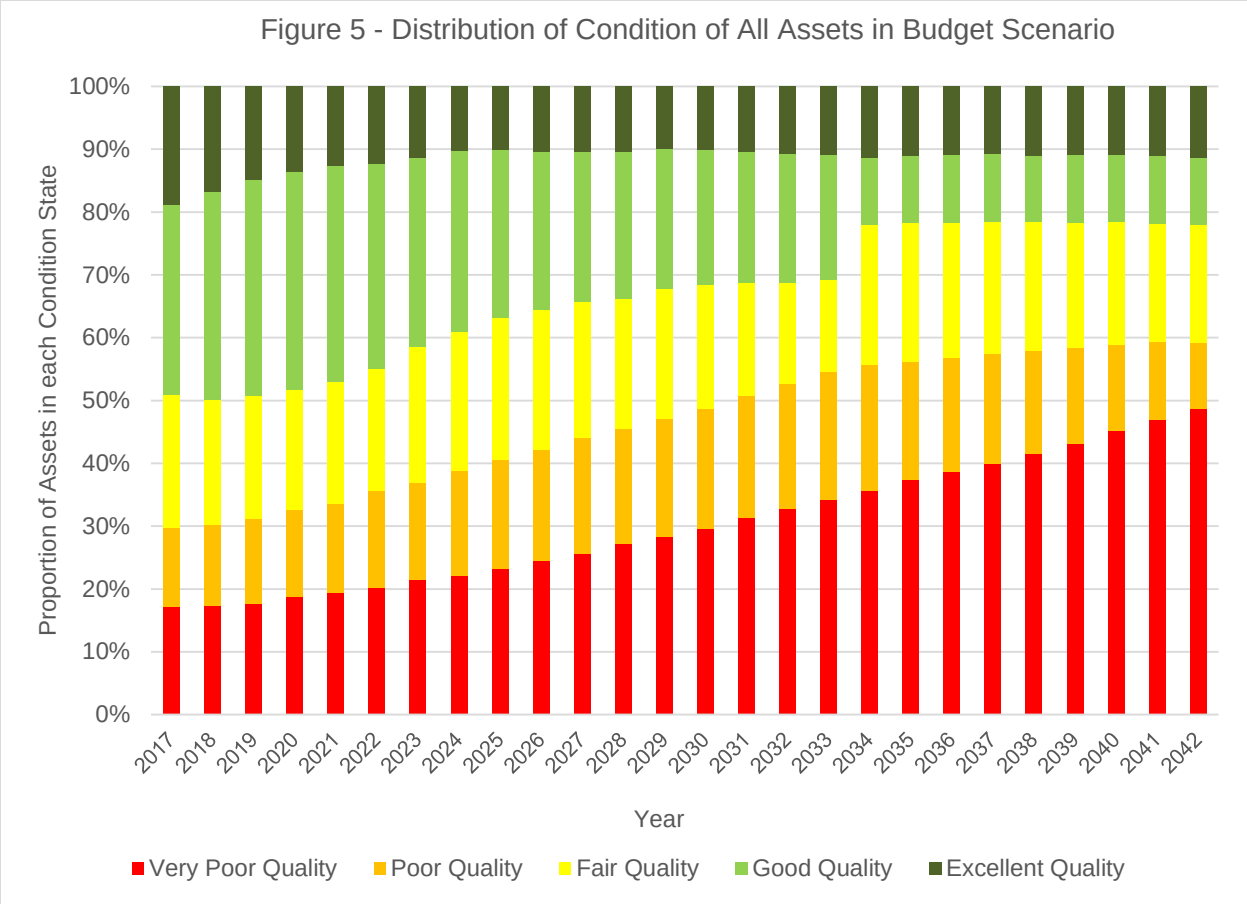


Figure 3 - Distribution of Condition of All Assets in Target Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
Year
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

1.3.2 Budget Scenario

The annual capital expenditures and the aggregate performance for all asset groups from the ***Budget Scenario*** are summarized in Figures 4 and 5. The results of the analysis demonstrate that the planned expenditures (vertical bars on Figure 4) will result in a degradation of asset system performance over the next 25 years while increasing the proportion of assets in poor or very poor condition to a level that is not expected to be acceptable to most stakeholders (Figure 5). This analysis assumes that the City's current level of planned expenditures remains consistent over the next 25 years.





1.3.3 Discussion of Scenarios

Moving forward, the City's subject matter experts and infrastructure professionals will be able to generate a range of scenarios for their individual asset groups. These individual analyses at the operational and tactical levels can then be consolidated to obtain a strategic perspective on the overall suite of assets. The analyses of these "what-if" scenarios will be the key to addressing the infrastructure challenges over the coming years and can be utilized in the creation of the LTFP

Using the Waterloo Asset Management System the City will be well positioned to leverage operational level asset management processes to help prioritize the specific assets that are renewed and to help evaluate alternative practices, strategies, or construction techniques that will reduce the expenditures that are required to achieve the target performance of the assets. These processes will enable the City to reach a point where there are sufficient resources to ensure that the services provided by the City's infrastructure systems can be sustained over the long term.

1.4 Maturity of Asset Information

The maturity of asset information refers to availability and quality of the data/information used to operationalize the Waterloo Asset Management System. The asset groups have varying levels of maturity of asset information. Increasing the quality of the available data or the sophistication of the life cycle management strategies operationalized in the Waterloo Asset Management System will provide greater confidence in the outcomes of the analysis.

Table 4 – Maturity of Asset Information in Waterloo

Asset Group	Proportion of Total Infrastructure in Waterloo	Maturity of asset information with respect to asset management planning operationalization	Maturity of asset information with respect to the rest of the Canadian AM industry
Transportation	31.5%	High	Average
Facilities	16.5%	High	Above Average
Sanitary	16.2%	High	Above Average
Water Distribution	13.3%	Medium	Average
Storm Collection	12.6%	Low	Average
Parks	3.7%	Low	Average
Stormwater Management	3.4%	Low	Average
Fleet	0.9%	High	Above Average
Parking	0.6%	High	Above Average
Fire Services	0.5%	Medium	Average
Forestry	0.4%	High	Above Average
Information Technology	0.2%	Medium	Average
Furniture and Fixtures	0.1%	Low	Average
Cemeteries	0.1%	Low	Average
Lands	N/A	Medium	Average

2. ASSET MANAGEMNT STRATEGY

The Ministry of Infrastructure Guide for Municipal Asset Management Plans identifies that the asset management strategy is the set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost. This section of the plan summarizes planned actions including: Non-infrastructure solutions; Maintenance activities; Renewal/rehabilitation activities; Replacement activities; Disposal activities; Expansion activities; Procurement methods and Risks. Each of these areas is highlighted below:

2.1 Non-infrastructure Solutions

2.1.1 Official Plan

The City of Waterloo **Official Plan** states than the City of Waterloo will be planned to include interconnected networks that support the community. The networks serve a range of functions, including facilitating movement of people and goods, facilitating the distribution of water and collection of stormwater and sanitary or other waste, facilitating communication, accommodating social, cultural, recreational and leisure activities and supporting conservation and protection of environmental resources.

Chapter 5 of the Official Plan is titled “Networks” includes objectives and policies that speak to planning for the provision, maintenance and efficient use of networks, including: Servicing and Utilities Network; Trails and Open Space Network; Road Network; and, Rail Network. The Official Plan provides the foundation upon which the more detailed plans are built.

2.1.2 Master Plans

Created to identify current and future needs for the asset systems.
Examples of master plans utilized by the City of Waterloo include a Recreation and Liesure Services Master Plan, Sanitary Master Plan, Water Master Plan, Transportation Master Plan, Cemetery Services Master Plan and Waterloo Park Master Plan..

2.1.3 Technology Implementation

The City of Waterloo has been using software technology to inform asset management decisions for many decades. Examples include:

- Pavement Management System: This system is used to gather, store, and analyze data about the City’s streets and provide a strategized program for implementing preventive maintenance and rehabilitation projects citywide..

- Work order management system: This system which is known as Maximo is used to define and control the various activities associated with the maintenance of our assets. It allows us the opportunity to measure and analyze the execution of our processes so that continuous improvements can be made.
- Geographical Information System (GIS): This system is used to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data. The locations of the City's physical assets are inventoried within this system.
- Financial Management System: This system which is known as Peoplesoft Financials is used to exercise financial control and accountability. Reporting from this system is used to track costs related to the City's assets.
- Facility Management System: This system which is known as EMDECS is used to inventory vehicles and equipment and manage preventative maintenance.

The foregoing are just a few examples of how technology is being used to better manage our assets.

2.2 Maintenance Activities

The City of Waterloo has established or follows established maintenance standards for many asset groups. These standards are used to guide maintenance and operations activities in order to provide assets that can be relied on to provide the service for which they are intended. Examples of Maintenance Quality Standards include:

- Tree Planting
- Sidewalk Maintenance
- Roads Winter Operation
- Road Patrol
- Fence Maintenance
- Spills Response
- Hydrant Replacement
- Vehicle Maintenance and Periodic Inspection Standards (National Safety Code Standard 11)
- Elevator Maintenance

2.3 Renewal/Rehabilitation or Replacement Activities

The City of Waterloo Facilities section uses facility condition information to recommend projects and where possible coordinate the timing for projects to align with the needs of all assets within a specific facility.

The City of Waterloo Fleet section uses vehicle and equipment condition information to determine individual rehabilitation strategies throughout its life and to determine replacement needs on an individual basis..

The City of Waterloo Engineering Infrastructure section uses condition information for all assets located within the right-of-way to recommend projects that align thier needs. In some cases, all

assets have achieved the end of their useful life or may benefit from replacement, while in other cases, only one asset is exhibiting the need for rehabilitation.

Rehabilitation is done to restore an asset from its current condition to a better condition. Where appropriate, rehabilitation projects are recommended.

Replacement is done when the asset has reached the end of its life and/or is no longer providing acceptable service.

2.4 Disposal Activities

Disposal activities are those associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the municipality. In most cases, once an asset has reached the end of its useful life it needs to be replaced to continue to provide service. The City of Waterloo properly disposes of the assets being replaced.

2.5 Expansion Activities

2.5.1 Master Plans

Master plans and studies are used to guide the introduction, expansion or elimination of infrastructure assets and the services that they provide.

Development of subdivisions or large scale redevelopment plans are facilitated by the City and coordinated through development staging plans. The Staging of Development report was last updated in 2011 and is planned to be updated.

2.5.2 Monitoring

Expansion and densification does not always occur at the rates assumed within the master plans. It is for this reason that master plans are usually updated in 10 - 15 years while their original planning horizon may have been 20 - 30 years. In some cases, change may be so rapid that updates need to be done more frequently. In addition, an asset may no longer provide acceptable service as a result of it's condition.

Implementation and operationalization of the analysis system will facilitate the ongoing monitoring of the City's assets and their ability to provide acceptable service.

2.6 Procurement Methods

The City of Waterloo is committed to ensuring its procurement decisions are fair, open and transparent. Purchases made by the City must comply with the City's Purchasing By-law #2015-071. This by-law provides standard rules that govern the procurement of goods and services by City staff in order to obtain the best value, ensure consistency and fairness amongst Bidders and protect the financial best interests of the City.

2.7 Risks

The Ministry of Infrastructure Guide for Municipal Asset Plans identifies that risks associated with the strategy (i.e. ways the plan could fail to generate the expected service levels) and any actions that will be taken in response are to be identified.

This AMP provides information for 25 years (2017-2042). An approved financial plan exists for the period 2016-2025 and consists of two components. An approved 2016-2018 Capital Budget and an approved 2019-2025 Capital Forecast. The capital forecast includes revenue assumptions (municipal price index adjustments to tax rates, user rate increases, gas tax revenue, development charge revenue) that allow for projects to be included in the forecast. If these revenue assumptions do not occur, projects will need to be postponed. One example that would have significant impact would be the delay or postponement of water and sewer user fees that have been recommended by the water and sewer financial plan. The water and sewer financial plan was approved by Council in 2016 and sets out water and sewer rate increases that will need to be implemented to achieve the plan. Should these rate increases not occur, some projects that are required to maintain the water and sewer infrastructure will need to be removed from the forecast through a prioritization process. Should any catastrophic event occur, City resources would be diverted/reallocated from the current plan

Risk is also used for project prioritization. Project prioritization can be attributed to the risk the project represents if it does not move forward. When looking at capital projects a good quantification of risk can be developed by looking at two factors associated with the asset; the probability of failure (i.e. what is the physical condition of the asset) and the consequence of failure (i.e. if the asset fails, what is the effect).

For example, the failure of the air conditioning system at a small recreation center may lead to program and service disruptions for a small number of residents and clients (low consequence). However, the failure of the air condition system at a large recreation center may lead to program and service disruptions to a large number of residents and clients (high consequence).

Subject matter experts are able to use the Waterloo Asset Management System to communicate various risks of other and above mentioned methodologies. This will assist in prioritizing everything from large lump sum budget allocations and capital projects to maintenance activities.

3. FINANCING STRATEGY

3.1 Overview

Planning for asset management is an important consideration for the upcoming City of Waterloo Long Term Financial Plan (LTFP). The LTFP will be a holistic review of financial needs and take into account all funding requirements. The LTFP is anticipated to be completed and approved by Council by the end of 2017. For the purposes of this AMP, the financial plan uses the existing Approved 2016-2018 Capital Budget and 2019-2025 Capital Forecast. As a result, this plan covers the 2016-2025 timeframe (10 years). The Approved 2016-2018 Capital Budget, 2019-2025 Capital Forecast is a three year budget as permitted under the Municipal Act and will be updated for 2019. Key excerpts from the Approved 2016-2018 Capital Budget and 2019-2025 Capital Forecast are included in Appendix B.

The financial plan incorporates the funding for each of the City of Waterloo's 15 asset groups. As per the Capital Budget policy, (FC-010), capital projects with a minimum request of $10,000 as identified in the financial plan. Examples of acceptable projects include:

- Maintenance projects requiring significant funding or will be completed in stages over multiple years.
- An obligation to make capital expenditures or major maintenance expenditures as part of an agreement to sell or lease a property.
- A project that improves operational effectiveness.

At this time, the development of scenarios in order to fund infrastructure assets will be included as part of the LTFP development. As a result, the next AMP update anticipated for 2020 will incorporate funding scenarios.

The financial plan applies an inflation rate of 2% per year to non-Development Charge (DC) expenditures. DC expenditures are indexed according to the annual non-residential building construction price index and approved under current legislation. No allowances have been made for increases or decreases to existing services levels and all dollars reflect inflated 2015 dollars.

The current financial plan contains projects for both infrastructure and non-infrastructure items although contains a significant allocation for capital assets. A capital asset is an item with physical substance (the exception being software) with a useful economic life extending beyond one fiscal year. Ongoing general maintenance (painting, mechanical maintenance, replacement of existing parts) of an asset is not considered to be a capital item unless it increases the value of an asset or is a betterment. Betterment is a cost incurred to enhance the service potential of a tangible capital asset by either increasing productivity or service capacity and will result in an extension of the life of an asset.

The financial plan uses traditional sources of funding such as property tax, user fees, reserves and debt as well as funding from Federal Gas Tax (GTR) and the Ontario Community Infrastructure Fund (OCIF) formula-based funding. No further grants have been considered as the Province requires a firm commitment before they can be incorporated into the financial plan.

3.2 Current Funding sources

The financial plan contains a detailed listing of each capital project planned for implementation over the 2016-2018 timeframe. Each project identifies the appropriate funding source and can be funded from more than one reserve. Asset groups and their respective funding sources have been identified in Table 5. For the purposes of tax supported assets, projects have the ability to access more than one reserve such as the Capital Reserve Fund and Gas Tax Reserve.

Table 5 – Aligning Asset Groups to Appropriate Reserve Funds

Asset Group	Reserve Fund
Water distribution	Water (WAT)
Sanitary Sewer	Sewer (SEW)
Storm sewer collection Stormwater management	Stormwater (SWM)
Fleet	Equipment Reserve (ER)
Cemeteries	Cemetery (CEM)
Parking	Parking (PKG)
Transportation Facilities Parks Forestry Fire services Furniture and fixtures Information technology	Tax-Supported Reserve (Capital Reserve Fund (CRF), Capital Infrastructure Reinvestment Fund (CIRRF), Gas Tax Reserve (GTR) etc.)

3.3 Financing strategies

3.3.1 Infrastructure levy

Instituting a property tax levy dedicated to fund infrastructure renewal activities is one of the best strategies to fund the additional contributions to the reserves. This approach provides a more direct line of sight from the taxes that residents pay to the services/infrastructure that it funds.

3.3.2 Increasing the general tax levy

Increasing the general property tax revenues through higher annual increases to the tax levy is another option to fund the additional contributions to reserves. This approach will enable more flexibility with how the additional revenue is allocated between additional contributions to reserves versus increases to the operating expenditures. This would help address the impact of funding larger rehabilitation/replacement projects through the operating budget.

3.3.3 Debt

Debt is a useful financial planning tool. It can be used to advance a project that could not otherwise be accommodated until later in the capital budget, it can be used to smooth the impact of a large dollar value project over a number of years that would otherwise immediately draw down a City reserve, or it can be used to expand an existing capital program, with the cost to be recovered through taxes or through user rates over time.

The City of Waterloo currently has a debt policy in place, FC-009 Debt Management Policy, to ensure that the City plans for and uses debt appropriately. The policy requires that the City's debt charges stay within the provincial limit, and that we do not fund greater than 30% of a project from debt, with the exception of debt fully recoverable through enterprise user rates or development charges.

For the purposes of this financial plan, interest rates were estimated to be at 2.35% based on current interest rates available to the City. The City of Waterloo has a history of amortizing debentures over 10 years. Under the Municipal Act, municipalities have the ability to issue debentures with a maximum term of 40 years however the term of the debenture cannot exceed the life of project for which it is used.

Tax-based Debt:

The Debt Management Policy also requires that our net debt charges (the principle and interest payments on debt less the amount recovered from user fees such as development charges and utility rates) do not exceed the annual contribution to the Capital Reserve Fund (CRF). This policy serves to ensure that debt charges are paid through the operating budget without impacting operational program costs.

User Rate-based Debt:

Enterprise and development charge based debt is exempt from the Debt Management Policy, as these forms of debt are recovered through user rates and do not impact the tax base. The capacity to support enterprise or development charge based debt must be considered in the development of the enterprise models, background studies, and ultimately incorporated when establishing the annual user rates.

3.3.4 Grants

Both the Ontario and Federal governments have established substantial programs to fund the rehabilitation or replacement of municipal infrastructure. While traditionally grants are awarded through an application program to fund specific projects, annual formula-based funding programs (funding transfer grants) have been initiated (e.g. Federal Gas Tax, Ontario Community Infrastructure Fund). In 2016, the City of Waterloo will receive over $3.6M from funding transfer grants.

Through the 2012-2015 timeframe, the City of Waterloo applied for over 80 grants, was successful in over 60 applications and received $3.8M in ad-hoc grant funding. The city will continue to pursue grant opportunities to fund the priority infrastructure replacement/rehabilitation projects in the City of Waterloo. The ad-hoc funding of specific projects through these types of grants will lower the overall magnitude of capital dollars that will need to be funded through the reserve accounts.

3.3.5 User fees / rate model

The City of Waterloo has operated several divisions under a 'User Fee/Rate Model' for many years. The intention of this model is to operate under the principles of a full cost recovery operation and to mitigate the impact to the tax based operations.

Tax Base Operations:

For tax base operations, user fees applied based on the principles of a full cost recovery for services residents choose to participate in. Examples include user fees for community space rentals in facilities, sport field rental fees. While the user fees are based on full cost recovery principles, the fees are monitored and compared against the market and neighbouring municipalities. As a result, user fees are market driven and generally cannot be full cost recovery.

Rate Base Operations:

The rate based budget philosophy results in the development of realistic and adequate resource alignment to meet the Council approved level of service within a specific division; and a associated user fee is generally applied as the revenue source. Once adopted, within the parameters of Council policy guidelines, these divisions operate with anticipated revenues and expenditures and balance minor annual fluctuations through the use of a reserve fund. Of significant value to this concept is the ability for the division to plan on a 10 year cycle; while at the same time allowing latitude for addressing unexpected changes to operations.

Successful working divisional examples of the "Rate Model' in the City of Waterloo currently include the Cemetery operations, Water Services Division (water, sanitary and stormwater) and Parking.

3.4 Infrastructure Funding

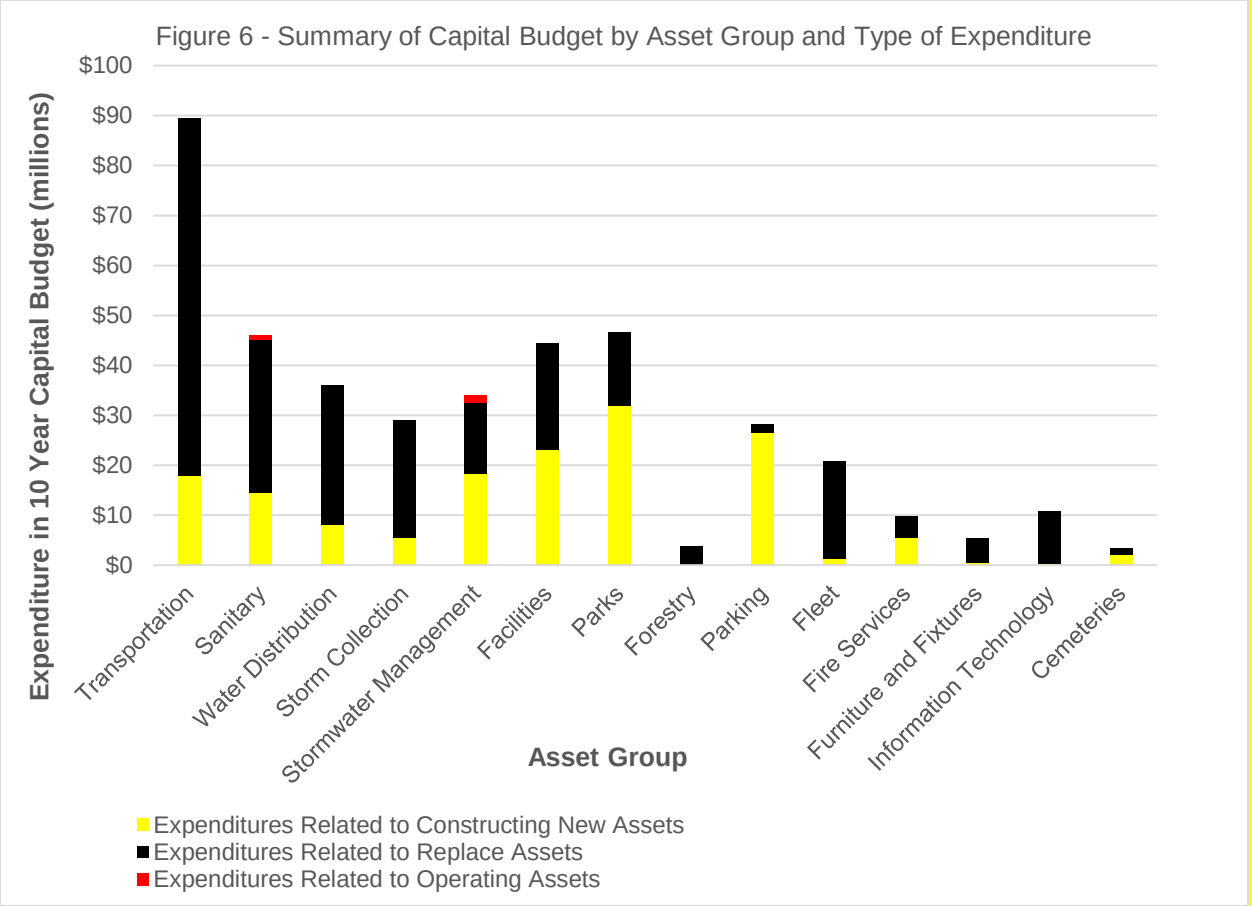
The capital budget contains the most significant portion of funding allocated for both tax base and rate funded infrastructure systems with the balance provided through the operating budget. The existing financial plan allocates approximately $450 million in funding for various types of capital projects. Of the $450 million, approximately 55% is to renew existing infrastructure, 35% to build new infrastructure, and the remaining 10% on non-infrastructure activities. Figure 6 and Table 6 show the distribution of how the money in the capital budget is spent on each asset group.

Table 6 – Distribution of 2016 – 2025 Capital Expenditures (millions)*

Asset Group	Expenditures Related to Constructing New Assets	Expenditures Related to Operating Assets	Expenditures Related to Replacing Assets	Total
Transportation	$18.0	$0.0	$71.5	$89.5
Sanitary	$14.4	$0.9	$30.6	$46.0
Water Distribution	$8.0	$0.0	$28.0	$36.0
Storm Collection	$5.5	$0.0	$23.4	$29.0
Stormwater Management	$18.4	$1.6	$14.1	$34.1
Facilities	$23.0	$0.0	$21.4	$44.4
Parks	$32.0	$0.0	$14.7	$46.7
Forestry	$0.0	$0.0	$3.7	$3.7
Parking	$26.4	$0.0	$1.8	$28.2
Fleet	$1.4	$0.0	$19.4	$20.8
Fire Services	$5.5	$0.0	$4.3	$9.8
Furniture and Fixtures	$0.6	$0.0	$4.9	$5.4
Information Technology	$0.3	$0.0	$10.4	$10.7
Cemeteries	$2.1	$0.0	$1.4	$3.5
Totals	**$155.6**	**$2.6**	**$249.7**	**$407.8**
Non-Infrastructure (including land purchases)				$37.6
Library Capital Project Funding^				$6.8
Grand Total				**$452.3**

*Note: Values may not add due to rounding.

^Library capital project funding includes funding for non-infrastructure assets and is managed by the Library



Over the past six years, the City has spent nearly $206 million on a combination of both renewing existing and constructing new infrastructure as identified in Table 7. These expenditures are funded through a number of reserve funds as identified in section 5.2.

Table 7 – Historic Capital Infrastructure Expenditures

Year	Total Expenditures (millions)
2010	$44.6
2011	$37.4
2012	$35.2
2013	$23.0
2014	$33.6
2015	$31.7
Total	**$205.5**

The City also spends money on infrastructure through its annual operating budget. Table 4 provides a summary of the planned expenditures in the 2016 operating budget. Approximately 12% of the operating budget is considered to be directly related to operating and maintaining infrastructure assets. In some asset groups there are also expenditures in the operating budget that are used to renew existing assets, such as the $564,000 in the transportation asset group which is proposed to be spent on road resurfacing activities each year.

The majority of the expenditures in the annual operating budget ($150 million) are either:

1. Non-infrastructure services, primarily related to staffing costs to provide the range of services offered by the City of Waterloo; or
2. Transfers from the operating budget to a capital reserve to fund the expenditures in the capital budget.

Although the transfers to the operating budget do eventually get spent to provide an infrastructure service, the impact of the expenditures on the performance of the assets is captured through the analysis of the capital budget.

Table 8 – Distribution of Operating Budget by Asset Group (thousands)

Asset Group	Expenditures that Renew Existing Assets	Electricity and Natural Gas	Expenditures to Operate and Maintain Assets	Total
Transportation	$564	$0	$4,864	$5,428
Sanitary	$0	$0	$1,631	$1,631
Water Distribution	$311	$0	$2,523	$2,834
Storm Collection	$0	$0	$445	$445
Stormwater Management	$0	$0	$953	$953
Facilities	$351	$3,740	$2,927	$7,018
Parks	$0	$0	$2,946	$2,946
Forestry	$0	$0	$789	$789
Parking	$2	$0	$746	$748
Fleet	$0	$0	$24	$24
Fire Services	$0	$0	$165	$165
Information Technology	$0	$0	$2,243	$2,243
Cemeteries	$0	$0	$1,561	$1,561
Total	**$1,228**	**$3,740**	**$21,817**	**$26,785**
Expenditure is not related to providing an infrastructure service or is captured in the capital budget				$150,159
Grand Total				**$176,945**

3.5 Capital Re-investment

Through the approved 2016-2018 Capital Budget, 2019-2025 Capital Forecast the City is planning to invest more than $198 million in the rehabilitation of City of Waterloo assets over the next 10 years. Appendix B provides the list of projects identified in the Approved 2016-2018 Capital Budget, 2019-2025 Capital Forecast. Based on the AMP, it has been determined that this amount is insufficient to maintain existing levels of services. Financial constraints have resulted in the City of Waterloo identifying infrastructure projects that can be implemented through the 2016-2025 timeframe however the city has also identified a list of projects that are unfunded or over target. Details for the over target infrastructure projects identified in the Approved 2016-2018 Capital Budget, 2019-2025 Capital Forecast are identified in Appendix B pp 117-130.

Through the analysis undertaken in 2016, the additional annual contributions required to maintain infrastructure were identified. Based on available information, tax base supported infrastructure assets require an additional annual funding of $14 million to $17 million. For rate funded assets, water and stormwater have both been identified as requiring additional annual funding of $3 million. Other rate funded assets such as sewer, parking and cemetery have current contributions in the required range based on available information. A summary of available needs are identified in Table 9.

Table 9 - Additional Annual Contributions required to Fund the Target Scenario

Reserve Fund	Additional Annual Contribution Required to fund the Target Scenario
Sewer (SEW)	Current contributions are in the general range that are required to fund the Target Scenario
Equipment Reserve (ER)	Current contributions are in the general range that are required to fund the Target Scenario
Cemetery (CEM)	Current contributions are in the general range that are required to fund the Target Scenario, however the asset information for cemetery assets has a low maturity
Parking (PKG)	Current contributions are in the general range that are required to fund the Target Scenario
Stormwater (SWM)	**$3 million** - the asset information for SWM assets has a low maturity
Water (WAT)	**$3 million** - the asset information for water assets has a medium maturity
Tax-Support Reserve	**$14 to $17 million**

To understand the magnitude of the additional annual contributions required to fund the target scenario, in the City of Waterloo, a 1% increase in the property tax levy generates approximately $700,000 in additional revenue. The additional contributions to the property tax supported reserve funds necessary as outlined above and therefore represent an increase to property taxes of approximately 20% - 25% above and beyond other increases for inflation.

It is important to recognize that while additional revenue into the reserve funds is required, addressing the infrastructure challenges in the City of Waterloo is about more than collecting additional revenue. The continued process of continually updating or operationalizing of asset management processes are equally, if not more, important to help:

- Prioritize the assets that are renewed
- Reduce the required expenditures to provide the performance objectives of the infrastructure systems
- Understand where levels of service may be reduced in exchange for lower tax increases/required infrastructure expenditures.

CONCLUSION

As is illustrated within this plan, the City of Waterloo is continuing to manage its assets in a responsible manner. Decades of data collection and integrated planning for asset rehabilitation and replacement have resulted in systems that are well managed. We plan to continue this with ongoing maintenance of infrastructure assets and updates to the Waterloo Asset Management System. In addition, the City of Waterloo will be undertaking the development of a LTFP with completion and approval of the LTFP targeted for the end of 2017.

The LTFP will be a holistic review of financial needs and take into account all funding requirements and is anticipated to include the use of the following funding strategies:

- Infrastructure levy
- Property Taxes
- Debt
- Grants
- User Fees

This page intentionally left blank.

City of Waterloo Asset Management Plan 2016

Asset Specific Information – All Assets: Appendix A

Appendix A

Table of Contents

This appendix provides asset specific information on each of the assets. Namely:

- What do we own?
- What are our current rehabilitation or replacement strategies?
- What is the maturity of the parks data?
- Current Performance and Projected Impact of Budgeted Capital Expenditures
- Target Performance and Required Expenditures
- Summary, Discussion and Next Steps

1. Asset Group: Transportation 3

2. Asset Group: Sanitary Sewer Collection 13

3. Asset Group: Water Distribution 18

4. Asset Group: Storm Sewer Collection 22

5. Asset Group: Stormwater Management 26

6. Asset Group: Facilities 30

7. Asset Group: Parks 34

8. Asset Group: Forestry 38

9. Asset Group: Parking 39

10. Asset Group: Fleet 42

11. Asset Group: Fire Services 45

12. Asset Group: Furniture and Fixtures 47

13. Asset Group: Information Technology 49

14. Asset Group: Cemeteries 53

15. Asset Group: Land 54

1. Asset Group: Transportation

1.1 What do we own?

The transportation network is comprised of 837 lane-km of roads, 568 km of sidewalks, 113 km of walks and trails and 75 bridges[1]. The total replacement value of the transportation network is approximately $509 million.

1.2 What are our current rehabilitation or replacement strategies?

- Roads can be either rehabilitated or replaced when their condition falls below the target for the particular road segment. The condition of a road segment is measured using a Pavement Quality Index (PQI), which is a 100 point rating scale where a score of 100 is a road in excellent condition and a score of 0 is a road in very poor condition. The target condition for each road segment varies based on road classification - larger volume arterial and collector roads have a better target condition than lower volume local roads.
  The current strategy in Waterloo is to replace roads in coordination with the replacement of other subsurface infrastructure, such as watermains, or sanitary/storm sewers. Roads are typically rehabilitated (rather than replaced) when there are no other subsurface infrastructure that requires replacement. Other considerations such as the timing of proposed developments are also incorporated into the decisions to replace or rehabilitate a road.

  Further, road renewal is guided by condition "windows" for which different renewal strategies can be applied. If a road condition falls below a certain PQI then rehabilitation is no longer practical and the road will require a full replacement.

  The following table summarizes the target performance of each road classification in the City.

Road Classification	Performance Target
Arterial and Collector	Rehabilitate or replace when PQI falls below 55 Replacement only when PQI falls below 45 Minimum PQI target of 20
Local and Rural	Rehabilitate or replace when PQI falls below 50 Replacement only when PQI falls below 40 Minimum PQI target of 20
Alley	Rehabilitate or replace when PQI falls below 40 Replacement only when PQI falls below 35 Minimum PQI target of 20

- Sidewalks are replaced when they reach a performance score of 0%.

[1] The bridges in Waterloo are all large culverts - a culvert with a span of over 3.0 m is considered a bridge under Provincial regulations.

- Walks and trails are replaced when they reach a performance score of 0%.

- Bridges are rehabilitated and/or replaced in accordance with the recommendations made by qualified professional through site investigations.

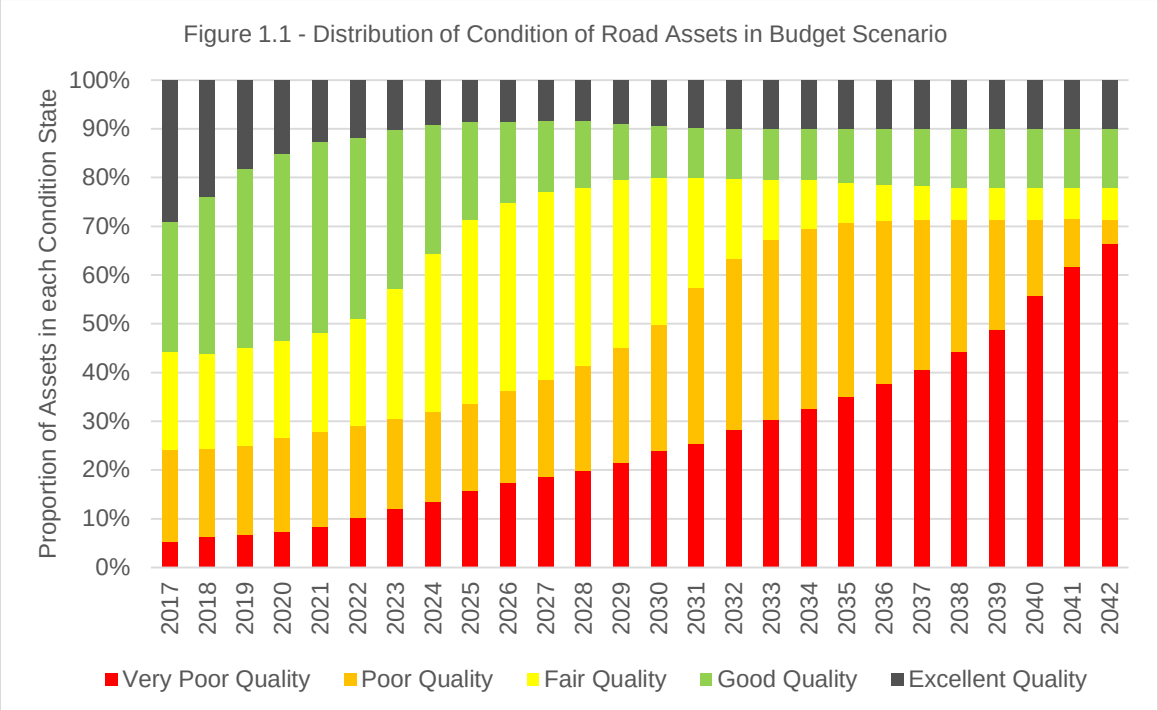
1.3 What is the maturity of the transportation data?

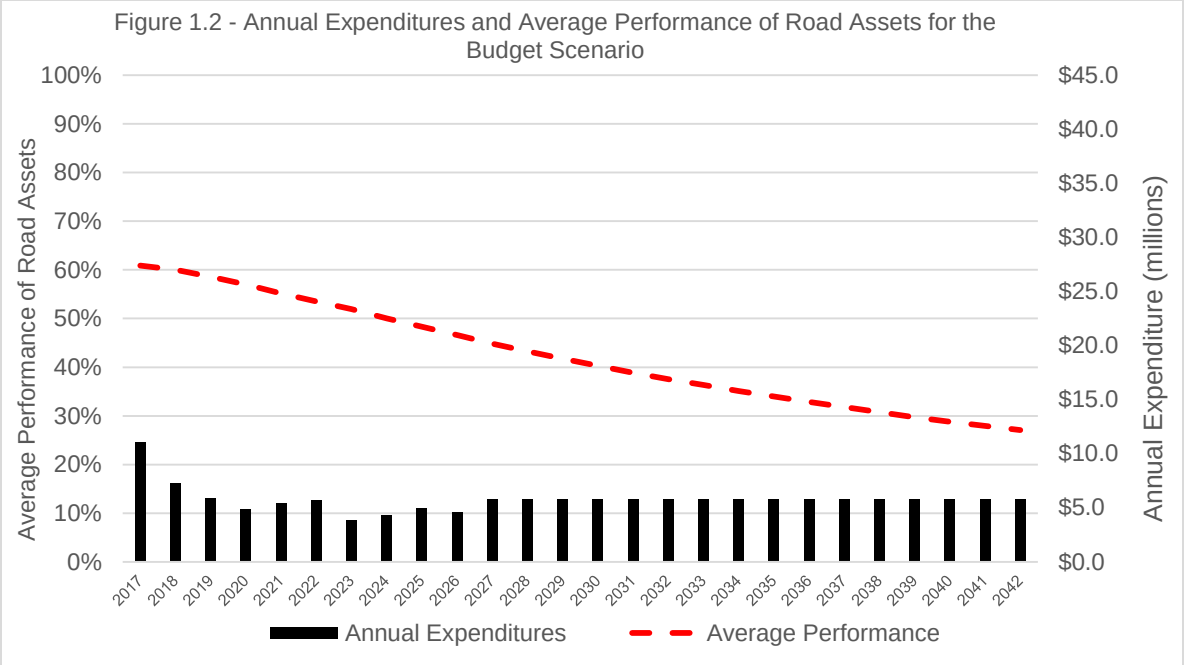
The transportation data is considered to be high for the purposes of operationalizing asset management processes. The sidewalks, walks and trails are less mature relative to the roads and bridges. The maturity is considered to be average with respect to similar municipalities in Canada.

1.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

Asset Group: Roads

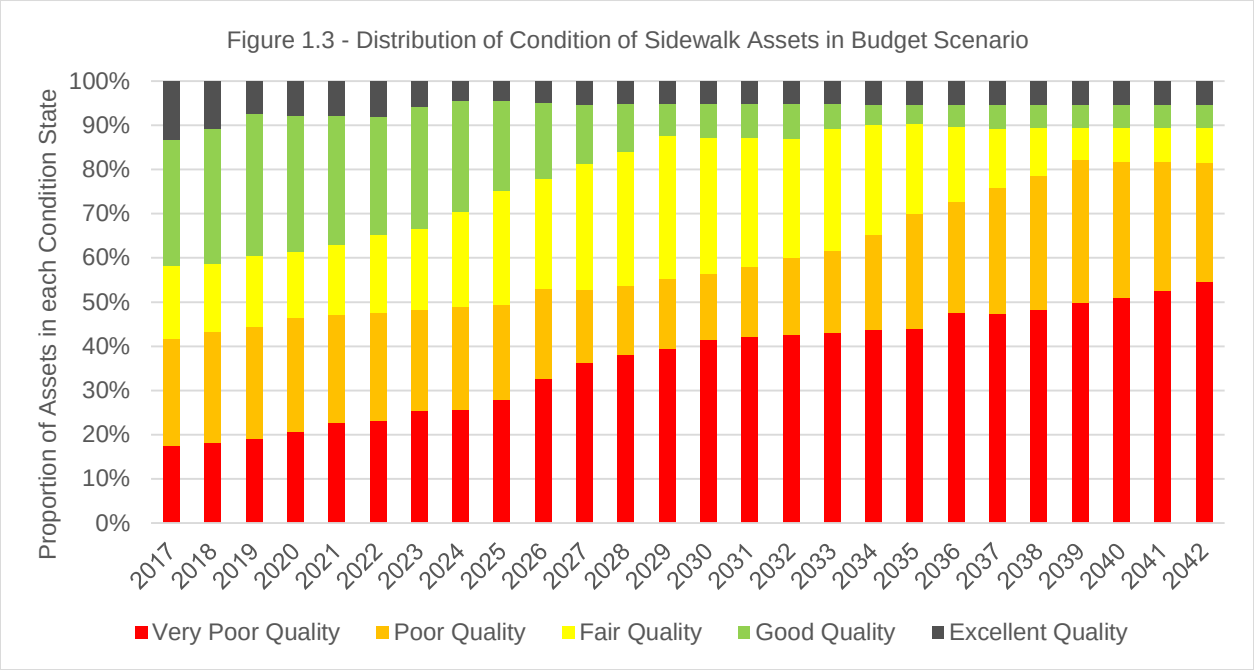
There are currently around 25% of roads that are poor or very poor condition (i.e. a PQI of under 40). The average annual budgeted capital expenditures of approximately $5.8 million will result in a decline in the condition of the road assets over the next 25 years to a level that is anticipated to be unacceptable to most stakeholders.

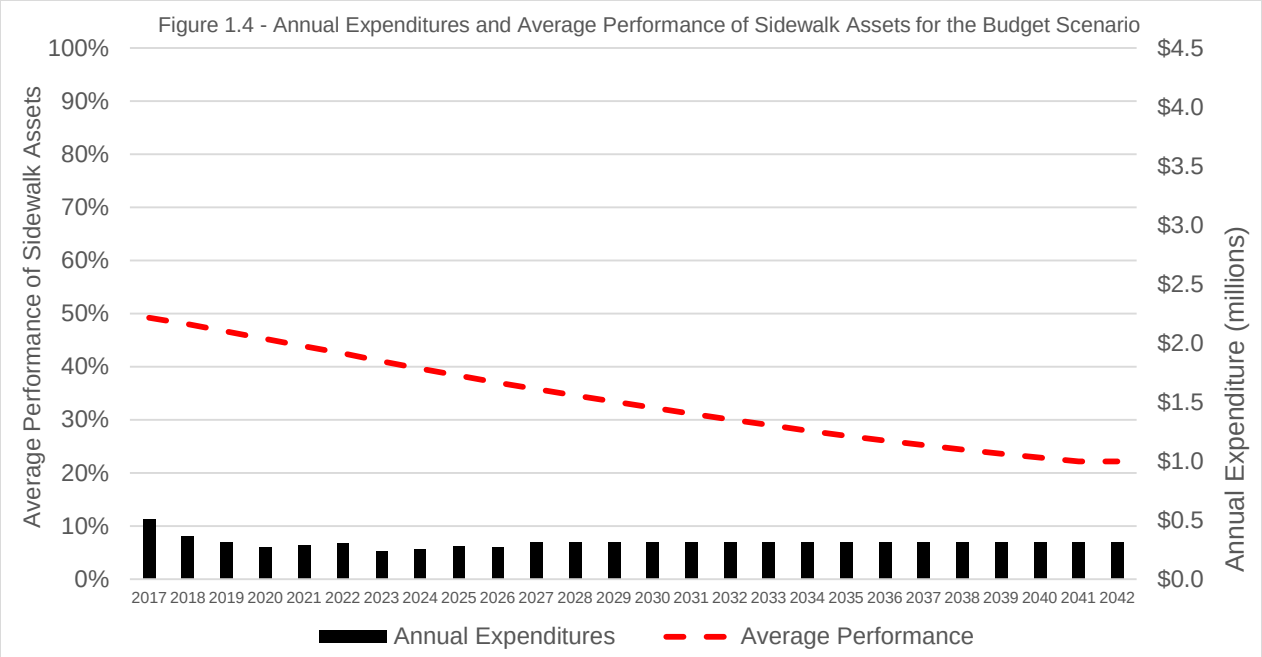




Asset Group: Sidewalks

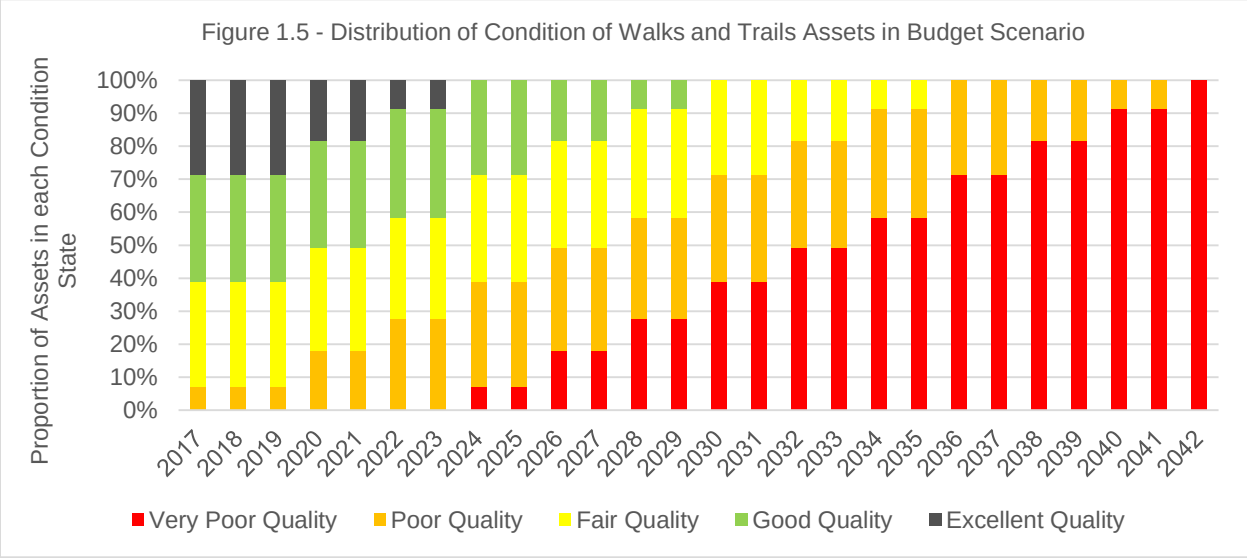
There are currently around 42% of sidewalks that are poor or very poor condition. The average annual budgeted capital expenditures of approximately $0.3 million will result in a decline in the condition of the sidewalk assets over the next 25 years to a level that is anticipated to be unacceptable to most stakeholders.





Asset Group: Walks and Trails

There are currently less than 5% of walks and trails that are poor or very poor condition. The majority of the walks and trails assets are relatively new and do not require rehabilitation or replacement over the next few years. There are no budgeted capital expenditures to replace or rehabilitate the existing network of walks and trails. Over the medium to long term, the condition of the walks and trails will decline to a level that is unacceptable to most stakeholders if rehabilitation or replacement activities are not completed.



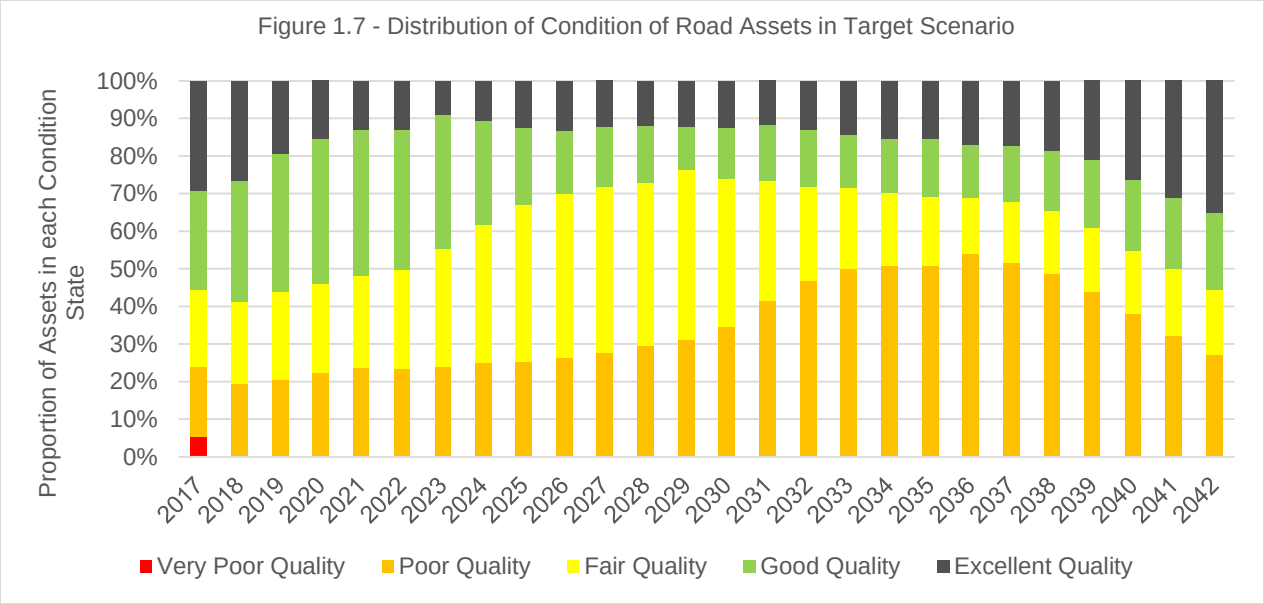
Asset Group: Bridges

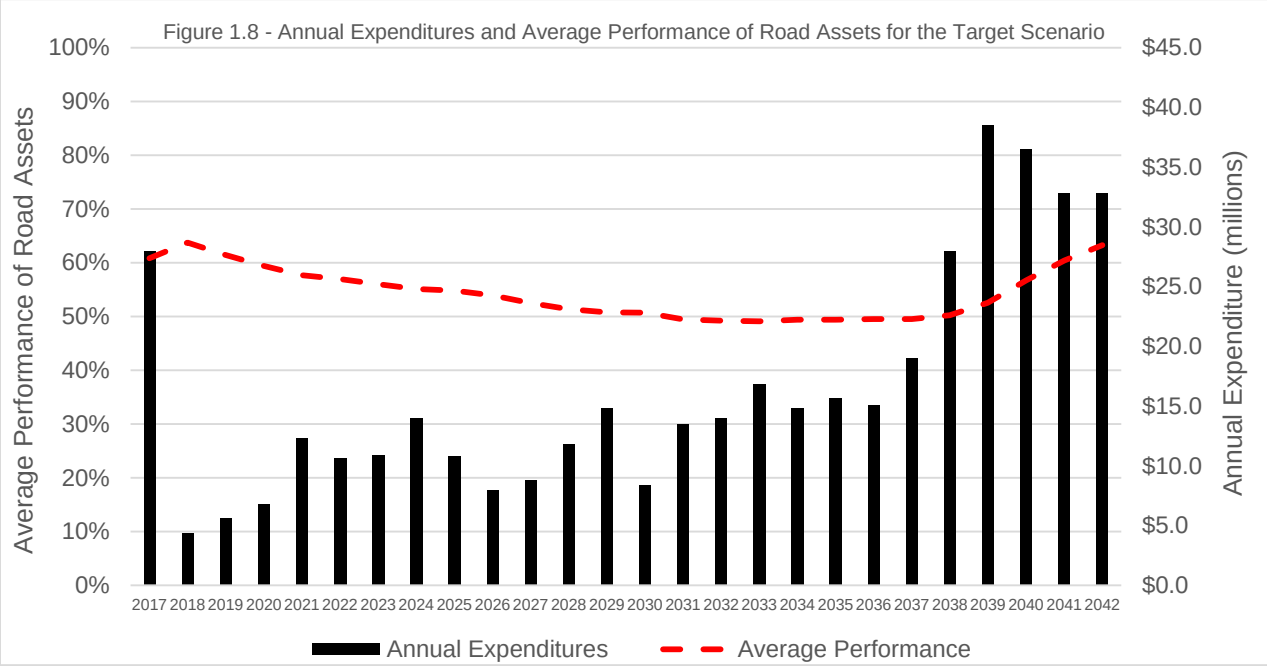
The bridge assets are estimated to require approximately $4 million in replacement or rehabilitation activities over the next 10 years to ensure that they continue to provide their intended service, or approximately $400,000 per year. There is approximately $2 million allocated to bridge rehabilitation or replacement activities in the current 10 year capital budget, or approximately $200,000 per year. The current level of budgeted capital expenditures may result in the need to undertake emergency repairs or replacement of some of the bridges that will not be rehabilitated or replaced in accordance with the recommendations made during the site investigations.

1.5 Target Performance and Required Expenditures

Asset Group: Roads

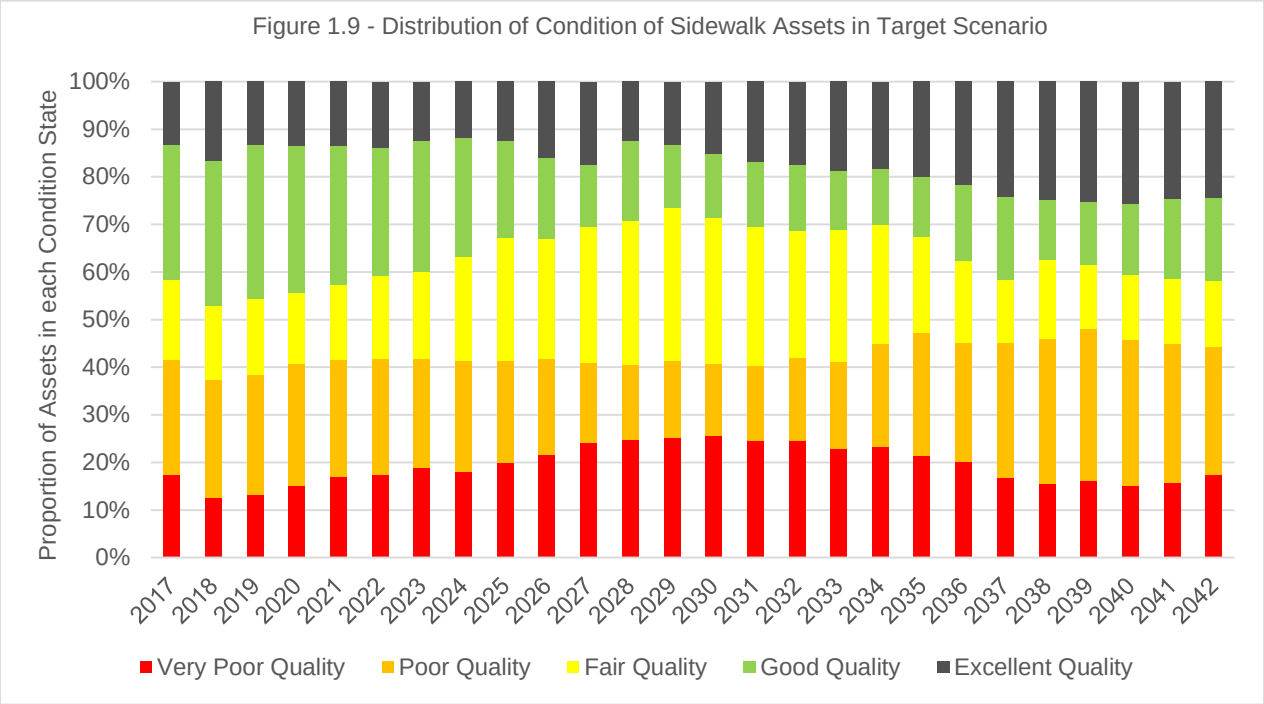
An average annual expenditure of approximately $16 million per year over the next 25 years is required to achieve the target condition profile of the road assets. It should be noted that the minimum target PQI of 20 results in no roads being in very poor condition in the target scenario graph below for the road assets.

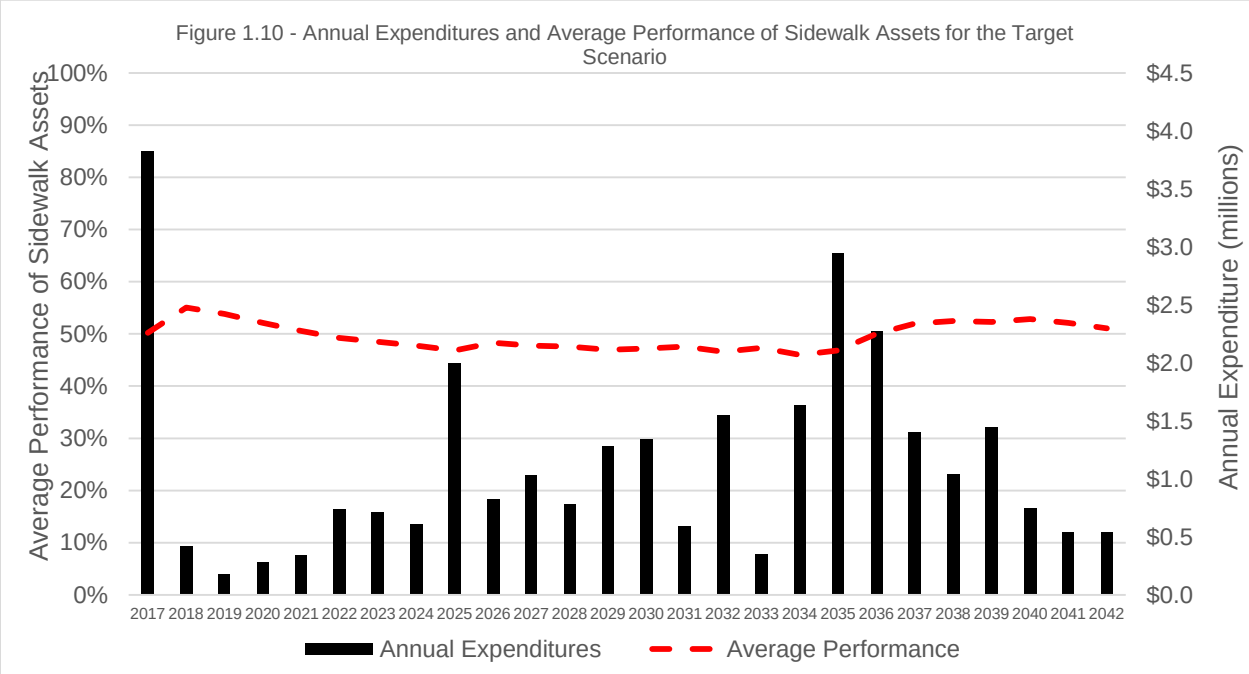




Asset Group: Sidewalk

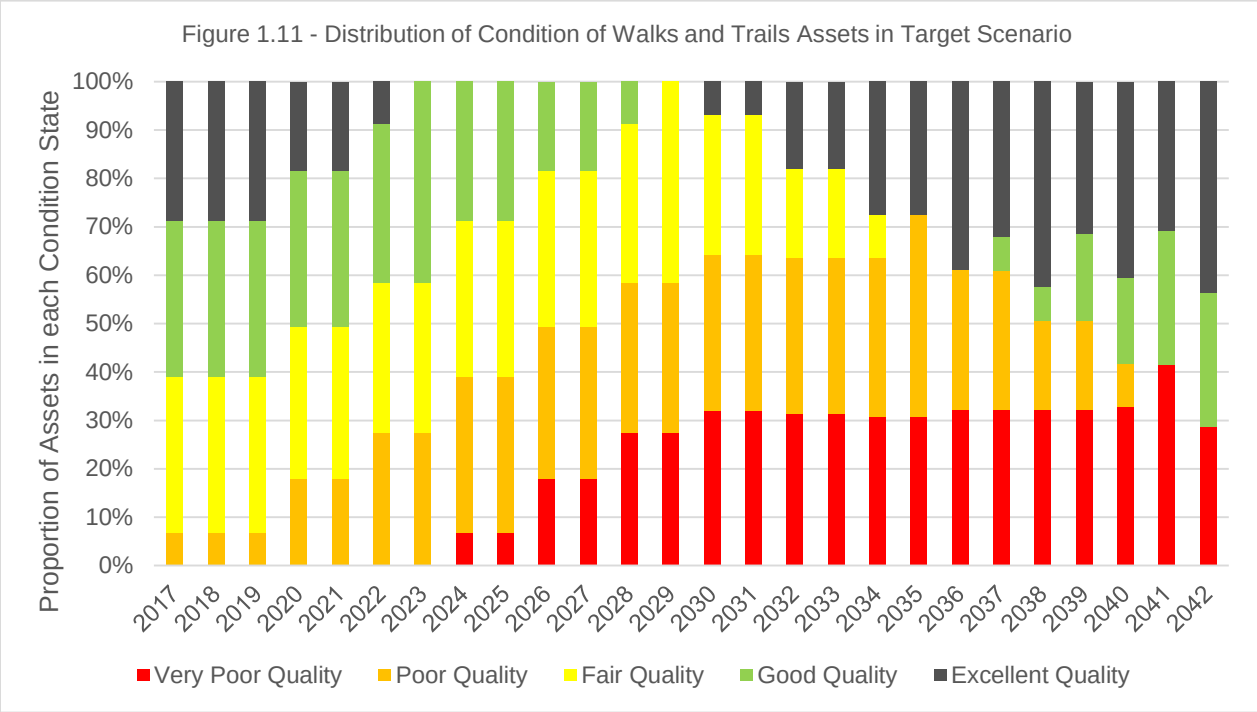
An average annual expenditure of approximately $1.1 million per year over the next 25 years is required to achieve the target condition profile of the sidewalk assets.

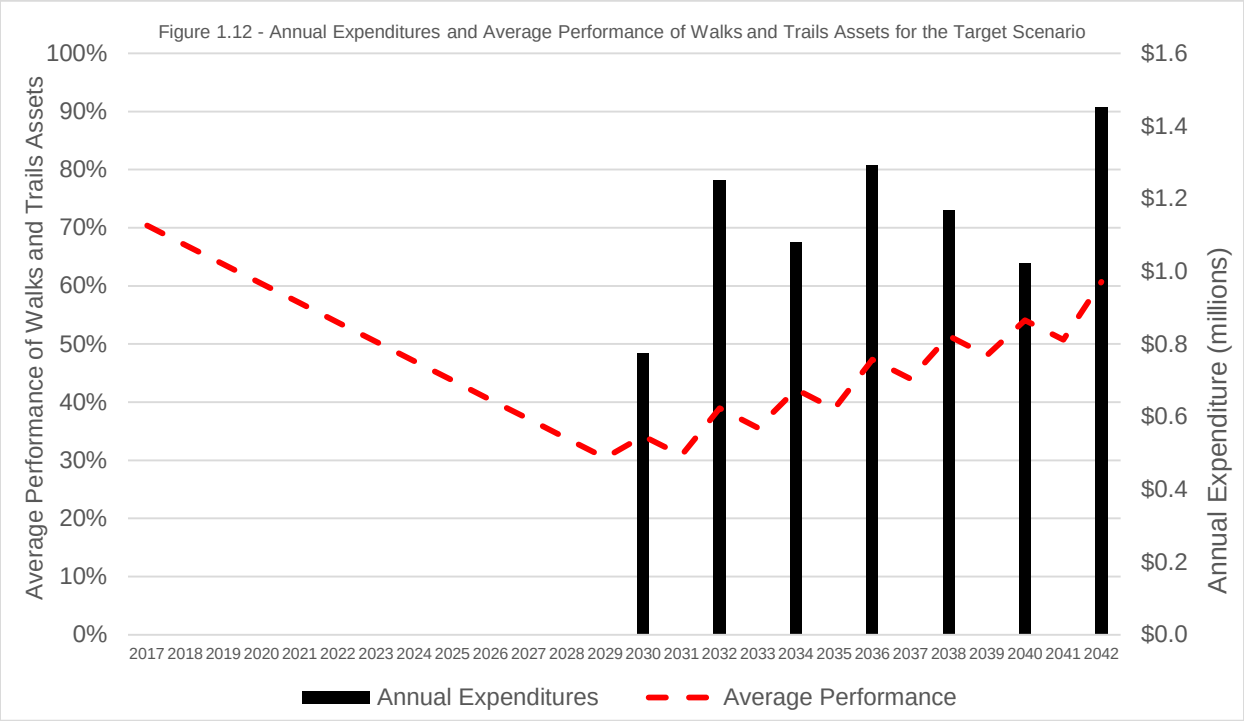




Asset Group: Walks and Trails

An average annual expenditure of approximately $0.3 million per year over the next 25 years is required to achieve the target condition profile of the walks and trails assets.





Asset Group: Bridges

As described in Section 1.4, an average annual expenditure of approximately $0.4 million over the next 25 years is required to achieve the target condition of the bridge assets.

1.6 Summary, Discussion and Next Steps

The analysis of the transportation asset group indicates a substantial gap between the budgeted expenditures and the expenditures required to achieve the target performance (refer to table below). There is a relatively high confidence in this identified expenditure gap as it is generated from road data that has a high maturity level, including full condition information on each road segment and a strong industry-standard understanding of how roads degrade over time.

Over the next year, staff will be using the analytical system to help confirm the performance target for different road classifications. This will include an analysis of the impact of allowing local roads to reach a very poor condition before they are replaced or rehabilitated. The incorporation of additional rehabilitation options into the analytical system will also provide more insight into how to mitigate the expenditure gap, as over the long term it may be advantageous for the City to apply these asset management strategies to the road portfolio.

Summary of Transportation Assets

Asset Group	Average Annual Planned Expenditures	Expenditures Required to Achieve the target Performance	Expenditure Gap
Roads	$5.8 million	$16.0 million	$10.2 million
Sidewalks	$0.3 million	$1.1 million	$0.8 million
Walks & Trails	$0	$0.3 million	$0.3 million
Bridges	$0.2 million	$0.4 million	$0.2 million
	$6.3 million	**$17.8 million**	**$11.5 million**

The following points summarize some of the next steps for the transportation assets:

Roads

- Next year: Use the information in the corridor tool to help make more informed corridor renewal decisions.
- 1 to 5 years: The current version of the analytical system only incorporates two asset renewal interventions – full road replacement and full depth road resurfacing – because in practice these are the two major types of road treatment options that are operationalized in the City. Future versions of the road analytical system can be refined to incorporate additional treatment options, such as small depth mill and pave rehabilitation strategies.
- 1 to 5 years: Explore how the corridor tool can be more integrated with the analytical system.

Sidewalks

- Next year: Improve the quality of the condition data on each segment through the generation of condition scores based on the existing database of deficiencies or by completing routine visual assessments that provide aggregate level sidewalk segment condition scores.
- 1 to 5 years: Refine the levels of service (i.e. condition at which an asset is replaced) to align with the sidewalk prioritization methodology.

Bridges

- 1 to 5 years: Improve the longer term understanding of bridge needs by requesting estimates of the 11 to 25 year needs during the existing processes to complete biannual inspections.

Walks and trails

- 1 to 5 years: Collect and maintain condition scores based on visual observations of each walk and trail segment.
- 1 to 5 years: Establish formal lifecycle management strategies for the walks and trails to identify the target condition at which different categories are resurfaced and estimate the service life of a new walk/trail.

Streetlights

- 1 to 5 years: Incorporate the streetlights into the analytical system when the inventory is fully mature with a current condition of each streetlight and the estimated service life.
- Collect comprehensive condition information on the aggregate condition of each walk and trail segment to support decision making in the analytical system related to the rehabilitation or replacement of assets.
- Improve the longer term understanding of the bridge needs by requesting estimates of the 11 to 25 year needs during the existing processes to complete biannual inspections.

2. Asset Group: Sanitary Sewer Collection

2.1 What do we own?

The sanitary sewer collection network is comprised of 409 km of pipes and 6 sewage pumping stations. The total replacement value of the sanitary network is approximately $261 million. The pipe network accounts for 94% of the replacement value of the sanitary collection network, with the sewage pumping stations accounting for the other 6% of the replacement value.

2.2 What are our current rehabilitation or replacement strategies?

- Sanitary sewers can be either rehabilitated or replaced. The current strategy in Waterloo is to replace sanitary sewers that are in poor or very poor condition (i.e. a performance condition of between 0% and 40%) in coordination with the replacement of the road surface and other subsurface infrastructure, such as watermains or storm sewers.

  Large, critical trunk sewers with a diameter of 400 mm or greater are replaced/rehabilitated when they reach a performance condition of 40%. Sub-trunk sewers with a diameter of 250 mm to 400 mm are replaced replaced/rehabilitated when they reach a performance condition of 20%. Local sewers with a diameter of less than 250 mm are replaced/rehabilitated when they reach performance condition of 0%.

  The decision making regarding when to rehabilitate poor or very poor condition sanitary sewers is based on a detailed review of the observations from camera inspections that help the City's subject matter experts determine when rehabilitation is preferred over replacement.

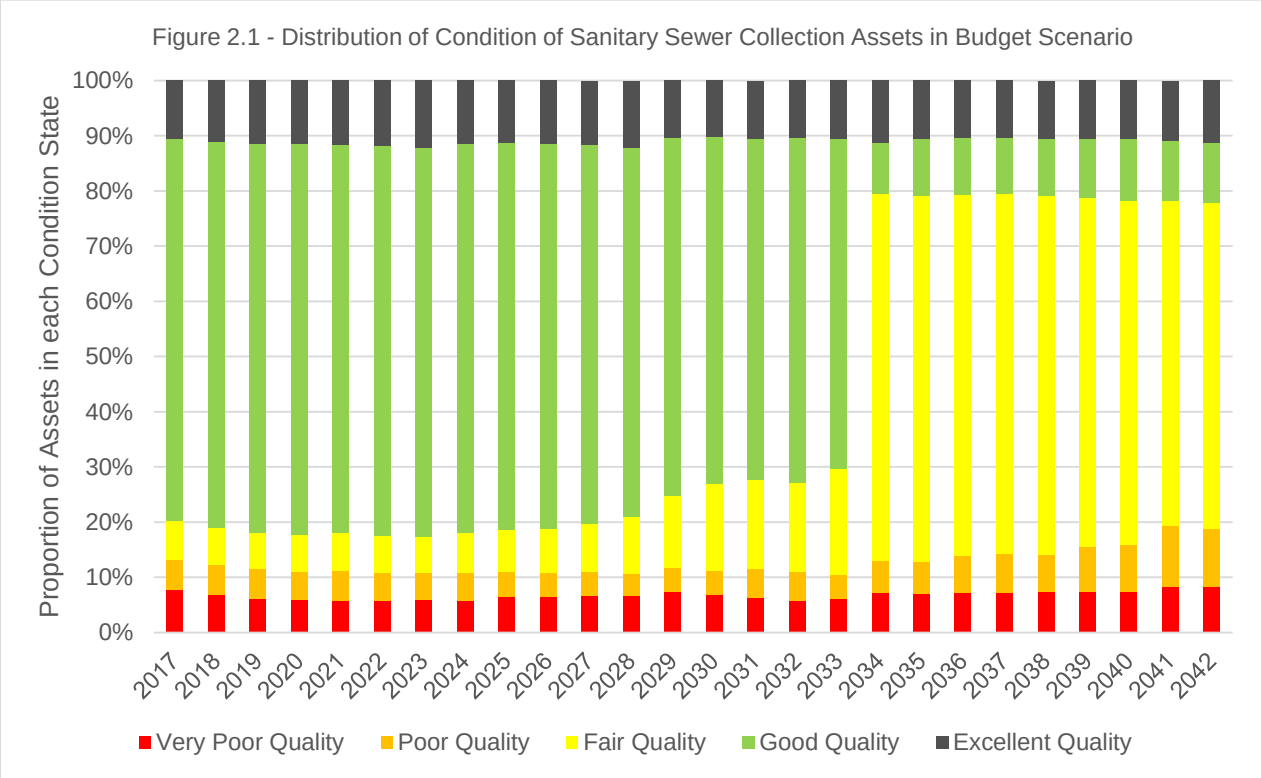
- Sewage pumping stations are rehabilitated on an as-needed basis as components in each facility reach the end of their useful life (i.e. reach a performance condition of 0%).

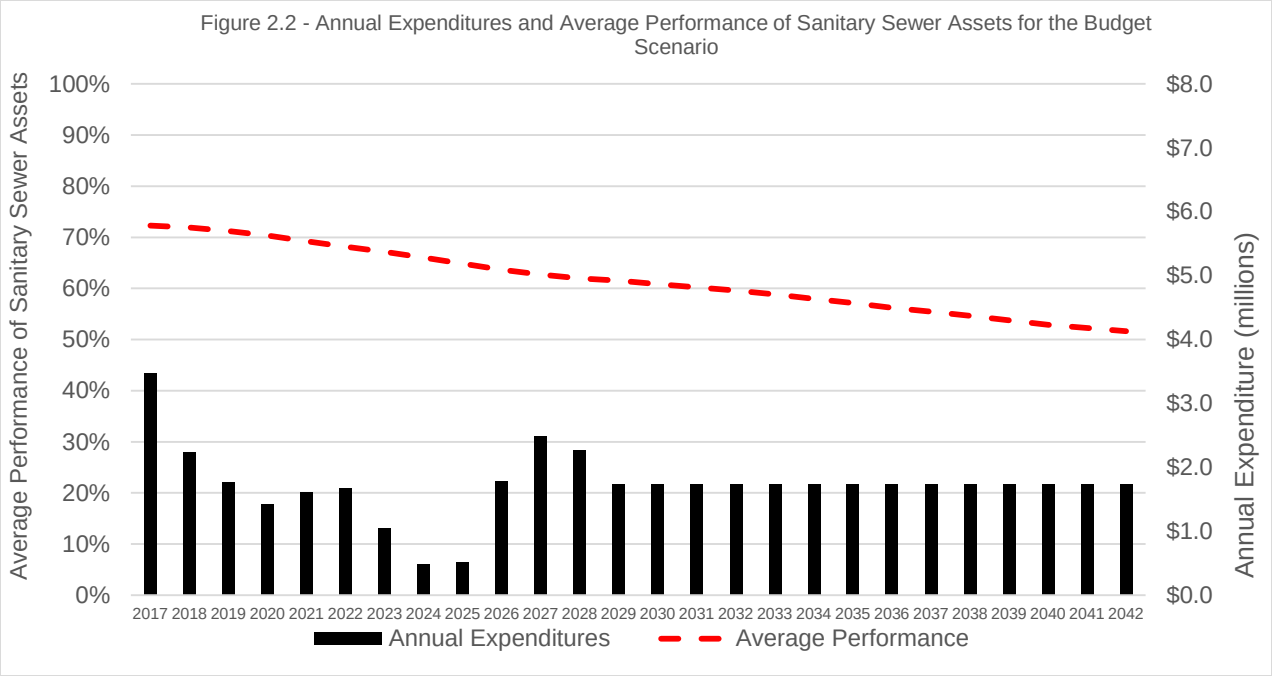
2.3 What is the maturity of the sanitary sewer collection data?

The sanitary sewer collection network data is considered to be high for the purposes of operationalizing asset management processes. The sewage pumping stations data is less mature relative to the pipes. The maturity is considered to be above average with respect to similar municipalities in Canada.

2.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

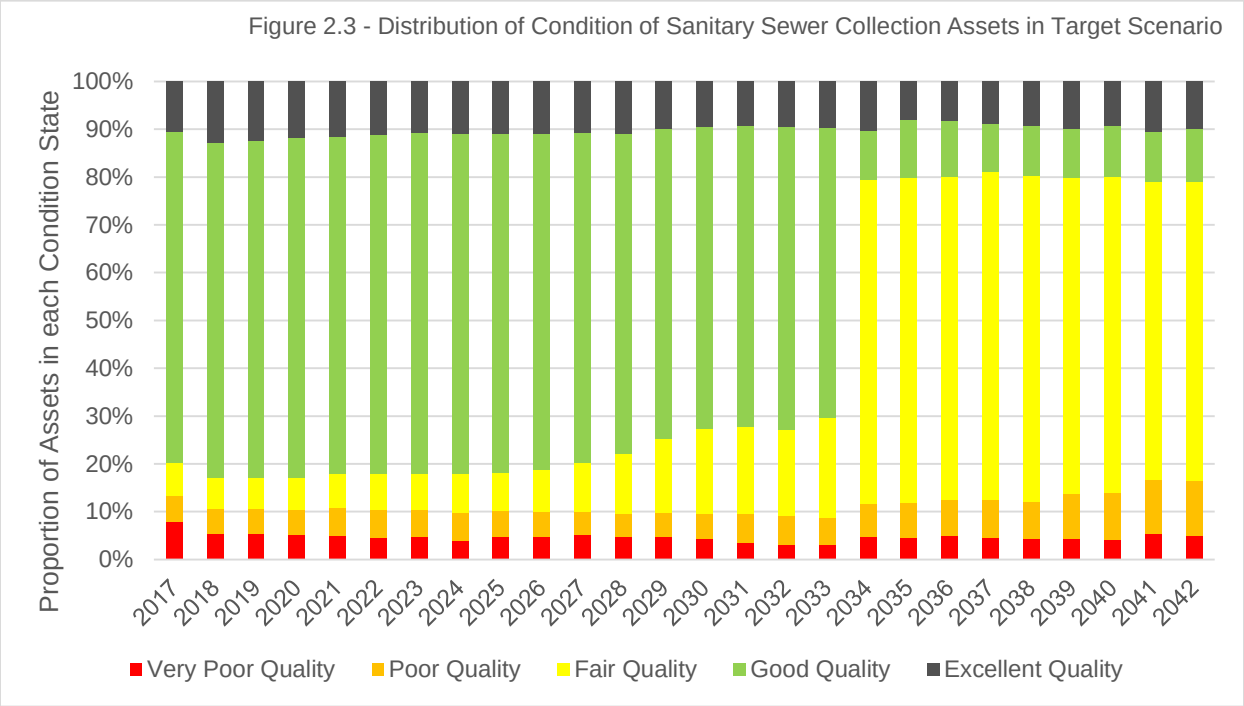
There are currently around 12% of sanitary sewers collection assets that are poor or very poor condition. The average annual budgeted capital expenditures of approximately $1.7 million will result in a modest decline in the condition of the sanitary sewer assets over the next 25 years, but overall the planned expenditures are projected to result in an acceptable level of service to most stakeholders.

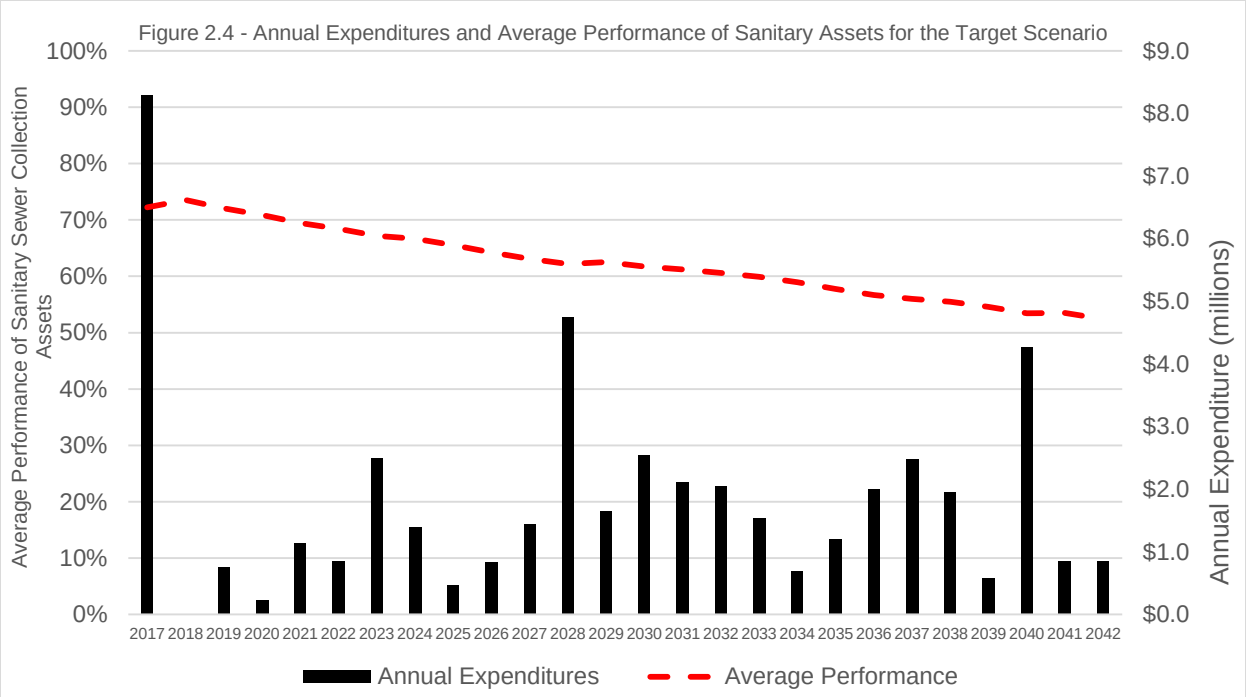




2.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $1.8 million per year over the next 25 years is required to achieve the target condition profile of the sanitary sewer collection assets.





2.6 Summary, Discussion and Next Steps

The budgeted capital expenditures are generally consistent with the required expenditures to achieve the target performance. There is a relatively high level of confidence in this analysis because there is a high maturity level in the sanitary sewer collection system, which leverages real observations of condition from the City's camera inspections and considers the results of the City's Sanitary Sewer Master Plan.

The large increase in the proportion of assets that are in fair condition in the last 10 years of the analysis suggests that there may be an increased expenditure requirement in the longer term (beyond the 25 year planning horizon) to replace the assets as the degrade from fair to poor and poor condition.

The City has recently finished a Water & and Sewer Rate Design Study (DFA; 2016). The study completed a comprehensive review of the full costs to provide water and wastewater services to the year 2039, and developed a rate structure to provide sustainable financing of the systems over the long term.

Presently, the Rate Study is considered to be a more comprehensive and detailed review of the water and wastewater systems. The financing strategy for the water and wastewater systems considers a range of factors, such as the minimum balance of reserve funds and the structure of the rate (i.e. volumetric versus fixed) to mitigate impacts of declining as per capita water consumption on revenues. Over the next few years, the refinements to the analytical system will provide more robust information on the capital renewal activities that are required to provide the target level of service of the systems.

It should be noted that the Rate Study and this report have reached similar conclusions, namely that the current planned level of capital expenditures on the sewer assets is generally adequate.

The following points summarize some of the next steps for the sanitary collection assets:

- 1 to 5 years: The analysis was completed using aggregate condition scores for each sewer segment. The detailed CCTV data from the City Spec software application contains more specific data on the type and severity of defect in the sewer that is used to generate the overall condition score. The analytical system can be refined to analyze this more discrete information to support the development of a more sophisticated integrated corridor decision support system that can define a more explicit rehabilitation renewal strategy.
- 1 to 5 years: Expand the hydraulic model to include all pipes and incorporate the outcomes into the analytical system.
- 1 to 5 years: Incorporate functional performance in the systems by looking at hydraulic grade lines relative to the ground elevation during target wet weather events.

Sewage Pumping Stations

- 1 to 5 years: Complete a detailed component-level inventory and condition assessment of all sewage pumping stations except Beaver Creek to develop robust data for use in the analytical system.

3. Asset Group: Water Distribution

3.1 What do we own?

The water distribution network is comprised of 431 km of pipes with associated valves and hydrants. The total replacement value of the water distribution network is approximately $215 million.

3.2 What are our current rehabilitation or replacement strategies?

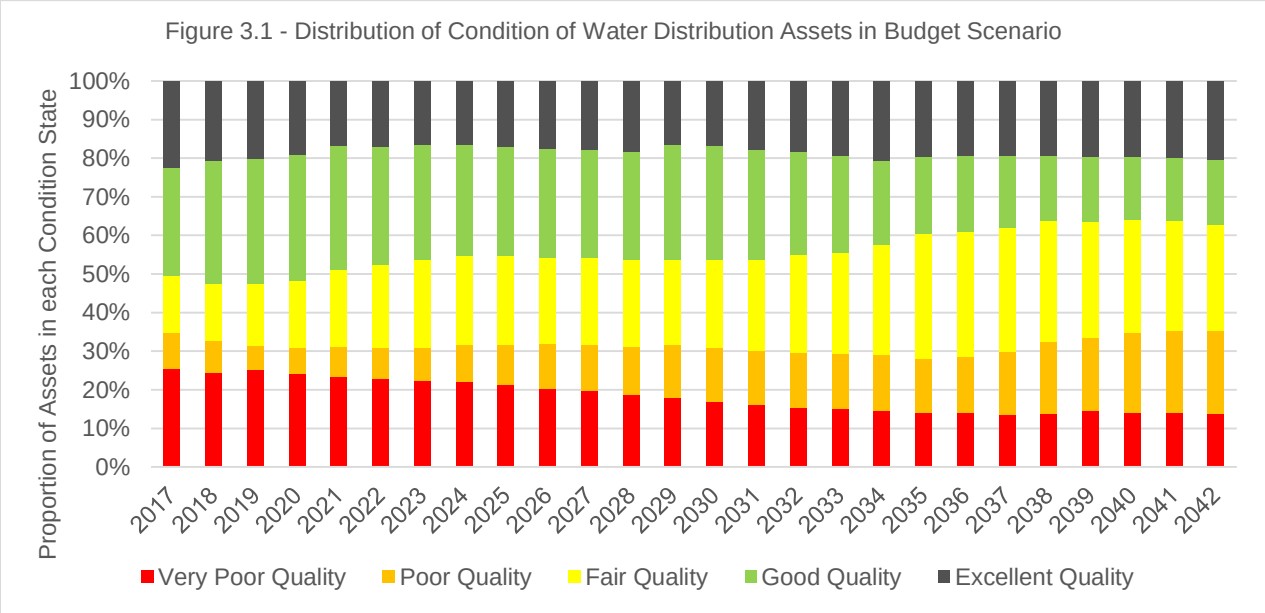
Watermains can be either rehabilitated or replaced. The current strategy in Waterloo is to replace watermains that experience a high number of breaks or that have reached the end of their useful life (i.e. reach a condition performance score of 0%). The rehabilitation of watermains through the installation of a cured in place liner is not routinely practiced in the City.

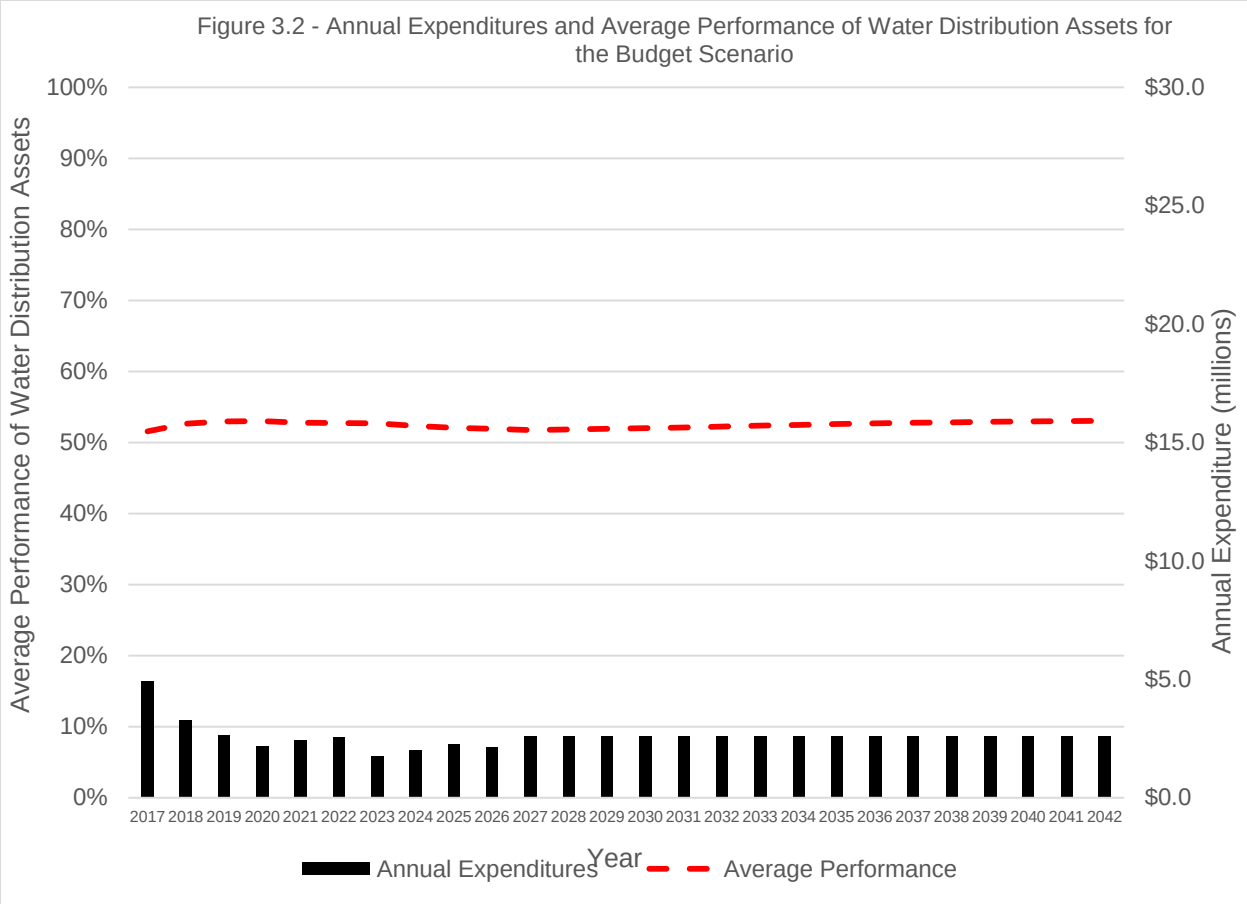
3.3 What is the maturity of the water distribution data?

The maturity of the water distribution network data is considered to be medium for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada. It should be noted that the City is in the process of completing a Water Distribution Master Plan which will result in a high maturity level of water distribution data that is above average with respect to similar municipalities in Canada.

3.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 34% of water distribution assets that are poor or very poor condition. The average annual budgeted capital expenditures of approximately $2.6 million will result in a relatively stable condition profile and average condition of the water distribution assets over the next 25 years.





3.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $4.8 million per year over the next 10 to 15 years is required to achieve the target condition profile of the water distribution assets. However, the required expenditures over the longer term planning horizon are approximately $2.7 million per year. This is attributed to the large backlog in renewal needs associated with watermains that have currently exceeded their estimated useful life. The outcomes of the Water Distribution Master Plan will provide perspective on how this backlog is addressed.

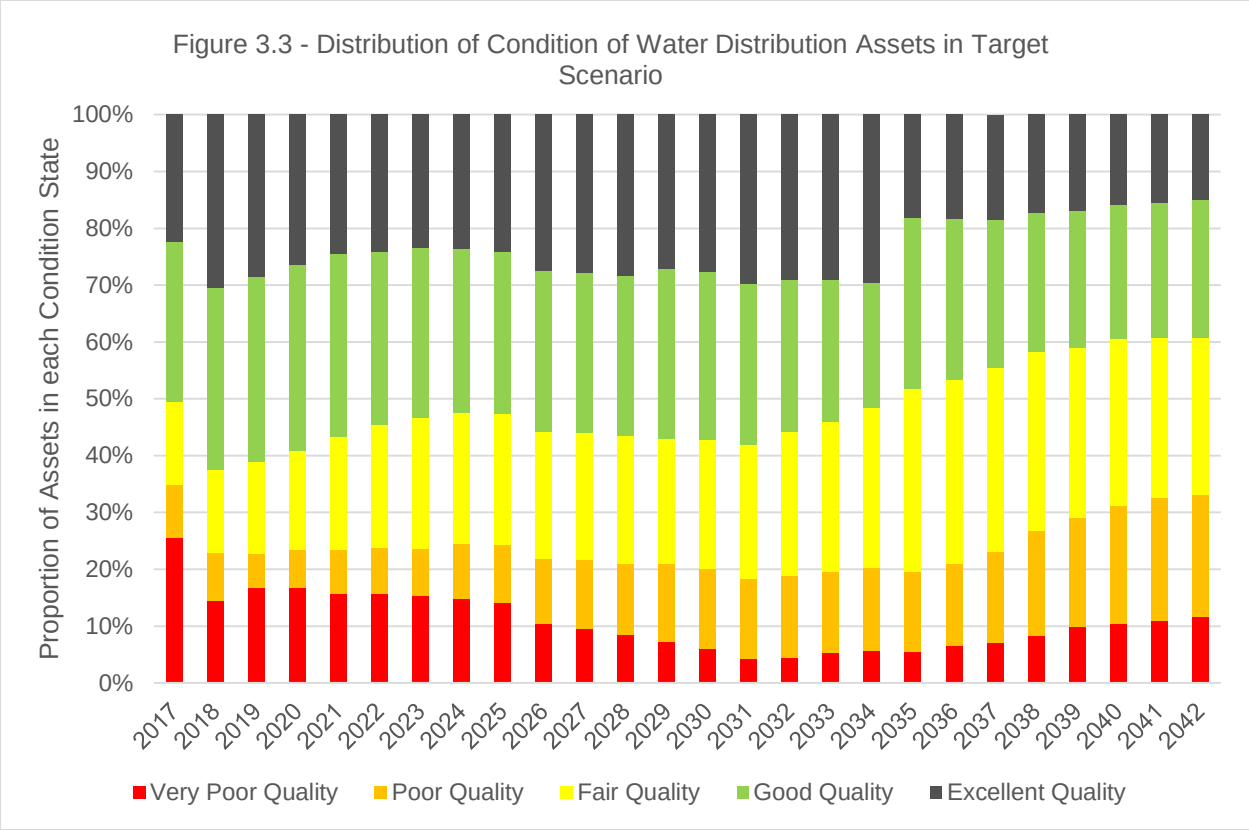


Figure 3.3 - Distribution of Condition of Water Distribution Assets in Target Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

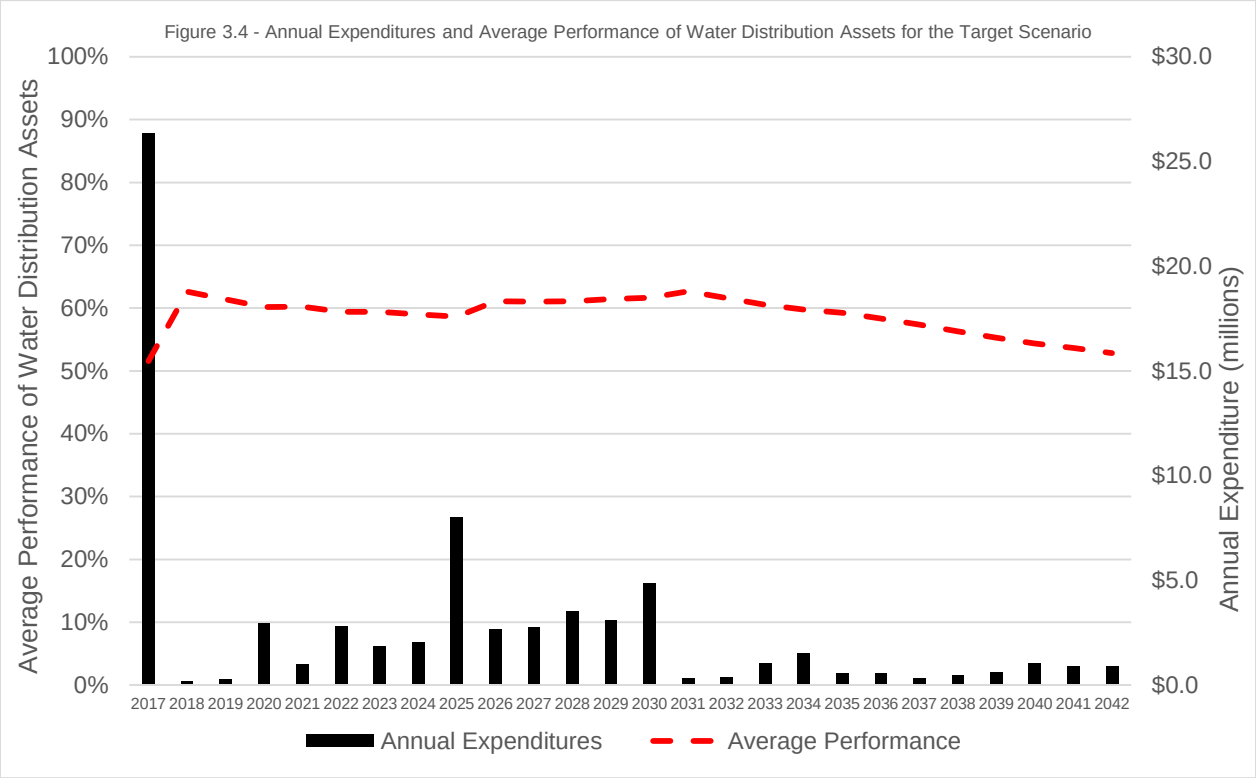


Figure 3.4 - Annual Expenditures and Average Performance of Water Distribution Assets for the Target Scenario
Average Performance of Water Distribution Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Annual Expenditure (millions)
$30.0
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

3.6 Summary, Discussion and Next Steps

The analysis of the water distribution data indicates that over the next 10 to 15 year the required expenditures achieve the target performance profile of the water assets are approximately $2.2 million greater than the budgeted expenditures. There is a moderate level of confidence in the outcomes of the analysis because of the medium maturity of asset information, which does not currently incorporate the outcomes of the Water Distribution Master Plan. The Water Distribution Master Plan will provide more comprehensive and robust information to establish the capital expenditures that are required to achieve the target performance of the water system.

The City has recently finished a Water & and Sewer Rate Design Study (DFA; 2016). The study completed a comprehensive review of the full costs to provide water and wastewater services to the year 2039, and developed a rate structure to provide sustainable financing of the systems over the long term.

Presently, the Rate Study is considered to be a more comprehensive and detailed review of the water and wastewater systems. The financing strategy for the water and wastewater systems considers a range of factors, such as the minimum balance of reserve funds and the structure of the rate (i.e. volumetric versus fixed) to mitigate impacts of declining as per capita water consumption on revenues. Over the next few years, the refinements to the analytical system will provide more robust information on the capital renewal activities that are required to provide the target level of service of the systems.

It should be noted that the Rate Study and this report have reached similar conclusions, namely that the current planned level of capital expenditures on the water assets needs in not adequate to provide the target levels of service.

The next steps for the water distribution system are to incorporate the outcomes of the Water Distribution Master Plan into the analytical system.

4. Asset Group: Storm Sewer Collection

4.1 What do we own?

The storm sewer collection network is comprised of 340 km of pipes with associated catchbasins and manholes. The total replacement value of the storm sewer collection network is approximately $203 million.

4.2 What are our current rehabilitation or replacement strategies?

Storm sewers can be either rehabilitated or replaced. The current strategy in Waterloo is to replace storm sewers that very poor condition (i.e. reach a condition performance score of 0%) in coordination with the replacement of the road surface and other subsurface infrastructure, such as watermains or sanitary sewers. Storm sewers are not typically rehabilitated in Waterloo as there is limited in-situ condition information to help decide when this renewal strategy is appropriate.

4.3 What is the maturity of the storm sewer collection data?

The maturity of the storm sewer collection data is considered to be low for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada. It should be noted that the City is about to undertake a stormwater management master plan which will result in a medium to high maturity level of storm sewer collection data that is above average with respect to similar municipalities in Canada.

4.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 48% of storm collection assets that are poor or very poor condition. The average annual budgeted capital expenditures of approximately $2.0 million will result in a decline in the condition profile of the storm collection assets over the next 25 years to a level which is anticipated to not be acceptable to most stakeholders.

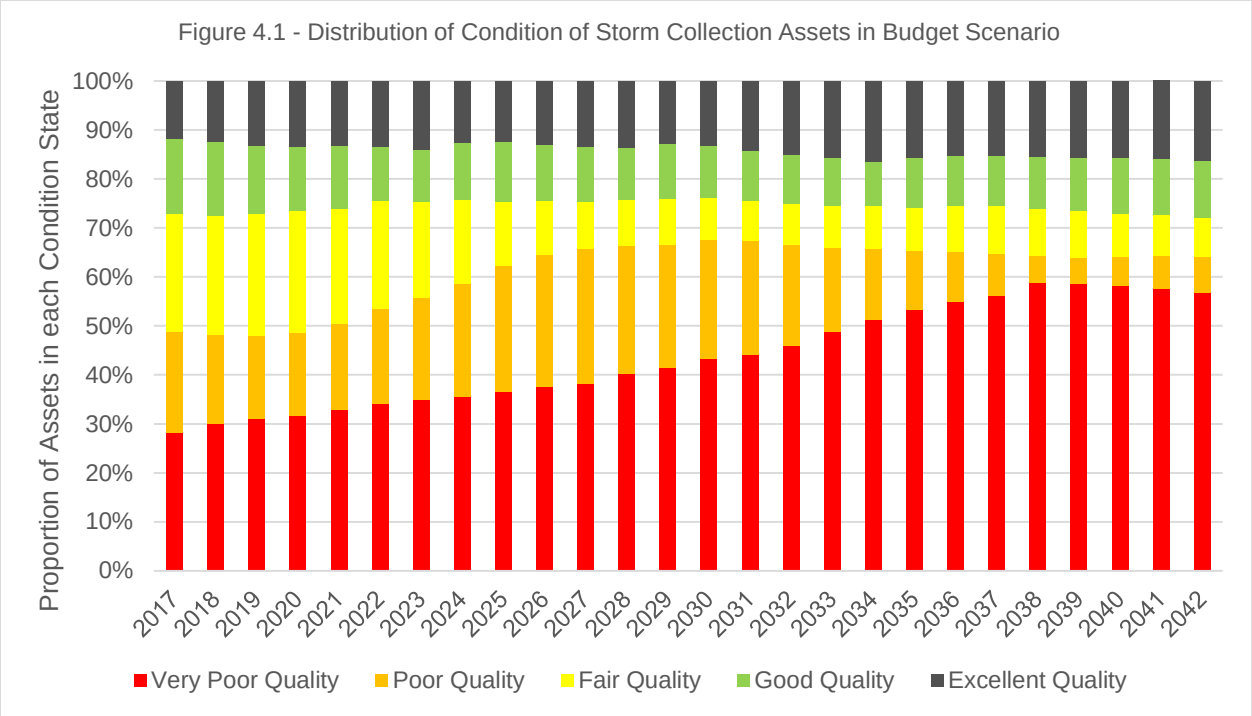


Figure 4.1 - Distribution of Condition of Storm Collection Assets in Budget Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

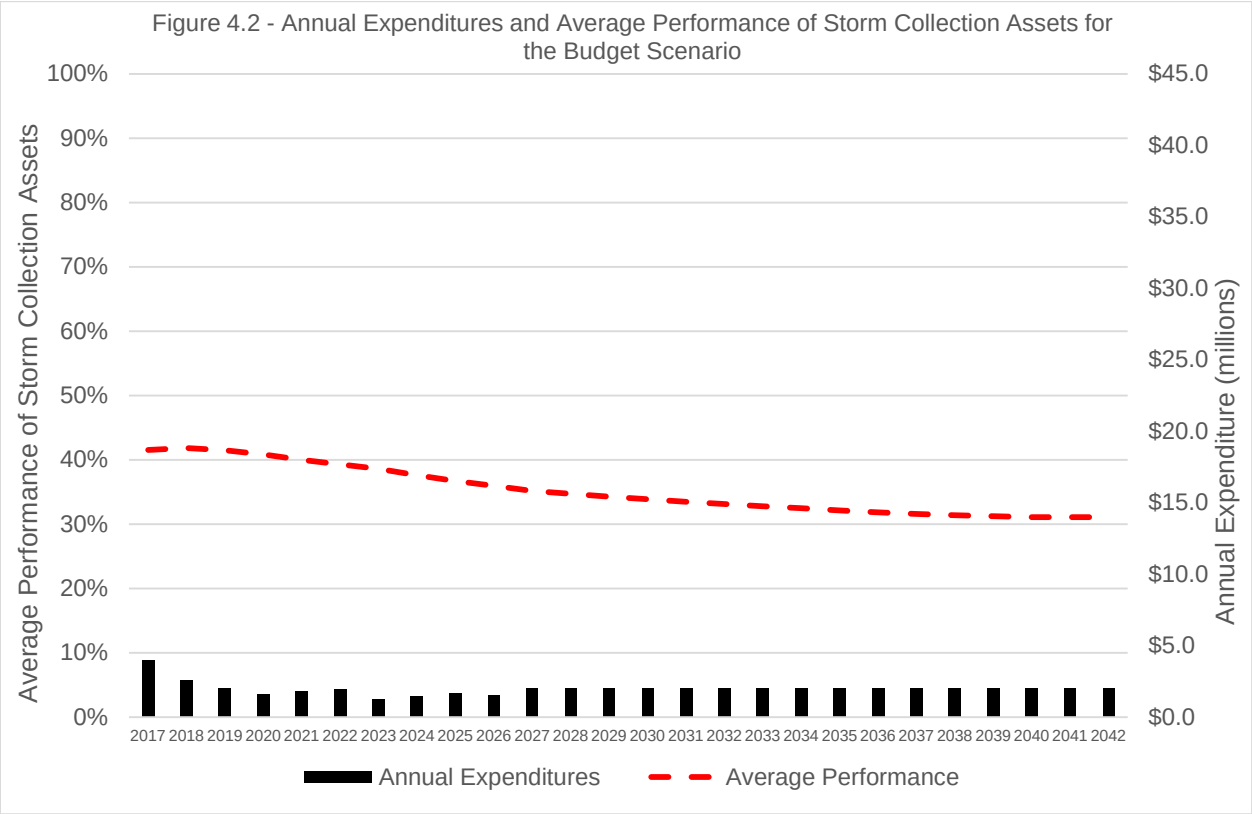
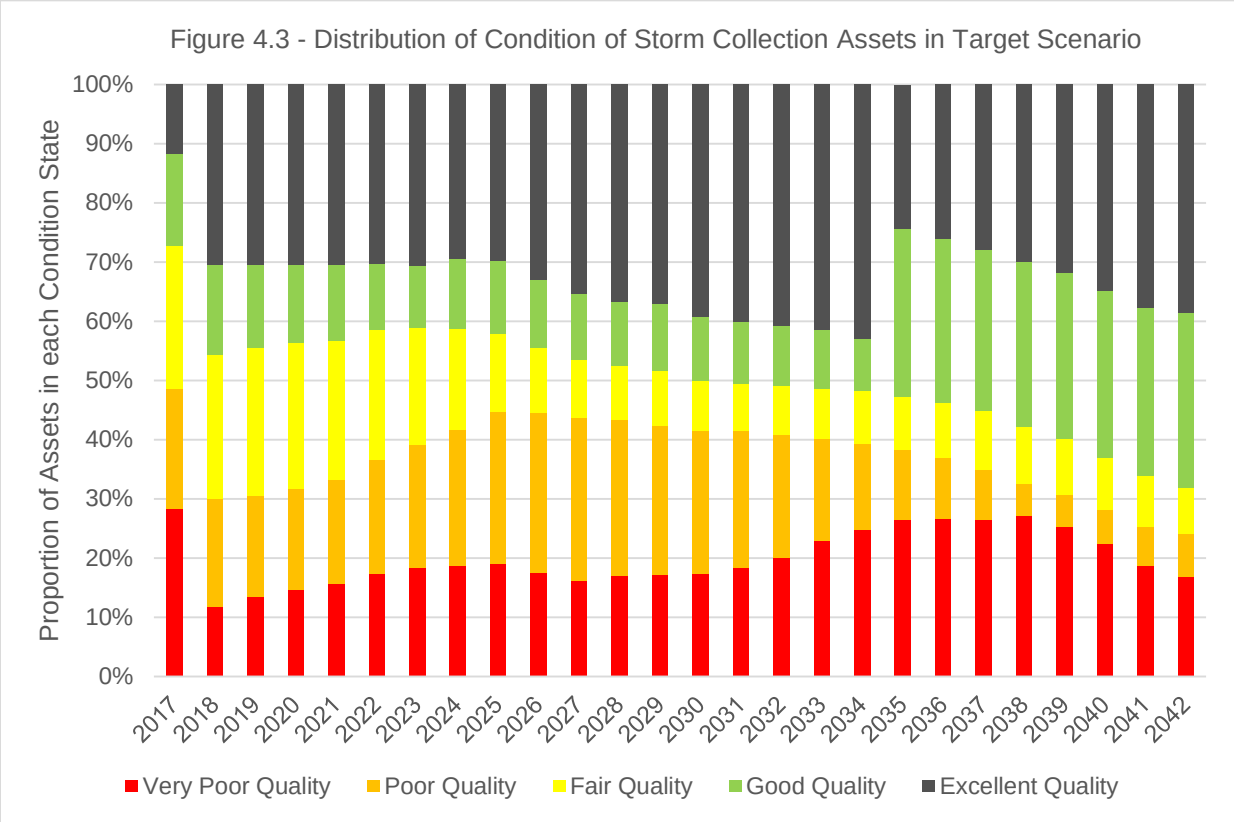
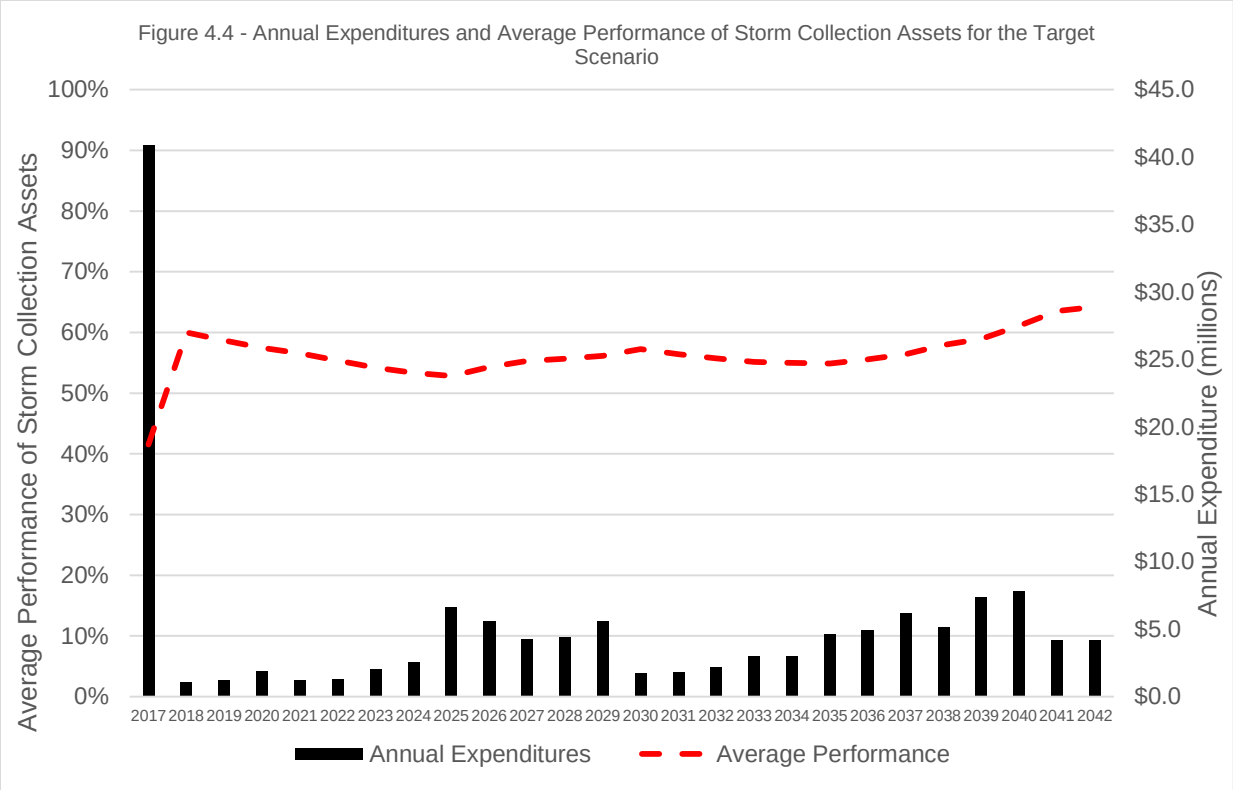


Figure 4.2 - Annual Expenditures and Average Performance of Storm Collection Assets for the Budget Scenario
Average Performance of Storm Collection Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Annual Expenditure (millions)
$45.0
$40.0
$35.0
$30.0
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

4.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $5.2 million per year over the next 25 years is required to achieve the target condition profile of the storm collection assets. This average annual expenditure needs includes the costs identified to address the large backlog in renewal needs associated with storm sewers that have currently exceeded their estimated useful life. The outcomes of the stormwater management master plan will provide perspective on how this backlog is addressed.





4.6 Summary, Discussion and Next Steps

The analysis of the stormwater collection assets indicates that additional average annual expenditures of approximately $3.2 million are required to achieve the target condition profile. The low maturity of the asset information decreases the confidence in this outcome. The analysis is almost entirely a theoretical picture based on the age of each storm sewer and its expected useful life. There is limited condition information and the City does not have a hydraulic model of the storm collection system to help identify system needs related to conveyance capacity.

The stormwater management master plan, which is planned for completion in 2016/2017, will provide more comprehensive and robust information to establish the capital expenditures that are required to achieve the target performance of the storm collection system.

The following points summarize some of the next steps for the storm collection assets:

- 1 to 5 years – The City is in the process of collecting condition scores for all storm sewers. This data should be incorporated into the analytical system when it is ready to be operationalized to support decision making processes.
- 1 to 5 years – The development of a hydraulic model of the storm sewer network in the City would provide improved perspectives on the functional performance of the system that could be operationalized in the analytical system.

5. Asset Group: Stormwater Management

5.1 What do we own?

The stormwater management network is comprised of 55 stormwater management ponds. The total replacement value of the stormwater management network is approximately $55 million.

It should be noted that the inventory of stormwater management assets includes additional infrastructure for which there is no centralized inventory that can be operationalized for asset management planning purposes (i.e. oil/grit separators, outfalls into creeks, erosion protection infrastructure, etc.). Therefore the analysis that has been completed for this asset group has been limited to only the information that is available on the stormwater management ponds.

5.2 What are our current rehabilitation or replacement strategies?

Stormwater management ponds are dredged on a routine basis to remove sediment that has accumulated, restoring the full capability of the asset to provide its intended service to treat the quality and quantity control of stormwater runoff. The performance scores used for the stormwater management ponds are related to the time since the last dredging relative to the target dredging frequency. Ponds are rehabilitated (or dredged) when they reach a performance score of 0%, or have reached their target dredging date.

5.3 What is the maturity of the stormwater management data?

The maturity of the stormwater management data is considered to be low for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada. It should be noted that the City is about to undertake a stormwater management master plan which will result in a medium to high maturity level of stormwater management data that is above average with respect to similar municipalities in Canada.

5.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 85% of stormwater management ponds that have a performance score of poor or very poor, meaning that they are nearing, or have exceeded, their target dredging year. The average annual budgeted capital expenditures of approximately $1.2 million will result in an increase in the performance profile of the stormwater management assets over the next 25 years.

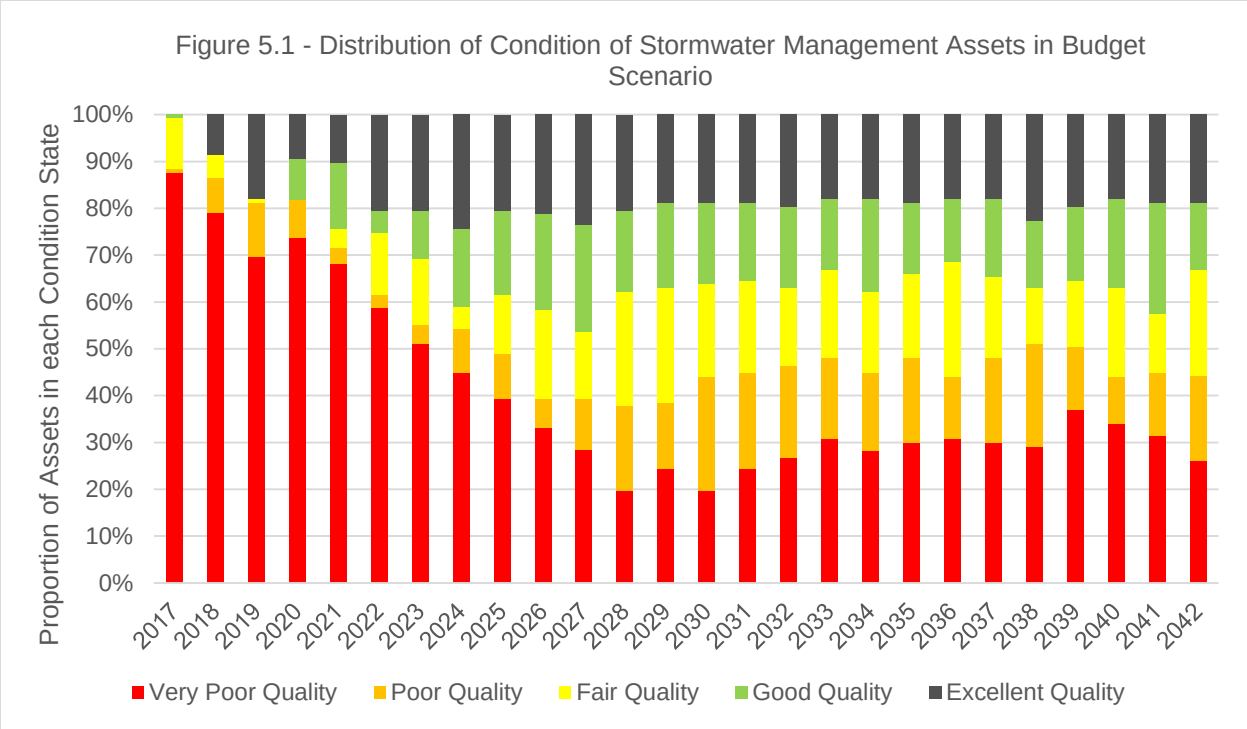


Figure 5.1 - Distribution of Condition of Stormwater Management Assets in Budget Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

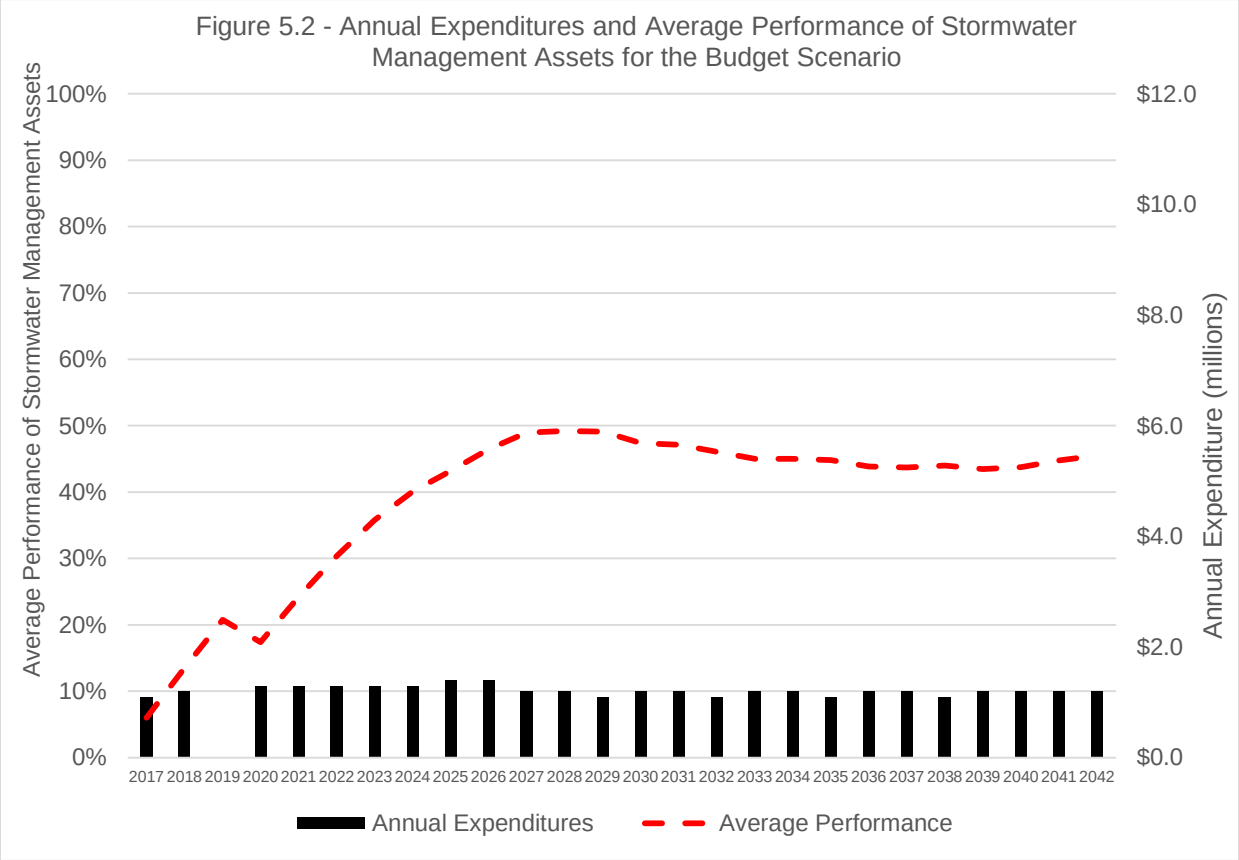
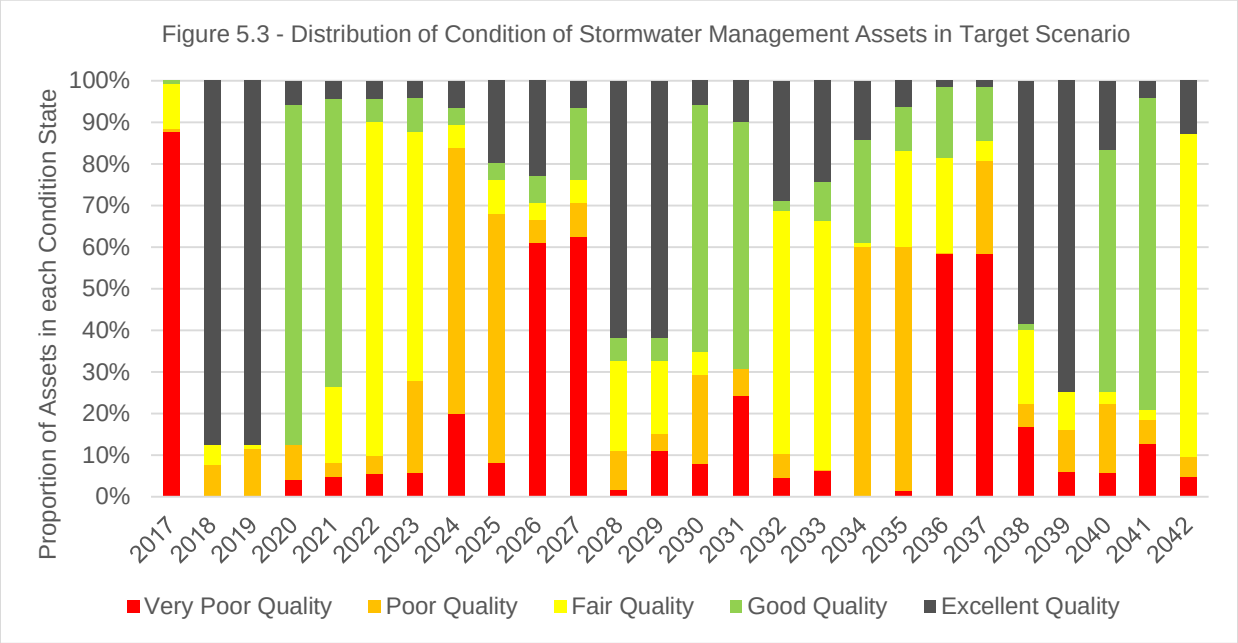
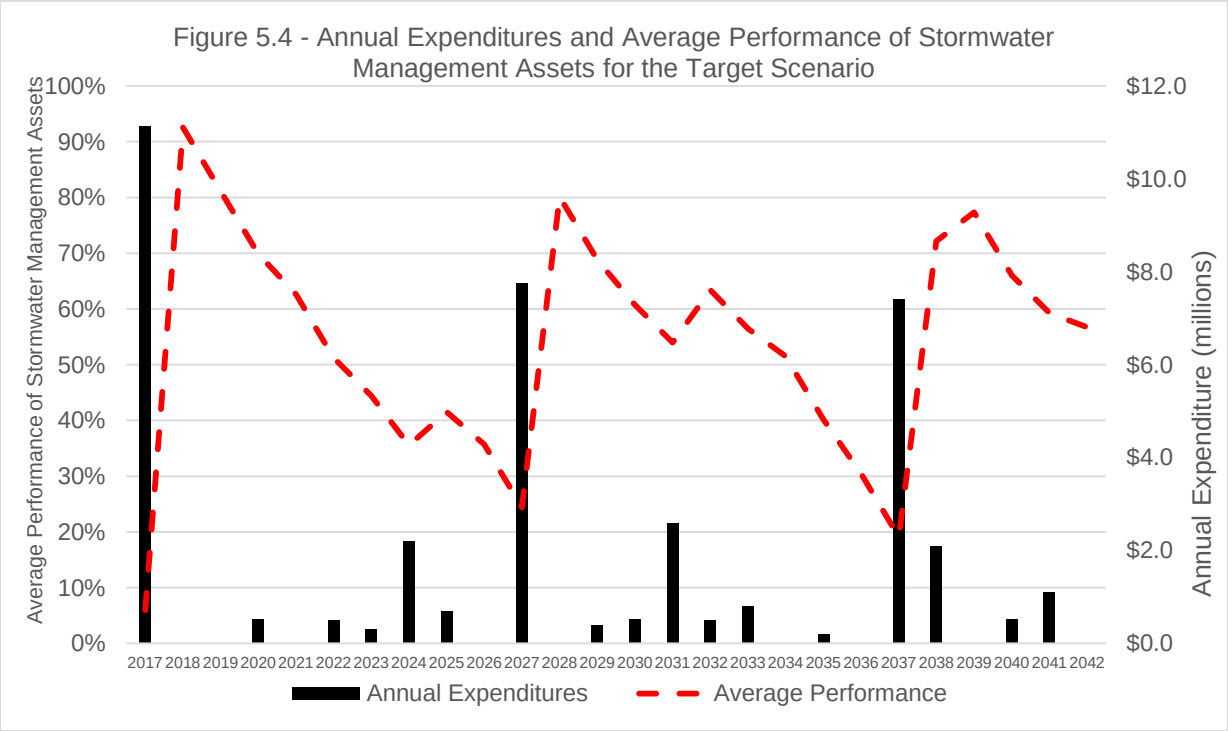


Figure 5.2 - Annual Expenditures and Average Performance of Stormwater Management Assets for the Budget Scenario
Average Performance of Stormwater Management Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
$12.0
$10.0
$8.0
$6.0
$4.0
$2.0
$0.0
Annual Expenditure (millions)
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

5.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $1.5 million per year over the next 25 years is required to achieve the target performance profile of the stormwater management assets





5.6 Summary, Discussion and Next Steps

The analysis of the stormwater management assets indicates that additional average annual expenditures of approximately $0.3 million are required to achieve the target performance profile. The low maturity of the asset information decreases the confidence in this outcome. The City has only recently started to budget to complete dredging of its stormwater management ponds, and has yet to compile a comprehensive inventory of all stormwater management asset, such as stormwater management appurtenances (inlets, outlets, fencing, etc), oil/grit separators, erosion protection infrastructure (armour stone, gabion baskets, etc.) and other stormwater drainage infrastructure (culverts, ditches, etc.).

The stormwater management master plan will provide more comprehensive and robust information to establish the capital expenditures that are required to achieve the target performance of the stormwater management assets.

6. Asset Group: Facilities

6.1 What do we own?

The facilities network is comprised of approximately 123,371 square meters of floor area. The total replacement value of the facilities is approximately $267 million.

6.2 What are our current rehabilitation or replacement strategies?

Facilities are typically rehabilitated through the replacement or refurbishment of individual components or groups of components. Each component has an industry accepted estimated service life that is combined with observations of the condition of each component during site investigations and a target condition for the respective component to project the required expenditures. Individual components are replaced when they reach a condition performance score of 0%.

6.3 What is the maturity of the facility data?

The maturity of the facility data is considered to be high for the purposes of operationalizing asset management processes. The maturity is considered to be above average with respect to similar municipalities in Canada.

6.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 23% of facility components that are poor or very poor condition. The budgeted capital expenditures of approximately $2 million per year will result in a decline in the condition profile of the facility assets over the next 25 years to a level which is anticipated to not be acceptable to most stakeholders.

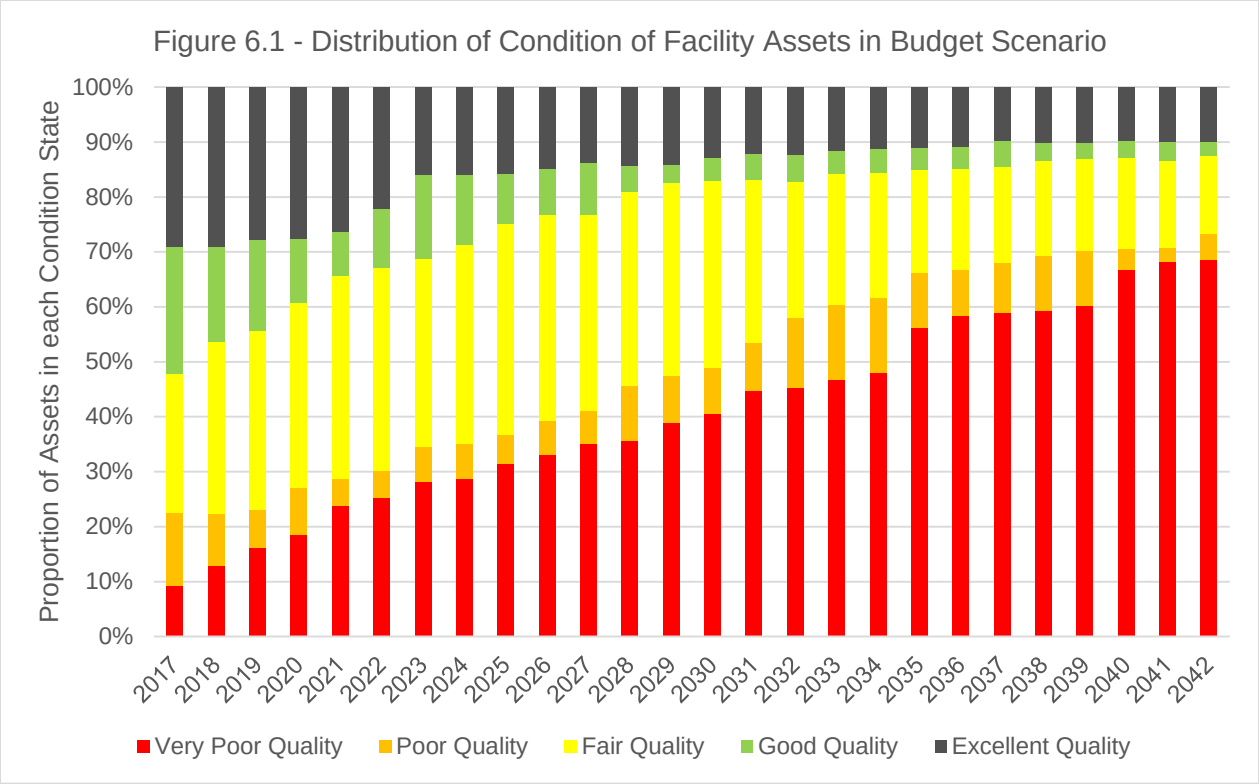


Figure 6.1 - Distribution of Condition of Facility Assets in Budget Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

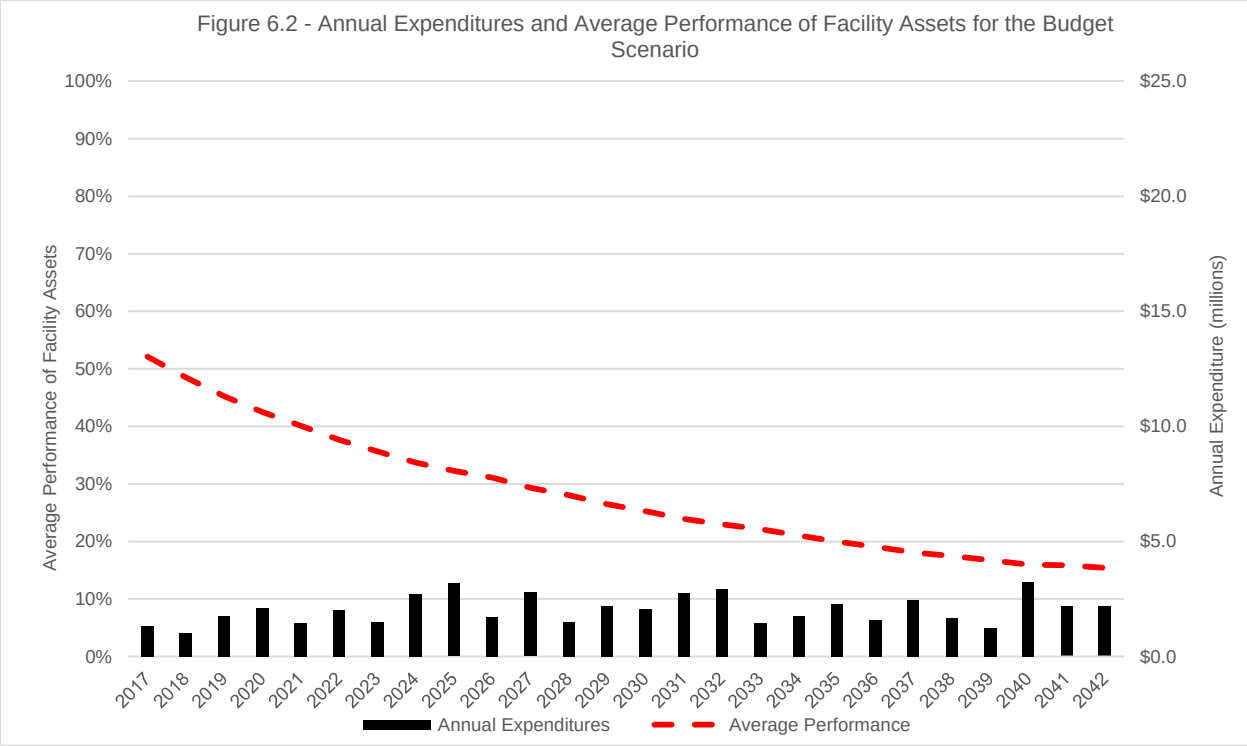
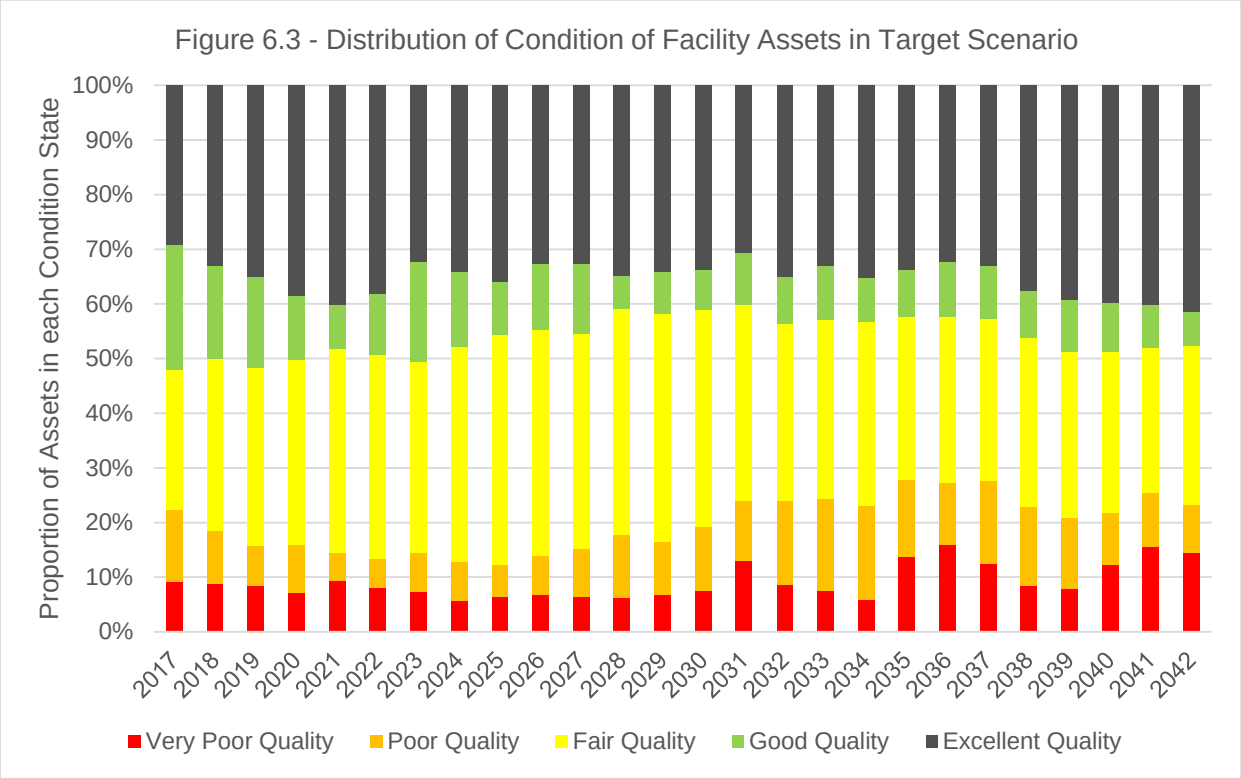
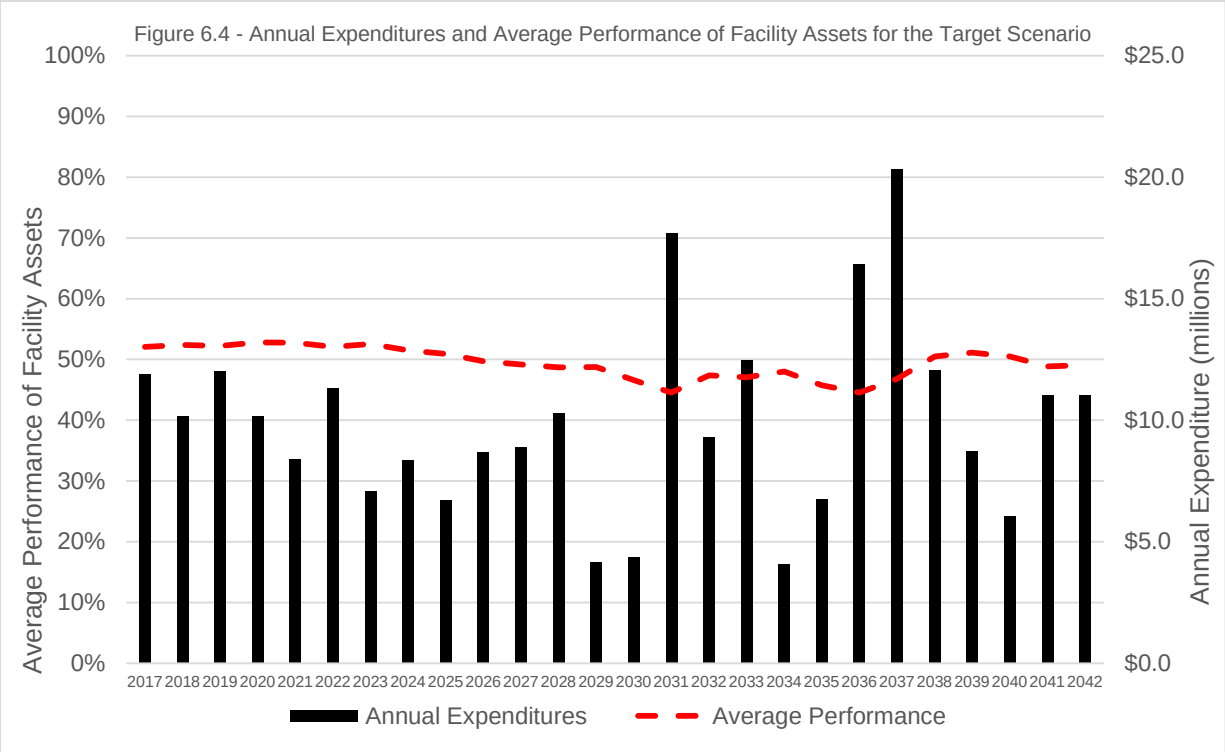


Figure 6.2 - Annual Expenditures and Average Performance of Facility Assets for the Budget Scenario
Average Performance of Facility Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Annual Expenditure (millions)
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

6.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $9.9 million per year over the next 25 years is required to achieve the target condition profile of the facility assets.





6.6 Summary, Discussion and Next Steps

The analysis of the facility assets indicates that additional average annual expenditures of approximately $7.9 million are required to achieve the target performance profile. There is a relatively high confidence in this identified expenditure gap as it is generated from facility data that has a high maturity level, including comprehensive asset inventories and a strong industry-standard understanding of how facility components degrade over time.

Over the next year, staff will be using the analytical system to help confirm the performance target for different types of components and different categories of facilities. Other considerations like the divestment of some facilities that have accumulated a large backlog of required expenditures will also help develop strategies to mitigate the funding shortfall. The analytical system can also be used to help quantify the return on investment for completing facility improvements that result in more efficient buildings and reduce annual operating costs.

The following points summarize some of the next steps for the facility assets:

- Next year – The City is working to prepare revised estimated useful lives of the components in the asset inventory and are reviewing the replacement costs of each component to ensure it reflects the practical volume of work that it would take to effectively address a poorly performing component. Both of these adjustments can be incorporated into the analytical system to improve the understanding of the required expenditures that are generated by the analytical system.
- 1 to 5 years – The information provided by assessors during their routine assessments needs to be better aligned with identifying specifically what needs to be done at each facility. The process of assigning a priority/condition score to each component does provide some information that is useful for incorporation into the analytical system, but the addition of a 25 year renewal plan for each facility would be a better approach to more confidently understand the required expenditures.

7. Asset Group: Parks

7.1 What do we own?

There are approximately 134 parks of varying sizes across the City, ranging from small parkettes to large neighbourhood parks. The total replacement value of the parks assets is approximately $60 million.

7.2 What are our current rehabilitation or replacement strategies?

Park assets are replaced when they fall below the target condition for the respective component. In general, components with a higher consequence of failure (playgrounds, structures, etc.) have a better target condition performance than those with a lower consequence of failure (i.e. benches, fields, etc.).

The following table summarizes the target condition performance for different types of parks components.

Component Type	**Performance Target**
Playgrounds, Structures	Rehabilitate or replace when condition performance falls below 60%.
Community rinks and baseball diamond fencing	Rehabilitate or replace when condition performance falls below 40%.
Fencing and utilities	Rehabilitate or replace when condition performance falls below 20%.
All other components	Rehabilitate or replace when condition performance falls below 0%.

7.3 What is the maturity of the parks data?

The maturity of the parks data is considered to be low for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

7.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 45% of parks assets that are poor or very poor condition. The budgeted capital expenditures of approximately $0.4 million per year will result in a decline in the condition profile of the parks assets over the next 25 years to a level which is anticipated to not be acceptable to most stakeholders.

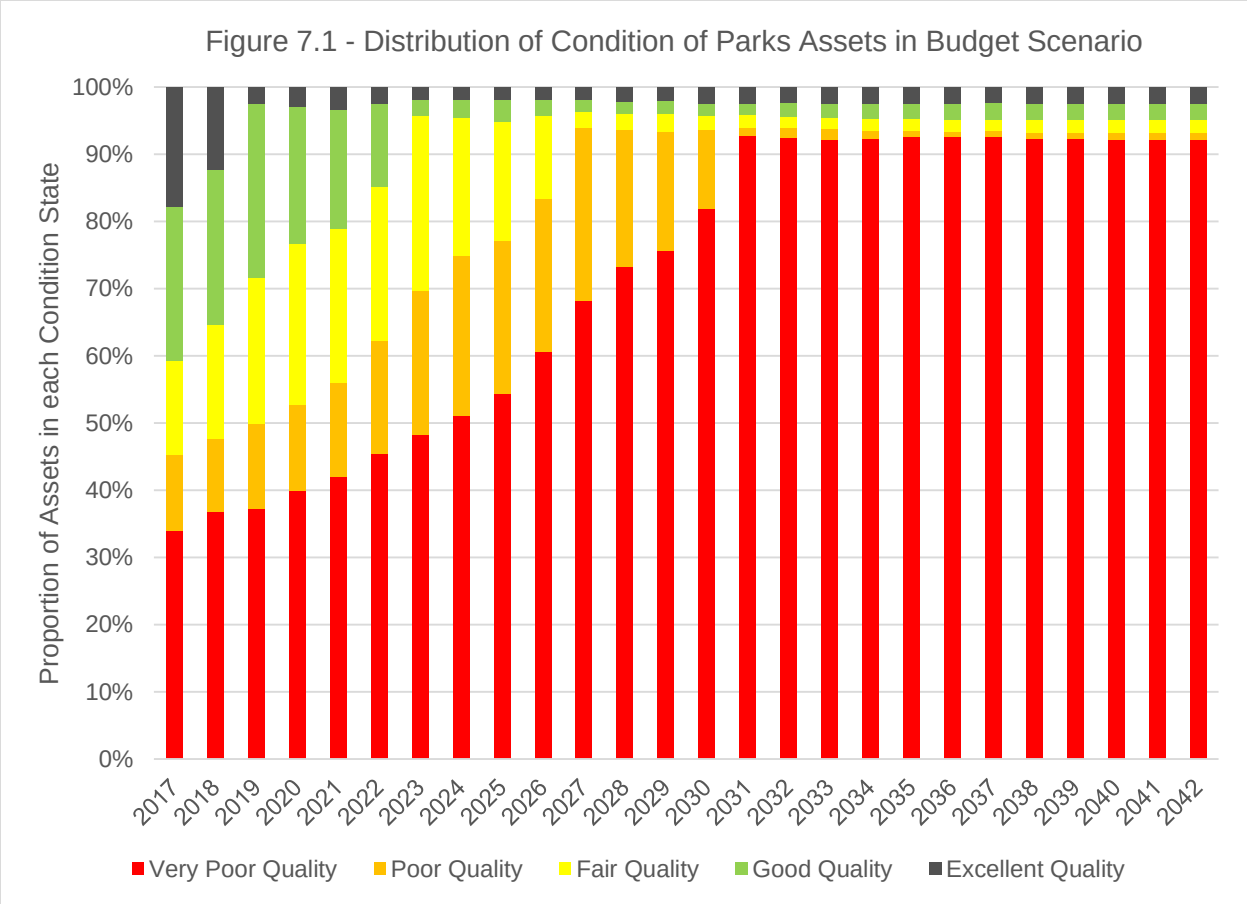


Figure 7.1 - Distribution of Condition of Parks Assets in Budget Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

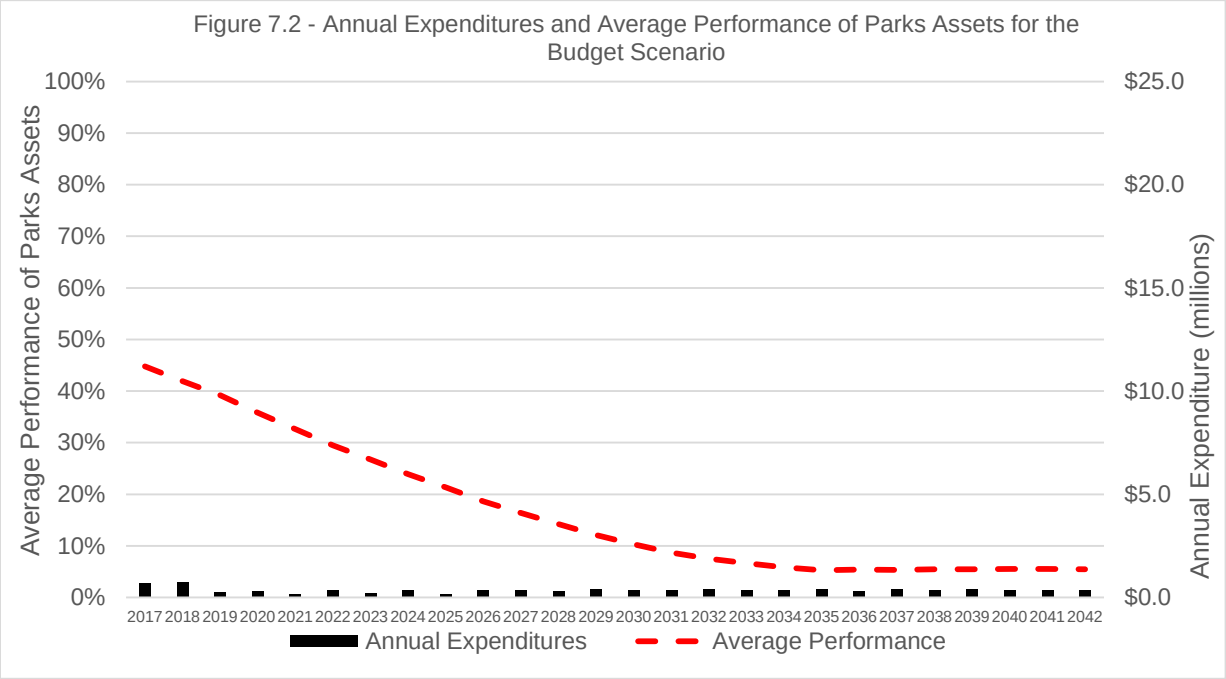
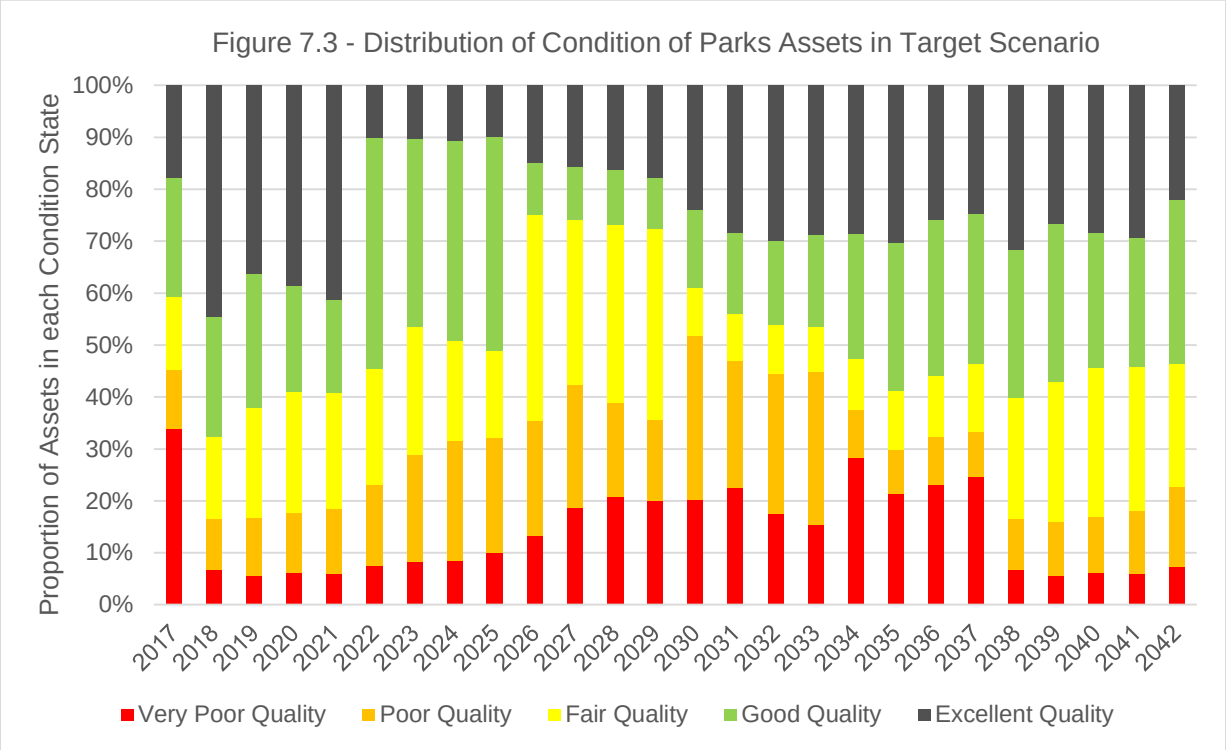
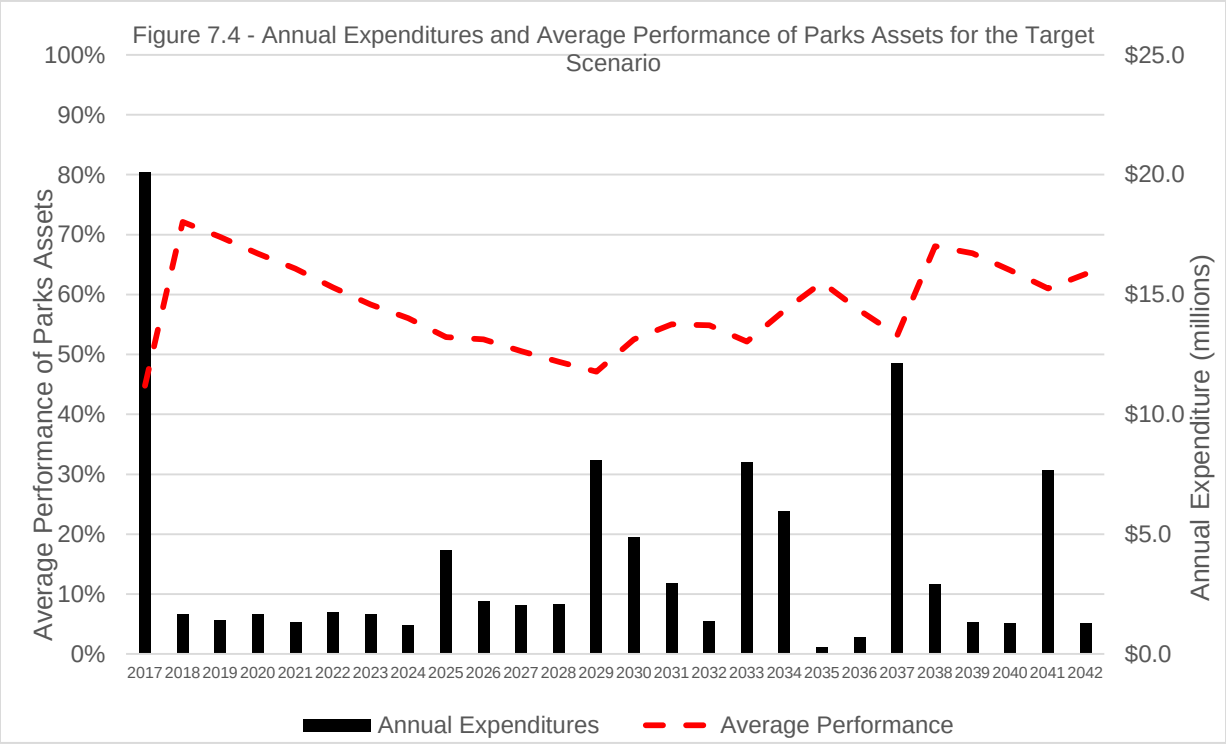


Figure 7.2 - Annual Expenditures and Average Performance of Parks Assets for the Budget Scenario
Average Performance of Parks Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
Annual Expenditure (millions)
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

7.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $3.9 million per year over the next 25 years is required to achieve the target condition profile of the parks assets.





7.6 Summary, Discussion and Next Steps

The analysis of the parks assets indicates that additional average annual expenditures of approximately $3.5 million are required to achieve the target performance profile. The low maturity of the asset information decreases the confidence in this outcome, as there is limited asset inventories or established lifecycle management strategies for the parks assets. However, there is consensus from all internal stakeholders that increased annual expenditures are required to maintain the parks assets at a level that is acceptable to most stakeholders.

Over the next year staff will be developing a comprehensive inventory of all parks assets in a format that supports the operationalization of the data into the analytical system.

8. Asset Group: Forestry

8.1 What do we own?

There are approximately 30,000 street trees in Waterloo. The total replacement value of the forestry assets is approximately $6 million.

8.2 What are our current rehabilitation or replacement strategies?

Street trees are removed and replaced when they reach the end of their useful life (i.e. reach a condition performance of 0%). The useful life can vary widely depending on the species of tree and location in the road right-of-way.

8.3 What is the maturity of the forestry data?

The maturity of the forestry data is considered to be high for the purposes of operationalizing asset management processes. The maturity is considered to be above average with respect to similar municipalities in Canada.

8.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

The City typically uses operating funds to pay for the removal and replacement of street trees. The City's subject matter experts generally feel the resources that have been budgeted to maintain the street tree assets will result in an acceptable condition profile that is anticipated to be acceptable to most stakeholders.

8.5 Target Performance and Required Expenditures

As described above, the current budgeted expenditures are expected to be in the general range that is required to achieve the target performance of the street trees.

8.6 Summary, Discussion and Next Steps

The outcomes of the analytical system indicate that the current planned expenditures are in the general range that is required to achieve the target condition profile of the forestry assets. The maturity of the forestry data is considered to be industry-leading, and is capable of supporting advanced asset management activities such as understanding the return on investment of proactively maintaining tree or the impact of incorporating low impact development practices on the expected useful life of a street tree.

Over the next year, staff will be refining the estimated service life and full cost to remove and replace a street tree that are operationalized in the analytical system.

9. Asset Group: Parking

9.1 What do we own?

There are 17 parking lots and 1 parkade in the City. The total replacement value of the parking assets is approximately $10 million.

9.2 What are our current rehabilitation or replacement strategies?

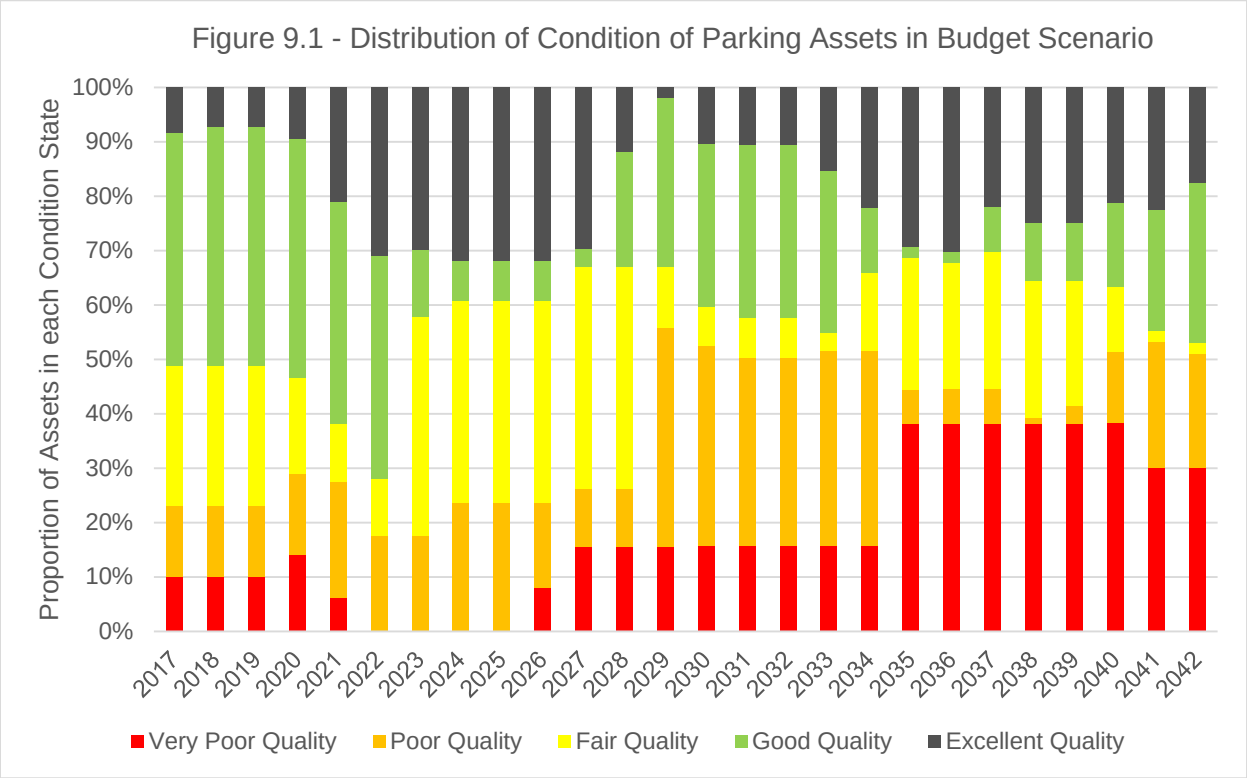
- Parking lots are resurfaced when they reach the end of their useful life, or reach a condition performance score of 0%.
- The parkade is managed like a facility, where individual components are refurbished or replaced as they reach the end of their respective useful life (i.e. reach a condition performance score of 0%).

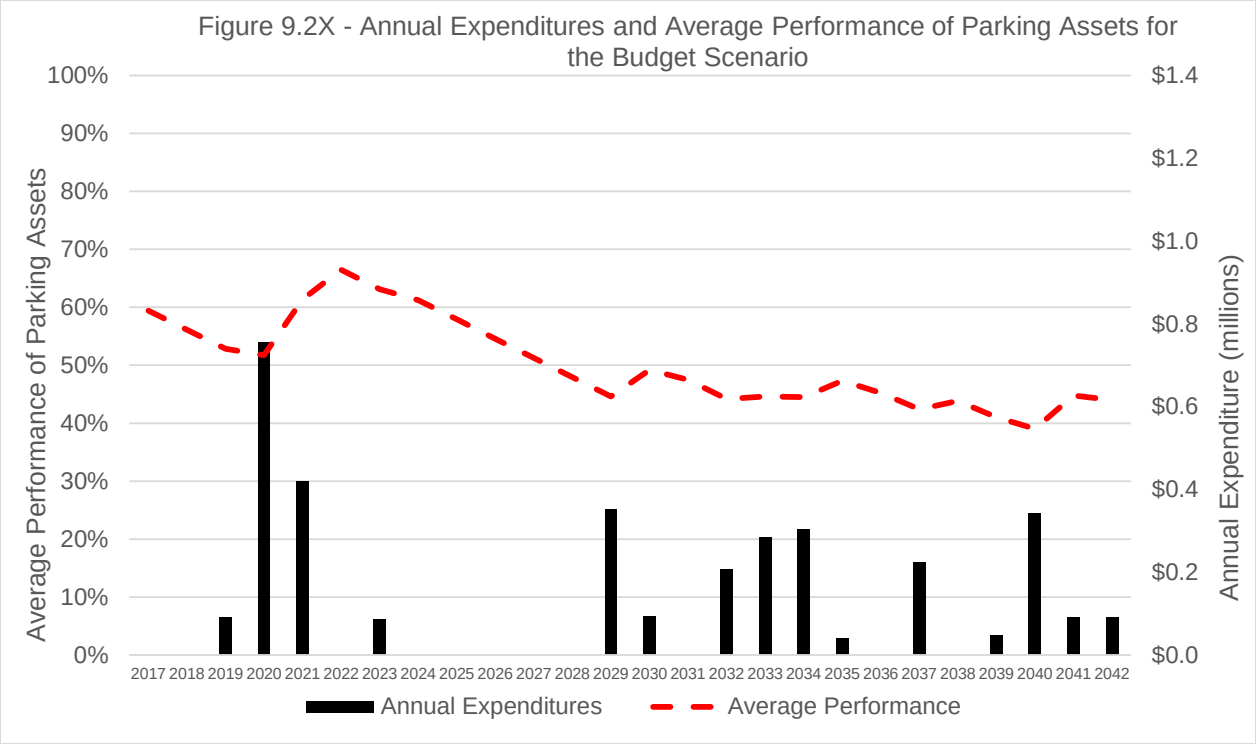
9.3 What is the maturity of the parking data?

The maturity of the parking data is considered to be high for the purposes of operationalizing asset management processes. The maturity is considered to be above average with respect to similar municipalities in Canada.

9.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

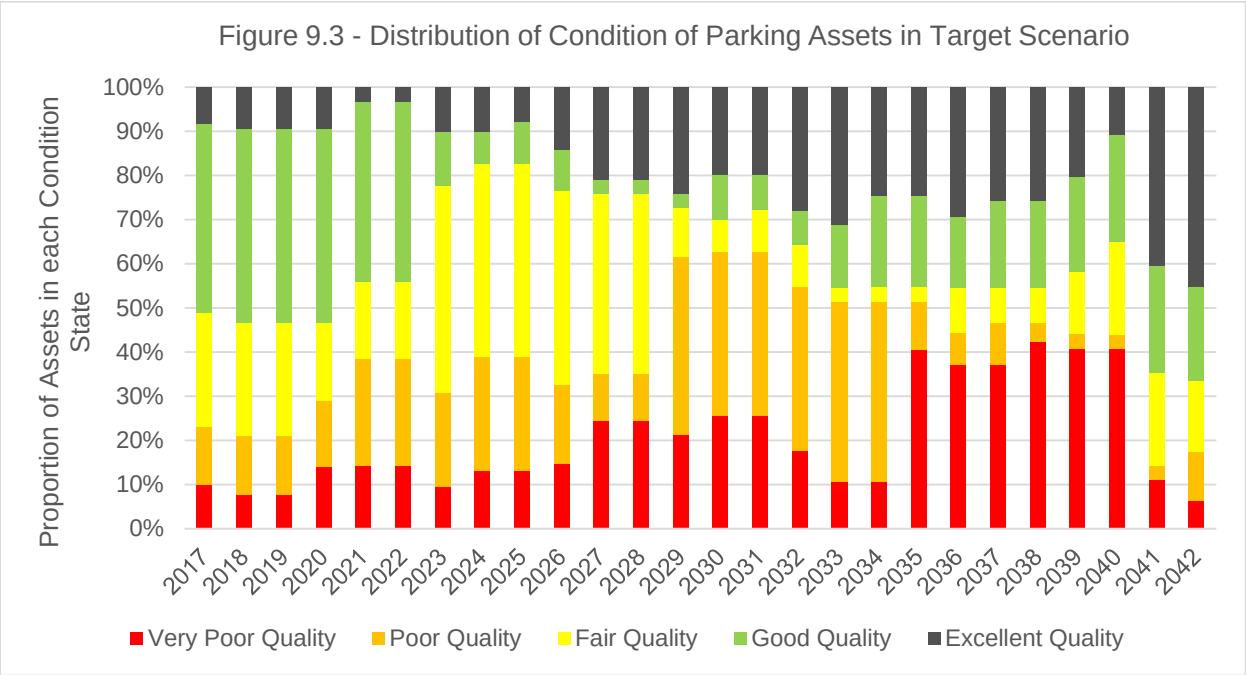
There are currently around 25% of parking assets that are poor or very poor condition. The budgeted capital expenditures of approximately $0.13 million will result in a relatively stable condition profile of the parking assets over the next 25 years.

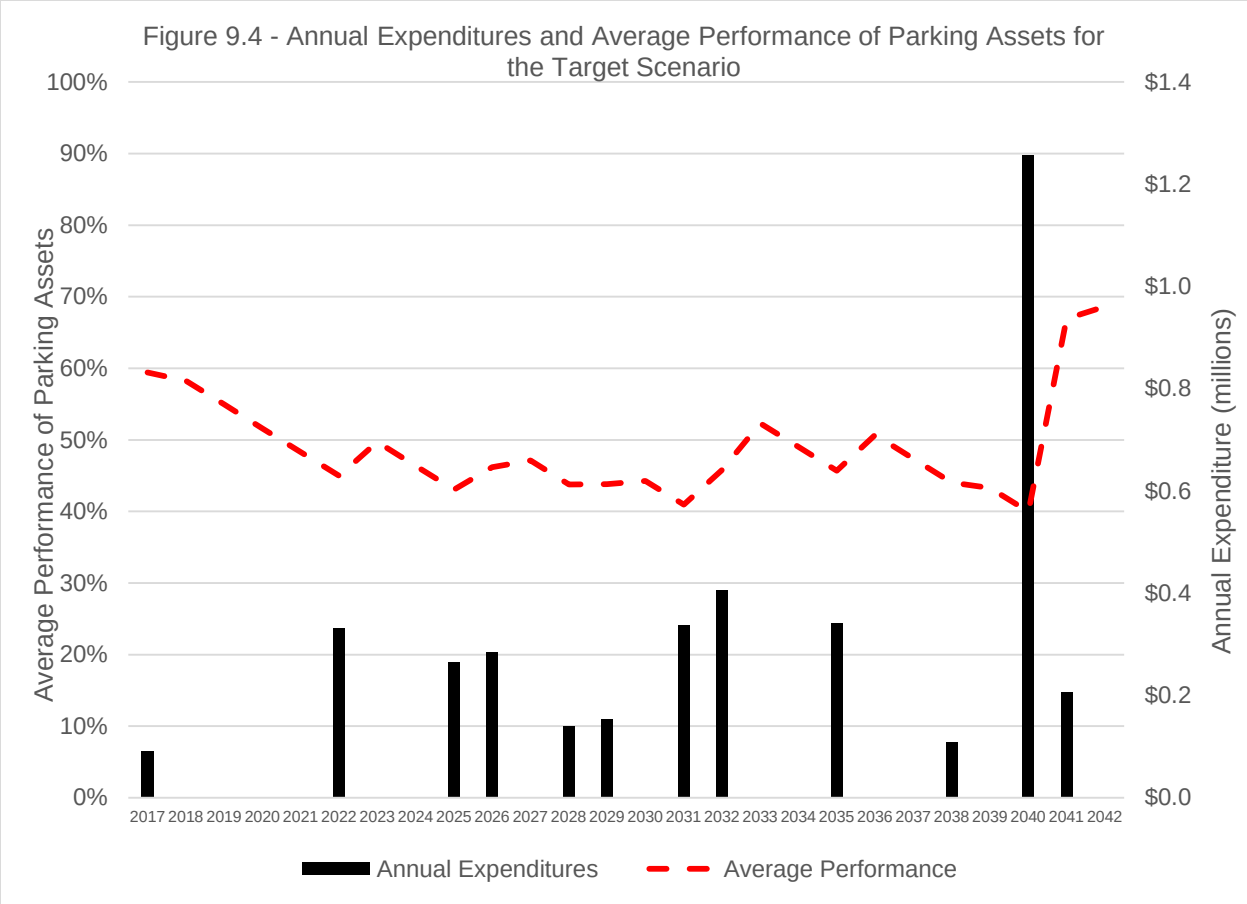




9.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $0.15 million per year over the next 25 years is required to achieve the target condition profile of the parking assets.





9.6 Summary, Discussion and Next Steps

The outcomes of the analytical system indicate that the budgeted capital expenditures for the parking assets are in the range that is required to achieve the target condition profile. There is a high level of maturity of parking data. Over the next year staff will be confirming the current condition of each parking lot through visual assessments, which will further increase the maturity of the asset data. Over the medium term, the number of parking spaces in each lot will be captured in the asset data which will support future analysis on the plans to increase the number of parking spots across the City.

10. Asset Group: Fleet

10.1 What do we own?

The City owns approximately 300 fleet assets, ranging from small vehicles to large winter maintenance vehicles. The total replacement value of the fleet assets is approximately $15 million.

10.2 What are our current rehabilitation or replacement strategies?

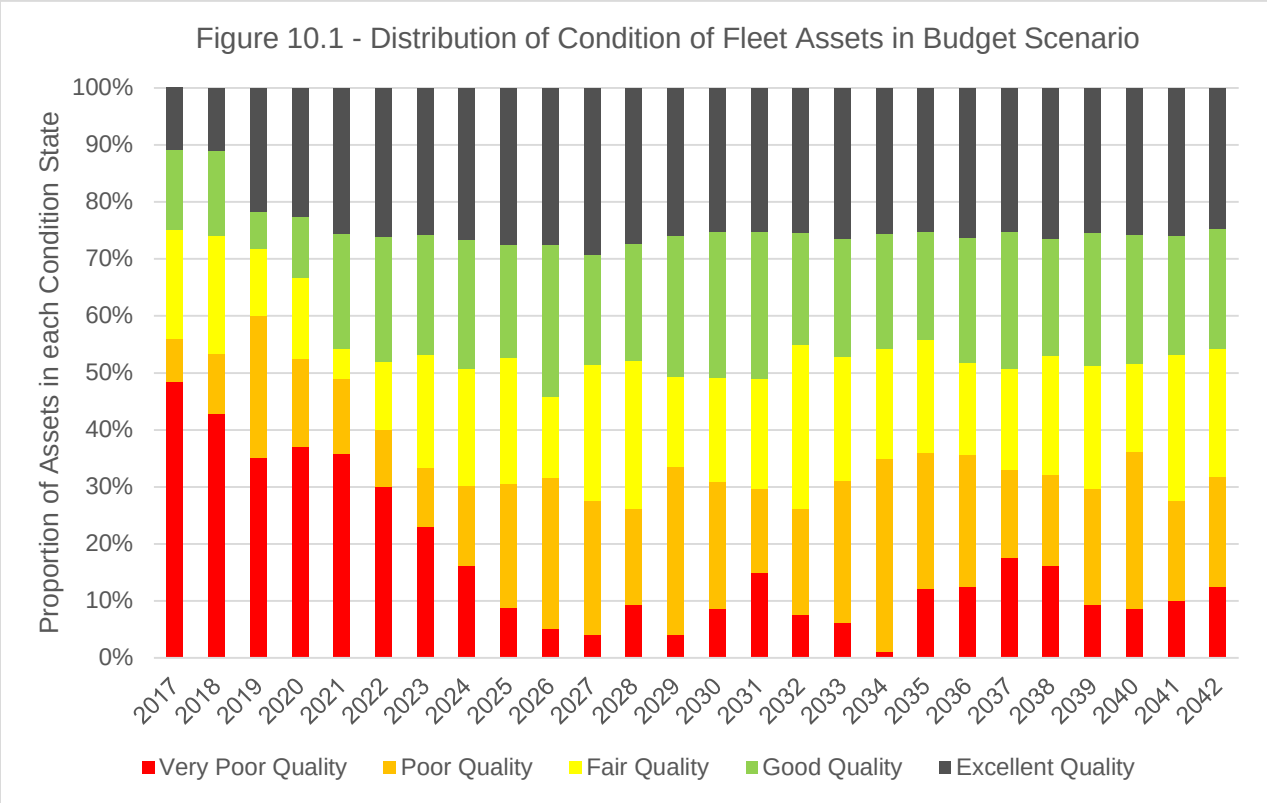
Fleet assets are replaced when they reach the end of their useful life (i.e. reach a performance score of 0%). The estimated service life ranges between 4 years and 15 years depending on the type of vehicle.

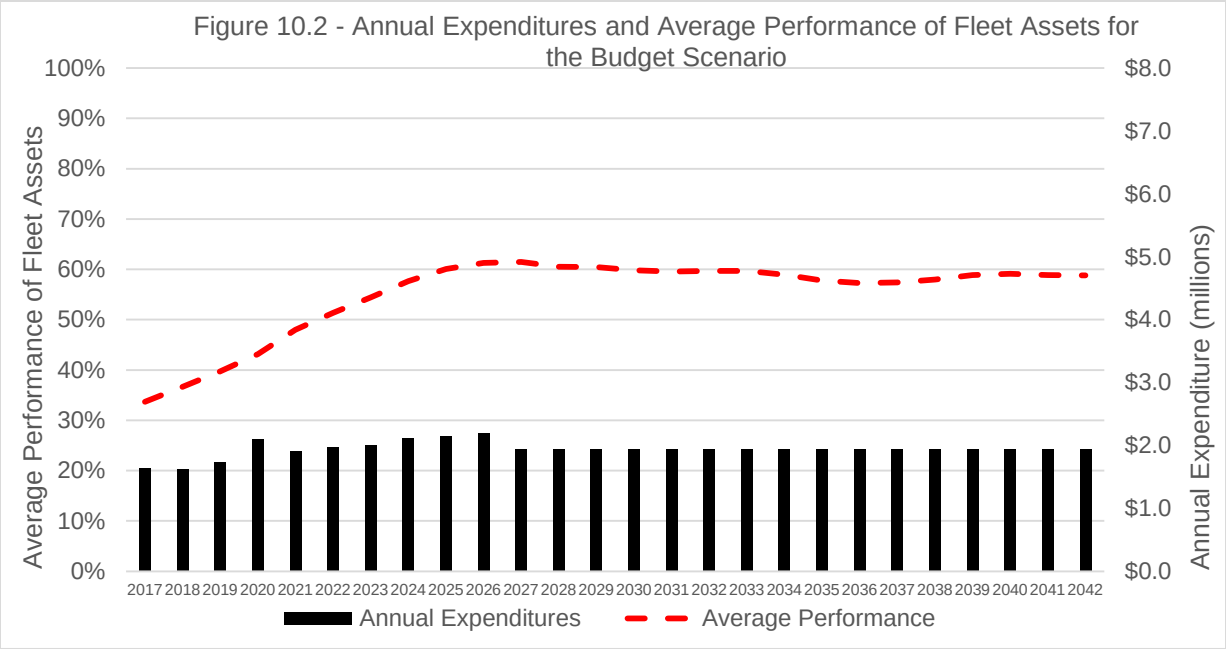
10.3 What is the maturity of the fleet data?

The maturity of the fleet data is considered to be high for the purposes of operationalizing asset management processes. The maturity is considered to be above average with respect to similar municipalities in Canada.

10.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

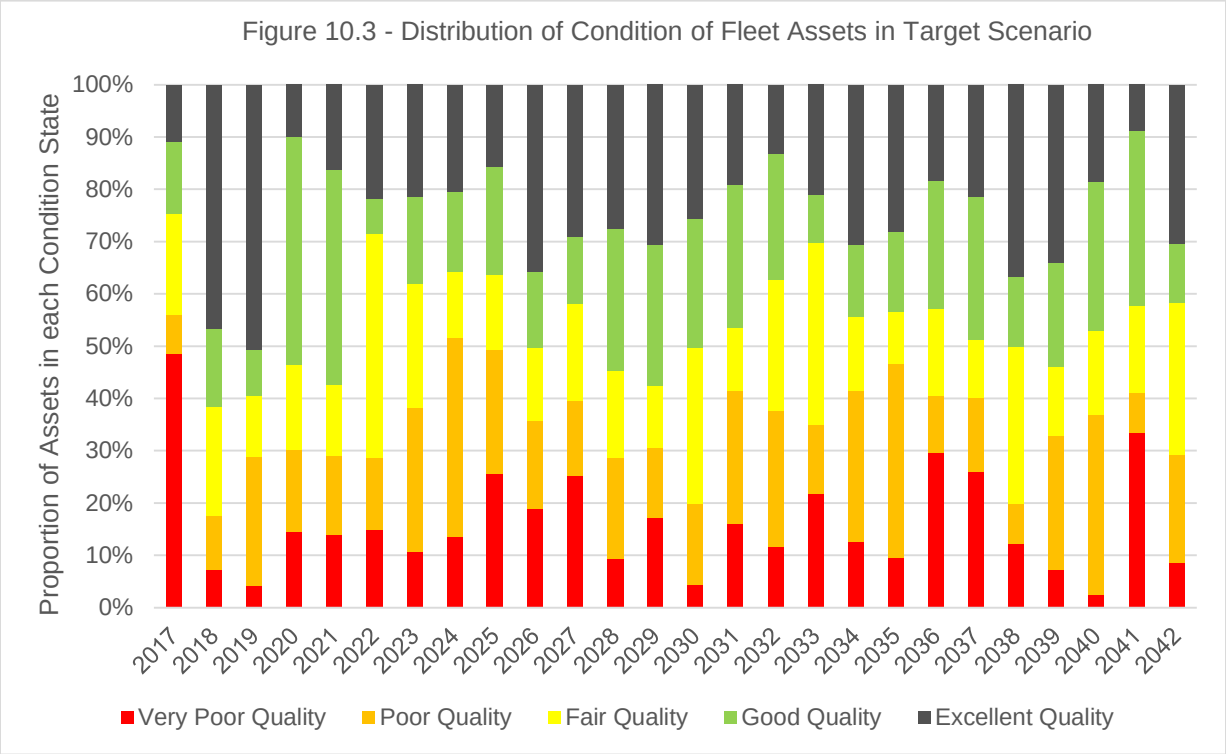
There are currently around 55% of fleet assets that are poor or very poor condition (i.e. have a performance score of less than 40%). The budgeted capital expenditures of approximately $1.9 million will result in an increase in the condition profile of the fleet assets over the next 25 years to a level which is anticipated to be acceptable to most stakeholders.

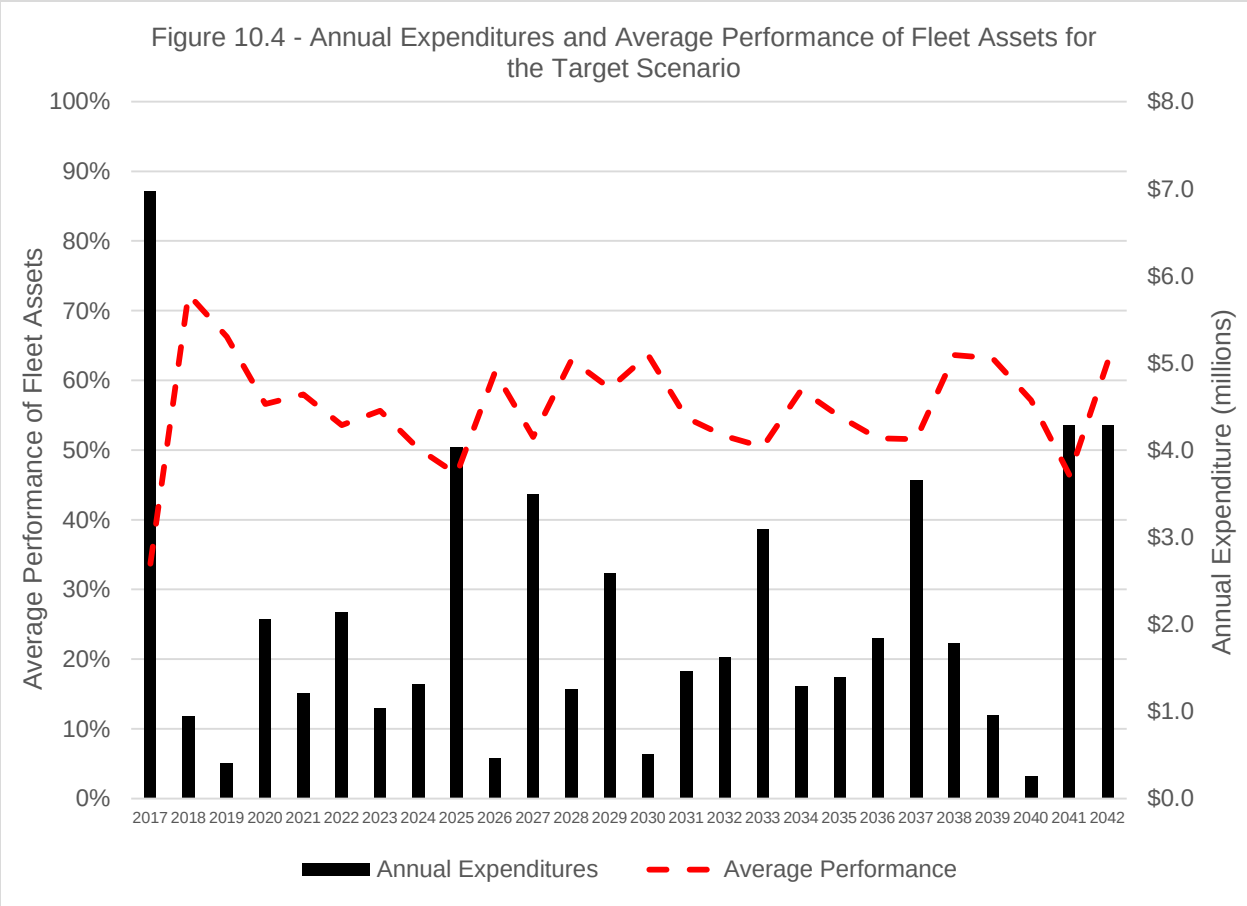




10.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $2.1 million per year over the next 25 years is required to achieve the target condition profile of the fleet assets.





10.6 Summary, Discussion and Next Steps

The outcomes of the analytical system indicate that budgeted capital expenditures for the fleet assets are in the range that is required to achieve the target condition profile. There is a high level of maturity of fleet data. Over the short to medium term, staff will be completing a detailed review of the maintenance management history of the fleet assets to help understand how mileage, hours of operation or historic maintenance costs can be used to establish the performance of the assets and the planning for when each fleet asset is replaced.

11. Asset Group: Fire Services

11.1 What do we own?

The fire services asset is comprised of over 1,600 small pieces of equipment and approximately 30 vehicles ranging from large fire apparatus to small vehicles. The total replacement value of the fire services asset is approximately $8 million. It should be noted that the fire stations are captured under the facilities asset group.

11.2 What are our current rehabilitation or replacement strategies?

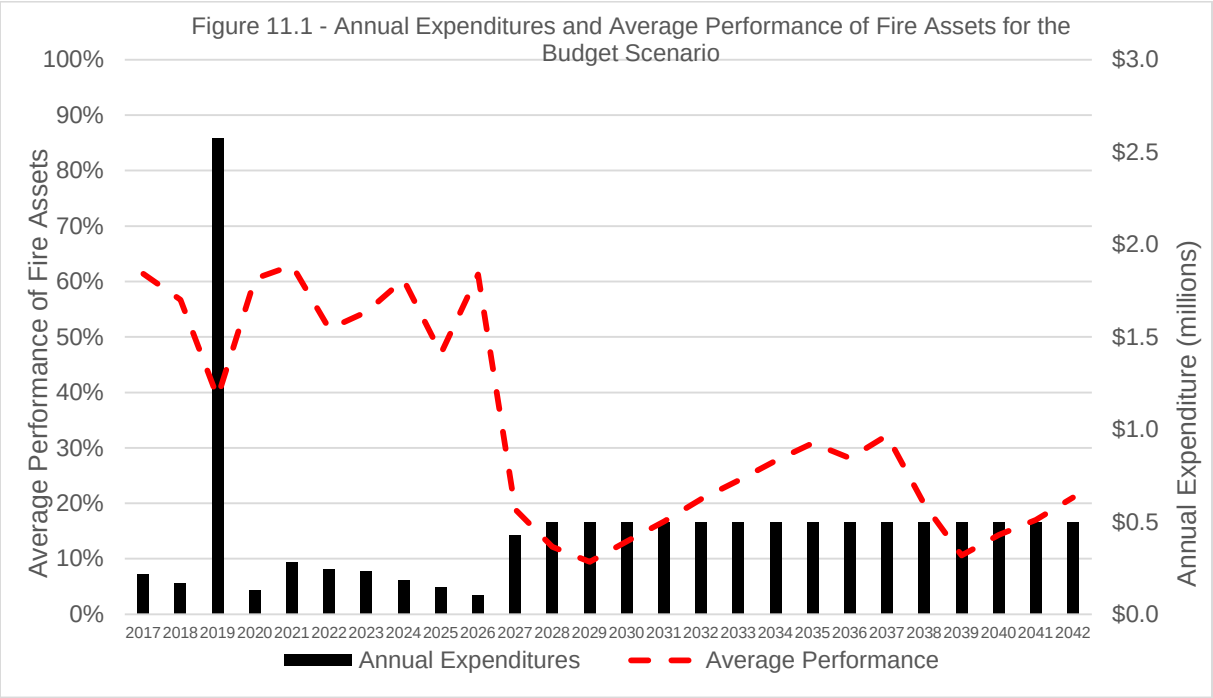
- Fire equipment is replaced when it reaches the end of its useful life (i.e. a condition performance score of 0%).
- Fire vehicles and apparatus are replaced in accordance with the best judgement of fire services staff based on age, functionality and utilization records.

11.3 What is the maturity of the fire services data?

The maturity of the fire services data is considered to be medium for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

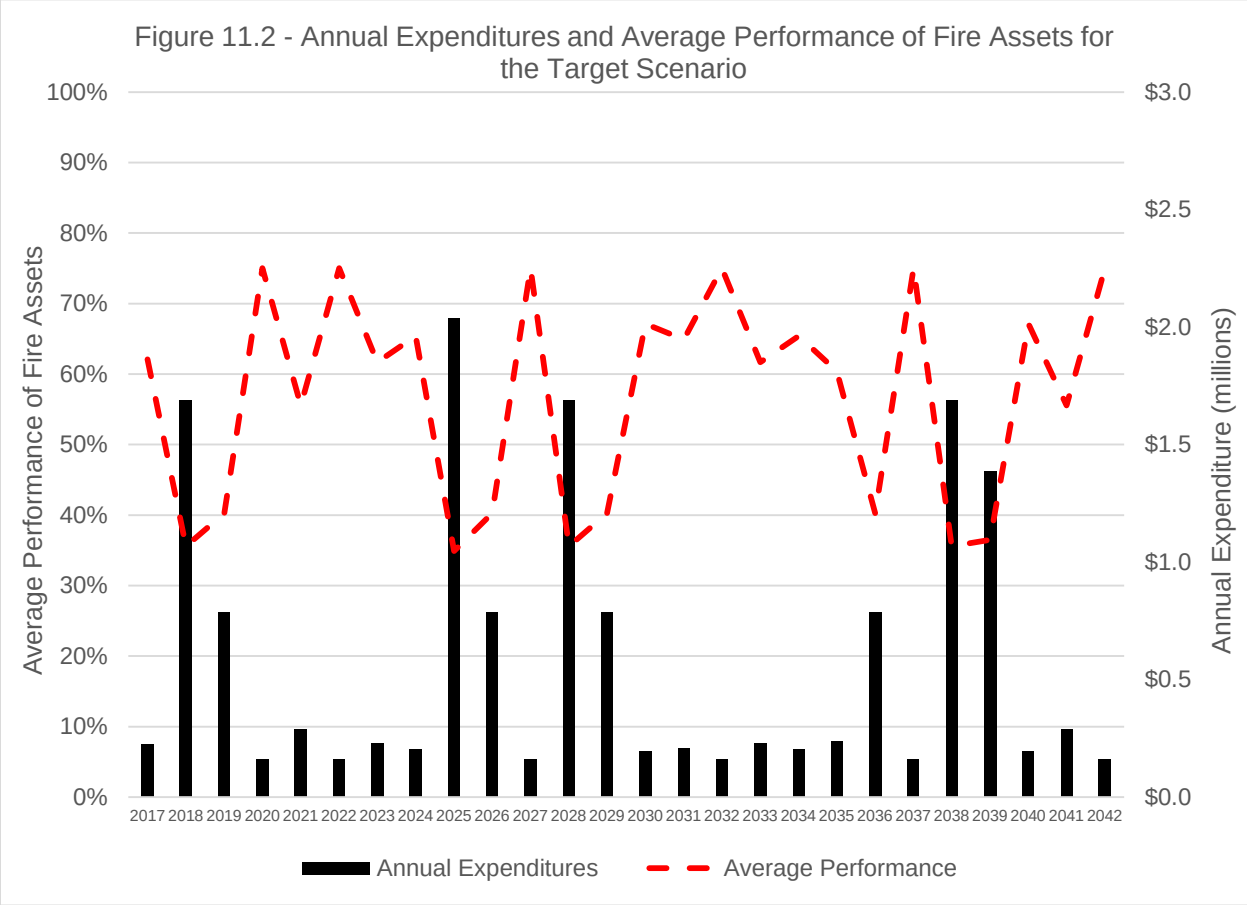
11.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There average performance of the fire services asset is approximately 60%. The average annual budgeted capital expenditures of approximately $0.4 million will result in a decline in the average condition of the fire assets over the next 25 years to a level which is anticipated to not be acceptable to most stakeholders.



11.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $0.6 million per year over the next 25 years is required to achieve the target condition of the fire services assets.



11.6 Summary, Discussion and Next Steps

The outcomes of the analytical system indicate that additional capital expenditures of approximately $0.2 million per year are required to achieve the target performance profile of the fire services assets. There is a medium level of maturity of fire services data. Over the short to medium term, staff will be refining the inventory of fire equipment assets to enable them to be operationalized within the analytical system.

12. Asset Group: Furniture and Fixtures

12.1 What do we own?

There are over 10,000 small pieces of furniture and fixtures in the City's recreation and administrative facilities. The current best estimate of the replacement value of the furniture and fixtures assets is approximately $2 million.

12.2 What are our current rehabilitation or replacement strategies?

Furniture and fixtures assets are replaced when they fall below the target condition for the respective component. In general, components with a higher consequence of failure (equipment that supports revenue-generating activities, health and safety equipment, etc.) have a better target condition performance than those with a lower consequence of failure (i.e. workstation partitions).

The following table summarizes the target condition performance for different types of furniture and fixtures.

Component Type	**Performance Target**
Audio/Visual fixtures in arenas and recreation facilities	Rehabilitate or replace when condition performance falls below 40%.
Seating and other furniture used in recreation facilities	Rehabilitate or replace when condition performance falls below 20%.
All other furniture and fixtures	Rehabilitate or replace when condition performance falls below 0%.

12.3 What is the maturity of the furniture and fixtures data?

The maturity of the furniture and fixture data is considered to be low for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

12.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

The quality of the furniture and fixtures data is not adequate to draw conclusions with respect to the impact of current proportion of assets that are poor or very poor condition, or the impact of the budgeted capital expenditures on the condition profile of the furniture and fixture assets over the next 25 years.

12.5 Target Performance and Required Expenditures

The quality of the furniture and fixtures data is not adequate to draw conclusions with respect to the required expenditures to achieve the target condition profile.

12.6 Summary, Discussion and Next Steps

The quality of the furniture and fixtures data needs to be improved before the analytical system can be used to draw conclusions with respect to the impact of the budgeted expenditures or the required expenditures to achieve the target condition profile. This is primarily due to a lack of a centralized inventory of assets that can be operationalized for asset management planning purposes.

However, the analysis of the available asset and budget information does suggest that additional expenditures will be required to achieve the target condition profile of the furniture and fixture assets. This is corroborated by the current best understanding of staff who manage and maintain these assets.

Over the next year staff will be preparing a comprehensive inventory of all furniture and fixtures that support the provision of services at facilities or parks. This will provide a high maturity of asset information for including in future refinements to the analytical system.

13. Asset Group: Information Technology

13.1 What do we own?

There are approximately 1,500 information management and technology services (IMTS) related assets owned by the City, ranging from desktop computers to fibre optic infrastructure. The total replacement value of the IMTS assets is approximately $3 million.

13.2 What are our current rehabilitation or replacement strategies?

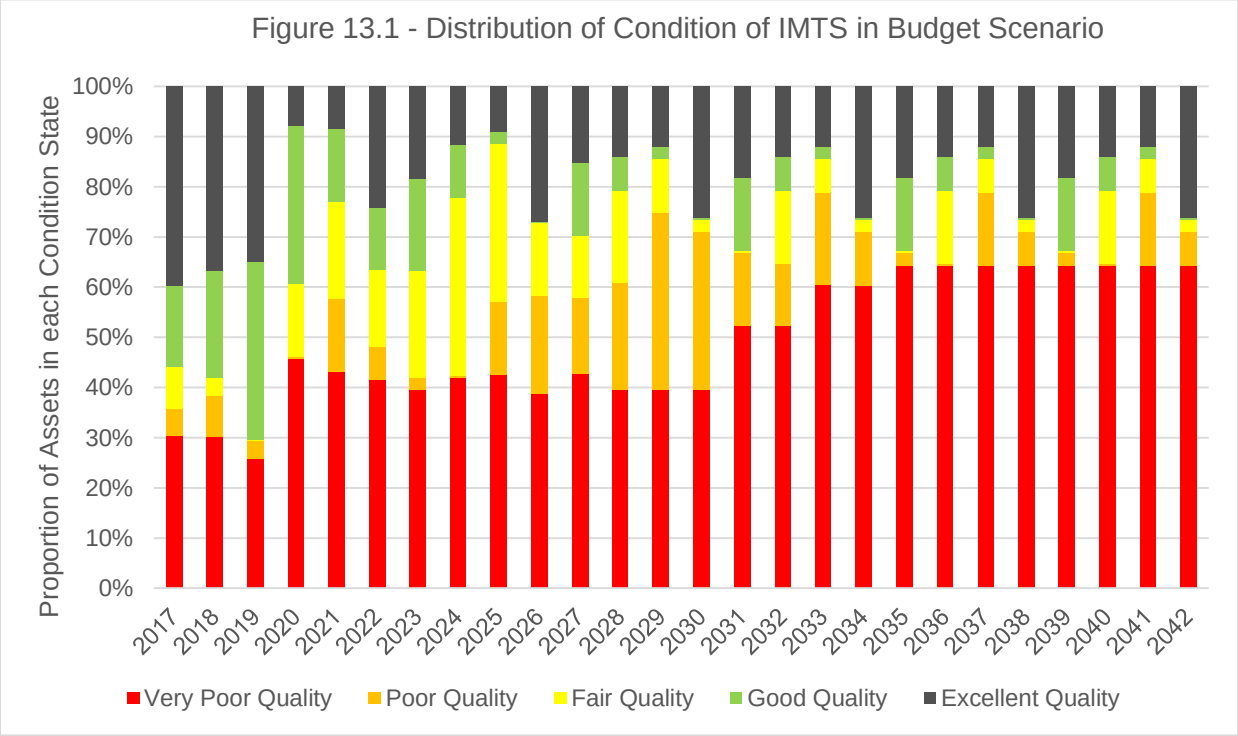
IMTS assets are replaced when they reach the end of their useful life (i.e. reach a condition performance score of 0%). The estimated service life ranges between 1 and 5 years for software and hardware assets, and 25 years for fibre optic infrastructure assets.

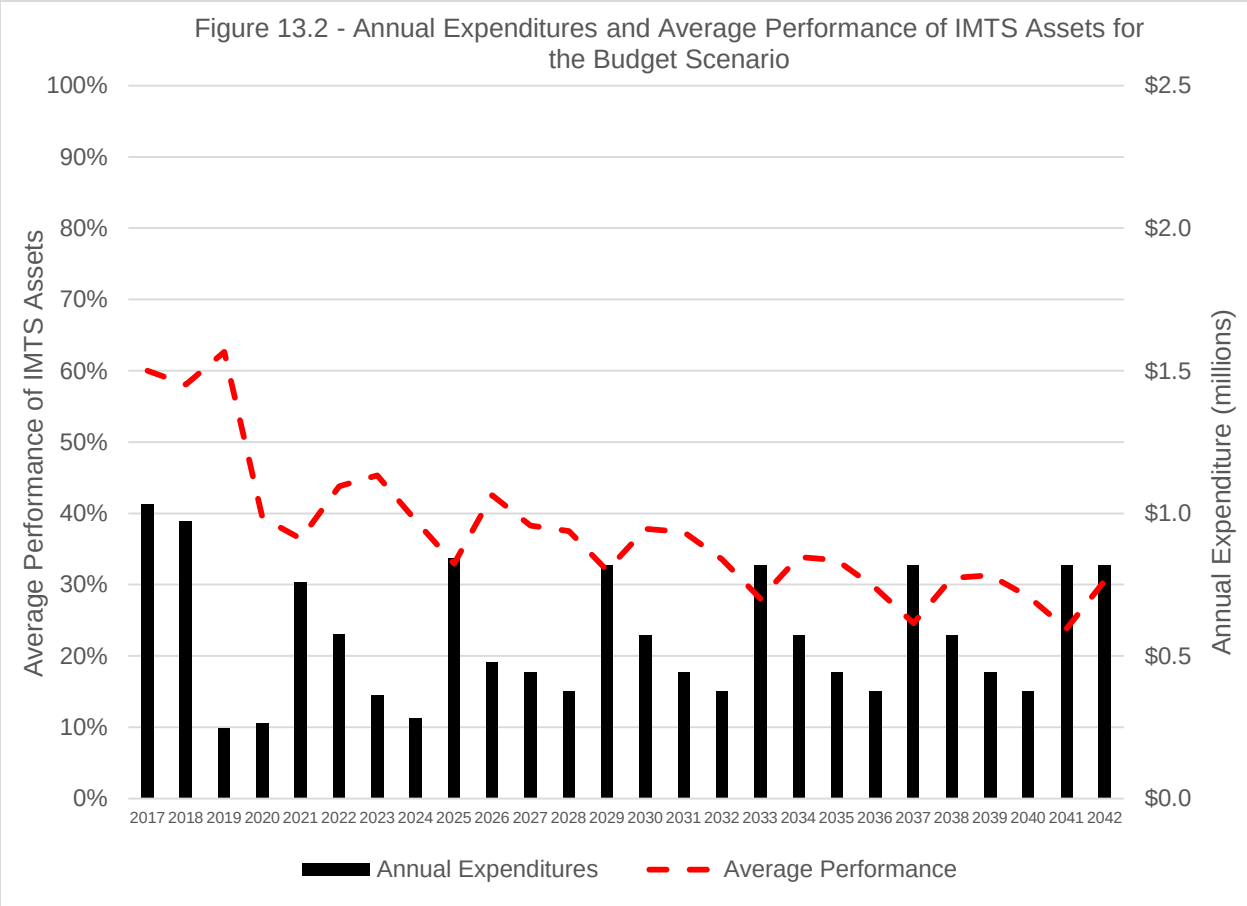
13.3 What is the maturity of the IMTS data?

The maturity of the IMTS data is considered to be medium for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

13.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

There are currently around 35% of IMTS assets that are poor or very poor condition. The average annual budgeted capital expenditures of approximately $0.6 million will result in a decline in the condition profile of the IMTS over the next 25 years to a level which is anticipated to not be acceptable to most stakeholders.





13.5 Target Performance and Required Expenditures

An average annual expenditure of approximately $1.6 million per year over the next 25 years is required to achieve the target condition profile of the IMTS.

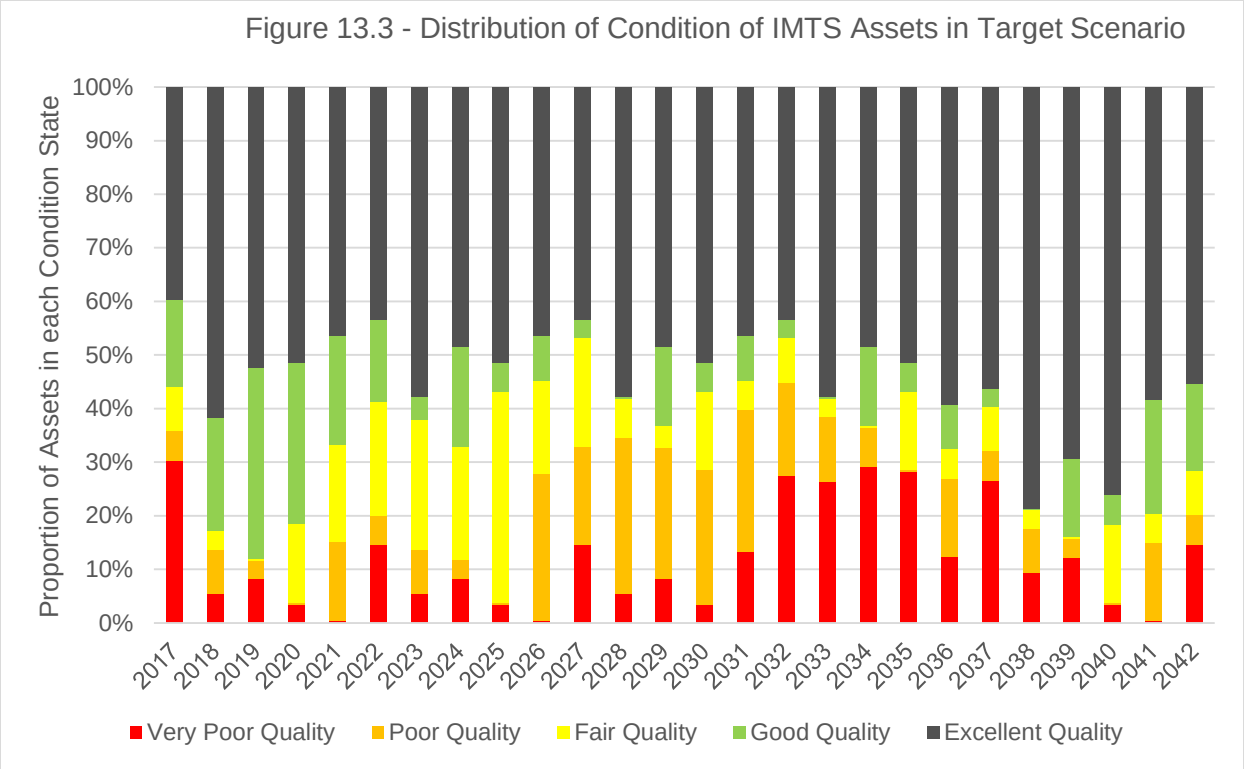


Figure 13.3 - Distribution of Condition of IMTS Assets in Target Scenario
Proportion of Assets in each Condition State
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Very Poor Quality
Poor Quality
Fair Quality
Good Quality
Excellent Quality

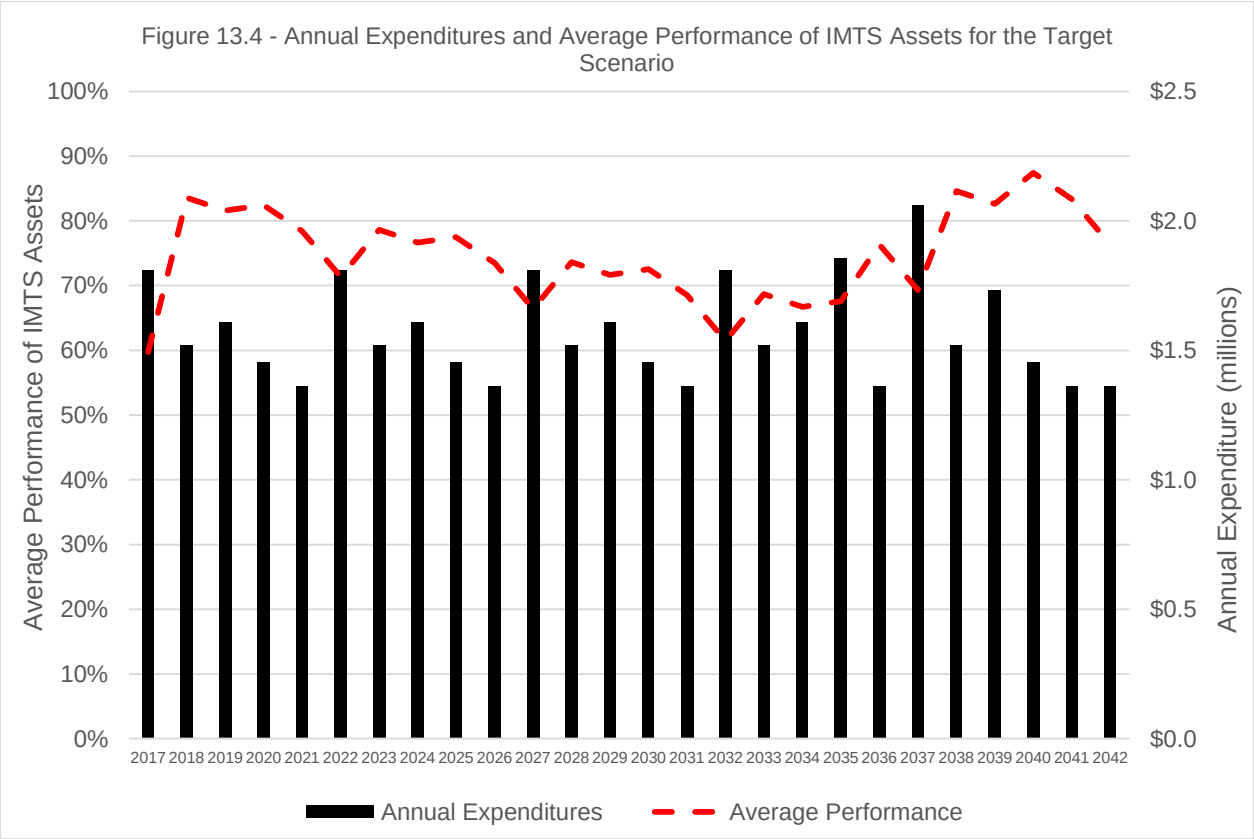


Figure 13.4 - Annual Expenditures and Average Performance of IMTS Assets for the Target Scenario
Average Performance of IMTS Assets
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Annual Expenditure (millions)
$2.5
$2.0
$1.5
$1.0
$0.5
$0.0
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Annual Expenditures
Average Performance

13.6 Summary, Discussion and Next Steps

The outcomes of the analytical system indicate that additional capital expenditures of approximately $1.0 million are required to achieve the target performance profile of the IMTS assets. There is a medium level of maturity of IMTS asset data, as there is only a comprehensive inventory of some types of assets in the IMTS portfolio. Over the next year, staff will be refining the inventory of IMTS assets to increase the maturity level of the information.

14. Asset Group: Cemeteries

14.1 What do we own?

The City owns 2 cemeteries. The current best estimate of the replacement value of the cemetery asset is approximately $2 million.

14.2 What are our current rehabilitation or replacement strategies?

Cemeteries assets are replaced when they fall below the target condition for the respective component. In general, components with a higher consequence of failure have a target condition performance than those with a lower consequence of failure. The target condition for the cemeteries asset has not been established at this time.

14.3 What is the maturity of the cemeteries data?

The maturity of the cemeteries data is considered to be low for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

14.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

The quality of the cemeteries data is not adequate to draw conclusions with respect to the impact of current proportion of assets that are poor or very poor condition, or the impact of the budgeted capital expenditures on the condition profile of the cemeteries assets over the next 25 years.

14.5 Target Performance and Required Expenditures

The quality of the cemeteries data is not adequate to draw conclusions with respect to the required expenditures to achieve the target condition profile.

14.6 Summary, Discussion and Next Steps

The quality of the cemeteries data need to be improved before the analytical system can be used to draw conclusions with respect to the impact of the budgeted expenditures or the required expenditures to achieve the target condition profile. This is primarily due to a lack of a centralized inventory of assets that can be operationalized for asset management planning purposes.

The City routinely completes/updates a cemeteries master plan. The outcomes of these studies are considered to be a more comprehensive and robust sources of information to support infrastructure-related decision making process.

Over the short to medium term, staff will be collecting a comprehensive inventory of cemetery assets. This will provide a high maturity of asset information for including in future refinements to the analytical system.

15. Asset Group: Land

15.1 What do we own?

The City owns approximately 571 land parcels.

15.2 What are our current rehabilitation or replacement strategies?

The rehabilitation of lands is completed to prepare the parcels for sale on the open market.

15.3 What is the maturity of the land data?

The maturity of the land data is considered to be medium for the purposes of operationalizing asset management processes. The maturity is considered to be average with respect to similar municipalities in Canada.

15.4 Current Performance and Projected Impact of Budgeted Capital Expenditures

The quality of the land data is not adequate to draw conclusions with respect to the impact of current proportion of assets that are poor or very poor condition, or the impact of the budgeted capital expenditures on the condition profile of the land assets over the next 25 years.

15.5 Target Performance and Required Expenditures

The quality of the land data is not adequate to draw conclusions with respect to the required expenditures to achieve the target condition profile.

15.6 Summary, Discussion and Next Steps

Land is a unique asset type in the City because it typically appreciates in value over time and plays a critical role in City-directed economic development considerations. The expenditures that are require to prepare City-owned land for its intended use will depend on a range of dynamic factors, including if the land parcel is intended to be sold on the open market or developed/redeveloped by the City. Over the short to medium term, staff will establish the intended use of each land parcel owned by the City, and whether the parcel is currently suitable for its intended use. In cases where it is not suitable, staff will establish the required expenditures to prepare the parcel to bring it to a point where it is suitable for its intended use.

City of Waterloo Asset Management Plan 2016

10 Year Budget Information: Appendix B

L E G E N D

Source of Financing	Description
BIA	Business Improvement Area
BLD	Building Permit Reserve Fund
CCM	Commercial Property Reserve Fund
CEM	Cemetery Reserve Fund
CPPC	Cemetery Paid Post Period Capacity
CIRRF	Capital Infrastructure Reinvestment Reserve Fund
CRF	Capital Reserve Fund
DBTLib	Debenture – Library
DebtPkg	Debenture – Parking
DebtRec	Debenture – Recreation Facilities
DC	Development Charges Reserve Funds
DEV	Developers
DON	Donations
ECDEV	Economic Development Reserve
EMPDV	Employee Development and Capacity Building Reserve
ER	Equipment Reserve
ESL	Environmentally Sensitive Lands Reserve Fund
FMR	Facilities Equipment & Maintenance Reserve
FOR	Facilities Operations Reserve
GTR	Gas Tax Rebate Reserve Fund
Grant	Grant Funding
HER	Heritage Reserve
ILA	Industrial Land Account
KIT	City of Kitchener
LXP	Library Expansion Reserve Fund
PKG	Parking Reserve Fund
PPC	(Post Period Capacity) Development Charges
PRO	Protective Services Reserve Fund
PUB	Parkland Dedication Reserve Fund
REG	Region of Waterloo
RHR	Rental Housing Reserve
SEW	Sewer Utility Reserve
SPPC	Sewer Utility Paid Post Period Capacity
SWM	Storm Water Utility Reserve
SWPPC	Storm Water Utility Paid Post Period Capacity
TRS	Tax Rate Stabilization Reserve
TWP	Townships
UPTDV	Uptown Development Reserve Fund
WAT	Water Utility Reserve
WPPC	Water Utility Paid Post Period Capacity

Other	Description
CAO	Chief Administrative Office
COMM	Community Services
CORP	Corporate Services
Ec Dev	Economic Development
Eng. Serv.	Engineering Services
Eng. Serv.-Dev	Engineering Services - Development Engineering
Env	Environmentally Sustainable Projects
Fac&Flt	Facilities & Fleet
IMTS	Information Management & Technology Services
IPPW	Integrated Planning & Public Works Services
LRT	Light Rail Transit
Nline	New Lines
RFS	Recreation & Facility Services

CAO Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
101		Routine			Strat	Ec Dev	Ec Dev	Economic Development Initiatives	Area CAO's Economic Development Initiatives	120011	ECDEV	15	16	16	16	17	17	17	12	12		137
102	P1186	High Public/Council Interest			Growth	Ec Dev	Engineering Services	Economic Development Initiatives	East Side Employment Lands	120106	ILA	510	2,299	1,380								4,188
103		Routine		Nline	Strat	Ec Dev	Ec Dev	Economic Development Initiatives	Industrial Land Account Minor Requests	160001	ILA	15	15	15	16	16	16	17	17	17	18	163
104		Routine			Growth	Ec Dev	Ec Dev	Economic Development Initiatives	Purchase of Event Trailer Community Use		CRF								22			22
105		High Public/Council Interest			Strat	Ec Dev	Fac&Flt-Facilities	Economic Development Initiatives	Re-Purposing of the Carnegie Library - Interior	140047	TRS	1,011										1,011
106	P1187	Financial Materiality: >than $5M over 2016-2018			Growth	Ec Dev	Engineering Services	Economic Development Initiatives	West Side Employment Lands Servicing	120107	ILA	174	223	7,201	10,406							18,005
								Economic Development Initiatives Total				**1,725**	**2,553**	**8,612**	**10,438**	**33**	**33**	**34**	**51**	**29**	**18**	**23,526**
107		Routine			Rehab	Ec Dev	Ec Dev	Equipment Replacement	Public Square Furnishings and Equipment		CRF			11					23			34
								Equipment Replacement Total						**11**					**23**			**34**
								Grand Total				**1,725**	**2,553**	**8,623**	**10,438**	**33**	**33**	**34**	**74**	**29**	**18**	**23,560**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
201		Routine			Growth	Comm. Prog. & Outreach	Comm. Prog. & Outreach	Equipment Replacement	City of Waterloo Museum Exhibition Support	160002	CRF	21			22							43
202		Routine			H&S	Comm. Prog. & Outreach	Comm. Prog. & Outreach	Equipment Replacement	Equipment for ARC/Wing 404		CRF						25					25
								Equipment Replacement Total				**21**			**22**		**25**					**68**
203		Routine			Leg	Comm. Prog. & Outreach	Fac&Flt-Facilities	Facility Refurbishment	Accessibility Facility Renovation (AODA)	110005	CRF	24	27	33	23	40	20	38	36	41	43	324
								Facility Refurbishment Total				**24**	**27**	**33**	**23**	**40**	**20**	**38**	**36**	**41**	**43**	**324**
								Grand Total				**45**	**27**	**33**	**45**	**40**	**45**	**38**	**36**	**41**	**43**	**393**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
210		Routine			Strat	Environment & Parks	Environment & Parks	Environmental Planning & Management	Community Climate Action Plan	150007	CRF	26	26	27	27	28	28	29				190
211		High Public/Council Interest		Nline	Strat	Environment & Parks	Environment & Parks	Environmental Planning & Management	Corporate Sustainability Office Initiative	160003	CRF	7	7	7	8	8	8	8	8	8	9	78
								Environmental Planning & Management Total				**33**	**33**	**34**	**35**	**35**	**36**	**37**	**8**	**8**	**9**	**268**
212		Routine			Rehab	Environment & Parks	Environment & Parks	Equipment Replacement	Outdoor Sportsfields - Equipment Upgrades	120059	CRF	24		25		26		27		28		129
212		Routine			Rehab	Environment & Parks	Environment & Parks	Equipment Replacement	Outdoor Sportsfields - Equipment Upgrades	120059	DC	3		3		3		3		3		13
								Equipment Replacement Total				**26**		**27**		**29**		**30**		**31**		**143**
213		Non-Routine in nature			Growth/Rehab Split	Environment & Parks	Environment & Parks	Facility Refurbishment	Park Amenity Upgrades	150008	CRF	156	162		169		176		183		152	998
213		Non-Routine in nature			Growth/Rehab Split	Environment & Parks	Environment & Parks	Facility Refurbishment	Park Amenity Upgrades	150008	DC	152	156		159		162		165		135	929
214	P1188	Non-Routine in nature		Nline	Growth	Environment & Parks	Engineering Services	Facility Refurbishment	RIM Park Ball Diamond Amenities	160004	CRF	7	7									15
214	P1188	Non-Routine in nature		Nline	Growth	Environment & Parks	Engineering Services	Facility Refurbishment	RIM Park Ball Diamond Amenities	160004	DC	70	71									141
214	P1188	Non-Routine in nature		Nline	Growth	Environment & Parks	Engineering Services	Facility Refurbishment	RIM Park Ball Diamond Amenities	160004	PUB	239	244									482
								Facility Refurbishment Total				**624**	**640**		**328**		**338**		**348**		**287**	**2,565**
215	P1024	Non-Routine in nature	Env		Rehab	Environment & Parks	Engineering Services	Infrastructure Management	Pedestrian Bridge Replacement - Bechtel Park		CIRRF		272									272
216	P1023	Routine	Env		Rehab	Environment & Parks	Engineering Services	Infrastructure Management	Pedestrian Bridge Upgrades	120058	CRF	30	17	41	62	59	55	69	76	84	91	583
216	P1023	Routine	Env		Rehab	Environment & Parks	Engineering Services	Infrastructure Management	Pedestrian Bridge Upgrades	120058	SWM	30	17	41	62	59	55	69	76	84	91	583
								Infrastructure Management Total				**59**	**305**	**83**	**123**	**117**	**109**	**138**	**152**	**167**	**183**	**1,437**
217	P1189	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Action Sports Facility - Albert McCormick Arena Skatepark	160005	CRF	84	30									114
217	P1189	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Action Sports Facility - Albert McCormick Arena Skatepark	160005	PUB	84	30									114
218	P1042	Non-Routine in nature			Growth/Rehab Split	Environment & Parks	Engineering Services	Park Expansion	Action Sports Facility - Planning and Upgrades	140009	CRF					75				102		177
219	P1026	High Public/Council Interest			Growth	Environment & Parks	Engineering Services	Park Expansion	Alexandra Park Expansion	150009	PUB	1,085	409									1,494
220	P1030	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Leash Free Dog Park		CRF			4	18							22
220	P1030	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Leash Free Dog Park		DC			42	148							190
221	P1028	High Public/Council Interest	Env		Growth	Environment & Parks	Engineering Services	Park Expansion	Mary Allen Park	160006	GTR	208										208
221	P1028	High Public/Council Interest	Env		Growth	Environment & Parks	Engineering Services	Park Expansion	Mary Allen Park	160006	PUB	1,016										1,016
222	P1031	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Northdale Parkland & Public Space Redevelopment	160007	CRF	22										22
222	P1031	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Northdale Parkland & Public Space Redevelopment	160007	PUB		58	248								307
222	P1031	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Northdale Parkland & Public Space Redevelopment	160007	DC	122	318	1,337								1,778
223		High Public/Council Interest		Nline	Strat	Environment & Parks	Environment & Parks	Park Expansion	Parkland/Sportfield Partnerships with School Boards		PUB		78									78
224	P1034	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Splash Pad - East		CRF				68							68

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
224	P1034	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Splash Pad - East		DC				572							572
225	P1035	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Splash Pad - West		CRF				62							62
225	P1035	Non-Routine in nature			Growth	Environment & Parks	Engineering Services	Park Expansion	Splash Pad - West		DC				524							524
226	P1190	Non-Routine in nature		Nline	Growth	Environment & Parks	Engineering Services	Park Expansion	Vista Hills Programmable Soccer Field- Partnership with WRDSB		CRF			28								28
226	P1190	Non-Routine in nature		Nline	Growth	Environment & Parks	Engineering Services	Park Expansion	Vista Hills Programmable Soccer Field- Partnership with WRDSB		DC			236								236
								Park Expansion Total				**2,621**	**924**	**1,896**	**1,392**	**75**				**102**		**7,010**
227		Non-Routine in nature		Nline	Growth/Rehab Split	Environment & Parks	Environment & Parks	Park Rehabilitation / Upgrade	Outdoor Sports Field Strategy Implementation	160008	CRF	40	135	41	141	43	146	45	152	47	159	949
227		Non-Routine in nature		Nline	Growth/Rehab Split	Environment & Parks	Environment & Parks	Park Rehabilitation / Upgrade	Outdoor Sports Field Strategy Implementation	160008	DC	39	130	39	132	40	135	41	138	42	141	876
228	P1036	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Park Signage Replacement Program - City wide	110086	DC	1	1	1	1	1	1	1	1	1	1	11
228	P1036	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Park Signage Replacement Program - City wide	110086	CRF	10	10	10	10	10	11	11	11	11	11	105
229	P1191	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Park Upgrades - City wide	130028	CRF	62	77	56	104	109	125	103	111	122	147	1,018
230	P1039	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Playground Upgrades-City Wide	110083	CRF	82	88	85	96	94	102	110	118	127	172	1,075
231	P1192	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Sportsfield Upgrades - City wide	120064	CRF	48		50		52		54		56		259
231	P1192	Routine			Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Sportsfield Upgrades - City wide	120064	DC	5		5		5		5		6		27
232	P1037	Non-Routine in nature	Env		Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Waterloo Park - Bauer Parking Lot Upgrade	150010	CRF			159	216	221						596
233	P1038	High Public/Council Interest	Env		Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Waterloo Park - Master Plan Implementation	150011	DC	61	103	144	212			327	367	371	337	1,923
233	P1038	High Public/Council Interest	Env		Rehab	Environment & Parks	Engineering Services	Park Rehabilitation / Upgrade	Waterloo Park - Master Plan Implementation	150011	CRF	94	160	227	338	481	501	547	609	622	495	4,075
								Park Rehabilitation / Upgrade Total				**441**	**704**	**818**	**1,250**	**1,056**	**1,022**	**1,245**	**1,509**	**1,404**	**1,463**	**10,913**
234	P1029	Non-Routine in nature			Rehab	Environment & Parks	Engineering Services	Roadside Maintenance	Camelot Place Noise Wall Replacement		CRF					84	82					166
								Roadside Maintenance Total								**84**	**82**					**166**
235	P1069	Non-Routine in nature			Rehab	Environment & Parks	Engineering Services	Sidewalks & Trails	R&T Park Multi-Use Trail Upgrade	150082	GTR	80	82	42								203
235	P1069	Non-Routine in nature			Rehab	Environment & Parks	Engineering Services	Sidewalks & Trails	R&T Park Multi-Use Trail Upgrade	150082	PUB	34	35	18								87
235	P1069	Non-Routine in nature			Rehab	Environment & Parks	Engineering Services	Sidewalks & Trails	R&T Park Multi-Use Trail Upgrade	150082	UNIV	114	117	59								290
								Sidewalks & Trails Total				**228**	**233**	**119**								**580**
236	P1193	Non-Routine in nature		Nline	Strat	Environment & Parks	Engineering Services	Studies	Park Strategy Implementation		CRF		8	42	76							125
236	P1193	Non-Routine in nature		Nline	Strat	Environment & Parks	Engineering Services	Studies	Park Strategy Implementation		DC		65	359	641							1,065
237		High Public/Council Interest			Growth	Environment & Parks	Environment & Parks	Studies	Parks Strategy Study	160009	CRF	32										32
237		High Public/Council Interest			Growth	Environment & Parks	Environment & Parks	Studies	Parks Strategy Study	160009	DC	278										278
								Studies Total				**309**	**73**	**401**	**716**							**1,500**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
238		High Public/Council Interest	Env		Rehab	Environment & Parks	Environment & Parks	Tree Replacement	Emerald Ash Borer Management Plan Implementation	120060	CRF	342	349	356	363	370	377	385	393	396	403	3,732
								Tree Replacement Total				**342**	**349**	**356**	**363**	**370**	**377**	**385**	**393**	**396**	**403**	**3,732**
								Grand Total				**4,684**	**3,261**	**3,733**	**4,208**	**1,766**	**1,964**	**1,834**	**2,410**	**2,107**	**2,345**	**28,313**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
240		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Facility Expansion	Parkview Chapel Niche Wall Additions	160044	CEM	21			22			24			27	94
240		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Facility Expansion	Parkview Chapel Niche Wall Additions	160044	CPPC	1			1			1				3
240		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Facility Expansion	Parkview Chapel Niche Wall Additions	160044	DC	1			2			2				5
								Facility Expansion Total				**23**			**25**			**26**			**27**	**101**
241		Routine		Nline	Strat	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Cemetery Signage		CEM				16							16
242		Routine		Nline	Rehab	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Chapel Upgrades		CEM		10									10
243		Routine		Nline	Rehab	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Insulation and Building Improvements (Mt. Hope)	160010	CEM	10										10
244		Routine	Env		Rehab	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Parkview Chapel and Crematorium Maintenance	150004	CEM	36						41	42			119
245		Non-Routine in nature			Rehab	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Parkview Crematorium Retort Replacement and Building Upgrades		CEM			877								877
246		Routine			Rehab	EPS-Cemeteries	EPS-Cemeteries	Facility Refurbishment	Replace Administration Building Furniture	160011	CEM	42										42
								Facility Refurbishment Total				**88**	**10**	**877**	**16**			**41**	**42**			**1,074**
247		High Public/Council Interest	Env		Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cemetery Expansion	110003	CEM	161			29	86	159	31	555	25	476	1,522
247		High Public/Council Interest	Env		Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cemetery Expansion	110003	CPPC	6			25	9	9	10				59
247		High Public/Council Interest	Env		Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cemetery Expansion	110003	DC	12			40	15	15	15				98
248		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cremation Dedication Gardens Columbarium Features	140008	CEM	51		53		55		57		59		274
248		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cremation Dedication Gardens Columbarium Features	140008	CPPC	2		2		2		2		2		11
248		Routine			Growth	EPS-Cemeteries	EPS-Cemeteries	Land Development	Parkview Cremation Dedication Gardens Columbarium Features	140008	DC	4		4		4		4		4		18
								Land Development Total				**236**		**58**	**94**	**171**	**184**	**119**	**555**	**90**	**476**	**1,983**
249		Routine		Nline	Rehab	EPS-Cemeteries	EPS-Cemeteries	Park Rehabilitation / Upgrade	Replace Plant Material	160012	CEM	12				13				14		40
								Park Rehabilitation / Upgrade Total				**12**				**13**				**14**		**40**
250		Routine			Rehab	EPS-Cemeteries	EPS-Cemeteries	Road Resurfacing	Roadway Resurfacing -Parkview		CEM			108	110		56					275
								Road Resurfacing Total						**108**	**110**		**56**					**275**
251		Routine		Nline	Rehab	EPS-Cemeteries	EPS-Cemeteries	Water System Rehab	Replace Water Lines	160013	CEM	15										15
								Water System Rehab Total				**15**										**15**
								Grand Total				**375**	**10**	**1,043**	**246**	**184**	**240**	**186**	**596**	**105**	**503**	**3,489**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
270		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Defibrillators Replacement		PRO			64								64
271		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Extrication Equipment Replacement		PRO					75						75
272		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Fire Prevention Officers Equipment	140011	PRO	39										39
273		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Hazardous Materials Specialized Equipment	140012	PRO		35			37			40			112
274		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Personal Protective Equipment	110075	PRO	56	57	58	59	60	62	63	64	65	66	610
275		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Small equipment	110080	PRO	33	34	35	35	36	37	38	38	39	39	364
276		Routine			H&S	Fire Rescue	Fire Rescue	Equipment Replacement	Upgrading 800mhz Radios	110082	PRO	19						21				40
								Equipment Replacement Total				**147**	**126**	**157**	**94**	**208**	**99**	**122**	**142**	**104**	**105**	**1,304**
277		High Public/Council Interest			H&S	Fire Rescue	Fire Rescue	Facility Expansion	Station 5 - New		DC							3,323				3,323
277		High Public/Council Interest			H&S	Fire Rescue	Fire Rescue	Facility Expansion	Station 5 - New		PPC							2,337				2,337
								Facility Expansion Total										**5,660**				**5,660**
278		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Fire Chief's Vehicle Replacement (Car 1)		PRO						49					49
279		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	HAZMAT Ford F250 Pickup Replacement (Training 1)	120055	PRO								45			45
280		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Mechanical Division Pick Up Truck Replacement (Service 1)		PRO				39							39
281		High Public/Council Interest		Nline	Leg	Fire Rescue	Fire Rescue	Fleet Management	Replace Aerial 1		TRS			1,740								1,740
282		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Deputy Chief Vehicle - Ford Explorer (Car 3)	140013	PRO						49					49
283		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Deputy Chief Vehicle - Ford F 150 (Car 2)	130026	PRO						49					49
284		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Fire Investigation Unit	120056	PRO									44		44
285		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Platoon Chief Vehicle (Car 23)	160014	PRO	67						75				142
286		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Prevention Vehicle - 2009 Honda Hybrid		PRO		40									40
287		Routine		Nline	H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Prevention Vehicle - 2012 Ford Fiesta		PRO					42						42
288		Routine			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Prevention Vehicle - 2012 Ford Fusion (Car 4)	120057	PRO					34						34
289		Routine		Nline	H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Prevention Vehicle Public Education-2014 Ford F150		PRO							36				36
290		High Public/Council Interest		Nline	H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Pump 12		TRS			676								676
								Fleet Management Total				**67**	**40**	**2,416**	**39**	**76**	**147**	**111**	**45**	**44**		**2,985**
291		High Public/Council Interest			Other	Fire Rescue	Fire Rescue	Technology Refresh / Upgrades	Consolidated Dispatch	160015	CRF	1,500	1,500									3,000
292		High Public/Council Interest			Other	Fire Rescue	Fire Rescue	Technology Refresh / Upgrades	Voice Radio Infrastructure		CRF		1,250	1,250								2,500
								Technology Refresh / Upgrades Total				**1,500**	**2,750**	**1,250**								**5,500**
								Grand Total				**1,714**	**2,916**	**3,823**	**133**	**284**	**246**	**5,893**	**187**	**148**	**105**	**15,449**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
301		Routine			Rehab	Municipal Enforcement	Municipal Enforcement	Equipment Replacement	Noise Enforcement Equipment Rehabilitation		CRF		25									25
302		Routine			Rehab	Municipal Enforcement	Municipal Enforcement	Equipment Replacement	Police Radio Replacement	160016	CRF	45										45
								Equipment Replacement Total				**45**	**25**									**70**
303		Routine			Rehab	Municipal Enforcement	Municipal Enforcement	Fleet Management	Municipal Enforcement Vehicle Replacements	110071	CRF	33	34	34	35							136
304		Routine			Other	Municipal Enforcement	Municipal Enforcement	Fleet Management	Vehicle Replacement Rental Housing Unit		RHR					33						33
								Fleet Management Total				**33**	**34**	**34**	**35**	**33**						**169**
305		Routine			Leg	Municipal Enforcement	Municipal Enforcement	Productivity Enhancement	Administrative Monetary Penalty System (AMPS)		CRF			98								98
306		Routine			Leg	Municipal Enforcement	Municipal Enforcement	Productivity Enhancement	Administrative Monetary Penalties (AMPS)		RHR		98									98
								Productivity Enhancement Total					**98**	**98**								**196**
307		Routine			Strat	Municipal Enforcement	Municipal Enforcement	Technology Refresh / Upgrades	Private Property Enforcement Implementation		CRF		61									61
								Technology Refresh / Upgrades Total					**61**									**61**
308		Routine		Nline	Leg	Municipal Enforcement	Municipal Enforcement	Studies	Ontario Human Rights and Housing Consultant and Rental Housing By-law Review	160150	RHR	41										41
								Studies Total				**41**										**41**
								Grand Total				**119**	**218**	**132**	**35**	**33**						**537**

COMMUNITY SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
350		Routine		Nline	Other	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	CLASS and Payment Management System Replacement	160017	CRF	104										104
351		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Facility and Programming Equipment	140164	FOR	102	104	106	108	110	113	115	117	120	122	1,117
352		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Facility Auto-Scrubber/Sweeper Replacements		CRF			11	22	23	11	14	12	24		117
353		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Facility Banquet and Meeting Room Equipment	110007	CRF	53	54	111	113	119	150	155	157	165	122	1,199
354		Routine			Growth/Rehab Split	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Facility Marquee Sign Purchases and Replacements	150016	CRF					34	34	35	36			139
355		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Facility Scoreclock Refurbishing and/or Replacements		CRF					197				132		329
356		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Equipment Replacement	Protective Covering for Athletic/Arena Surfaces - events	150005	CRF							116				116
								Equipment Replacement Total				**259**	**158**	**228**	**243**	**483**	**308**	**435**	**322**	**440**	**244**	**3,121**
357		High Public/Council Interest			Growth	Rec. & Fac. Services	Rec. & Fac. Services	Facility Expansion	WMRC Facility Addition and Renovation based on 2017 Facility Study		DC					9,534						9,534
357		High Public/Council Interest			Growth	Rec. & Fac. Services	Rec. & Fac. Services	Facility Expansion	WMRC Facility Addition and Renovation based on 2017 Facility Study		CRF					1,137						1,137
								Facility Expansion Total								**10,671**						**10,671**
358		High Public/Council Interest			Growth	Rec. & Fac. Services	Rec. & Fac. Services	Facility Refurbishment	Facilities Study - Upgrades, Retrofits, Reconstruction-WMRC		CRF		46									46
358		High Public/Council Interest			Growth	Rec. & Fac. Services	Rec. & Fac. Services	Facility Refurbishment	Facilities Study - Upgrades, Retrofits, Reconstruction-WMRC		DC		401									401
359		Routine			Rehab	Rec. & Fac. Services	Rec. & Fac. Services	Facility Refurbishment	Facility Bleacher and Players Bench Replacements		CRF			63					69			132
								Facility Refurbishment Total					**447**	**63**					**69**			**580**
360		Financial Materiality: >than $5M over 2016-2018			Growth	Rec. & Fac. Services	To be Determined	Land Acquisition	West Side Recreation Facility - Land Acquisition		DC		2,324									2,324
360		Financial Materiality: >than $5M over 2016-2018			Growth	Rec. & Fac. Services	To be Determined	Land Acquisition	West Side Recreation Facility - Land Acquisition		PUB		2,960									2,960
								Land Acquisition Total					**5,284**									**5,284**
361		Routine			Growth/Rehab Split	Rec. & Fac. Services	Rec. & Fac. Services	Studies	CCRS Master Plan Implementation	120105	CRF	115	144									259
361		Routine			Growth/Rehab Split	Rec. & Fac. Services	Rec. & Fac. Services	Studies	CCRS Master Plan Implementation	120105	DC	37	46									83
362		Routine			Strat	Rec. & Fac. Services	Rec. & Fac. Services	Studies	Master Plan Implementation	110009	CRF	65	66	95	97	99	269	275	280	476	313	2,036
363		Routine			Strat	Rec. & Fac. Services	Rec. & Fac. Services	Studies	Recreational Trends Study		CRF					9					10	19
363		Routine			Strat	Rec. & Fac. Services	Rec. & Fac. Services	Studies	Recreational Trends Study		DC					72					81	153
364		Non-Routine in nature			Growth	Rec. & Fac. Services	To be Determined	Studies	West Side Facilities Needs Assessment		PUB					45						45
364		Non-Routine in nature			Growth	Rec. & Fac. Services	To be Determined	Studies	West Side Facilities Needs Assessment		DC					376						376
								Studies Total				**217**	**256**	**95**	**97**	**601**	**269**	**275**	**280**	**476**	**404**	**2,970**
								Grand Total				**476**	**6,145**	**387**	**340**	**11,754**	**577**	**710**	**671**	**916**	**648**	**22,625**

CORPORATE SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
410		Routine	Env		Leg	Fac&Flt-Facilities	Fac&Flt-Facilities	Energy Management	Corporate Energy Management Implementation, Monitoring, & Reporting	150017	GTR	52	53	106	54	55	56	57	117	60	61	672
411		High Public/Council Interest	Env	Nline	Leg	Fac&Flt-Facilities	Fac&Flt-Facilities	Energy Management	Energy & Water Initatives	160018	FMR	216	111									327
412		Non-Routine in nature	Env		Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Energy Management	Roof Restorations & Renewable Energy Installations	150018	GTR			469	1,051	227	347	354	864	734	500	4,545
								Energy Management Total				**268**	**164**	**575**	**1,105**	**283**	**403**	**411**	**981**	**794**	**561**	**5,544**
413		Routine	Env	Nline	Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Active Transportation Improvements to Waterloo City Centre	160019	PKG	50										50
414		Non-Routine in nature			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Corporate Space Planning	140162	EMPDV	549	265	218								1,032
415		Non-Routine in nature			H&S	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Enterprise Wide Security-High Priority	120023	EMPDV	254	259	264								777
416		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Facility Condition Assessment Program	150072	GTR	52	53	53	54	55	56	57	59	60	61	560
417		Routine			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	General - Infrastructure Renewal Replacement Program - Mechanical/Electrical/Control	150074	CRF	53	29	112	199	225	295	211	307	362	226	2,020
418		Routine			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	General - Infrastructure Renewal Replacement Program - Site/Architectural/Structural	150073	CRF	79	52	133	216	243	310	230	322	376	226	2,186
419		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Integrated Facility Upgrades & Corporate Space Planning		EMPDV		260	287	292	298	304	316	322	329	335	2,743
420		Routine			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Mechanical, Electrical & Control System Improvements		CIRRF		208	265	541	83	113	345	807	658		3,020
420		Routine			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Mechanical, Electrical & Control System Improvements		CCM			16						478		494
421		Non-Routine in nature	Env		Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Site, Building, Architectural and Accessibility System Improvements	150152	CIRRF	468	530	634	370	340	577	768			820	4,507
421		Non-Routine in nature	Env		Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Site, Building, Architectural and Accessibility System Improvements	150152	CCM					51				179		230
								Facility Refurbishment Total				**1,505**	**1,656**	**1,981**	**1,673**	**1,295**	**1,654**	**1,927**	**1,817**	**2,443**	**1,668**	**17,620**
422		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Deployment & System Maintenance	110022	CRF	16	16	16	17	84	84	86	88	90	91	589
422		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Deployment & System Maintenance	110022	WAT	10	10	11	11	55	56	57	59	60	61	390
422		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Deployment & System Maintenance	110022	SEW	10	10	11	11	55	56	57	59	60	61	390
422		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Deployment & System Maintenance	110022	SWM	10	10	11	11	55	56	57	59	60	61	390
423		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Implementation and Functionality Configuration	110022	CRF	63	64	65	67							259
423		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Implementation and Functionality Configuration	110022	WAT	41	42	42	43							168
423		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Implementation and Functionality Configuration	110022	SEW	41	42	42	43							168
423		Routine			Strat	Fac&Flt-Facilities	Fac&Flt-Facilities	Technology Refresh / Upgrades	Maximo - Implementation and Functionality Configuration	110022	SWM	41	42	42	43							168
								Technology Refresh / Upgrades Total				**232**	**236**	**241**	**246**	**248**	**253**	**258**	**264**	**269**	**274**	**2,521**
								Grand Total				**2,004**	**2,056**	**2,797**	**3,024**	**1,826**	**2,311**	**2,597**	**3,062**	**3,505**	**2,503**	**25,686**

CORPORATE SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
430		Routine	Env		Growth	Fac&Flt-Fleet	Fac&Flt-Fleet	Fleet Management	Fleet & Equipment Expansion	110090	DC	220	260	599				175				1,254
430		Routine	Env		Growth	Fac&Flt-Fleet	Fac&Flt-Fleet	Fleet Management	Fleet & Equipment Expansion	110090	ER	8	30	70				21				130
431		Routine	Env		Rehab	Fac&Flt-Fleet	Fac&Flt-Fleet	Fleet Management	Fleet Replacement - Equipment Replacement / Expansion Program	110090	ER	1,561	1,592	1,698	1,840	1,877	1,971	2,010	2,109	2,151	2,194	19,003
								Fleet Management Total				**1,789**	**1,882**	**2,367**	**1,840**	**1,877**	**1,971**	**2,206**	**2,109**	**2,151**	**2,194**	**20,387**
								Grand Total				**1,789**	**1,882**	**2,367**	**1,840**	**1,877**	**1,971**	**2,206**	**2,109**	**2,151**	**2,194**	**20,387**

CORPORATE SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
470		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Computer Room Air Conditioner	150026	CRF	10	10	11	11	86	11	11	12	12	61	236
471		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Computer Room Un-interruptable Power Supply (UPS)	150028	CRF	87		11	92	11	11	11	12	12	12	259
472		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Desktop and Laptop Refresh		CRF			212	14	54		69	223	110		682
473		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Electronic Council Chamber & City Hall Meeting Rooms	120033	CRF	18	14	50	39	20	34	40	23	42	55	335
474		Routine			Growth/Rehab Split	IMTS	IMTS	Equipment Replacement	End User Computing Requirements	110027	CRF			32	130	132	84	218	223	227	122	1,169
475		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Mailroom Automation	120035	CRF	71		42	11	22	84	23	12	12	12	290
476		Routine			Growth	IMTS	IMTS	Equipment Replacement	Municipal Wireless Network	100028	CRF	10		32	54	11	113		117		122	459
477		Routine			Rehab	IMTS	IMTS	Equipment Replacement	PeopleSoft Financials & HRMS - IMTS backend	160023	CRF	55		27	32	62	34	69	70	84	73	506
478		Routine			Rehab	IMTS	IMTS	Equipment Replacement	Server Hardware Replacement and Upgrades	120031	CRF	20		11	30	99	146	207	191	227	61	993
479		Routine			Rehab	IMTS	IMTS	Equipment Replacement	WrepNet Equipment Replacement	110035	CRF	16	17	21	22	22	23	23	23	18	24	209
								Equipment Replacement Total				**289**	**41**	**448**	**435**	**520**	**541**	**672**	**906**	**743**	**542**	**5,136**
480		Routine			Growth	IMTS	IMTS	Infrastructure Management	Corporate Relational Database Management System (RDBMS)		CRF					55	113				61	229
								Infrastructure Management Total								**55**	**113**				**61**	**229**
481		Routine			Growth	IMTS	IMTS	Productivity Enhancement	Corporate Intranet	120032	CRF	20	21	21	22	22	23	23	23	24	24	223
482		Routine			Growth	IMTS	IMTS	Productivity Enhancement	Geographical Information Systems (GIS)	110031	CRF	20	21	21	22	22	23	23	23	24	24	223
483		Routine			Growth	IMTS	IMTS	Productivity Enhancement	Joint Ortho Imagery	110032	CRF	10	10	11	11	11	11	11	12	12	12	112
484		Routine			Growth	IMTS	IMTS	Productivity Enhancement	Spherical Asset Imaging Collection		CRF				81		84					166
								Productivity Enhancement Total				**51**	**52**	**53**	**135**	**55**	**141**	**57**	**59**	**60**	**61**	**724**
485		Routine			Strat	IMTS	IMTS	Studies	Five Year Strategic Plan for Technology and Electronic Services	150025	CRF						113					113
								Studies Total									**113**					**113**
486		Routine			Strat	IMTS	IMTS	Technology Refresh / Upgrades	Corporate Website	110026	CRF	21	10	11	54	55	11	11	12	36	37	259
487		Routine			Strat	IMTS	IMTS	Technology Refresh / Upgrades	Technology Disaster Recovery / Business Continuity Plan	120036	CRF	46	36	53	22	77	56	96	64	24	24	500
488		Routine			Rehab	IMTS	IMTS	Technology Refresh / Upgrades	Data Backup Device Upgrades	150029	CRF	10		11	11	132	11	11	12	152	49	399
489		Routine			Growth	IMTS	IMTS	Technology Refresh / Upgrades	Fibre Network Infrastructure - Large Scale	150030	CRF				195		306		214	155	122	993
490		Routine			Growth	IMTS	IMTS	Technology Refresh / Upgrades	Fibre Network Infrastructure - Small Scale	110030	CRF	43		53	54	55	56	57	59	60	61	498
491		Routine			Growth/Rehab Split	IMTS	IMTS	Technology Refresh / Upgrades	Infrastructure Virtualization	150031	CRF	183		53	54	22	23	23	23	102	24	507
492		Routine			Strat	IMTS	IMTS	Technology Refresh / Upgrades	Enterprise Application Integration Software	150071	CRF	10	36	11	11	88	90	103	94	108	61	612
493		Routine			Rehab	IMTS	IMTS	Technology Refresh / Upgrades	Enterprise Telephone and Voice Mail	110029	CRF	92		53	54	83		103	94	120	61	659
								Technology Refresh / Upgrades Total				**405**	**83**	**244**	**455**	**513**	**554**	**407**	**572**	**755**	**439**	**4,427**
								Grand Total				**745**	**176**	**745**	**1,025**	**1,144**	**1,461**	**1,136**	**1,536**	**1,558**	**1,103**	**10,629**

CORPORATE SERVICES Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
501		Routine			Rehab	Legislative Services	Legislative Services	Equipment Replacement	Council Equipment & Office Refurbishment		CRF			24				26				50
								Equipment Replacement Total						**24**				**26**				**50**
502		Routine			Strat	Legislative Services	Legislative Services	Technology Refresh / Upgrades	Records Management Master Plan	110023	CRF		91	124							34	249
								Technology Refresh / Upgrades Total					**91**	**124**							**34**	**249**
								Grand Total					**91**	**148**				**26**			**34**	**298**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
601		Routine			Other	Building Standards	Building Standards	Equipment Replacement	Building Standards Vehicle Replacements	130008	BLD	44			234							278
602		Routine			Growth/Rehab Split	Building Standards	Building Standards	Equipment Replacement	Communication Technology Upgrades and Refresh	130009	BLD	12			13			14				38
603		Routine			Growth	Building Standards	Building Standards	Equipment Replacement	Mobile Solutions	130010	BLD	25			69			74				168
								Equipment Replacement Total				**81**			**316**			**87**				**484**
604		Routine			Growth/Rehab Split	Building Standards	Fac&Flt-Facilities	Facility Refurbishment	Office Renovations - Building Standards	150032	BLD	275	83									359
								Facility Refurbishment Total				**275**	**83**									**359**
605		Routine			Growth	Building Standards	Building Standards	Productivity Enhancement	Digital Solutions	150034	BLD	99	101									199
606		Routine			Growth	Building Standards	Building Standards	Productivity Enhancement	Ontario Building Public Portal (OBPP)	150035	BLD	286	248									534
607		Routine			Growth	Building Standards	Building Standards	Productivity Enhancement	Scanning Program	110038	BLD	242										242
608		Routine		Nline	Growth	Building Standards	Building Standards	Productivity Enhancement	Software Refresh		BLD		674									674
609		Routine			Growth/Rehab Split	Building Standards	Building Standards	Productivity Enhancement	Workstation Upgrades	150033	BLD	138										138
								Productivity Enhancement Total				**764**	**1,023**									**1,787**
610		Routine			Leg	Building Standards	Building Standards	Studies	Building Permit Fee Review	160024	BLD	33										33
								Studies Total				**33**										**33**
								Grand Total				**1,153**	**1,106**		**316**			**87**				**2,663**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
620	P1100	High Public/Council Interest			Growth	Eng. Serv.-Dev-Other	Engineering Services	CIP Development & Implementation	Northdale Community Master Plan Implementation	150150	GTR	634	203		67	503	461					1,869
								CIP Development & Implementation Total				**634**	**203**		**67**	**503**	**461**					**1,869**
621	P1006	High Public/Council Interest			Strat	Eng. Serv.-Dev-Other	Engineering Services	Infrastructure Management	Corporate Asset Management Plan - All Assets	140028	GTR	104	106	108	110							429
								Infrastructure Management Total				**104**	**106**	**108**	**110**							**429**
622	P1194	Routine			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative	160025	CRF	10										10
622	P1194	Routine			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative	160025	WAT	10										10
622	P1194	Routine			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative	160025	SEW	10										10
622	P1194	Routine			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative	160025	SWM	10										10
623	P1014	Routine	Env		Growth	Eng. Serv.-Dev-Other	Engineering Services	Studies	Infill Intensification Servicing Analysis - City Wide	150037	DC				199							199
623	P1014	Routine	Env		Growth	Eng. Serv.-Dev-Other	Engineering Services	Studies	Infill Intensification Servicing Analysis - City Wide	150037	CRF				70							70
								Studies Total				**41**			**269**							**310**
								Grand Total				**779**	**309**	**108**	**447**	**503**	**461**					**2,607**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
630	P1041	Routine	Env		Growth	Eng. Serv.-Dev-Parks	Engineering Services	Sidewalks & Trails	Hydro Corridor Trail - South of Columbia St.	150040	CRF		42									42
630	P1041	Routine	Env		Growth	Eng. Serv.-Dev-Parks	Engineering Services	Sidewalks & Trails	Hydro Corridor Trail - South of Columbia St.	150040	DC		363									363
631	P1066	Routine	Env		Growth	Eng. Serv.-Dev-Parks	Engineering Services	Sidewalks & Trails	Trails in New Development Areas		CRF			29	30	31	31	32	33			186
631	P1066	Routine	Env		Growth	Eng. Serv.-Dev-Parks	Engineering Services	Sidewalks & Trails	Trails in New Development Areas		DC			252	254	257	259	262	265			1,549
								Sidewalks & Trails Total					**405**	**281**	**284**	**287**	**291**	**294**	**297**			**2,139**
632	P1016	Routine			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	City Wide - Var. Neighborhood New Park Dev.	110039	DC	83	84	85	67	48	24	25	50	50	51	566
632	P1016	Routine			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	City Wide - Var. Neighborhood New Park Dev.	110039	PUB	10	10	10	8	6	3	3	6	6	6	67
633	P1021	Routine			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	Gateway Design & Structures - Uptown	140020	UPTDV				142							142
634	P1032	Routine			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	Uptown Neighbourhoods Public Space Additions		CRF				223							223
635	P1022	Non-Routine in nature			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	West Side Amphitheatre Implementation		PUB				185	345						530
								Streetscaping Total				**93**	**94**	**95**	**624**	**399**	**27**	**28**	**56**	**56**	**57**	**1,529**
								Grand Total				**93**	**498**	**376**	**909**	**686**	**318**	**321**	**353**	**56**	**57**	**3,668**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
650	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Beaver Crk Rd.(from approx 625 m north of Laurelwood to Conservation Dr)	140021	DC	463										463
650	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Beaver Crk Rd.(from approx 625 m north of Laurelwood to Conservation Dr)	140021	DEV	1,868										1,868
651	P1044	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Bisch Street - Erbsville Road to City Limit - Reconstruction		CRF					61						61
651	P1044	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Bisch Street - Erbsville Road to City Limit - Reconstruction		DC					336						336
651	P1044	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Bisch Street - Erbsville Road to City Limit - Reconstruction		DEV					42						42
652	P1045	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia Street Extension to Wilmot Line	060015 / 060019 / 060022	DC	722										722
652	P1045	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia Street Extension to Wilmot Line	060015 / 060019 / 060022	DEV	52										52
653	P1050	Non-Routine in nature			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia St - Fischer-Hallman to Erbsville Rd	100001	CRF	56										56
653	P1050	Non-Routine in nature			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia St - Fischer-Hallman to Erbsville Rd	100001	DC	485										485
654	P1050	Non-Routine in nature		Nline	Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia St - Fischer-Hallman to Erbsville Rd - Additional Funding	100001	DC	3,146										3,146
654	P1050	Non-Routine in nature		Nline	Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia St - Fischer-Hallman to Erbsville Rd - Additional Funding	100001	CRF	361										361
654	P1050	Non-Routine in nature		Nline	Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Columbia St - Fischer-Hallman to Erbsville Rd - Additional Funding	100001	REG	637										637
655	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Conservation Dr- from Beaver Crk Rd to W Limit Snowcrest Pl.	140021	CRF			297								297
655	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Conservation Dr- from Beaver Crk Rd to W Limit Snowcrest Pl.	140021	DC	1,887										1,887
655	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Conservation Dr- from Beaver Crk Rd to W Limit Snowcrest Pl.	140021	DC	926										926
655	P1047	Routine			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Conservation Dr- from Beaver Crk Rd to W Limit Snowcrest Pl.	140021	DEV	987										987
656	P1048	Routine			Growth/Rehab Split	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Country Squire Rd. - Glasgow St (township) to 500m East		CRF		368									368
656	P1048	Routine			Growth/Rehab Split	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Country Squire Rd. - Glasgow St (township) to 500m East		DC		11									11
656	P1048	Routine			Growth/Rehab Split	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Country Squire Rd. - Glasgow St (township) to 500m East		DEV		304									304
656	P1048	Routine			Growth/Rehab Split	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	Country Squire Rd. - Glasgow St (township) to 500m East		TWP		304									304
657	P1049	Non-Routine in nature			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	West Side Employment Collector	160026	DC	154	928									1,083
657	P1049	Non-Routine in nature			Growth	Eng. Serv.-Dev-Roads	Engineering Services	Road Reconstruction	West Side Employment Collector	160026	ILA		1,113									1,113
								Road Reconstruction Total				**11,743**	**3,028**	**297**		**438**						**15,507**
								Grand Total				**11,743**	**3,028**	**297**		**438**						**15,507**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
670	P1054	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Facility Refurbishment	Northlands Sanitary Pumping Station Upgrade	140025	DC				1,928							1,928
								Facility Refurbishment Total							**1,928**							**1,928**
671	P1047	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Conservation Drive and Beaver Creek Road -Sanitary Sewer Oversizing	140021	DC	283	143									425
671	P1047	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Conservation Drive and Beaver Creek Road -Sanitary Sewer Oversizing	140021	DEV	538	137									676
672	P1047	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Conservation Drive - From SPS #2 to Beaver Creek Rd	140021	DEV	110										110
673	P1053	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Ira Needles Boulevard Sanitary Sewer Oversizing	150042	DC		121									121
673	P1053	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Ira Needles Boulevard Sanitary Sewer Oversizing	150042	DEV		176									176
674	P1047	Routine			Growth	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	SPS #2 on Conservation Dr @ Beaver Crk Road	140021	DC	1,604		1,636								3,240
								Wastewater Expansion Total				**2,535**	**577**	**1,636**								**4,748**
								Grand Total				**2,535**	**577**	**1,636**	**1,928**							**6,676**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
680	P1008	High Public/Council Interest			Growth/Rehab Split	Eng. Serv.-Dev-Water	Engineering Services	Facility Refurbishment	Completion of the Waterloo Public Square	150006	DON				500							500
680	P1008	High Public/Council Interest			Growth/Rehab Split	Eng. Serv.-Dev-Water	Engineering Services	Facility Refurbishment	Completion of the Waterloo Public Square	150006	UPTDV			123	486							609
								Facility Refurbishment Total						**123**	**986**							**1,109**
681	P1047	Routine			Growth	Eng. Serv.-Dev-Water	Engineering Services	Water Expansion	Beaver Creek Rd - Trunk Watermain	140021	DEV	148										148
682	P1047	Routine			Growth	Eng. Serv.-Dev-Water	Engineering Services	Water Expansion	Conservation Drive - Trunk Watermain	140021	DC	160										160
682	P1047	Routine			Growth	Eng. Serv.-Dev-Water	Engineering Services	Water Expansion	Conservation Drive - Trunk Watermain	140021	DEV	276										276
683	P1055	Routine			Growth	Eng. Serv.-Dev-Water	Engineering Services	Water Expansion	Erbsville Road - Ira Needles to Columbia St - Watermain		DC			368								368
								Water Expansion Total				**584**		**368**								**952**
								Grand Total				**584**		**491**	**986**							**2,062**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
701		High Public/Council Interest	Env		Strat	Growth Management	Growth Management	CIP Development & Implementation	City Wide Community Improvement Plan		CRF						113					113
702		Routine			Strat	Growth Management	Growth Management	CIP Development & Implementation	Northdale Community Improvement Plan Heritage Implementation		CRF				22							22
703		High Public/Council Interest	Env		Growth	Growth Management	Growth Management	CIP Development & Implementation	Northdale Community Improvement Plan (CIP) Implementation	100042	CRF		255									255
704		High Public/Council Interest			Growth	Growth Management	Growth Management	CIP Development & Implementation	Northdale Priority Project	150043	CRF	525	500	500	500	500	500	500	500	500	553	5,078
705		High Public/Council Interest			Strat	Growth Management	Growth Management	CIP Development & Implementation	Uptown Community Improvement Plan Implementation	140165	PUB		520	1,061								1,581
705		High Public/Council Interest			Strat	Growth Management	Growth Management	CIP Development & Implementation	Uptown Community Improvement Plan Implementation	140165	UPTDV	765	780	424	162	442	450	1,149				4,173
705		High Public/Council Interest			Strat	Growth Management	Growth Management	CIP Development & Implementation	Uptown Community Improvement Plan Implementation	140165	GTR		911									911
								CIP Development & Implementation Total				**1,290**	**2,966**	**1,986**	**684**	**942**	**1,063**	**1,649**	**500**	**500**	**553**	**12,133**
706		Routine	Env		Other	Growth Management	Growth Management	Environmental Planning & Management	Climate Change Vulnerability Assessment and Adaptation Plan	160027	SEW	51										51
706		Routine	Env		Other	Growth Management	Growth Management	Environmental Planning & Management	Climate Change Vulnerability Assessment and Adaptation Plan	160027	WAT	51										51
706		Routine	Env		Other	Growth Management	Growth Management	Environmental Planning & Management	Climate Change Vulnerability Assessment and Adaptation Plan	160027	SWM	51										51
706		Routine	Env		Other	Growth Management	Growth Management	Environmental Planning & Management	Climate Change Vulnerability Assessment and Adaptation Plan	160027	CRF	41										41
706		Routine	Env		Other	Growth Management	Growth Management	Environmental Planning & Management	Climate Change Vulnerability Assessment and Adaptation Plan	160027	FMR	51										51
707		High Public/Council Interest	Env		Growth	Growth Management	Growth Management	Environmental Planning & Management	Community Energy Investment Strategy Implementation		CRF								176			176
708		High Public/Council Interest	Env		Growth	Growth Management	Growth Management	Environmental Planning & Management	Erbsville Scoped Subwatershed Study		DC		156									156
708		High Public/Council Interest	Env		Growth	Growth Management	Growth Management	Environmental Planning & Management	Erbsville Scoped Subwatershed Study		DEV		162									162
709		Routine		Nline	Growth	Growth Management	Growth Management	Environmental Planning & Management	Flood Plain Mapping Updates - City Wide		CRF		42									42
710		Routine	Env		Growth	Growth Management	Growth Management	Environmental Planning & Management	Natural System Strategy		DC		34		191							224
710		Routine	Env		Growth	Growth Management	Growth Management	Environmental Planning & Management	Natural System Strategy		CRF		106		23							128
								Environmental Planning & Management Total				**245**	**499**		**213**				**176**			**1,133**
711		Non-Routine in nature	Env		Growth	Growth Management	Growth Management	Land Acquisition	Enviro Important Areas (Anticipated Land Purchases)	110053	ESL	61	62	64	65	66	68	69	70	72	73	670
712		High Public/Council Interest	Env		Growth	Growth Management	Growth Management	Land Acquisition	In Camera Item	120039	PUB	1,913										1,913
								Land Acquisition Total				**1,974**	**62**	**64**	**65**	**66**	**68**	**69**	**70**	**72**	**73**	**2,583**
713		Routine			Strat	Growth Management	Growth Management	New Programs-Growth Management	Heritage Educational Programs and Materials		CRF					55						55
714		High Public/Council Interest	LRT		Growth	Growth Management	Growth Management	New Programs-Growth Management	Rapid Transit Station Area Planning Implementation		CRF		98	98	99	98						392
714		High Public/Council Interest	LRT		Growth	Growth Management	Growth Management	New Programs-Growth Management	Rapid Transit Station Area Planning Implementation		PUB		392	393	588	588						1,961
714		High Public/Council Interest	LRT		Growth	Growth Management	Growth Management	New Programs-Growth Management	Rapid Transit Station Area Planning Implementation		GTR		100	100	100	100						400
715		Routine	Env		Growth	Growth Management	Growth Management	New Programs-Growth Management	Reurbanization Intiatives	120049	CRF				23							23
715		Routine	Env		Growth	Growth Management	Growth Management	New Programs-Growth Management	Reurbanization Intiatives	120049	DC				64							64

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
750		Routine	Env		Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Capital Repairs	130170	PKG			110	35	32	15	13				206
750		Routine	Env		Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Capital Repairs	130170	REG			245	79	70	34	29				458
751		Routine			Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade Expansion Joints		PKG									131		131
751		Routine			Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade Expansion Joints		REG									291		291
752		Routine	Env		Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Lighting Replacement	120067	PKG			16			4		14	4		37
752		Routine	Env		Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Lighting Replacement	120067	REG			35			8		30	9		83
753		Routine			Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Painting	140029	PKG						19					19
753		Routine			Rehab	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade - Painting	140029	REG						42					42
754		Routine			Growth	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade Structural Assessment		PKG			4					4			7
754		Routine			Growth	Trans. Services - Parking	Fac&Flt-Facilities	Parkade	Uptown Parkade Structural Assessment		REG			8					9			16
								Parkade Total						**418**	**114**	**102**	**122**	**42**	**56**	**435**		**1,290**
755		Routine		Nline	Growth	Trans. Services - Parking	Transportation Services	Parking Expansion	Parking Utilization Study		PKG					33						33
756		Financial Materiality: >than $5M over 2016-2018			Growth	Trans. Services - Parking	Transportation Services	Parking Expansion	Uptown Parking Needs Assessment & Implementation		DC		6,776						7,193			13,970
756		Financial Materiality: >than $5M over 2016-2018			Growth	Trans. Services - Parking	Transportation Services	Parking Expansion	Uptown Parking Needs Assessment & Implementation		DEV		1,894	552	6,194				2,133			10,773
756		Financial Materiality: >than $5M over 2016-2018			Growth	Trans. Services - Parking	Transportation Services	Parking Expansion	Uptown Parking Needs Assessment & Implementation		DebtPkg		785						884			1,669
								Parking Expansion Total					**9,455**	**552**	**6,194**	**33**			**10,210**			**26,445**
757	P1195	Routine		Nline	Rehab	Trans. Services - Parking	Engineering Services	Parking Rehabilitation	Dupont Lot Resurfacing		PKG		19			167						186
758		Routine			Rehab	Trans. Services - Parking	Transportation Services	Parking Rehabilitation	Parking Lot Rehabilitation	110092	PKG	12		13		13		14		14		66
759	P1196	Routine		Nline	Rehab	Trans. Services - Parking	Engineering Services	Parking Rehabilitation	Parking Lot Sign Replacement	160029	PKG	25										25
760	P1057	Routine			Rehab	Trans. Services - Parking	Engineering Services	Parking Rehabilitation	Perimeter - Lot Resurfacing		PKG							108				108
761	P1058	Routine			Rehab	Trans. Services - Parking	Engineering Services	Parking Rehabilitation	Station - Lot Resurfacing		PKG				146							146
								Parking Rehabilitation Total				**37**	**19**	**13**	**146**	**181**		**122**		**14**		**532**
								Grand Total				**37**	**9,474**	**983**	**6,455**	**316**	**122**	**165**	**10,267**	**449**		**28,267**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
770		High Public/Council Interest	Env	Nline	Strat	Transportation Services	Transportation Services	Energy Management	LED Streetlighting Changeout	160030	ILA	3,473										3,473
								Energy Management Total				**3,473**										**3,473**
771	P1079	Routine			Leg	Transportation Services	Engineering Services	Infrastructure Management	Bridges Inspection	110106	CRF	11		12		12		13		13		61
771	P1079	Routine			Leg	Transportation Services	Engineering Services	Infrastructure Management	Bridges Inspection	110106	SWM	11		12		12		13		13		61
772		Routine	Env		Rehab	Transportation Services	Water Services	Infrastructure Management	Bridges (Road/Culvert) Rehabilitation	120081	GTR	71	32	41	41	35	35	36	37	38	38	404
772		Routine	Env		Rehab	Transportation Services	Water Services	Infrastructure Management	Bridges (Road/Culvert) Rehabilitation	120081	SWM	75	34	43	44	37	38	38	39	40	41	428
								Infrastructure Management Total				**168**	**66**	**107**	**85**	**96**	**73**	**100**	**76**	**104**	**79**	**954**
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		CRF						65	790	160			1,015
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		DC						30	77				106
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		DC						18	48				67
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		GTR							341				341
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		WAT						13	34				47
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		SEW						65	732				797
773	P1086	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert Street - Columbia St to University		SWM						65	228				293
774	P1088	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Alexandra Ave - Lourdes Street to Westmount Road		CRF					53	1,002	149				1,204
774	P1088	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Alexandra Ave - Lourdes Street to Westmount Road		WAT					53	425					479
774	P1088	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Alexandra Ave - Lourdes Street to Westmount Road		SEW					53	673					726
774	P1088	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Alexandra Ave - Lourdes Street to Westmount Road		SWM					53	484					538
775	P1087	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Allen St E-Willow St (tracks) to Erb St	130038	GTR	109										109
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		DC						1	13	1			15
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		DC						3	26	2			31
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		GTR						26	295	37			357
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		WAT						29	227				255
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		SEW						29	245				274
776	P1104	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Batavia Place - Columbia St to Cul-de-Sac		SWM						27	170				198
777	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Carlaw Place - Dale Cr to end of Cul-de-Sac		CIRRF		34	212	31							277
777	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Carlaw Place - Dale Cr to end of Cul-de-Sac		WAT		34	129								163
777	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Carlaw Place - Dale Cr to end of Cul-de-Sac		SEW		34	197								231
777	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Carlaw Place - Dale Cr to end of Cul-de-Sac		SWM		34	83								117

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140036	DC			104								104
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140036	CRF			73								73
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	SWM			251								251
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	DC			100								100
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	REG			978								978
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	GTR			533								533
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	SEW			256								256
778	P1124	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Caroline St, Albert St, & Erb St - in Conjunction with the Region	140040	WAT			269								269
779	P1119	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - City Road Share of Regional Projects	150047	CRF					276		287	351	359		1,273
779	P1119	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - City Road Share of Regional Projects	150047	WAT	51	52	53	325	331	338	345	351	359	366	2,570
779	P1119	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - City Road Share of Regional Projects	150047	SEW	51	52	53	298	304	310	316	322	329	335	2,369
779	P1119	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - City Road Share of Regional Projects	150047	SWM	51	52	53	325	331	338	345	351	359	366	2,570
779	P1119	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - City Road Share of Regional Projects	150047	GTR	51	52	53	271		282				305	1,013
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		CRF								384	1,124	1,286	2,794
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		CIRRF							120	1,172	885	970	3,146
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		GTR								81	531	1,363	1,975
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		WAT							120	743	1,166		2,029
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		SEW							120	977	1,855		2,952
780	P1129	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	City Wide - Road Reconstruction Rehab Program		SWM							120	1,040	1,140	796	3,097
781	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dale Cres (Entire Length)		CRF			683	82							765
781	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dale Cres (Entire Length)		CIRRF		66	375	74							515
781	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dale Cres (Entire Length)		WAT		66	487								553
781	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dale Cres (Entire Length)		SEW		66	1,170								1,236
781	P1136	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dale Cres (Entire Length)		SWM		66	530								596
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	CIRRF	70	109									178
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	SWM	532										532
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	WAT	449										449
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	SEW	767										767
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	OCIF	556										556

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
782	P1089	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Glenridge Dr (entire length) & Glenridge Place	150048	GTR	196	29									225
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		CRF				229							229
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		DC				356							356
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		DC				273							273
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		DC				46							46
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		GTR				179							179
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		SEW				11							11
783	P1090	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - University Ave to Columbia St & Beech St		SWM				89							89
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		CRF			31	467	71						569
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		DC			4	44							48
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		DC			26	276							302
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		DC			20	210							230
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		GTR				146							146
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		SEW			31	74							105
784	P1101	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		SWM			31	67							98
784	P1101	High Public/Council Interest		Nline	Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Albert to Hazel		WAT			31	209							240
785	P1100	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Hazel to King	150150	DC		16									16
785	P1100	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Hazel to King	150150	DC		289									289
785	P1100	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Hazel to King	150150	DC		351									351
785	P1100	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Hazel to King	150150	GTR		565									565
785	P1100	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Hazel to King	150150	SEW		295									295
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		CRF			20	337	50						407
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		DC			24	240							264
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		DC			10	97							106
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		GTR				96							96
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		SEW			20	66							86
786	P1102	High Public/Council Interest		Nline	Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		SWM			20	24							44
786	P1102	High Public/Council Interest			Growth/Rehab Split	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hickory Street East - Lester Street to Albert		WAT			20	160							180
787	P1197	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Central St to University Ave		CRF		468	34								503

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
787	P1197	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Central St to University Ave		GTR		169	182								352
787	P1197	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Central St to University Ave		WAT		427	436								863
787	P1197	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Central St to University Ave		SEW		334	341								676
787	P1197	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Central St to University Ave		SWM		242	247								488
788	P1120	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Erb St to Central St	100023 / 150049	CIRRF	384	361									745
788	P1120	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Erb St to Central St	100023 / 150049	BIA	250										250
788	P1120	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Erb St to Central St	100023 / 150049	UPTDV		832									832
788	P1120	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	King Street - Erb St to Central St	100023 / 150049	GTR	566										566
789	P1091	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Left Turn Lane Regina St @ Bridgeport Road		DC					163						163
790	P1092	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longfellow Dr - Shakespeare Dr to Westmount Rd N		GTR					33	623	93				749
790	P1092	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longfellow Dr - Shakespeare Dr to Westmount Rd N		WAT					74	296					370
790	P1092	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longfellow Dr - Shakespeare Dr to Westmount Rd N		SEW					74	527					600
790	P1092	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longfellow Dr - Shakespeare Dr to Westmount Rd N		SWM					74	276					350
790	P1092	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longfellow Dr - Shakespeare Dr to Westmount Rd N		CIRRF					38						38
791	P1093	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - Albert Street to Longwood Drive		CIRRF			26	161	24						211
791	P1093	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - Albert Street to Longwood Drive		WAT			26	68							94
791	P1093	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - Albert Street to Longwood Drive		SEW			26	112							138
791	P1093	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - Albert Street to Longwood Drive		SWM			26	102							128
792	P1094	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	MacKay Cr - Weber St to N Alvin St		CRF					70	673	100				843
792	P1094	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	MacKay Cr - Weber St to N Alvin St		WAT					70	314					384
792	P1094	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	MacKay Cr - Weber St to N Alvin St		SEW					70	704					774
792	P1094	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	MacKay Cr - Weber St to N Alvin St		SWM					70	333					403
793	P1095	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marsland Dr - University Ave E to Columbia St E	160031	GTR	63	130	90								283
793	P1095	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marsland Dr - University Ave E to Columbia St E	160031	WAT	65	290									354
793	P1095	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marsland Dr - University Ave E to Columbia St E	160031	SEW	65	650									715
793	P1095	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marsland Dr - University Ave E to Columbia St E	160031	OCIF		556									556
793	P1095	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marsland Dr - University Ave E to Columbia St E	160031	SWM	65	308									373
794	P1096	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Moccasin Drive - Greenbriar Drive to Longwood Drive		GTR			34	335	50						419
794	P1096	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Moccasin Drive - Greenbriar Drive to Longwood Drive		WAT			34	156							190

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
794	P1096	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Moccasin Drive - Greenbriar Drive to Longwood Drive		SEW			34	235							269
794	P1096	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Moccasin Drive - Greenbriar Drive to Longwood Drive		SWM			34	149							183
795	P1097	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Neilson Ave - Margaret Ave to Bluevale St N		CIRRF			69	268	59						397
795	P1097	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Neilson Ave - Margaret Ave to Bluevale St N		WAT				6							6
795	P1097	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Neilson Ave - Margaret Ave to Bluevale St N		SEW			69	287							356
795	P1097	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Neilson Ave - Margaret Ave to Bluevale St N		SWM				8							8
796	P1098	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roosevelt Ave - Warrington Drive to Erb St		GTR				53	1,029	153					1,234
796	P1098	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roosevelt Ave - Warrington Drive to Erb St		WAT				54	465						519
796	P1098	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roosevelt Ave - Warrington Drive to Erb St		SEW				54	687						741
796	P1098	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roosevelt Ave - Warrington Drive to Erb St		SWM				54	429						483
797	P1099	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Royal Street - Weber Street to Margaret Avenue		CRF					53	165	143				360
797	P1099	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Royal Street - Weber Street to Margaret Avenue		WAT					53	438					490
797	P1099	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Royal Street - Weber Street to Margaret Avenue		SEW					53	895					947
797	P1099	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Royal Street - Weber Street to Margaret Avenue		SWM					53	525					578
797	P1099	Routine		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Royal Street - Weber Street to Margaret Avenue		CIRRF						801					801
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	CRF	74										74
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	DC	158										158
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	DC	44										44
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	DC	26										26
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	GTR	930										930
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	WAT	173										173
798	P1100	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Spruce Street - Columbia to Hickory	150150	SEW	151										151
799	P1103	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		DC			2	20	2						24
799	P1103	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		DC			5	57	6						67
799	P1103	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		GTR			43	618	75						736
799	P1103	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		WAT			47	335							382
799	P1103	High Public/Council Interest			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		SEW			47	505							552
799	P1103	High Public/Council Interest		Nline	Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Street - University Ave to Hickory		SWM			45	243							288
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		CIRRF				46	1,322	175					1,542

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		DC				2	36						39
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		DC				26	391						417
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		DC				2	23						24
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		WAT				46	445						490
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		SEW				46	104						150
800	P1105	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Union St - King St to Moore Ave		SWM				46	581						627
801	P1106	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Vermont St - Margaret Ave to East End		GTR		51	282	42							375
801	P1106	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Vermont St - Margaret Ave to East End		WAT		54	117								172
801	P1106	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Vermont St - Margaret Ave to East End		SEW		54	281								335
801	P1106	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Vermont St - Margaret Ave to East End		SWM		54	90								144
802	P1107	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Young Street East - King Street to Peppler		GTR				35	300	44					379
802	P1107	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Young Street East - King Street to Peppler		WAT				37	179						216
802	P1107	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Young Street East - King Street to Peppler		SEW				37	266						303
802	P1107	Routine			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Young Street East - King Street to Peppler		SWM				37	164						202
								Road Reconstruction (including Underground) Total				**5,896**	**7,244**	**9,598**	**9,384**	**9,160**	**11,163**	**5,480**	**5,974**	**8,106**	**5,786**	**77,790**
803		Routine		Nline	Rehab	Transportation Services	Transportation Services	Road Resurfacing	Hughes Lane - Upgrades	160032	CRF	32										32
804	P1111	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Resurfacing	Resurfacing Roads - Various Locations	120096	GTR	624	731	658	186	30	480	1,181	1,506	1,092	476	6,964
804	P1111	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Resurfacing	Resurfacing Roads - Various Locations	120096	CRF					854			819	405		2,079
804	P1111	Routine	Env		Rehab	Transportation Services	Engineering Services	Road Resurfacing	Resurfacing Roads - Various Locations	120096	CIRRF				215		175	312				702
805	P1118	Routine			Rehab	Transportation Services	Engineering Services	Road Resurfacing	Road Widenings & Intersection Improvements - City Wide	110121	DC	21	21	21	21	21	22	22	22	22	22	215
								Road Resurfacing Total				**677**	**752**	**679**	**422**	**905**	**677**	**1,514**	**2,348**	**1,519**	**498**	**9,992**
806		Routine		Nline	Rehab	Transportation Services	Transportation Services	Roadside Maintenance	Conflict Streetlight Pole Relocations	160033	CIRRF	13	13	13								39
807		Routine			Rehab	Transportation Services	Transportation Services	Roadside Maintenance	Retaining Wall Replacement - City Wide	150051	CIRRF		52		54		56		59		61	282
808		Routine			Rehab	Transportation Services	Transportation Services	Roadside Maintenance	Streetlighting Maintenance in conjunction with Roads - City Wide	110116	CIRRF	51	52	53	54	55	56	57	59	60	61	558
809		Routine	Env		Rehab	Transportation Services	Transportation Services	Roadside Maintenance	Streetlighting Retrofit, Pole Replacement, & Hydro Conduits - City Wide	120082	CIRRF	190	343	292	298	304	310	316	322	329	335	3,038
810		Routine			Rehab	Transportation Services	Transportation Services	Roadside Maintenance	Uptown Waterloo - Decorative Street Name Signs		CRF		26									26
								Roadside Maintenance Total				**254**	**487**	**358**	**406**	**359**	**422**	**373**	**439**	**388**	**457**	**3,944**
811		Routine	Env		Rehab	Transportation Services	Transportation Services	Sidewalks & Trails	Asphalt Walkways - City Wide	140030	CRF		14		14		15		15		16	73
812	P1061	Routine			Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Bi-Annual Bicycle Account	150056	CRF		12		13		14		14		15	68

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
813	P1060	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Bicycle Parking	120080	CRF		31	32	32	33	34	34	35	36	37	304
814	P1063	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Installation of Trail Counters	150054	CRF		10		11		11		12		12	56
815	P1122	Routine			Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Northfield Drive - Davenport Rd to University Ave	150058	CRF		287									287
816	P1080	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Refuge Islands - City Wide -TMP	120093	DC	10	10	10	11	11	11	11	11	11	11	108
816	P1080	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Refuge Islands - City Wide -TMP	120093	GTR	42	43	44	45	46	47	48	49	50	51	465
817	P1064	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Sidewalk New Construction - City Wide	150057	DC	31	31	63	64	64	65	65	66	67	67	583
817	P1064	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Sidewalk New Construction - City Wide	150057	GTR	127	130	265	270	276	281	287	293	298	304	2,532
818		Routine	Env		Rehab	Transportation Services	Transportation Services	Sidewalks & Trails	Sidewalk Replacement - City Wide	130040	CIRRF	92	94	96	97	99	101	103	105	108	110	1,005
819	P1120	Routine	LRT	Nline	Rehab	Transportation Services	Engineering Services	Sidewalks & Trails	Sidewalks and Trails associated with LRT		CRF								234	239	244	717
820	P1198	Routine		Nline	Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Spurline Trail - Regina to King	120098	CIRRF	422										422
821	P1078	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Traffic Calming Implementation - City Wide	120083	DC	15	16	16	16	16	16	16	17	17	17	161
821	P1078	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Traffic Calming Implementation - City Wide	120083	CRF	64	65	66	68	69	70	72	73	75	76	697
822	P1070	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Trails and Bikeways Master Plan Implementation - City Wide	120092	DC		1,159	989	500	505	510	515				4,177
822	P1070	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Trails and Bikeways Master Plan Implementation - City Wide	120092	GTR		134	116	59	60	61	63				493
823	P1072	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Sidewalks & Trails	Trans Canada Trail Improvements	160034	CIRRF	566	82									648
823	P1072	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Sidewalks & Trails	Trans Canada Trail Improvements	160034	PUB		577									577
823	P1072	Routine	Env		Growth/Rehab Split	Transportation Services	Engineering Services	Sidewalks & Trails	Trans Canada Trail Improvements	160034	CRF	61	74	212								347
824	P1052	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Walter Bean Trail - Woolwich Street Reconstruction	150059	DC	3										3
824	P1052	Routine	Env		Growth	Transportation Services	Engineering Services	Sidewalks & Trails	Walter Bean Trail - Woolwich Street Reconstruction	150059	DEV	265										265
								Sidewalks & Trails Total				**1,699**	**2,770**	**1,909**	**1,199**	**1,179**	**1,236**	**1,214**	**924**	**900**	**960**	**13,990**
825	P1052	Routine	Env		Growth	Transportation Services	Engineering Services	Studies	Bridge Street (Northwest of Northfield) Class EA	150060	TWP	82										82
826	P1111	Routine		Nline	Rehab	Transportation Services	Engineering Services	Studies	Geotechnical - Various Locations	130171	CIRRF	51	52	53	54	55	56	57	59	60	61	558
								Studies Total				**133**	**52**	**53**	**54**	**55**	**56**	**57**	**59**	**60**	**61**	**640**
827		Routine			Other	Transportation Services	Transportation Services	Traffic Management	Off Street Parking		CRF				12							12
828	P1073	Routine	Env		Strat	Transportation Services	Engineering Services	Traffic Management	Traffic Calming Studies - TMP	110120	CRF	80	81	83	85	86	88	90	91	93	95	872
828	P1073	Routine	Env		Strat	Transportation Services	Engineering Services	Traffic Management	Traffic Calming Studies - TMP	110120	DC	19	19	20	20	20	20	20	21	21	21	202
829		Routine			Other	Transportation Services	Transportation Services	Traffic Management	Traffic Safety Initiative	110119	CRF	11	11	12								34
								Traffic Management Total				**110**	**112**	**114**	**116**	**106**	**108**	**110**	**112**	**114**	**116**	**1,120**
830	P1171	Non-Routine in nature			Growth	Transportation Services	Engineering Services	Water System Rehab	Core Area Development Driven Upgrades	150069	DC	33	11	11	11	12	12	12	12	12	12	138

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
830	P1171	Non-Routine in nature			Growth	Transportation Services	Engineering Services	Water System Rehab	Core Area Development Driven Upgrades	150069	CRF	4	1	1	1	1	1	1	1	1	2	16
								Water System Rehab Total				**37**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**14**	**14**	**155**
								Grand Total				**12,448**	**11,495**	**12,831**	**11,680**	**11,873**	**13,749**	**8,863**	**9,945**	**11,204**	**7,971**	**112,059**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
850	P1173	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Facility Refurbishment	Beaver Creek Pumping Station Emergency Storage Tank	130031	DC		900									900
850	P1173	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Facility Refurbishment	Beaver Creek Pumping Station Emergency Storage Tank	130031	SEW		402									402
								Facility Refurbishment Total					**1,302**									**1,302**
851		Routine			Strat	Water Serv.-Sanitary	Water Services	Studies	Water Services Quality Management System	150061	SWM	99										99
								Studies Total				**99**										**99**
852	P1139	Routine			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater Maintenance	City Wide - Sanitary Access Roads / Paths	150062 / 030043	SEW			207			220		228		238	893
853	P1146	Routine			Rehab	Water Serv.-Sanitary	Engineering Services	Wastewater Maintenance	Sanitary Sewer Lateral Camera Inspections in conjunction with Roads	110100	SEW	87	88	90	92	94	96	98	100	102	104	949
								Wastewater Maintenance Total				**87**	**88**	**297**	**92**	**94**	**315**	**98**	**328**	**102**	**341**	**1,842**
854	P1145	Non-Routine in nature			Rehab	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Blackpipes Rehabilitation - Proactive	150063 / 080085	SEW	738				799					882	2,418
855	P1168	Non-Routine in nature			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	City Wide - Development Driven Sanitary Sewer Upgrades	150064	DC	657	100	101	102	103	104	105	106	107	109	1,597
855	P1168	Non-Routine in nature			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	City Wide - Development Driven Sanitary Sewer Upgrades	150064	SEW	50	12	12	12	12	13	13	13	13	14	163
856	P1176	Routine			Rehab	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Condition Assessment & Sewer Main Spot Repairs	110099	SEW	224	229	233	238	243	248	253	258	263	268	2,457
857	P1171	Non-Routine in nature			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Core Area Development Driven Upgrades-Sanitary	150069 / 140042	DC	430	145	146	148	149	151	152	154	155	157	1,788
857	P1171	Non-Routine in nature			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Core Area Development Driven Upgrades-Sanitary	150069 / 140042	SEW	49	17	17	17	18	18	19	19	19	20	213
858	P1140	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Ezra Avenue Sanitary Sewer Upsizing		DC			53								53
858	P1140	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Ezra Avenue Sanitary Sewer Upsizing		SPPC			56								56
859	P1141	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Keats Trunk Sewer Upsizing to 250mm	140038	DC									266	568	834
859	P1141	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Keats Trunk Sewer Upsizing to 250mm	140038	SEW									16	36	52
859	P1141	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Keats Trunk Sewer Upsizing to 250mm	140038	SPPC									16	36	52
860	P1110	Routine		Nline	Rehab	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Lincoln Road - Sewer Main Repair - Ellis St to Margaret Ave N	130175	GTR	371										371
861	P1143	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Maple Hill Trunk - Westcourt Place - Upsizing		DC										267	267
861	P1143	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Maple Hill Trunk - Westcourt Place - Upsizing		SEW										33	33
862	P1142	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Maple Hill Trunk - Westvale Dr. to Thorndale Pl.	140039	DC		34								731	764
862	P1142	Routine			Growth	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Maple Hill Trunk - Westvale Dr. to Thorndale Pl.	140039	SEW		4								92	95
863	P1147	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Sanitary Sewer Master Plan - Implementation		SEW		606	618								1,224
863	P1147	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Sanitary Sewer Master Plan - Implementation		DC		145	147								292
864	P1144	Routine			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Willis Way / Regina St S Sanitary Sewer Upsizing	160035	DC	97										97
864	P1144	Routine			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Willis Way / Regina St S Sanitary Sewer Upsizing	160035	GTR	41										41
864	P1144	Routine			Growth/Rehab Split	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Willis Way / Regina St S Sanitary Sewer Upsizing	160035	SEW	25										25
								Wastewater System Rehab Total				**2,682**	**1,291**	**1,384**	**518**	**1,324**	**534**	**542**	**550**	**857**	**3,210**	**12,892**
								Grand Total				**2,868**	**2,682**	**1,681**	**610**	**1,418**	**849**	**639**	**878**	**959**	**3,552**	**16,135**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
870		Routine			Rehab	Water Serv.-Stormwater	Water Services	Stormwater Maintenance	Correction of Lot Drainage Problems	110103	SWM	53	54	55	56	57	59	60	61	62	63	581
871		Routine	Env		Rehab	Water Serv.-Stormwater	Water Services	Stormwater Maintenance	Creek Bank Stabilization - City Wide	110104	SWM	53	54		56	57	59	60	61	62	63	526
872		Routine	Env		Rehab	Water Serv.-Stormwater	Water Services	Stormwater Maintenance	SWM Pond Sediment Removal	140041	SWM	1,179	1,202		1,251	1,276	1,301	1,327	1,354	1,381	1,409	11,680
								Stormwater Maintenance Total				**1,285**	**1,310**	**55**	**1,363**	**1,391**	**1,419**	**1,447**	**1,476**	**1,505**	**1,535**	**12,787**
873	P1013	Routine	LRT		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Caroline St. from Erb to William St In conjunction with LRT	150041	SWM	924										924
873	P1013	Routine	LRT		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Caroline St. from Erb to William St In conjunction with LRT	150041	DC	66										66
873	P1013	Routine	LRT		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Caroline St. from Erb to William St In conjunction with LRT	150041	WAT	369										369
874	P1152	Routine		Nline	Growth/Rehab Split	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Clair Creek North Reach 1		DC			164	1,048							1,211
874	P1152	Routine		Nline	Growth/Rehab Split	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Clair Creek North Reach 1		SWM			9	59							68
875	P1171	Non-Routine in nature			Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Core Area Development Driven Upgrades-Stormwater	150069 / 140042	DC	1,688	743	750	758	766	773	781	789	797	805	8,650
875	P1171	Non-Routine in nature			Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Core Area Development Driven Upgrades-Stormwater	150069 / 140042	SWM	194	86	88	90	91	93	95	97	99	101	1,034
876	P1169	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Development Driven Storm Sewer Upgrades - City Wide	130037	DC	22	23	23	23	23	24	24	24	24	25	235
876	P1169	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Development Driven Storm Sewer Upgrades - City Wide	130037	SWPPC	23	24	24	25	25	26	26	27	27	28	254
876	P1169	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Development Driven Storm Sewer Upgrades - City Wide	130037	SWM	46	47	48	49	50	51	52	53	54	55	508
877	P1199	Non-Routine in nature	Env	Nline	Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Forwell Creek Industrial Lands		SWM							308	242	1,208	1,232	2,990
878	P1200	Non-Routine in nature	Env	Nline	Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Creek Channel Around Columbia Lake		SWM										561	561
878	P1200	Non-Routine in nature	Env	Nline	Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Creek Channel Around Columbia Lake		DEV										890	890
879	P1152	Routine	Env		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Rehabilitation - Reservoir to Erbsville Rd		DC							274		140	1,484	1,898
879	P1152	Routine	Env		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Rehabilitation - Reservoir to Erbsville Rd		SWM							16		8	88	112
880	P1154	Routine	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Functional Study & Implementation - Regina to Weber		SWM				283	144	596	1,217				2,241
880	P1154	Routine	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Functional Study & Implementation - Regina to Weber		DC				14	7	29	58				109
881	P1153	Routine	Env		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Study Implementation - Hillside Park to HWY 85		SWM					181	430					611
881	P1153	Routine	Env		Growth	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Laurel Crk Study Implementation - Hillside Park to HWY 85		DC					42	99					141
882	P1155	Non-Routine in nature	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Maple Hill Creek Rehabilitation - Westvale Pond to University Ave	160036	SWM	159	171	492	502							1,324
882	P1155	Non-Routine in nature	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Maple Hill Creek Rehabilitation - Westvale Pond to University Ave	160036	DC			117	118							235
882	P1155	Non-Routine in nature	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Maple Hill Creek Rehabilitation - Westvale Pond to University Ave	160036	DebtSWM			615	628							1,243
								Stormwater System Rehab Total				**3,493**	**1,093**	**2,331**	**3,596**	**1,330**	**2,121**	**2,852**	**1,232**	**2,358**	**5,269**	**25,675**
883		Routine	Env	Nline	Rehab	Water Serv.-Stormwater	Water Services	Stormwater Maintenance	Sediment Removal Creeks - City Wide		SWM				54	55	56	57	59	60	61	402
								Stormwater Maintenance Total							**54**	**55**	**56**	**57**	**59**	**60**	**61**	**402**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
884	P1157	Financial Materiality: >than $5M over 2016-2018	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Silver Lake Study - EA Addendum		SWM		230	1,539								1,769
884	P1157	Financial Materiality: >than $5M over 2016-2018	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Silver Lake Study - EA Addendum		DC			1,404								1,404
884	P1157	Financial Materiality: >than $5M over 2016-2018	Env		Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Silver Lake Study - EA Addendum		DebtSWM		536	3,592								4,128
885	P1159	Routine			Rehab	Water Serv.-Stormwater	Engineering Services	Stormwater System Rehab	Waterloo Spurline Storm Sewer Upgrades	120098	SWM	204	849									1,053
								Stormwater System Rehab Total				**204**	**1,616**	**6,536**								**8,355**
886	P1154	Non-Routine in nature		Nline	Strat	Water Serv.-Stormwater	Engineering Services	Studies	Stormwater Management System Master Plan	160037	SWM	255	260									515
887	P1154	Non-Routine in nature		Nline	Strat	Water Serv.-Stormwater	Engineering Services	Studies	Stormwater Management System Master Plan Implementation		SWM							287	791	807	823	2,708
								Studies Total				**255**	**260**					**287**	**791**	**807**	**823**	**3,223**
								Grand Total				**5,237**	**4,280**	**8,922**	**5,013**	**2,776**	**3,596**	**4,643**	**3,557**	**4,730**	**7,688**	**50,442**

INTEGRATED PLANNING & PUBLIC WORKS Department

All figures in $'000s

REF	PROJECT ID	Council Reporting Criteria	Env / LRT	Nline	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
890	P1001	Routine			Strat	Water Serv.-Water	Engineering Services	Infrastructure Management	Infrastructure Management Initiatives	120100	WAT	10	10	11	11	11	11	11	12	12	12	112
890	P1001	Routine			Strat	Water Serv.-Water	Engineering Services	Infrastructure Management	Infrastructure Management Initiatives	120100	SEW	10	10	11	11	11	11	11	12	12	12	112
890	P1001	Routine			Strat	Water Serv.-Water	Engineering Services	Infrastructure Management	Infrastructure Management Initiatives	120100	SWM	10	10	11	11	11	11	11	12	12	12	112
890	P1001	Routine			Strat	Water Serv.-Water	Engineering Services	Infrastructure Management	Infrastructure Management Initiatives	120100	CRF	20	21	21	22	22	23	23	23	24	24	223
								Infrastructure Management Total				**51**	**52**	**53**	**54**	**55**	**56**	**57**	**59**	**60**	**61**	**558**
891		Routine		Nline	Strat	Water Serv.-Water	Water Services	Studies	Water Services Financial Plan		WAT					44					49	93
								Studies Total								**44**					**49**	**93**
892		Routine			Other	Water Serv.-Water	Water Services	Technology Refresh / Upgrades	Mobile Technology Program	150067	WAT	13	13									26
								Technology Refresh / Upgrades Total				**13**	**13**									**26**
893		Routine			Rehab	Water Serv.-Water	Water Services	Water Maintenance	Valve Replacement Program	150158	WAT	281	286	292	298	304	310	316	322	329	335	3,071
								Water Maintenance Total				**281**	**286**	**292**	**298**	**304**	**310**	**316**	**322**	**329**	**335**	**3,071**
894	P1163	Routine			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Cardill Cr - Austin Dr Watermain Upsizing		DC		409									409
894	P1163	Routine			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Cardill Cr - Austin Dr Watermain Upsizing		SWM		104									104
894	P1163	Routine			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Cardill Cr - Austin Dr Watermain Upsizing		WAT		322									322
895	P1171	Non-Routine in nature			Growth	Water Serv.-Water	Engineering Services	Water System Rehab	Core Area Development Driven Upgrades - Water	150069 / 140042	DC	394	398	402	406	410	414	418	423	427	431	4,124
895	P1171	Non-Routine in nature			Growth	Water Serv.-Water	Engineering Services	Water System Rehab	Core Area Development Driven Upgrades - Water	150069 / 140042	WAT	45	46	47	48	49	50	51	52	53	54	495
896	P1170	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Development Driven Upgrades - Watermains	110122	DC	497	70	71	72	72	73	74	75	75	76	1,156
896	P1170	Non-Routine in nature			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Development Driven Upgrades - Watermains	110122	WAT	57	8	8	8	9	9	9	9	9	10	136
897	P1162	Routine			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Milford Ave Watermain Upsizing	160038	DC	153										153
897	P1162	Routine			Growth/Rehab Split	Water Serv.-Water	Engineering Services	Water System Rehab	Milford Ave Watermain Upsizing	160038	WAT	158										158
898		Routine		Nline	Rehab	Water Serv.-Water	Water Services	Water System Rehab	Non-potable Water Supply Well Assessment	160039	WAT	28	71									98
899	P1164	Routine			Rehab	Water Serv.-Water	Engineering Services	Water System Rehab	Structurally Deficient Watermain Rehab - City Wide	130044	WAT	714	728	743	866	883	1,014	1,034	1,054	1,076	1,097	9,209
900	P1166	Non-Routine in nature			Rehab	Water Serv.-Water	Engineering Services	Water System Rehab	Water Distribution System Study Implementation	160040	DC	116	743									859
900	P1166	Non-Routine in nature			Rehab	Water Serv.-Water	Engineering Services	Water System Rehab	Water Distribution System Study Implementation	160040	WAT	120	774									894
								Water System Rehab Total				**2,283**	**3,675**	**1,271**	**1,400**	**1,424**	**1,560**	**1,586**	**1,613**	**1,640**	**1,668**	**18,120**
								Grand Total				**2,627**	**4,026**	**1,616**	**1,752**	**1,827**	**1,926**	**1,959**	**1,994**	**2,029**	**2,113**	**21,868**

CAO Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT1			Strat	Ec Dev	Ec Dev	Economic Development Initiatives	2017 Sesquicentennial Project		OT-CRF	31	21									51
OT2			Strat	Ec Dev	Fac&Flt-Facilities	Economic Development Initiatives	Re-Purposing of the Carnegie Library - Exterior		OT-TRS	2,169	310									2,478
OT3			Strat	Ec Dev	Fac&Flt-Facilities	Economic Development Initiatives	Re-Purposing of the Carnegie Library - Connectivity and Technology Provisioning		OT-CRF	181										181
				Ec Dev Total						**2,380**	**331**									**2,711**
OT4			Strat	Strategic Initiatives	Strategic Initiatives	Economic Development Initiatives	Strategic Initiative Opportunities		OT-CRF	77	26	80	27	83	28	86	29	90	30	556
OT5			Strat	Strategic Initiatives	Strategic Initiatives	Economic Development Initiatives	Waterloo Next - Open Government Transformation		OT-CRF	128	83	53				57	29			351
				Strategic Initiatives Total						**204**	**109**	**133**	**27**	**83**	**28**	**144**	**59**	**90**	**30**	**906**
				Grand Total						**2,584**	**440**	**133**	**27**	**83**	**28**	**144**	**59**	**90**	**30**	**3,617**

COMMUNITY SERVICES Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT6			Strat	Environment & Parks	Environment & Parks	Environmental Planning & Management	Corporate Sustainability Office Initiative		OT-CRF			19	19	20					2	61
OT7			Rehab	Environment & Parks	Engineering Services	Infrastructure Management	Pedestrian Bridge Replacement - Kaufman Flats		OT-CIRRF		312									312
OT8			Growth	Environment & Parks	Engineering Services	New Programs-Growth Management	Waterloo Park Master Plan - Festival Space		OT-PUB			729	338							1,067
OT8			Growth	Environment & Parks	Engineering Services	New Programs-Growth Management	Waterloo Park Master Plan - Festival Space		OT-CRF			729	338							1,067
OT8			Growth	Environment & Parks	Engineering Services	New Programs-Growth Management	Waterloo Park Master Plan - Festival Space		OT-DC			354	163							517
OT8			Growth	Environment & Parks	Engineering Services	New Programs-Growth Management	Waterloo Park Master Plan - Festival Space		OT-UPTDV			121	56							178
OT8			Growth	Environment & Parks	Engineering Services	New Programs-Growth Management	Waterloo Park Master Plan - Festival Space		OT-DEV			486	225							711
OT9			Growth	Environment & Parks	Engineering Services	Park Expansion	Northdale Parkland and Public Space Redevelopment		OT-CRF										476	476
OT9			Growth	Environment & Parks	Engineering Services	Park Expansion	Northdale Parkland and Public Space Redevelopment		OT-DC										2,511	2,511
OT10			Rehab	Environment & Parks	Environment & Parks	Park Rehabilitation / Upgrade	Artificial Turf Replacement - RIM Park		OT-CRF						788	804				1,592
				Environment & Parks Total							**312**	**2,437**	**1,140**	**20**	**788**	**804**			**2,989**	**8,490**
OT11			H&S	Fire Rescue	Fire Rescue	Equipment Replacemen	Self Contained Breathing Apparatus		OT-PRO						657					657
OT12			H&S	Fire Rescue	Fire Rescue	Equipment Replacemen	Thermal Imaging Cameras		OT-PRO							75				75
OT13			H&S	Fire Rescue	Fire Rescue	Fleet Management	New Pump (Fire Station 5)		OT-PRO							731				731
OT14			H&S	Fire Rescue	Fire Rescue	Fleet Management	Refurbish Pump 1		OT-PRO		57									57
OT15			H&S	Fire Rescue	Fire Rescue	Fleet Management	Refurbish Pump 2		OT-PRO		91									91
OT16			H&S	Fire Rescue	Fire Rescue	Fleet Management	Refurbish Pump 3		OT-PRO		57									57
OT17			H&S	Fire Rescue	Fire Rescue	Fleet Management	Refurbish Pump 4		OT-PRO	55										55
OT18			H&S	Fire Rescue	Fire Rescue	Fleet Management	Refurbish Tanker 1		OT-PRO						62					62
OT19			H&S	Fire Rescue	Fire Rescue	Fleet Management	Replace Pump 4		OT-PRO				689							689
				Fire Rescue Total						**55**	**205**		**689**		**719**	**806**				**2,474**
				Grand Total						**55**	**517**	**2,437**	**1,829**	**20**	**1,507**	**1,610**			**2,989**	**10,964**

CORPORATE SERVICES Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT20			Strat	Communications	Communications	Economic Development Initiatives	Brand Strategy and Visual Identity Review		OT-CRF	104										104
OT21			Strat	Communications	Communications	Economic Development Initiatives	Visual Identity Change Implementation		OT-CRF		104	614	866					30	31	1,646
				Communications Total						104	104	614	866					30	31	1,750
OT22			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Energy Management	Roof Restorations & Renewable Energy Installations		OT-GTR										7,170	7,170
OT23			Growth/Rehab Split	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	EMS Facility Renovations		OT-CIRRF	184										184
OT24			Other	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Enterprise Wide Security-Medium and Low Priority	120023	OT-EMPDV				205	210	295	301	306	229		1,546
OT24			Other	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Enterprise Wide Security-Medium and Low Priority	120023	OT-CCM		45	45								89
OT24			Other	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Enterprise Wide Security-Medium and Low Priority	120023	OT-CEM		31	32								63
OT25			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	General - Infrastructure Renewal Replacement Program - Mechanical/Electrical/Control	150074	OT-CRF	255	260	265	271	276	282	287	293	299	305	2,792
OT26			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	General - Infrastructure Renewal Replacement Program - Site/Architectural/Structural	150073	OT-CRF	255	260	265	271	276	282	287	293	299	305	2,792
OT27			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Mechanical, Electrical & Control System Improvements		OT-CIRRF						225	230	117	598	122	1,292
OT28			Rehab	Fac&Flt-Facilities	Fac&Flt-Facilities	Facility Refurbishment	Site, Building, Architectural and Accessibility System Improvements		OT-CIRRF	102	104	106	108	110	2,478	1,666	1,523	1,434	366	7,997
				Fac&Flt-Facilities Total						**796**	**700**	**713**	**854**	**872**	**3,561**	**2,771**	**2,532**	**2,859**	**8,267**	**23,924**
OT29			Other	Finance	Finance	Productivity Enhancement	PeopleSoft HRMS Vision Implementation Phases 5-6		OT-CRF				375	105						479
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-CRF	66										66
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-CEM	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-SEW	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-SWM	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-WAT	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-BLD	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-RHR	5										5
OT30			Other	Finance	Finance	Studies	Reserve and Reserve Fund Review		OT-PKG	5										5
				Finance Total						**102**			**375**	**105**						**581**
OT31			Other	Legislative Services	Legislative Services	Facility Refurbishment	Council Chambers Technology Upgrade and Renovation		OT-CRF				734							734
				Legislative Services Total									**734**							**734**
				Grand Total						**1,002**	**804**	**1,328**	**2,829**	**977**	**3,561**	**2,771**	**2,532**	**2,889**	**8,298**	**26,990**

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT32			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative - Implementation		OT-CRF		16				21					37
OT32			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative - Implementation		OT-WAT		16				21					37
OT32			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative - Implementation		OT-SEW		16				21					37
OT32			Strat	Eng. Serv.-Dev-Other	Engineering Services	Studies	Corporate Project Management Initiative - Implementation		OT-SWM		16				21					37
				Eng. Serv.-Dev-Other Total							**62**				**84**					**147**
OT33			Growth	Eng. Serv.-Dev-Parks	Engineering Services	Streetscaping	Streetscape Enhancement Landscape Items		OT-CRF					136						136
				Eng. Serv.-Dev-Parks Total										**136**						**136**
OT34			Growth/Rehab Split	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Lexington Crescent & Cedarcliffe Drive Sanitary Sewer		OT-DEV								230	853		1,082
OT34			Growth/Rehab Split	Eng. Serv.-Dev-Sanitary	Engineering Services	Wastewater Expansion	Lexington Crescent & Cedarcliffe Drive Sanitary Sewer		OT-CRF								77	561		637
				Eng. Serv.-Dev-Sanitary Total													**306**	**1,413**		**1,720**
OT35			Growth	Growth Management	Growth Management	CIP Development & Implementation	Community Improvement Plan (CIP) Implementation - Development Charge Grant Program		OT-CRF		364	371								736
OT36			Strat	Growth Management	Engineering Services	CIP Development & Implementation	Uptown Community Improvement Plan		OT-DC			270	273							543
OT36			Strat	Growth Management	Engineering Services	CIP Development & Implementation	Uptown Community Improvement Plan		OT-DC			270	273							543
OT36			Strat	Growth Management	Engineering Services	CIP Development & Implementation	Uptown Community Improvement Plan		OT-DC			270	273							543
OT36			Strat	Growth Management	Engineering Services	CIP Development & Implementation	Uptown Community Improvement Plan		OT-GTR			313	319							631
OT36			Strat	Growth Management	Engineering Services	CIP Development & Implementation	Uptown Community Improvement Plan		OT-CRF			833	850							1,683
OT37		LRT	Growth	Growth Management	Growth Management	Infrastructure Management	Station Area Planning Implementation		OT-CRF			1,656	1,689							3,345
OT37		LRT	Growth	Growth Management	Growth Management	Infrastructure Management	Station Area Planning Implementation		OT-PUB			1,118	1,140							2,258
OT37		LRT	Growth	Growth Management	Growth Management	Infrastructure Management	Station Area Planning Implementation		OT-DC			394								394
OT37		LRT	Growth	Growth Management	Growth Management	Infrastructure Management	Station Area Planning Implementation		OT-DC			1,608	1,630							3,238
				Growth Management Total							**364**	**7,102**	**6,449**							**13,915**
OT38	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Columbia to Phillip		OT-CIRRF								84	1,712	254	2,049
OT38	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Columbia to Phillip		OT-SEW								84	687		770
OT38	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Columbia to Phillip		OT-SWM								84	405		489

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT38	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Columbia to Phillip		OT-WAT								84	516		600
OT39	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Ezra ave to University		OT-CIRRF								77	777	101	954
OT39	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Ezra ave to University		OT-SEW								77	423		500
OT39	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Ezra ave to University		OT-SWM								77	203		280
OT39	P1136		Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Ezra ave to University		OT-WAT								77	293		370
OT40			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Hazel to Weber		OT-CIRRF								93	2,123	315	2,531
OT40			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Hazel to Weber		OT-SEW								93	528		621
OT40			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Hazel to Weber		OT-SWM								93	893		986
OT40			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Albert St - Hazel to Weber		OT-WAT								93	641		734
OT41			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Amos Ave - Erb to Keatsway		OT-CIRRF								74	877	130	1,082
OT41			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Amos Ave - Erb to Keatsway		OT-SEW								74	435		509
OT41			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Amos Ave - Erb to Keatsway		OT-SWM								74	700		774
OT41			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Amos Ave - Erb to Keatsway		OT-WAT								74	331		405
OT42			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Anatolin Place - Amos to end of Cul-de-sac		OT-CIRRF								38	233	35	306
OT42			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Anatolin Place - Amos to end of Cul-de-sac		OT-SEW								38	162		201
OT42			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Anatolin Place - Amos to end of Cul-de-sac		OT-SWM								38	101		139
OT42			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Anatolin Place - Amos to end of Cul-de-sac		OT-WAT								38	107		145
OT43			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arlene Place - Terrystone Walk to end of Cul-de-sac		OT-CIRRF								38	366	54	458
OT43			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arlene Place - Terrystone Walk to end of Cul-de-sac		OT-SEW								38	312		351
OT43			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arlene Place - Terrystone Walk to end of Cul-de-sac		OT-SWM								38	144		183
OT43			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arlene Place - Terrystone Walk to end of Cul-de-sac		OT-WAT								38	169		208
OT44			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arren Place & Cambria Place - Roosevelt Ave to Cul-de-sac		OT-CIRRF							56	549	81		686
OT44			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arren Place & Cambria Place - Roosevelt Ave to Cul-de-sac		OT-SEW							56	427			483

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT44			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arren Place & Cambria Place - Roosevelt Ave to Cul-de-sac		OT-SWM							56	150			206
OT44			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Arren Place & Cambria Place - Roosevelt Ave to Cul-de-sac		OT-WAT							56	198			254
OT45			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashcroft Place - Willowdale Ave to end of Cul-de-sac		OT-CIRRF								28	126	19	173
OT45			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashcroft Place - Willowdale Ave to end of Cul-de-sac		OT-SEW								28	89		117
OT45			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashcroft Place - Willowdale Ave to end of Cul-de-sac		OT-SWM								28	11		40
OT45			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashcroft Place - Willowdale Ave to end of Cul-de-sac		OT-WAT								28	63		92
OT46			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashton Cr & Kingsley Cr - Lourdes to Cul-de-sac		OT-CIRRF								57	402	60	518
OT46			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashton Cr & Kingsley Cr - Lourdes to Cul-de-sac		OT-SEW								57	266		323
OT46			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashton Cr & Kingsley Cr - Lourdes to Cul-de-sac		OT-SWM								57	137		194
OT46			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ashton Cr & Kingsley Cr - Lourdes to Cul-de-sac		OT-WAT								57	115		172
OT47			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bellehaven Drive - Marshall to Mayfield		OT-CIRRF								74	754	112	940
OT47			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bellehaven Drive - Marshall to Mayfield		OT-SEW								74	635		709
OT47			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bellehaven Drive - Marshall to Mayfield		OT-SWM								74	273		348
OT47			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bellehaven Drive - Marshall to Mayfield		OT-WAT								74	350		424
OT48			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bluevale Street - Cardinal to Erb		OT-CIRRF								57	513	76	646
OT48			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bluevale Street - Cardinal to Erb		OT-SEW								57	467		524
OT48			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bluevale Street - Cardinal to Erb		OT-SWM								57	141		197
OT48			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bluevale Street - Cardinal to Erb		OT-WAT								57	226		283
OT49			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Braeside Ave - Rodney to Allen		OT-CIRRF								57	449	67	573
OT49			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Braeside Ave - Rodney to Allen		OT-SEW								57	201		258
OT49			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Braeside Ave - Rodney to Allen		OT-SWM								57	405		463
OT49			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Braeside Ave - Rodney to Allen		OT-WAT								57	117		175
OT50			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bricker Ave - Albert to King		OT-CIRRF								76	663	98	837

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT50			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bricker Ave - Albert to King		OT-SEW								76	398		474
OT50			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bricker Ave - Albert to King		OT-SWM								76	47		123
OT50			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Bricker Ave - Albert to King		OT-WAT								76	438		513
OT51			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Browning Place - Shakespeare to Cul-de-sac		OT-CIRRF								57	326	48	432
OT51			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Browning Place - Shakespeare to Cul-de-sac		OT-SEW								57	150		207
OT51			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Browning Place - Shakespeare to Cul-de-sac		OT-SWM								57	73		130
OT51			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Browning Place - Shakespeare to Cul-de-sac		OT-WAT								57	155		211
OT52			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cardinal Cres - Terrystone Walk to end of Cul-de-sac		OT-CIRRF								47	169	25	241
OT52			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cardinal Cres - Terrystone Walk to end of Cul-de-sac		OT-SEW								47	260		307
OT52			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cardinal Cres - Terrystone Walk to end of Cul-de-sac		OT-SWM								47	102		150
OT52			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cardinal Cres - Terrystone Walk to end of Cul-de-sac		OT-WAT								47	79		126
OT53			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cedarbrae Ave - Glen Forest to Glen Manor Blvd		OT-CIRRF								64	614	91	769
OT53			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cedarbrae Ave - Glen Forest to Glen Manor Blvd		OT-SEW								64	375		439
OT53			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Cedarbrae Ave - Glen Forest to Glen Manor Blvd		OT-SWM								64	375		439
OT54			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Central Street - West end to King		OT-CIRRF								74	664	98	836
OT54			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Central Street - West end to King		OT-SEW								74	322		395
OT54			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Central Street - West end to King		OT-SWM								74	202		276
OT54			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Central Street - West end to King		OT-WAT								74	232		305
OT55			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Coleridge Drive - Amos to Shakespeare		OT-CIRRF								74	640	95	809
OT55			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Coleridge Drive - Amos to Shakespeare		OT-SEW								74	484		558
OT55			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Coleridge Drive - Amos to Shakespeare		OT-SWM								74	331		405
OT55			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Coleridge Drive - Amos to Shakespeare		OT-WAT								74	297		372
OT56			Growth	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Columbia Street - King to Marsland		OT-CRF								798	726	142	1,667

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT56			Growth	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Columbia Street - King to Marsland		OT-DC								798	726	142	1,667
OT57			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dixie Cres - Marshall to Willowdale		OT-CIRRF								57	425	63	545
OT57			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dixie Cres - Marshall to Willowdale		OT-SEW								57	263		320
OT57			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dixie Cres - Marshall to Willowdale		OT-SWM								57	184		241
OT57			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Dixie Cres - Marshall to Willowdale		OT-WAT								57	186		242
OT58			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ezra Ave, Clayfield Ave, King St N, & James St		OT-CIRRF								74	807	120	1,001
OT58			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ezra Ave, Clayfield Ave, King St N, & James St		OT-SEW								74	333		407
OT58			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ezra Ave, Clayfield Ave, King St N, & James St		OT-SWM								74	547		621
OT58			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Ezra Ave, Clayfield Ave, King St N, & James St		OT-WAT								74	325		399
OT59			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Greenbrier Drive - Albert to Longwood		OT-CIRRF								66	510	76	652
OT59			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Greenbrier Drive - Albert to Longwood		OT-SEW								66	411		478
OT59			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Greenbrier Drive - Albert to Longwood		OT-SWM								66	108		174
OT59			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Greenbrier Drive - Albert to Longwood		OT-WAT								66	243		310
OT60			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Harvard Place - Bluevale to Cul-de-sac		OT-CIRRF								57	247	37	341
OT60			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Harvard Place - Bluevale to Cul-de-sac		OT-SEW								57	122		179
OT60			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Harvard Place - Bluevale to Cul-de-sac		OT-SWM								57	197		254
OT60			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Harvard Place - Bluevale to Cul-de-sac		OT-WAT								57	102		159
OT61			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Columbia to Smallwood		OT-CIRRF								77	709	37	822
OT61			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Columbia to Smallwood		OT-SEW								77	336		413
OT61			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Columbia to Smallwood		OT-SWM								77	187		264
OT61			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Columbia to Smallwood		OT-WAT								77	273		349
OT62			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Smallwood to Albert		OT-CIRRF								93	1,307	194	1,593
OT62			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Smallwood to Albert		OT-SEW								93	573		666

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT62			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Smallwood to Albert		OT-SWM								93	490		583
OT62			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hazel Street - Smallwood to Albert		OT-WAT								93	482		575
OT63			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hemlock Street - University to Cul-de-sac		OT-CIRRF								74	857	127	1,059
OT63			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hemlock Street - University to Cul-de-sac		OT-SEW								74	610		685
OT63			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hemlock Street - University to Cul-de-sac		OT-SWM								74	146		220
OT63			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hemlock Street - University to Cul-de-sac		OT-WAT								74	359		433
OT64			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to Allen		OT-CIRRF								57	316	47	420
OT64			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to Allen		OT-SEW								57	290		347
OT64			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to Allen		OT-SWM								57	279		336
OT64			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to Allen		OT-WAT								57	208		265
OT65			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to City Limit		OT-CIRRF								57	259	38	354
OT65			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to City Limit		OT-SEW								57	255		311
OT65			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to City Limit		OT-SWM								57	216		272
OT65			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Herbert Street - Union to City Limit		OT-WAT								57	178		235
OT66			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hiawatha Drive - Amos to Coleridge		OT-CIRRF								67	550	82	699
OT66			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hiawatha Drive - Amos to Coleridge		OT-SEW								67	326		393
OT66			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hiawatha Drive - Amos to Coleridge		OT-SWM								67	273		340
OT66			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Hiawatha Drive - Amos to Coleridge		OT-WAT								67	238		305
OT67			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Iroquois Place - Algonquin Drive & Apache Drive		OT-CIRRF								74	669	99	843
OT67			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Iroquois Place - Algonquin Drive & Apache Drive		OT-SEW								74	337		412
OT67			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Iroquois Place - Algonquin Drive & Apache Drive		OT-SWM								74	281		355
OT67			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Iroquois Place - Algonquin Drive & Apache Drive		OT-WAT								74	236		310
OT68			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lester Street - University to Columbia		OT-CIRRF								74	854	127	1,055

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT68			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lester Street - University to Columbia		OT-SEW								74	700		775
OT68			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lester Street - University to Columbia		OT-SWM								74	501		575
OT68			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lester Street - University to Columbia		OT-WAT								74	426		501
OT69			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lodge Street - King to Weber		OT-CIRRF								74	842	125	1,041
OT69			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lodge Street - King to Weber		OT-SEW								74	529		603
OT69			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lodge Street - King to Weber		OT-SWM								74	355		430
OT69			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Lodge Street - King to Weber		OT-WAT								74	389		464
OT70			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - South on Longwood to Longwood		OT-CIRRF								74	876	130	1,081
OT70			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - South on Longwood to Longwood		OT-SEW								74	759		834
OT70			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - South on Longwood to Longwood		OT-SWM								74	378		453
OT70			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Longwood Drive - South on Longwood to Longwood		OT-WAT								74	376		450
OT71			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marshall Street - King to Laurel Trunk Sewer		OT-CIRRF								93	1,683	250	2,026
OT71			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marshall Street - King to Laurel Trunk Sewer		OT-SEW								93	1,195		1,288
OT71			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marshall Street - King to Laurel Trunk Sewer		OT-SWM								93	752		845
OT71			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Marshall Street - King to Laurel Trunk Sewer		OT-WAT								93	649		742
OT72			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	McDougall Road - Erb to Shakespeare		OT-CIRRF								93	1,227	182	1,502
OT72			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	McDougall Road - Erb to Shakespeare		OT-SEW								93	793		886
OT72			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	McDougall Road - Erb to Shakespeare		OT-SWM								93	533		626
OT72			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	McDougall Road - Erb to Shakespeare		OT-WAT								93	554		647
OT73			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Mohawk - Shakespeare to Longfellow		OT-CIRRF								65	619	92	776
OT73			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Mohawk - Shakespeare to Longfellow		OT-SEW								65	496		561
OT73			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Mohawk - Shakespeare to Longfellow		OT-SWM								65	253		318
OT73			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Mohawk - Shakespeare to Longfellow		OT-WAT								65	275		340

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT74			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Montclair Place - Bellehaven to Bellehaven		OT-CIRRF								29	190	28	247
OT74			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Montclair Place - Bellehaven to Bellehaven		OT-SEW								29	155		183
OT74			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Montclair Place - Bellehaven to Bellehaven		OT-SWM								29	94		122
OT74			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Montclair Place - Bellehaven to Bellehaven		OT-WAT								29	58		86
OT75			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Noecker Street - King to Weber		OT-CIRRF								84	1,058	157	1,299
OT75			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Noecker Street - King to Weber		OT-SEW								84	677		761
OT75			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Noecker Street - King to Weber		OT-SWM								84	363		446
OT75			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Noecker Street - King to Weber		OT-WAT								84	471		555
OT76			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Public Lane - State to University & Public Lane to Cul-de-sac		OT-CIRRF								115	438	65	617
OT76			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Public Lane - State to University & Public Lane to Cul-de-sac		OT-SWM								115	155		269
OT77			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Quickfall Place & Langford Place		OT-CIRRF								74	692	103	869
OT77			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Quickfall Place & Langford Place		OT-SEW								74	351		425
OT77			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Quickfall Place & Langford Place		OT-SWM								74	244		319
OT77			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Quickfall Place & Langford Place		OT-WAT								74	264		338
OT78			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - Columbia to University		OT-CIRRF								93	1,178	175	1,446
OT78			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - Columbia to University		OT-SEW								93	608		701
OT78			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - Columbia to University		OT-SWM								93	419		512
OT78			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - Columbia to University		OT-WAT								93	434		527
OT79			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - University to Marshall		OT-CIRRF								74	728	108	910
OT79			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - University to Marshall		OT-SEW								74	447		521
OT79			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - University to Marshall		OT-SWM								74	573		647
OT79			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Regina Street - University to Marshall		OT-WAT								74	279		354
OT80			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Rodney Street - Ellis to Margaret		OT-CIRRF								67	449	67	582

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT80			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Rodney Street - Ellis to Margaret		OT-SEW								67	285		352
OT80			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Rodney Street - Ellis to Margaret		OT-SWM								67	276		343
OT80			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Rodney Street - Ellis to Margaret		OT-WAT								67	192		259
OT81			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roger Street - Herbert to Bowman		OT-CIRRF								38	217	32	288
OT81			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roger Street - Herbert to Bowman		OT-SEW								38	119		157
OT81			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roger Street - Herbert to Bowman		OT-SWM								38	122		160
OT81			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Roger Street - Herbert to Bowman		OT-WAT								38	94		132
OT82			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Browning to Cul-de-sac		OT-CIRRF								74	675	100	850
OT82			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Browning to Cul-de-sac		OT-SEW								74	519		593
OT82			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Browning to Cul-de-sac		OT-SWM								74	403		477
OT82			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Browning to Cul-de-sac		OT-WAT								74	366		440
OT83			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Keatsway to Browning		OT-CIRRF								93	1,304	193	1,590
OT83			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Keatsway to Browning		OT-SEW								93	676		769
OT83			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Keatsway to Browning		OT-SWM								93	933		1,026
OT83			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Shakespeare Drive - Keatsway to Browning		OT-WAT								93	593		686
OT84			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Drive - University to Cul-de-sac		OT-CIRRF								48	233	35	315
OT84			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Drive - University to Cul-de-sac		OT-SEW								48	148		196
OT84			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Drive - University to Cul-de-sac		OT-SWM								48	112		160
OT84			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Sunview Drive - University to Cul-de-sac		OT-WAT								48	91		139
OT85			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Tennyson Place - Shakespeare to Cul-de-sac		OT-CIRRF								57	305	45	408
OT85			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Tennyson Place - Shakespeare to Cul-de-sac		OT-SEW								57	227		284
OT85			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Tennyson Place - Shakespeare to Cul-de-sac		OT-SWM								57	216		273
OT85			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Tennyson Place - Shakespeare to Cul-de-sac		OT-WAT								57	153		211

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT86			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Terrystone Walk - Cardinal to Erb		OT-CIRRF								38	261	39	338
OT86			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Terrystone Walk - Cardinal to Erb		OT-SEW								38	229		267
OT86			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Terrystone Walk - Cardinal to Erb		OT-SWM								38	166		204
OT86			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Terrystone Walk - Cardinal to Erb		OT-WAT								38	117		156
OT87			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Twin Oaks Cr - Glen Forrest to Glen Forrest		OT-CIRRF								65	572	85	721
OT87			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Twin Oaks Cr - Glen Forrest to Glen Forrest		OT-SEW								65	337		402
OT87			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Twin Oaks Cr - Glen Forrest to Glen Forrest		OT-SWM								65	355		420
OT87			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Twin Oaks Cr - Glen Forrest to Glen Forrest		OT-WAT								65	273		338
OT88			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Warrington Drive & Norwood Cres - Roosevelt to Cul-de-sac		OT-CIRRF								57	550	82	689
OT88			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Warrington Drive & Norwood Cres - Roosevelt to Cul-de-sac		OT-SEW								57	325		383
OT88			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Warrington Drive & Norwood Cres - Roosevelt to Cul-de-sac		OT-SWM								57	110		167
OT88			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Warrington Drive & Norwood Cres - Roosevelt to Cul-de-sac		OT-WAT								57	239		296
OT89			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Washington Ave - Ellis to Margaret		OT-CIRRF								65	570	85	720
OT89			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Washington Ave - Ellis to Margaret		OT-SEW								65	344		409
OT89			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Washington Ave - Ellis to Margaret		OT-SWM								65	282		348
OT89			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Washington Ave - Ellis to Margaret		OT-WAT								65	260		325
OT90			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Waterloo Street - Moore to Roger		OT-CIRRF								47	288	43	377
OT90			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Waterloo Street - Moore to Roger		OT-SEW								47	249		296
OT90			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Waterloo Street - Moore to Roger		OT-SWM								47	155		201
OT90			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Waterloo Street - Moore to Roger		OT-WAT								47	160		206
OT91			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Weber Street - University to Columbia		OT-SWM	470										470
OT91			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Weber Street - University to Columbia		OT-DEV	745										745
OT92			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	William Street - Westmount to Park		OT-CIRRF								84	1,167	173	1,424

INTEGRATED PLANNING and PUBLIC WORKS Department-Over Target

All figures in $'000s

REF	PROJECT ID	Env / LRT	Project Type	Service Delivery Division	Implementation Division	Theme	Project Description	Project	Source of Financing	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
OT92			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	William Street - Westmount to Park		OT-SEW								84	769		853
OT92			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	William Street - Westmount to Park		OT-SWM								84	497		581
OT92			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	William Street - Westmount to Park		OT-WAT								84	474		557
OT93			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Willowdale Ave & Willowdale Place - Bellehaven to Carter		OT-CIRRF								74	780	116	970
OT93			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Willowdale Ave & Willowdale Place - Bellehaven to Carter		OT-SEW								74	538		613
OT93			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Willowdale Ave & Willowdale Place - Bellehaven to Carter		OT-SWM								74	368		442
OT93			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Willowdale Ave & Willowdale Place - Bellehaven to Carter		OT-WAT								74	367		441
OT94			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Winfield Ave - Bellehaven to Carter		OT-CIRRF								56	707	105	868
OT94			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Winfield Ave - Bellehaven to Carter		OT-SEW								56	666		722
OT94			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Winfield Ave - Bellehaven to Carter		OT-SWM								56	285		341
OT94			Rehab	Transportation Services	Engineering Services	Road Reconstruction (including Underground)	Winfield Ave - Bellehaven to Carter		OT-WAT								56	321		377
OT95			Rehab	Transportation Services	Engineering Services	Road Resurfacing	Colonial Acres Area - Resurfacing		OT-CIRRF								1,577			1,577
OT96			Rehab	Transportation Services	Engineering Services	Road Resurfacing	Resurfacing Roads - Various Locations		OT-CIRRF										5,315	5,315
OT97			Growth/Rehab Split	Transportation Services	Engineering Services	Sidewalks & Trails	King St - East Side Trail - Weber to Conestoga Mall		OT-CRF	386										386
				Transportation Services Total						**1,600**						**223**	**18,734**	**91,432**	**10,935**	**122,925**
OT98	P1176		Rehab	Water Serv.-Sanitary	Engineering Services	Wastewater System Rehab	Sanitary Trunk Cleaning		OT-SEW	289	295	301	307	313						1,505
				Water Serv.-Sanitary Total						**289**	**295**	**301**	**307**	**313**						**1,505**
				Grand Total						**1,889**	**722**	**7,403**	**6,756**	**449**	**84**	**223**	**19,040**	**92,846**	**10,935**	**140,348**

City of Waterloo Asset Management Plan 2016

Infrastructure Asset Management Analysis Report (IAMAR): Appendix C

Infrastructure Asset Management Analysis Report

Final Phase 3 Report

GMBP File: 615036

August 15, 2016

August 15, 2016
Our File: 615036

City of Waterloo
265 Lexington Court
Waterloo, ON, N2J 4A8

Attn: Mr. Milos Posavljak

Re: Infrastructure Asset Management Analysis Report
Final Phase 3 Report

Dear Mr. Posavljak:

GM BluePlan Engineering Limited is pleased to submit the final Phase 3 report for the above noted project. The enclosed report provides a strategic perspective on the expected performance of the City's infrastructure over the next 25 years. The strategic perspective is developed from the outcomes of an analytical system that leverages granular data on the City's assets and operational level decision making strategies. The analytical system will be critical to addressing the infrastructure challenges that are documented in this report.

We appreciate the efforts of staff throughout the City of Waterloo over the course of this important project.

Yours truly,

GM BLUEPLAN ENGINEERING LIMITED

Nick Larson, MEPP, P.Eng.

EXECUTIVE SUMMARY

The City of Waterloo retained GM BluePlan to prepare an Infrastructure Asset Management Analysis Report (IAMAR). This report is intended to be a key precursor to the Comprehensive Asset Management Plan, which will subsequently be developed by the City. The IAMAR establishes fundamental processes that the City will use to understand and provide evidence to justify infrastructure needs. The processes will support the development of long term strategies to ensure the services that the City provides through their infrastructure systems can be sustained over the long term.

This first iteration of the analytical system identifies a shortfall between the expenditures that are required to achieve an acceptable level of performance from the City's infrastructure assets and the current planned expenditures in the capital and operating budgets. The financial analysis demonstrates that annual increases to the contributions made to reserve funds of approximately $20 million are necessary to fund the required infrastructure expenditures to achieve a level of service that is anticipated to be acceptable to most stakeholders. The required expenditures have been established based on an analysis of the most granular asset data available in the City combined with operational level decision making strategies about why and how each different type of asset is renewed.

Over the coming years, the City will continually review the infrastructure needs as the available information is refined and as technological or business process improvements reduce the cost of renewing infrastructure. Operationalizing asset management processes through the analytical system will:

1. **Help prioritize the assets that are renewed**

   The analytical system will provide evidence to help decide if all new money should be targeted to only one asset group or shared equally amongst all asset groups. One of the best strategies to reduce the burden of increasing revenue to fund infrastructure activities is to grow the local economy, which will enhance the ability of local residents to afford tax or user fee increases. This perspective suggests that the infrastructure expenditures should be targeted to asset groups/specific assets through an economic development lens.

2. **Reduce the cost of renewing the assets**

   The infrastructure industry in Canada is continually looking for better and less expensive strategies to renew (rehabilitate/replace) existing infrastructure. New construction techniques, such as the structural rehabilitation of linear water and wastewater assets, is just one example. The coordination of right of way projects and changes to procurement approaches (i.e. changes to Waterloo's design standards or procurement that considers best long term value over lowest capital cost) also have the potential to lower the total required costs of renewing assets at their level of service targets. The analytical system will help provide the evidence to justify the adoption of these innovative strategies.

The infrastructure challenges facing Waterloo did not materialize overnight, they grew from decades of making decisions about how our infrastructure systems were developed without a comprehensive plan to maintain the systems over the long term. The analytical system that has been developed in the IAMAR has equipped the City with processes that have operationalized asset management at a detailed (operational), tactical, and strategic level throughout the organization. These asset management processes are the key to making Waterloo's infrastructure systems sustainable. It is imperative that these processes are used to provide the evidence that will inform how the City's infrastructure is planned, designed, procured, operated, maintained, and ultimately replaced.

TABLE OF CONTENTS

1. INTRODUCTION 2
1.1 Background 2
1.2 Purpose of this Report 2
1.3 Project Overview 2
2. WATERLOO'S INFRASTRUCTURE 3
3. WHERE AND HOW WATERLOO SPENDS MONEY ON INFRASTRUCTURE 5
4. MEASURING PERFORMANCE OF ASSETS 8
5. DESIGN OF THE ANALYTICAL SYSTEM 9
5.1 Structure of the analytical systems 9
5.1.1 Target Scenario – Achieving the Target Levels of Service for all Asset Groups 9
5.1.2 Current Budget Scenario – What Does it Look Like? 9
5.2 The Summary Dashboard 10
6. EXPENDITURE NEEDS AND SYSTEM PERFORMANCE 11
6.1 Target Scenario 11
6.2 Budget Scenario 12
6.3 Discussion of Scenarios 14
6.4 Maturity of Asset Information to Support the Analytical System 14
7. FINANCIAL STRATEGY 16
7.1 Approach to the Financial Analysis 16
7.2 Outcomes of the Financial Analysis 17
7.3 Discussion 17
7.4 Other Financial Impacts Not Included in the Analytical System 19
7.5 Funding Strategies 21
8. IMPLEMENTATION PLAN 23
8.1 Recommendation #1: Internal Resourcing of the Analytical System 23
8.2 Recommendation #2: Develop an Asset Management Strategy and Policy 24
8.3 Recommendation #3: Develop a Public Engagement Strategy 24
8.4 Recommendation #4: Complete a Long Term Financial Plan 25
8.5 Recommendation #5: Complete Refinements of the Analytical System by the Integrated Processing Division 25
8.6 Recommendation #6: Coordination of Maximo 26
9. CONCLUSIONS AND DISCUSSION 27

APPENDICES

APPENDIX A: OPPORTUNITES TO REFINE THE ANALYTICAL SYSTEM
APPENDIX B: PUBLIC ENGAGEMENT STRATEGY

1. INTRODUCTION

1.1 Background

The City of Waterloo is a lower-tier municipality within the Region of Waterloo and is responsible for managing a complex portfolio of infrastructure assets that support the provision of a range of services. The assets are categorized into the following 15 groups: transportation network, sanitary sewer network, water distribution network, storm sewer collection, stormwater management, facilities, parks, forestry, parking, fleet, fire services, furniture and fixtures, information management and technology services, lands, and cemeteries.

The City of Waterloo has retained GM BluePlan to prepare an Infrastructure Asset Management Analysis Report (IAMAR). The IAMAR is a key precursor to the Comprehensive Asset Management Plan, which will subsequently be developed by the City in the fall of 2016. Included within the scope of the IAMAR is the Water Distribution Master Plan (WDMP) which is being undertaken as an integrated, yet distinct, component of the IAMAR work plan and will not be addressed within this report.

1.2 Purpose of this Report

This report documents two major components of the project. The first portion shows how the analytical system was used to help understand the relationship between the performance of the assets in the City and the required expenditures. Included with this component of the report is a financial analysis that provides a perspective on more tangible outcomes related to the process to fund the required expenditures.

The second portion provides an implementation plan to guide future refinements to the analytical system and its role in the development of future infrastructure expenditures plans.

1.3 Project Overview

The IAMAR establishes fundamental processes that the City will use to understand infrastructure needs. The processes will support the development of long term strategies to ensure that services that the City provides through their infrastructure system can be sustained over the long term. This project was separated into three phases which are briefly described below.

Phase 1 was structured to understand how information is currently used within the City to make infrastructure-related decisions. The major Phase 1 tasks included a comprehensive review of the asset-related data and information, as well as workshops with the City's subject matter experts for each of the 15 asset groups to review and confirm how, when and why money is spent on each asset type.

Phase 2 developed the processes whereby the asset management analysis strategies were operationalized, together with the asset inventories and other asset-related data/information, to produce an analytical system.

Phase 3 demonstrated how the system is used to analyse different scenarios in order to understand the impact on the performance of the asset groups over time based on adjusting both expenditure levels, as well as the strategy of when and how assets are renewed. Included in Phase 3 is a financial analysis that

provides perspective on the magnitude of additional revenue that is required to fund the infrastructure expenditures to achieve the desired performance of the asset group.

2. WATERLOO'S INFRASTRUCTURE

Figure 1 and Table 1 summarize the infrastructure owned by the City of Waterloo. The cost to replace every infrastructure asset is approximately $1.6 billion, which equates to approximately $37,600 per household.

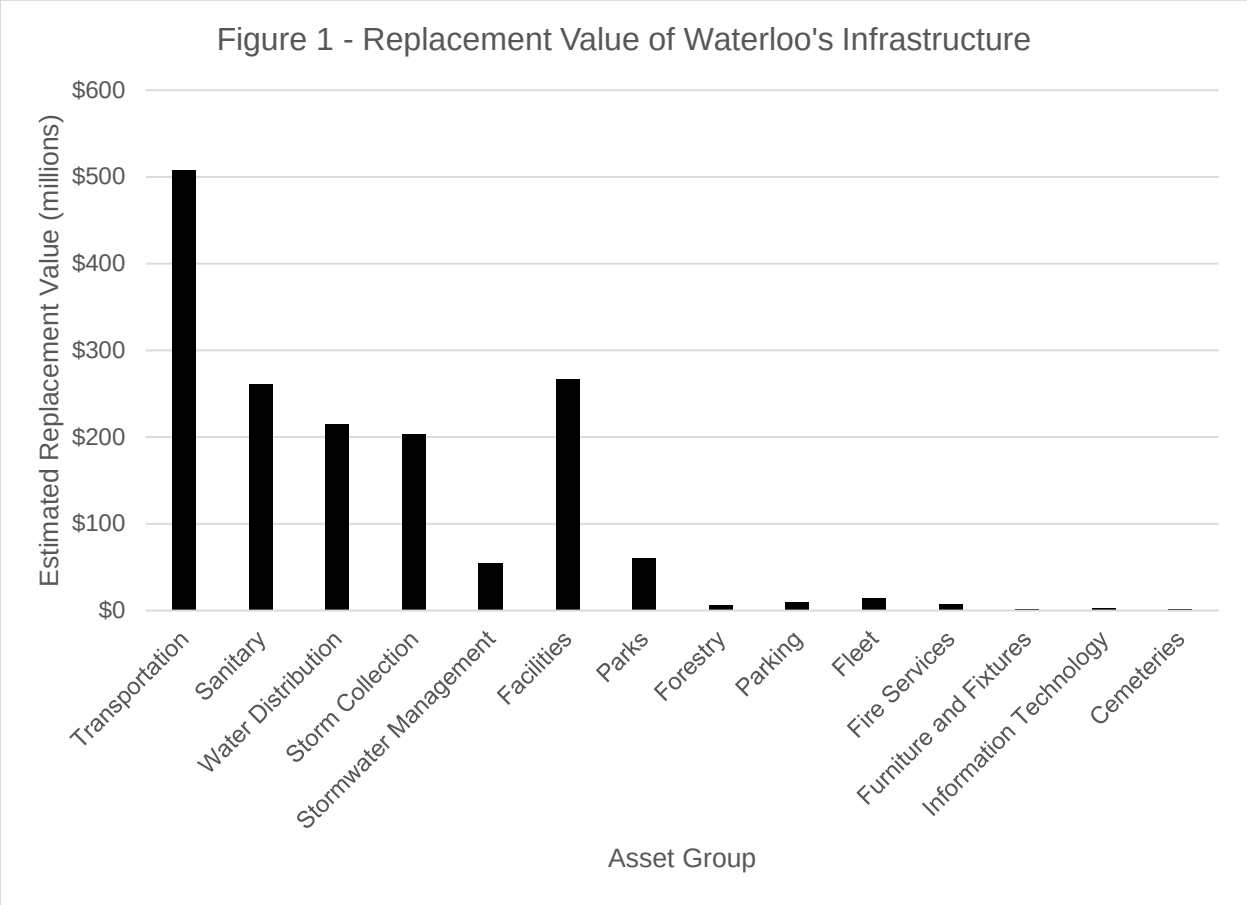


Table 1 – Size and Replacement Value of Waterloo's Infrastructure*

Asset Group	Size of Asset Network	Estimated Replacement Value of Entire Asset Group (millions)
Transportation	837 lane-km of roads, 568 km of sidewalks, 113 km of trails/pathways	$509
Sanitary Sewer Collection	409 km of pipes, 6 sewage pumping stations	$261
Water Distribution	431 km of pipes	$215
Storm Sewers	340 km of pipes	$203
Stormwater Management	55 ponds	$55
Facilities	123,371 square meters	$267
Parks	134 parks	$60
Forestry	30,000 street trees	$6
Parking	17 lots & 1 parkade	$10
Fleet	299 assets	$15
Fire Services	1,689 assets	$8
Furniture and Fixtures	10,000 assets	$2
Information Technology	1,536 assets	$3
Cemeteries	2 cemeteries	$2
Land	571 parcels	N/A
	Total	**$1,616**
	Approximate Number of Households in Waterloo	**43,000**
	$/household	**$37,580**

*Note: Actual costing values are subject to market forces at the time of infrastructure construction / improvement activity, above values are based on historical averages and industry standards.

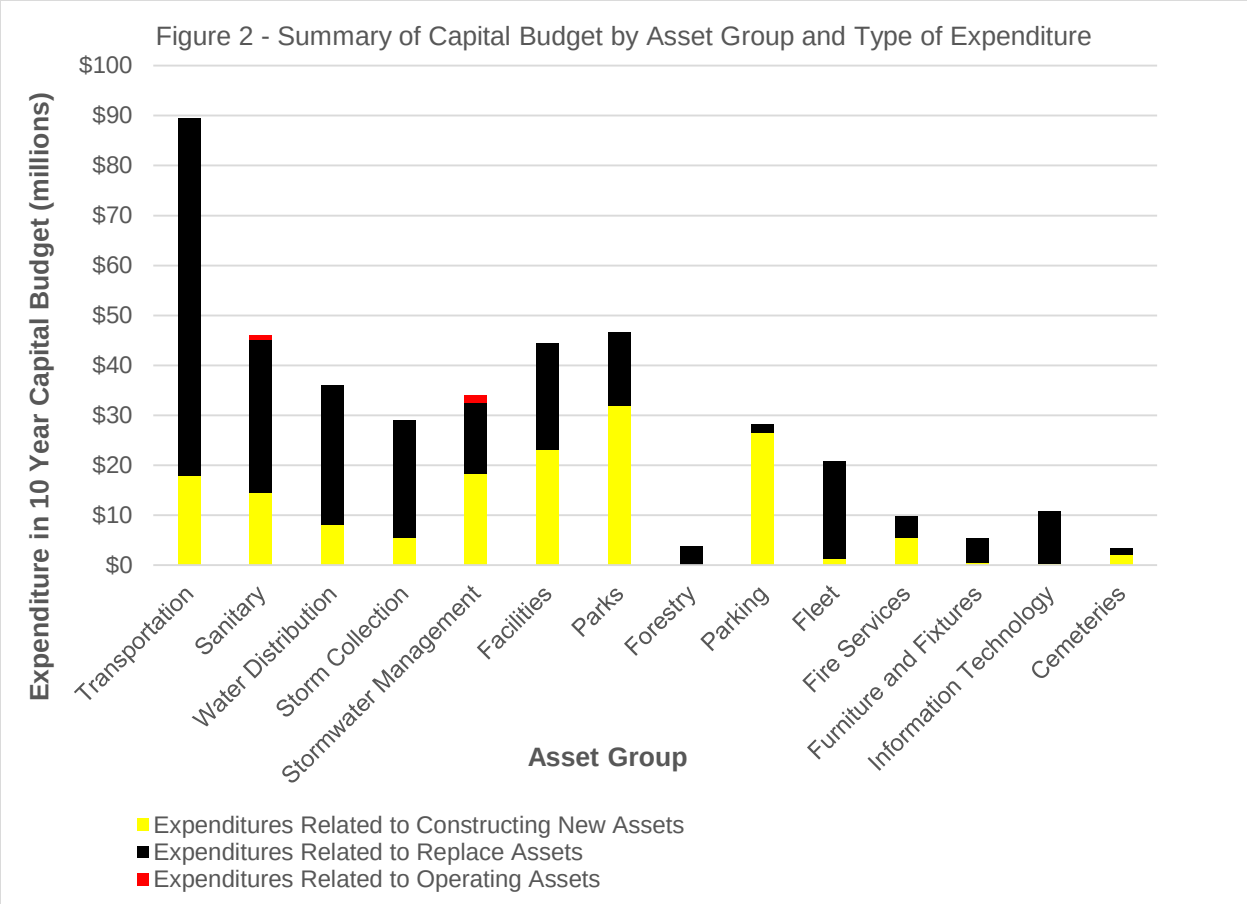
3. WHERE AND HOW WATERLOO SPENDS MONEY ON INFRASTRUCTURE

Most of the money that Waterloo spends on its infrastructure systems is through the capital budget. The current 10 year capital budget is approximately $450 million, with about 55% being spent on renewing existing infrastructure, 35% on building new infrastructure, and the remaining 10% on non-infrastructure activities. Figure 2 and Table 2 show the distribution of how the money in the capital budget is spent on each asset group.

Table 2 – Distribution of Capital Expenditures (millions)*

Asset Group	Expenditures Related to Constructing New Assets	Expenditures Related to Operating Assets	Expenditures Related to Replacing Assets	Total
Transportation	$18.0	$0.0	$71.5	$89.5
Sanitary	$14.4	$0.9	$30.6	$46.0
Water Distribution	$8.0	$0.0	$28.0	$36.0
Storm Collection	$5.5	$0.0	$23.4	$29.0
Stormwater Management	$18.4	$1.6	$14.1	$34.1
Facilities	$23.0	$0.0	$21.4	$44.4
Parks	$32.0	$0.0	$14.7	$46.7
Forestry	$0.0	$0.0	$3.7	$3.7
Parking	$26.4	$0.0	$1.8	$28.2
Fleet	$1.4	$0.0	$19.4	$20.8
Fire Services	$5.5	$0.0	$4.3	$9.8
Furniture and Fixtures	$0.6	$0.0	$4.9	$5.4
Information Technology	$0.3	$0.0	$10.4	$10.7
Cemeteries	$2.1	$0.0	$1.4	$3.5
Totals	**$155.6**	**$2.6**	**$249.7**	**$407.8**
			Non-Infrastructure (including land purchases)	$37.6
			Library	$6.8
			Grand Total	**$452.3**

*Note: Values may not add due to rounding.



Over the past six years, the City has spent nearly $206 million on a combination of both renewing existing and constructing new infrastructure (Refer to Table 3). These expenditures are funded through a number of reserve funds, such as the Capital Reserve Fund, Capital Infrastructure Reinvestment Reserve Fund, the Gas Tax Rebate Reserve Fund and the Development Charge Reserve Fund.

Table 3 – Historic Capital Infrastructure Expenditures

Year	Total Expenditures (millions)
2010	$44.6
2011	$37.4
2012	$35.2
2013	$23.0
2014	$33.6
2015	$31.7
Total	**$205.5**

The City also spends money on infrastructure through its annual operating budget. Table 4 provides a summary of the planned expenditures in the 2016 operating budget. Approximately 12% of the operating budget is considered to be directly related to operating and maintaining infrastructure assets. In some asset groups there are also expenditures in the operating budget that are used to renew existing assets, such as the $564,000 in the transportation asset group which is proposed to be spent on small road resurfacing activities each year.

The majority of the expenditures in the annual operating budget ($150 million) are either:

1. Not related to providing an infrastructure service (primarily related to staffing costs to provide the range of services offered by Waterloo); or
2. Are captured in the capital budget (transfers from the operating budget to a capital reserve to fund the expenditures in the capital budget).

Although the transfers to the operating budget do eventually get spent to provide an infrastructure service, the impact of the expenditures on the performance of the assets is captured through the analysis of the capital budget.

City staff will be refining the analysis of the operating budget as asset management processes continue to be operationalized throughout the organization.

Table 4 – Distribution of Operating Budget by Asset Group (thousands)

Asset Group	Expenditures that Renew Existing Assets	Electricity and Natural Gas	Expenditures to Operate and Maintain Assets	Total
Transportation	$564	$0	$4,864	$5,428
Sanitary	$0	$0	$1,631	$1,631
Water Distribution	$311	$0	$2,523	$2,834
Storm Collection	$0	$0	$445	$445
Stormwater Management	$0	$0	$953	$953
Facilities	$351	$3,740	$2,927	$7,018
Parks	$0	$0	$2,946	$2,946
Forestry	$0	$0	$789	$789
Parking	$2	$0	$746	$748
Fleet	$0	$0	$24	$24
Fire Services	$0	$0	$165	$165
Information Technology	$0	$0	$2,243	$2,243
Cemeteries	$0	$0	$1,561	$1,561
Total	**$1,228**	**$3,740**	**$21,817**	**$26,785**
Expenditure is not related to providing an infrastructure service or is captured in the capital budget				$150,159
			Grand Total	**$176,945**

4. MEASURING PERFORMANCE OF ASSETS

Measuring the performance of either an asset group or an individual asset is a complex process. There are many different factors that are integrated into the decision making processes of the experts who decide when an asset is not achieving its intended performance targets. The factors that impact the performance of an asset are generally grouped into two categories:

1. **Condition** - The physical condition or state of repair of an asset is often the primary factor used to make decisions about when and how it should be renewed (replaced or rehabilitated).

2. **Function** - The functional performance of an asset can also impact decisions about when and how an asset should be renewed. Types of considerations that are captured in the functional performance of assets include:
    - The size of an asset i.e. is it too big or too small?
    - The maintenance cost of an asset
    - Whether the asset is functionally obsolete i.e. outdated computer hardware
    - Whether the asset is functioning as intended i.e. greenhouse gas emissions from a facility are greater than an established target

Starting with Condition

Many of the factors that impact the performance of an asset do not currently have explicit industry triggers that can be established and analyzed based on specific data. For this reason, the current approach to measuring asset performance in the City is to start with a performance measure that has the best chance of being explicitly quantified based on the available data. In most cases this is a measure of the physical condition of the asset, therefore, in most asset groups the physical condition is still the primary driver for deciding which assets need to be renewed.

The performance percentages on the graphs provided in subsequent sections of this report are derived from the scaling of subject matter expert performance indicators to a scale of 0-100 %. Depending on the asset class, the subject matter expert performance indicators typically include actual condition, asset age, or a mix of both. Examples include the Pavement Quality Index for roads, age for water distribution pipes, and assessed condition and age for facility components such as floor or HVAC systems, respectively. Table 5 shows the corresponding qualitative category of the respective percentage range.

Table 5 – Qualitative Description of Percentage Condition Performance Indicators

Percentage Condition Performance Indicators	Qualitative Description
80%-100%	Excellent
60%-80%	Good
40%-60%	Fair
20%-40%	Poor
0%-20%	Very Poor

It should be noted that the analytical system has been designed in such a way to enable subject matter experts within the City to incorporate their understanding of the functional performance of their assets.

5. DESIGN OF THE ANALYTICAL SYSTEM

A major component of the IAMAR was to develop an analytical system. The system operationalizes asset inventories, together with decisions about how the performance of assets are measured and the specific strategies for how different types of asset are renewed, to demonstrate the relationship between planned expenditures to renew assets and the performance of the asset groups over the next 25 years.

The analytical system is capable of producing a high volume of information with respect to the complex relationship between the performance of individual assets or aggregate groups of assets and the required expenditures. For example, the system can show the relationship of expenditures to asset performance for:

- A single road segment
- All local roads
- All roads of all types in the City
- All transportation-related asset types in the City (sidewalks, bridges, etc.)

The outcomes/outputs of the analytical system are graphical in nature and contain a large amount of detailed information that is not feasible to incorporate into a traditional report format. Only selected outcomes are included in this report for the purposes of conveying the strategic perspective of the City's overall suite of infrastructure assets.

5.1 Structure of the analytical systems

The structure of the analytical system is designed to generate excel outputs for two scenarios:

1. The target or target scenario
2. The budget scenario

These two scenarios are further described in the following paragraphs.

5.1.1 Target Scenario – Achieving the Target Levels of Service for all Asset Groups

The target scenario is used to generate a list of infrastructure expenditure needs to achieve the target levels of service that have been established in collaboration with the City's subject matter experts for each asset group. This generally relates to replacing an asset when its condition/performance reaches a point where it requires renewal (replacement or rehabilitation). The target scenario is designed to maintain a target proportion of assets in each asset group that are in very good, good, fair, poor or very poor condition/performance.

5.1.2 Current Budget Scenario – What Does it Look Like?

The second scenario that is documented provides perspective on the projected performance of the assets based on an assumed budget or set of planned expenditures for each asset group. The analytical system "spends" all of the planned money to replace assets in a prioritization process provided by the City's subject matter experts, and then shows the expected performance of each system and the distribution of assets in each of the five condition states. The budget scenario can be used to understand the impact of any proposed spending plan. However for the purposes of the analysis presented in this report the analysis of the budget scenario is based on the planned expenditures from the City's current 2016 approved capital budget and forecasted operating budget.

5.2 The Summary Dashboard

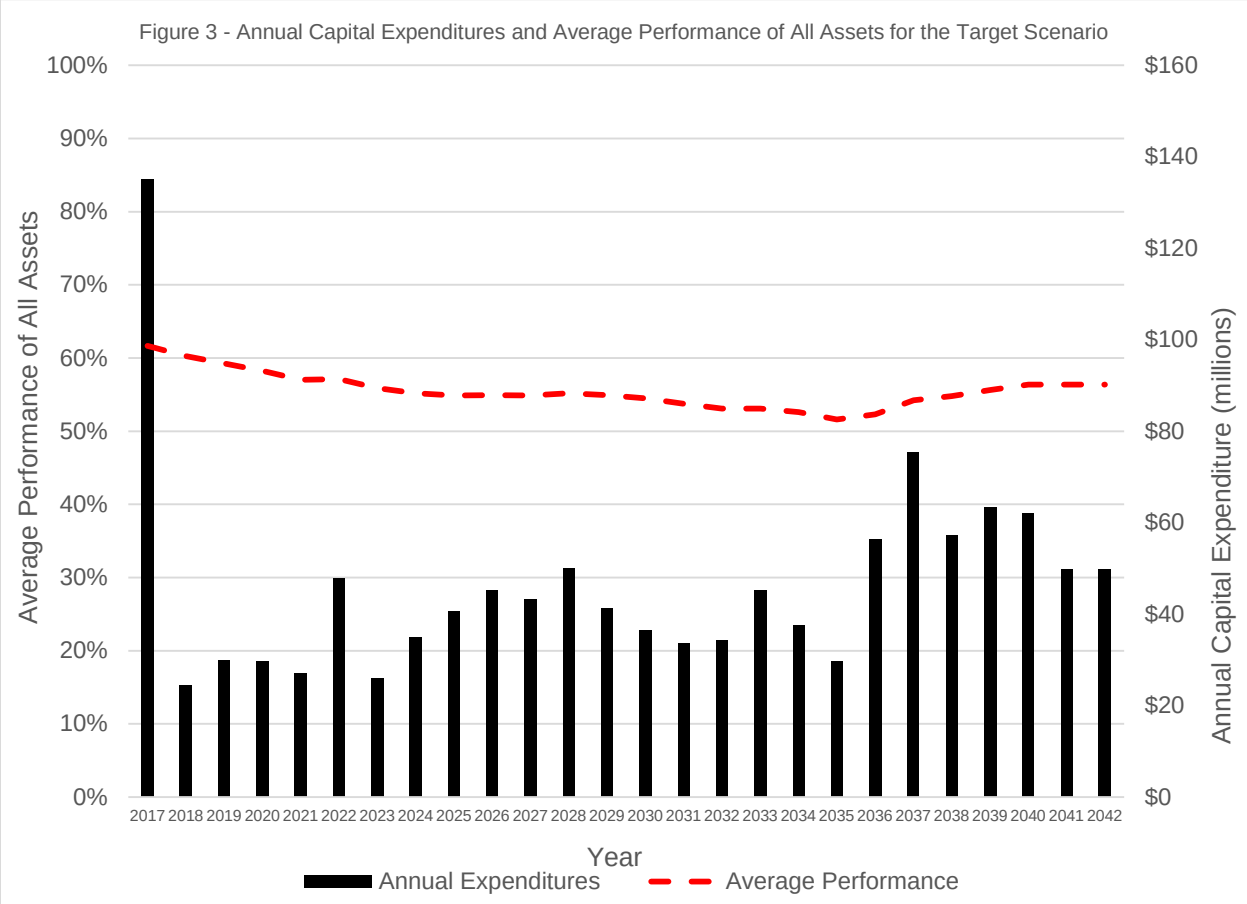
The analytical system is designed to be operationalized at a granular level by the City's subject matter experts. There are approximately 70,000 assets that are analyzed individually. It is critical that the analytical system provides this granular functionality because it improves the ability of staff to use the system to provide timely answers, thereby minimizing the risks associated with not being able to operationalize the system to support routine decision making processes.

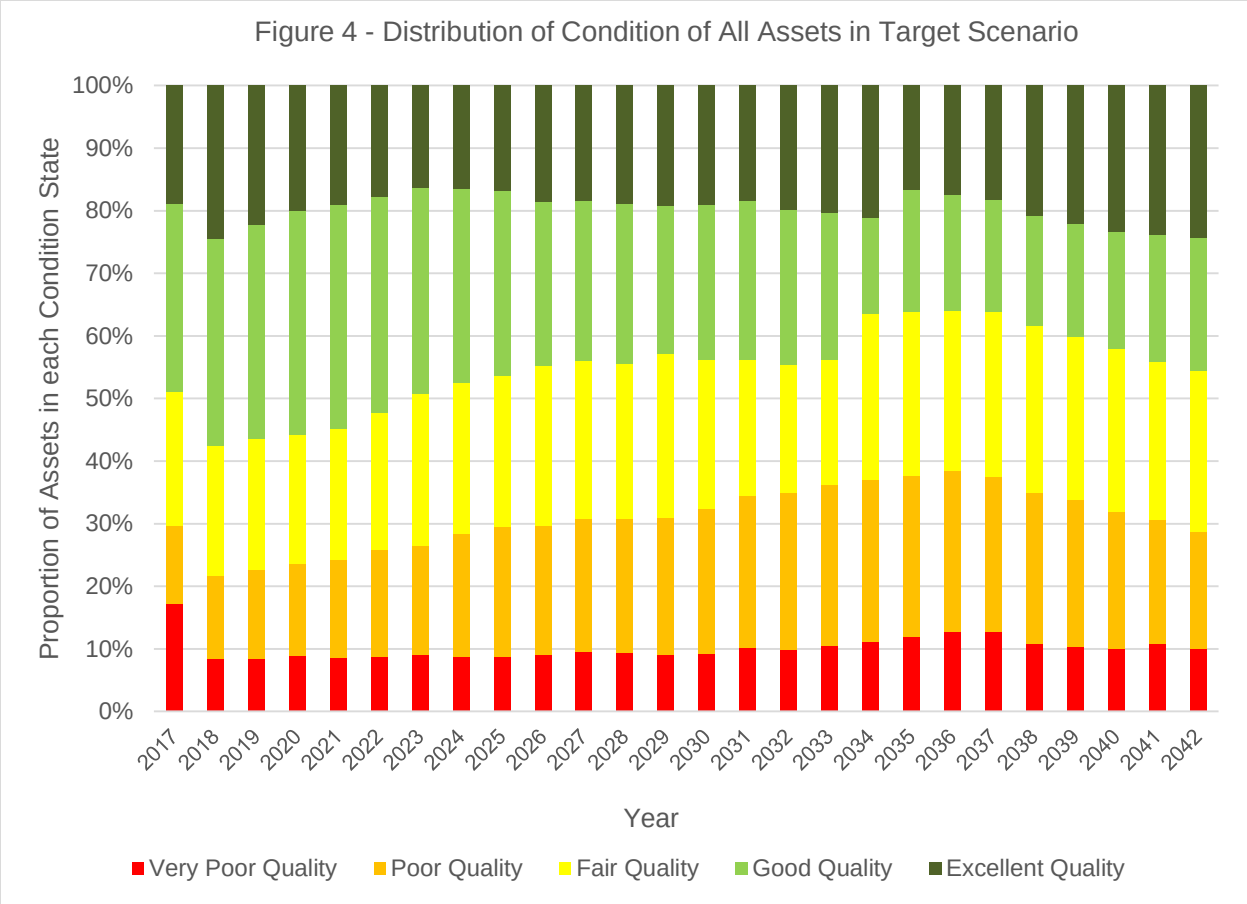
The system has been designed to provide a strategic perspective for consumption by senior management, council, and the public. This strategic perspective is typically referred to as a "dashboard" to provide the necessary information that is required to support strategic level decisions. The summary dashboard provides the aggregated performance and required expenditures at the asset system level, namely the 15 distinct asset groups in the City.

6. EXPENDITURE NEEDS AND SYSTEM PERFORMANCE

6.1 Target Scenario

The annual capital expenditures and average performance of all assets are summarized in Figure 3. The aggregate performance for all asset groups is summarized in Figure 4. Both of these figures are for the ***Target Scenario***. It is apparent from the analysis that the expenditures that are required to achieve the ***Target Scenario*** (the vertical bars on Figure 3) would result in a proportion of assets in each condition state that is anticipated to be acceptable to most stakeholders (Figure 4).





6.2 Budget Scenario

The annual capital expenditures and the aggregate performance for all asset groups from the ***Budget Scenario*** are summarized in Figures 5 and 6. The results of the analysis demonstrate that the planned expenditures (vertical bars on Figure 5) will result in a degradation of asset system performance over the next 25 years while increasing the proportion of assets in poor or very poor condition to a level that is not expected to be acceptable to most stakeholders (Figure 6). This analysis assumes that the City's current level of planned expenditures remains consistent over the next 25 years.

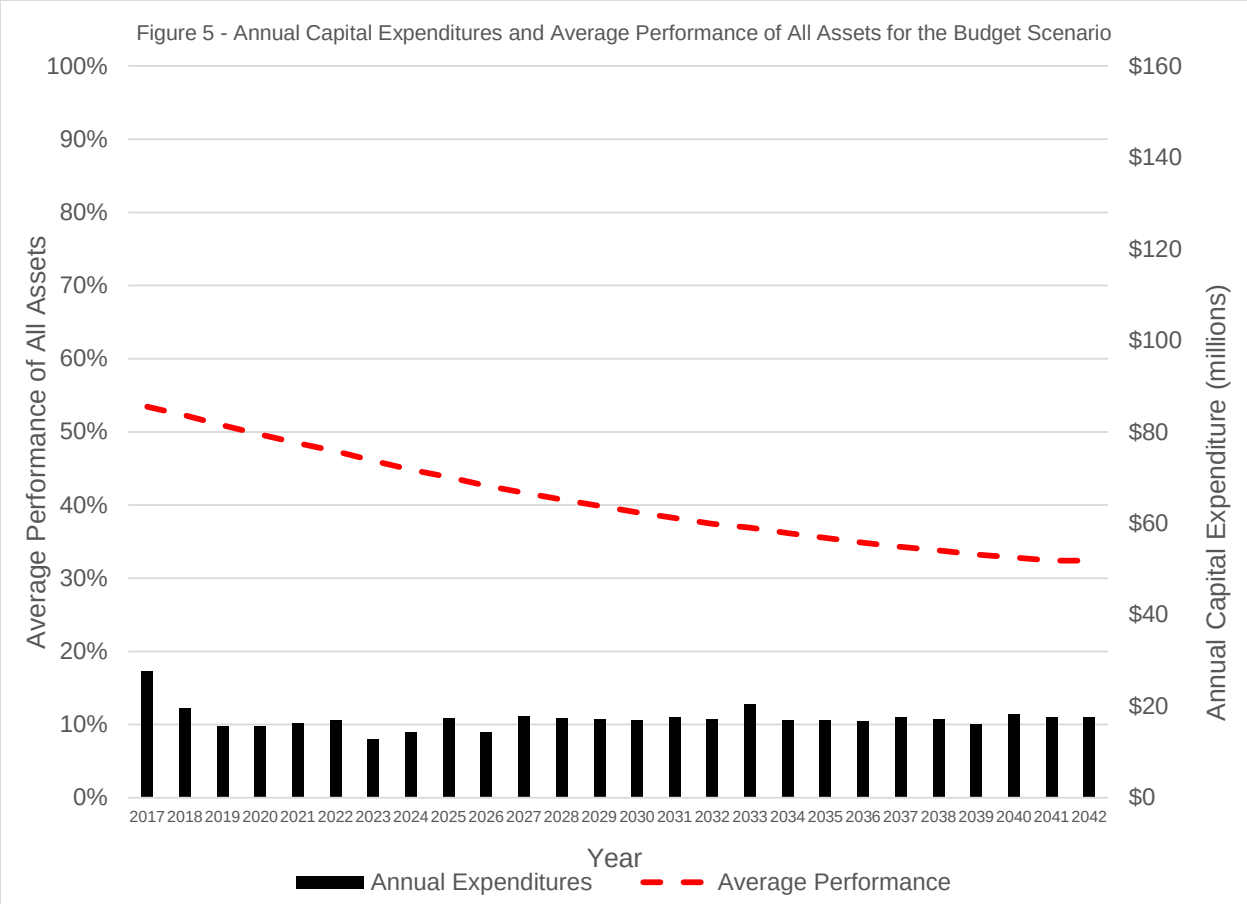
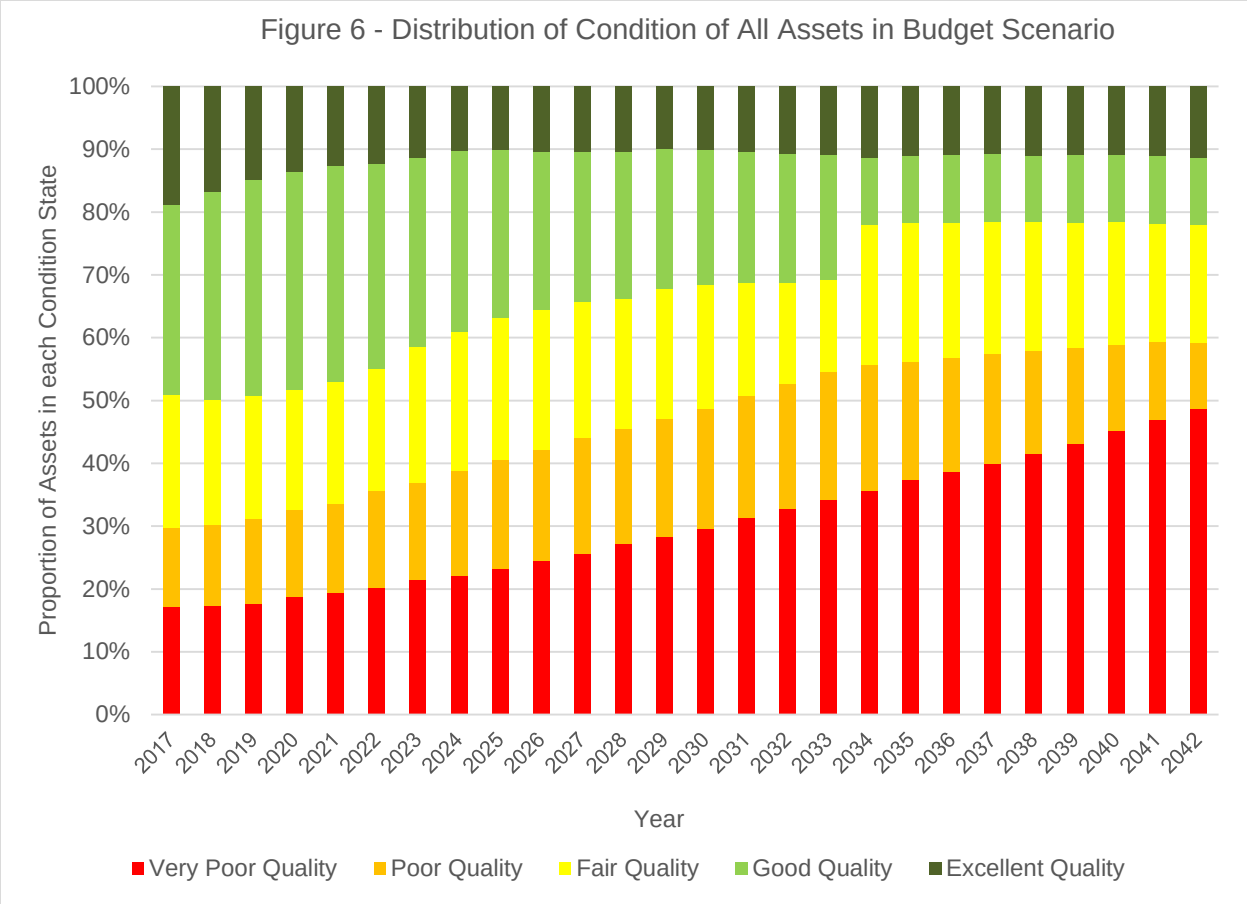


Figure 5 - Annual Capital Expenditures and Average Performance of All Assets for the Budget Scenario
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Average Performance of All Assets
$160
$140
$120
$100
$80
$60
$40
$20
$0
Annual Capital Expenditure (millions)
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042
Year
Annual Expenditures
Average Performance



6.3 Discussion of Scenarios

Moving forward, the City's subject matter experts will be able to generate a range of scenarios for their individual asset groups. These individual analyses at the operational and tactical levels can then be consolidated to obtain a strategic perspective on the overall suite of assets in Waterloo. The analyses of these "what-if" scenarios will be the key to addressing the infrastructure challenges in Waterloo over the coming years.

Waterloo is now prepared to leverage operational level asset management processes to help prioritize the specific assets that are renewed and to help evaluate alternative practices, strategies, or construction techniques that will reduce the expenditures that are required to achieve the target performance of the assets. These processes will enable Waterloo to reach a point where there are sufficient resources to ensure that the services provided by the City's infrastructure systems can be sustained over the long term.

6.4 Maturity of Asset Information to Support the Analytical System

The maturity of asset information refers to availability and quality of the data/information that is used to operationalize the analytical system. Not all asset groups have an equal maturity level of asset information. Increasing the quality of the available data or the sophistication of the life cycle management strategies that are operationalized in the analytical systems will provide greater confidence in the outcomes of the analysis.

In Phase 2 a detailed review of the available asset information was completed. Table 5 summarizes the maturity of asset information with respect to asset management planning operationalization, as well as an indication of how the current level of maturity compares to a typical Canadian municipality. The opportunities to improve future iterations of the analytical system that are described in Section 9 and Appendix A of this report are designed to increase the maturity of asset information.

Table 6 – Maturity of Asset Information in Waterloo

Asset Group	Proportion of Total Infrastructure in Waterloo	Maturity of asset information with respect to asset management planning operationalization	Maturity of asset information with respect to the rest of the Canadian AM industry
Transportation	31.5%	High	Average
Facilities	16.5%	High	Above Average
Sanitary	16.2%	High	Above Average
Water Distribution	13.3%	Medium	Average
Storm Collection	12.6%	Low	Average
Parks	3.7%	Low	Average
Stormwater Management	3.4%	Low	Average
Fleet	0.9%	High	Above Average
Parking	0.6%	High	Above Average
Fire Services	0.5%	Medium	Average
Forestry	0.4%	High	Above Average
Information Technology	0.2%	Medium	Average
Furniture and Fixtures	0.1%	Low	Average
Cemeteries	0.1%	Low	Average
Lands	N/A	Medium	Average

7. FINANCIAL STRATEGY

The primary strategy for paying for infrastructure in Waterloo has been a “pay-as-you” go approach. To accomplish this, funding is set aside in reserve accounts to manage variations in year to year expenditures. Reserve accounts are funded through contributions from the operating budget, the collection of development charges, or grants that are provided by higher orders of government. The reserves are then drawn from as funding is needed to pay for infrastructure activities.

7.1 Approach to the Financial Analysis

As part of the IAMAR, a financial analysis was completed to provide perspective on revenues that are required to fund any particular infrastructure expenditure scenario.

The steps to complete the financial analysis were as follows:

1. Determine which types of infrastructure are funded by each of the available reserve accounts. For the purposes of this analysis, all tax-supported infrastructure types have been aggregated to a single reserve account.

Table 7 – Aligning Asset Groups to Appropriate Reserve Funds

Asset Group	Reserve Fund
Water distribution	Water (WAT)
Sanitary Sewer	Sewer (SEW)
Storm sewer collection Stormwater management	Stormwater (SWM)
Fleet	Equipment Reserve (ER)
Cemeteries	Cemetery (CEM)
Parking	Parking (PKG)
Transportation Facilities Parks Forestry Fire services Furniture and fixtures Information technology	Tax-Supported Reserve (CIRRF/CRF/etc)

2. Determine the source of funding for each reserve account and the current planned contributions to each reserve account.

3. Input the results of the selected infrastructure expenditure scenario from the analytical system into a financial model. This information identifies the investments that are required to be made out of each reserve fund. The model completes typical financial analyses to demonstrate the practical ways in which the reserve funds would be used to fund the required investments.

4. The user can then adjust the additional annual contributions that are made to each reserve fund. The financial model enables the user to understand the impact of the additional contributions to

the closing balance of the fund over the next 25 years. The model assumes that debt is used to cover a shortfall in a fund if there is insufficient revenue in a year to fund the required expenditures.

It should be noted that there are no built in controls to restrict the model with respect to policies such as debt limits or minimum closing balances. The user is expected to have a firm understanding of these policies in Waterloo and to professionally manage the financial model to ensure it adheres to all relevant considerations.

7.2 Outcomes of the Financial Analysis

The outcomes of the financial model scenario demonstrate that the following annual contributions would be required to fund the infrastructure expenditures to achieve the **Target Scenario**.

Table 8 - Additional Annual Contributions required to Fund the Target Scenario

Reserve Fund	Additional Annual Contribution Required to fund the Target Scenario
Sewer (SEW)	Current contributions are in the general range that are required to fund the Target Scenario
Equipment Reserve (ER)	Current contributions are in the general range that are required to fund the Target Scenario
Cemetery (CEM)	Current contributions are in the general range that are required to fund the Target Scenario, however the asset information for cemetery assets has a low maturity
Parking (PKG)	Current contributions are in the general range that are required to fund the Target Scenario
Stormwater (SWM)	**$3 million** - the asset information for SWM assets has a low maturity
Water (WAT)	**$3 million** - the asset information for water assets has a medium maturity
Tax-Support Reserve	**$14 to $17 million**

7.3 Discussion

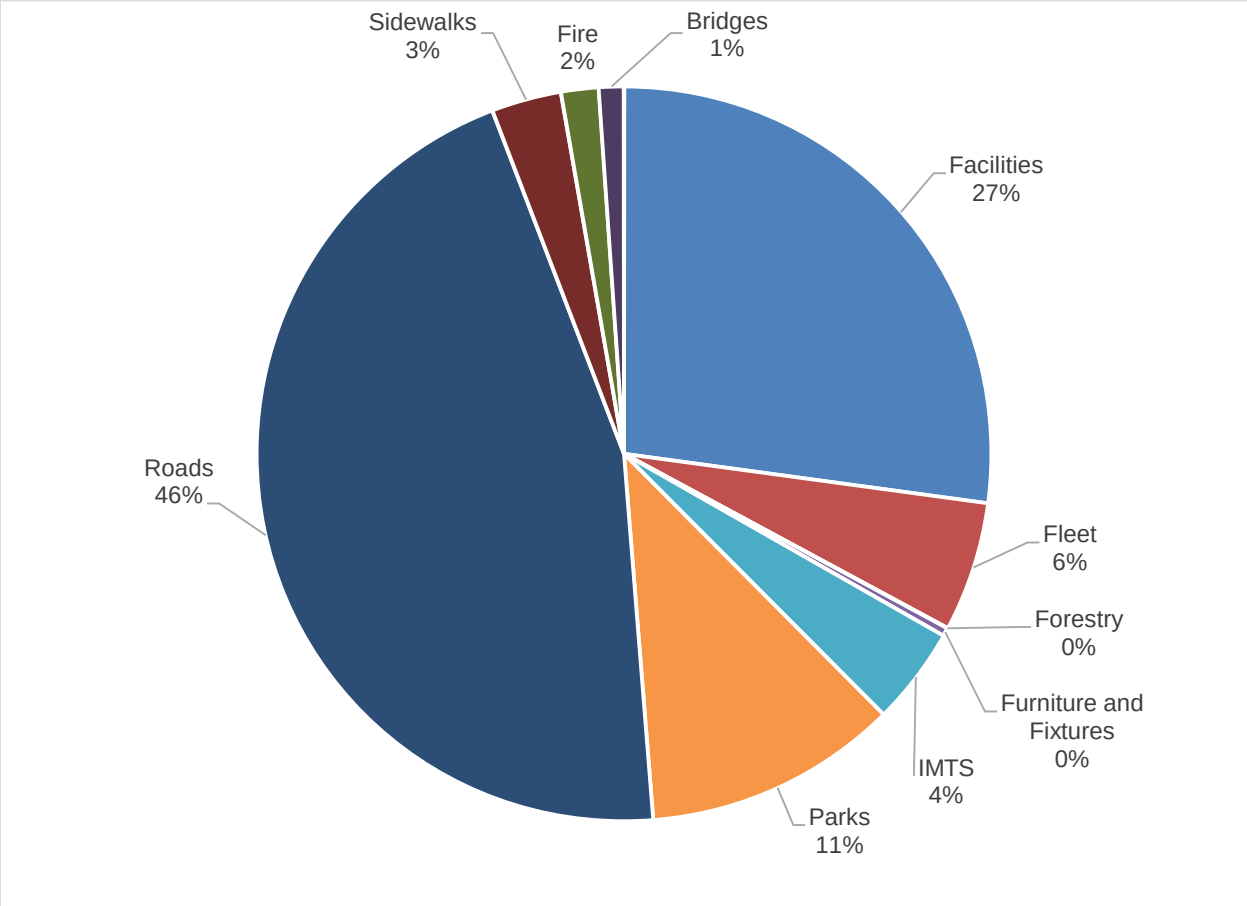
Increases in annual contributions to the reserve funds as noted in Table 7 to achieve the ***Target Scenario*** represent a significant increase to current contributions. In Waterloo, a 1% increase in the property tax levy generates approximately $700,000 in additional revenue. The additional contributions to the property tax supported reserve funds therefore represent an increase to property taxes of approximately 20% above and beyond other increases for inflation.

It is important to recognize that while additional revenue into the reserve funds is required, addressing the infrastructure challenges in Waterloo is about more than collecting additional revenue. The continued operationalizing of asset management processes are equally, if not more, important to help:

- Prioritize the assets that are renewed
- Reduce the required expenditures to provide the performance objectives of the infrastructure systems
- Understand where levels of service may be reduced in exchange for lower tax increases/required infrastructure expenditures.

It should be noted that there is a range of asset types that are funded from tax supported reserve funds. Figure 7 shows the distribution of the required expenditures to fund the target scenario for all tax supported assets. This information should represent a starting point for determining where to prioritize any additional capital infrastructure expenditures that may be made from tax supported reserves.

Figure 7 - Distribution of Required Expenditures for Tax Supported Assets, Target Scenario



7.4 Other Financial Impacts Not Included in the Analytical System

The analytical system has a primary focus to operationalize asset management processes for existing assets. There are three other financial considerations that need to be captured to provide a comprehensive perspective of financial impacts of the infrastructure analysis documented in this report.

Consideration 1 - Costs to Operate and Maintain New Assets

The IAMAR completed a comprehensive review of the City's operating expenditures. The review established the specific operating cost centres that are attributed to supporting infrastructure assets (summarized earlier in Table 4). These operating costs can be applied against the replacement value of the asset group and expressed as a percentage value (refer to Table 8). These percentages can then be applied against the new assets that are planned to be constructed over the next 10 years to estimate the expected increase to the annual expenditures required to operate and maintain the new asset and larger infrastructure systems.

The analysis demonstrates that an additional $7.5 million per year will be required by the year 2026 to operate and maintain the additional new assets that are planned for construction over the next 10 years ($2.3 million for tax-supported asset groups and $5.2 million for enterprise asset groups). This represents a 4.2% increase to the City's current operating budget of $178 million, above and beyond inflationary increases. It should be noted that this analysis assumes that the current level of O&M expenditures are sufficient for the current size of the infrastructure systems. Over the coming years the City will refine the analysis of operating expenditures and determine what level of expenditures is appropriate for the size of the infrastructure systems.

Table 9 - Expected Increases to Annual Expenditures to Operate and Maintain New Assets Planned over the Next 10 Years

Asset Group	Existing Replacement Value of Asset Group (millions)	Expenditures to Operate and Maintain Assets	O&M Expenditures as % of Replacement Value of Asset Group	New Asset Constructed over next 10 Years (millions)	Expected increase to Annual expenditures to O&M new assets
Transportation	$509	$4.9	1.0%	$18	$0.2
Facilities	$267	$2.9	1.1%	$23	$0.3
Parks	$60	$2.9	4.9%	$32	$1.6
Forestry	$6	$0.8	13.3%	$0	$0
Fleet	$15	$0.02	0.2%	$1	$0.002
Fire Services	$8	$0.2	2.2%	$5	$0.1
Furniture and Fixtures	$2	---	0.0%	$1	$0
Information Technology	$3	$2.2	74.8%	$0	$0.2
Sub-total for Tax-Supported Asset Groups	**$869**	**$14.0**	**1.6%**	**$81**	**$2.3**
Sanitary	$261	$1.6	0.6%	$14	$0.09
Water Distribution	$215	$2.5	1.2%	$8	$0.09
Storm Collection	$203	$0.4	0.2%	$6	$0.01
Stormwater Management	$55	$0.9	7.3%*	$18	$1.3
Parking	$10	$0.7	7.4%	$26	$1.9
Cemeteries	$2	$1.6	78.1%	$2	$1.6
Sub-total for Enterprise Asset Groups	**$747**	**$7.9**	**1.1%**	**$75**	**$5.2**
Total**	**$1,616**	**$21.8**	**1.4%**	**$156**	**$7.5**

*Note: Operating percentage for Stormwater Management assets was calculated based on the rehabilitation value.
**Note: Numbers may not add due to rounding.

Consideration 2 - Costs to Renew Larger Asset Networks

The IAMAR completed a comprehensive review of the City's current capital budget. This review was used to establish the quantities of new assets that are planned to be constructed in the City over the next 10 years. The analysis demonstrates that the value of the infrastructure systems in Waterloo will increase by approximately 10% (refer to Table 9). This increase in the size of the asset groups will also result in a corresponding increase in the expenditures that are required to rehabilitate and replace infrastructure over the long term.

The analytical system that will be operationalized in the City will help to prepare more sophisticated rehabilitation and replacement needs of new assets. This understanding will be used to inform changes to how infrastructure is procured in Waterloo to ensure that the lifecycle costs of new assets are minimized.

Table 10 – Increase in the size of Waterloo's Infrastructure over the next 10 Years

Asset Group	Existing Replacement Value of Asset Group (millions)	New Asset Constructed over next 10 Years (millions)	Replacement Value of Asset Group in 10 years (millions)	% increase to value of system*
Transportation	$509	$18	$526	3.5%
Sanitary	$261	$14	$275	5.5%
Water Distribution	$215	$8	$223	3.7%
Storm Collection	$203	$6	$209	2.7%
Stormwater Management	$55	$18	$73	33.5%
Facilities	$267	$23	$290	8.6%
Parks	$60	$32	$92	53.2%
Forestry	$6	$0	$6	0.0%
Parking	$10	$26	$37	260.7%
Fleet	$15	$1	$16	9.2%
Fire Services	$8	$5	$13	73.3%
Furniture and Fixtures	$2	$1	$3	28.4%
Information Technology	$3	$0	$3	9.6%
Cemeteries	$2	$2	$4	105.0%
	$1,616	**$156**	**$1,771**	**9.6%**

*Note: Percentages may not calculate as shown due to rounding of asset values for display in the table.

Consideration 3 - Increased Staffing Resources to Implement a Larger Volume of Capital Projects

It is recognized that increases in contributions to capital reserve funds, and therefore increases in the volume of infrastructure that is constructed each year in Waterloo, will require additional resources to manage the larger volume of capital work. The IAMAR project team estimates that one design/construction position is on average capable of managing an average of approximately $2 to $3 million of capital projects. This suggests that additional positions would be required to deliver an additional $20M in annual capital projects. Additional full time equivalent positons would also be required to support the administrative side associated with completing the larger volume of capital projects.

The City should complete an internal analysis of current resources to deliver capital projects to develop a better understanding of the additional impact to the operating budget that will result from increased staff required to deliver a higher volume of capital projects.

7.5 Funding Strategies

There are several strategies that the City could consider to fund the infrastructure expenditure needs in Waterloo:

1. **Property tax levy dedicated to infrastructure renewal**
   Instituting a property tax levy that is dedicated to fund infrastructure renewal activities in the City is one of the best strategies to fund the additional contributions to the reserves. This approach provides a more direct line of sight from the taxes that residents pay to the services/infrastructure that it funds. The cities of Toronto and Mississauga have both recently implemented this type of infrastructure tax levy.

2. Increasing the general tax levy

Increasing the general property tax revenues through higher annual increases to the tax levy is another option to fund the additional contributions to the reserves. This approach will enable more flexibility with how the additional revenue is allocated between additional contributions to reserves versus increases to the operating expenditures. This would help address the impact of funding larger rehabilitation/replacement projects through the operating budget.

3. Continuing to pursue Provincial/Federal grants

Both the Ontario and Federal governments have established substantial programs to fund the rehabilitation or replacement of municipal infrastructure. The grants are typically awarded to fund specific projects through an application based system. As the specifics of these programs are rolled out the City should pursue grant opportunities to fund the priority infrastructure replacement/rehabilitation projects in Waterloo. The ad-hoc funding of specific projects through these types of grants will lower the overall magnitude of capital dollars that will need to be funded through the reserve accounts.

4. Leverage Public-Private Partnerships

In some cases it may be feasible to fund infrastructure renewal projects by leveraging private capital funds through a public-private partnership (P3). Similarly to the impact of receiving grants, the funding of specific projects through a P3 will lower the overall magnitude of capital dollars that will need to be funded through the reserve accounts.

8. IMPLEMENTATION PLAN

The implementation plan has been developed through close collaboration with the project team. Each recommendation will be considered by staff, together with the understanding of the budget implications, and incorporated into the AMP that will be prepared in the fall of 2016

8.1 Recommendation #1: Internal Resourcing of the Analytical System

The internal resourcing needed to support the analytical system is the single most important factor that will impact the ability to operationalize and sustain it over the coming years. It is too easy for these types of projects to sit on a virtual shelf and not be used, quickly falling out of relevancy as the system fails to be updated and refined. It is recommended that the analytical system's implementation be managed by staff in the following roles:

1. A full time integrated asset management professional who understands both the strategic and operational perspectives of what the system can do and how it can be refined. This individual should be considered an integrated asset management expert, directing the development, implementation and sustainability of asset management processes in the organization. Amongst other responsibilities, the position will be required to meet with subject matter experts to refine the system in the short term, and sustain it in the long term.

2. Two full time asset management professionals who understand how to manage large data sets, have strong capabilities in Excel, and understand the technical aspects of GIS and other database applications. The staff should include one individual to manage sustainable integration with financial processes, and the other to manage sustainable integration with infrastructure renewal processes.

3. One part time computer programming professional with an ability to develop queries in SQL based programming languages. This position will be responsible for adjusting algorithms under the direction of the integrated asset management professional, as well as for managing the native data – SQL server – Access – Excel connectivity.

Structuring the Roles within the Organization

It is recommended that the roles form a part of a division named "Integrated Processing", rather than "Asset Management". This will avoid the notion of the roles being sole proprietors of asset management processes, when in reality the whole corporation is involved. There are four options of where the division could be allocated within the corporation:

- Option A – Integrated Processing division within Integrated Planning and Public Works department
- Option B – Integrated Processing division within Community Services department
- Option C – Integrated Processing division within Corporate Services department
- Option D – Integrated Processing division within Chief Administrative Office

Option D is recommended for the initial implementation and first iterative cycle. The goal is to encourage stronger collaboration between financial and technical subject matter experts by minimizing the traditional separation of business processes.

Typical Activities of the Integrated Processing Staff

The following points summarize the typical activities that the Integrated Processing staff will complete:

- Liaising with the subject matter expert staff to improve how asset data/information is collected and used.
- Liaising with the subject matter expert staff to adjust the approach to analyzing asset data within the system.
- Coordinating the adjustment of the analysis in the system to continually improve the relationships between the expenditure needs and the performance of the assets.
- Advancing the measurement of asset performance to go beyond the current approach of using primarily asset condition information.
- Liaising with the City's finance team to refine how the capital budget and capital project sheets are developed to better support the analysis of planned expenditures on the performance of the assets.

8.2 Recommendation #2: Develop an Asset Management Strategy and Policy

The City should develop an Asset Management Strategy and Policy. Complete operationalization of asset management processes implies an equal share of responsibility between financial and engineering experts to support infrastructure decision making. Relevant policies and procedures should aim to eliminate or minimize barriers/silo effects in the exchange of information that typically exist within municipal bureaucracies. The following guidelines will support the City in the development of this document:

- The Asset Management Strategy and Policy needs should be cognisant of the value of the existing information and processes, with a goal to build upon these existing processes.
- The Integrated Processing division and processes they undertake should not interfere or take precedent with the other existing communication or authoritative lines of the organization.
- The Integrated Processing division should support existing decision making processes.
- The Integrated Processing division should have corporate wide access to all information that is not deemed confidential by human resources or in-camera information.
- The Integrated Processing division needs to exercise discretion and be sensitive to the sources of information. They consume the information in consultation with the authoritative sources of the native information.
- The Integrated Processing division should use the historical structure of asset information to refine the way in which new information is collected by the authoritative sources.
- The Integrated Processing division should direct asset group subject matter experts to shape the quality and quantity of information that is available to refine future updates to the analytical system. Should they not be able to provide this information, then the Integrated Processing division would look for opportunities to use their internal resources to collect improved asset information.

8.3 Recommendation #3: Develop a Public Engagement Strategy

The process to engage the public on the City's plan for spending money is not new to Waterloo. Efforts have been made over the past decade to ask questions and elicit input to help shape the City's infrastructure decision making through the completion of studies or during budget processes.

Municipalities across Canada are increasingly engaging their citizens in helping staff develop recommendations - and council make decisions - about their strategic directions and priorities for resource allocations. This is particularly true in these times of competing priorities and limited resources.

A particular issue for municipalities is the emerging strength of special interest groups and individuals who are vociferous in expressing opinions about how cities and towns should allocate resources. Council members often feel pressured to accommodate these special interests. Without a robust citizen engagement strategy, the views of the silent majority of citizens are not taken into consideration. This can lead to citizens feeling disenfranchised, and result in a mistrust of the political process - and of politicians and city employees themselves.

The most effective citizen engagement strategy is one whereby all of the citizens (or a representative cross section of them) can provide their views and opinions to Council in a statistically valid way.

The proposed public engagement strategy is comprised of two major tactics – one formal and one informal. The first would be a mechanism to conduct formal market research to understand community views about how to prioritize investments in infrastructure by the City of Waterloo. A telephone survey of a cross section of City of Waterloo residents by a professional polling firm is recommended to obtain this understanding.

At the same time, it is recognized that citizens other than those surveyed may wish to provide their opinions about asset management planning priorities. They would be provided with an opportunity to provide feedback via the existing “engageWaterloo” online forum. This would be the informal engagement mechanism. While not statistically valid, it does allow for all citizens of the municipality a chance to express their opinions.

The results of the telephone survey – and to a lesser extent, the forum responses - will allow staff to inform asset management planning based on the feedback from the public and their own understanding of priorities that must be addressed.

Future plans would then go before Council with an explanation of how it was developed and how survey results influenced the recommended priorities, along with an explanation of priorities determined by a staff’s unique knowledge, regulatory requirements, etc. (i.e. those asset groups not included in the telephone survey questions).

The full Public Engagement Strategy is provided in Appendix B.

8.4 Recommendation #4: Complete a Long Term Financial Plan

The City’s has a plan to develop a long term financial plan in 2016 and 2017. The financial analysis completed as part of the IAMAR should be incorporated into a more comprehensive financial analysis of all expenditures. The long term financial plan will review the impacts of non-infrastructure expenditures and provide further confidence to any decisions that are made in the future with respect to increasing revenue to fund infrastructure renewal activities.

8.5 Recommendation #5: Complete Refinements of the Analytical System by the Integrated Processing Division

The refinements to the analytical system that are described in Appendix A should be prioritized and planned by the Integrated Processing division team in collaboration with subject matter experts. In some cases it may be feasible to complete the refinements using internal Integrated Processing division resources through incorporation into existing work planning processes. If the Integrated Processing

division does not have sufficient resources then consideration should be given to the use of resources of the subject matter experts. If neither of these groups have the available resources then consideration should be given to retaining additional support through the procurement of external resources. The Integrated Processing division and the subject matter experts should complete the appropriate resource planning if required for refinement of the analytical system. This may include, but not be limited to:

- New data collection;
- Digitizing existing data; and
- Data processes/analysis of existing data.

8.6 Recommendation #6: Coordination of Maximo

The software application called *Maximo* is the City's mechanism for creating, tracking and analyzing work orders or activities that are completed for each asset. The City is in the process of enhancing how Maximo is being used to manage these operational activities. When fully mature, this enhanced application of Maximo will provide the City with information that can be used to develop more accurate operating ratios while informing refinements to the analytical system, such as the adjustment of estimated service lives of assets or more accurate lifecycle management strategies. The data/information shared between the analytical system and Maximo should be aligned to include the coordination of asset hierarchies and the processes to collect and use asset inventories and asset information.

The analytical system has been designed to receive information currently being provided by Maximo. As Maximo continues to be implemented it should be done in a manner that aligns with the structure of the analytical system.

9. CONCLUSIONS AND DISCUSSION

This first iteration of the analytical system identifies a shortfall between the expenditures that are required to achieve an acceptable level of performance from the City's infrastructure assets and the current planned expenditures in the capital and operating budgets. The required expenditures have been established based on an analysis of the most granular asset data available in the City combined with operational level decision making strategies about why and how each different type of asset is renewed.

Over the coming years, the City will continually review the infrastructure needs as the available information is refined and as technological or business process improvements reduce the cost of renewing infrastructure. Operationalizing asset management process through the analytical system will:

1. **Help prioritize the assets that are renewed**

   The analytical system will provide evidence to help decide if all new money should be targeted to only one asset group or shared equally amongst all asset groups. One of the best strategies to reduce the burden of increasing revenue to fund infrastructure activities is to grow the local economy, which will enhance the ability of local residents to afford tax or user fee increases. This perspective suggests that the infrastructure expenditures should be targeted to asset groups/specific assets through an economic development lens.

2. **Reduce the cost of renewing the assets**

   The infrastructure industry in Canada is continually looking for better and less expensive strategies to renew (rehabilitate/replace) existing infrastructure. New construction techniques, such as the structural rehabilitation of linear water and wastewater assets, is just one example. The coordination of right of way projects and changes to procurement approaches also have the potential to lower the total required costs of renewing assets at their level of service targets. The analytical system will help provide the evidence to justify the adoption of these innovative strategies.

The infrastructure challenges facing Waterloo did not materialize overnight, they grew from decades of making decisions about how our infrastructure systems were developed without a comprehensive plan to maintain the systems over the long term. The analytical system that has been developed in the IAMAR has equipped the City with processes that have operationalized asset management at a detailed (operational), tactical, and strategic level throughout the organization. These asset management processes are the key to making Waterloo's infrastructure systems sustainable. It is imperative that these processes are used to provide the evidence that will inform how the City's infrastructure is planned, designed, procured, operated, maintained, and ultimately replaced.

APPENDIX A:
OPPORTUNITIES TO REFINE THE ANALYTICAL SYSTEM

The following section documents the implementation plan to improve future refinements of the analytical systems and to guide the application of the outcomes of the analytical system to support future infrastructure expenditure planning activities. The section provides a separate component for each of the 15 asset groups. The City is already planning to refine the analytical system in the short term to address some of the opportunities documented in this Appendix.

Asset Group: Transportation	
Maturity of asset information with respect to asset management planning operationalization	Roads, Bridges - High Sidewalks, Walks and Trails - Medium
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	**Roads** • Next year: Use the information in the corridor tool in a professional manner to help make more informed corridor renewal decisions. • 1 to 5 years: The current version of the analytical system only incorporates two asset renewal interventions – full road replacement and full depth road resurfacing – because in practice these are the two major types of road treatment options that are operationalized in the City. Future versions of the road analytical system can be refined to incorporate additional treatment options, such as small depth mill and pave rehabilitation strategies. • 1 to 5 years: Explore how the corridor tool can be more integrated with the analytical system. **Sidewalks** • Next year: Improve the quality of the condition data on each segment through the generation of condition scores based on the existing database of deficiencies or by completing routine visual assessments that provide aggregate level sidewalk segment condition scores. • 1 to 5 years: Refine the levels of service (i.e. condition at which an asset is replaced) to align with the sidewalk prioritization methodology.

Asset Group: Transportation	
	Bridges • 1 to 5 years: Improve the longer term understanding of bridge needs by requesting estimates of the 11 to 25 year needs during the existing processes to complete biannual inspections. **Walks and trails** • 1 to 5 years: Collect and maintain condition scores based on visual observations of each walk and trail segment. • 1 to 5 years: Establish formal lifecycle management strategies for the walks and trails to identify the target condition at which different categories are resurfaced and estimate the service life of a new walk/trail. **Streetlights** • 1 to 5 years: Incorporate the streetlights into the analytical system when the inventory is fully mature with a current condition of each streetlight and the estimated service life.

Asset Group: Sanitary Sewers	
Maturity of asset information with respect to asset management planning operationalization	Sanitary Sewers - High Sewage Pumping Stations - Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Above Average
Opportunities for Refinement of Future Versions of Analytical System	**Sanitary Sewers** • 1 to 5 years: The analysis was completed using aggregate condition scores for each sewer segment. The detailed CCTV data from the City Spec software application contains more specific data on the type and severity of defect in the sewer that is used to generate the overall condition score. The analytical system can be refined to analyze this more discrete information to support the development of a more sophisticated integrated corridor decision support system that can define a more explicit rehabilitation renewal strategy. • 1 to 5 years: Expand the hydraulic model to include all pipes and incorporate the outcomes into the analytical system. • 1 to 5 years: Incorporate functional performance in the systems by looking at hydraulic grade lines relative to the ground elevation during target wet weather events. **Sewage Pumping Stations** • 1 to 5 years: Complete a detailed component-level inventory and condition assessment of all sewage pumping stations except Beaver Creek to develop robust data for use in the analytical system.

Asset Group: Water Distribution	
Maturity of asset information with respect to asset management planning operationalization	Medium
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year: The analytical system will be refined during the fall of 2016 as the Water Distribution Master Plan is completed.

Asset Group: Stormwater Collection	
Maturity of asset information with respect to asset management planning operationalization	Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• 1 to 5 years – The City is in the process of collecting condition scores for all storm sewers. This data should be incorporated into the analytical system when it is ready to be operationalized to support decision making processes. • 1 to 5 years – The development of a hydraulic model of the storm sewer network in the City would provide improved perspectives on the functional performance of the system that could be operationalized in the analytical system.

Asset Group: Stormwater Management	
Maturity of asset information with respect to asset management planning operationalization	Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• 1 to 5 years – Staff are in the process of developing the terms of reference for a Stormwater Management Master Plan. It is expected that this study will provide a large volume of asset information that could be operationalized into the analytical system, including a full inventory of all stormwater management assets (culverts, retaining walls, creek erosion infrastructure, etc.) and both hydrological and hydraulic models of the stormwater collection system.

Asset Group: Facilities	
Maturity of asset information with respect to asset management planning operationalization	High
Maturity of asset information with respect to the rest of the Canadian AM industry	Above Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year – The City is working to prepare revised estimated useful lives of the components in the asset inventory and are reviewing the replacement costs of each component to ensure it reflects the practical volume of work that it would take to effectively address a poorly performing component. Both of these adjustments can be incorporated into the analytical system to improve the understanding of the required expenditures that are generated by the analytical system. • 1 to 5 years – The information provided by assessors during their routine assessments needs to be better aligned with identifying specifically what needs to be done at each facility. The process of assigning a priority/condition score to each component does provide some information that is useful for incorporation into the analytical system, but the addition of a 25 year renewal plan for each facility would be a better approach to more confidently understand the required expenditures.

Asset Group: Parks	
Maturity of asset information with respect to asset management planning operationalization	Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year – The full inventory of parks assets needs to be confirmed, including current condition, replacement cost and estimated service life of each asset. • 1 to 5 years - Collect any missing inventory and condition information.

Asset Group: Forestry	
Maturity of asset information with respect to asset management planning operationalization	High
Maturity of asset information with respect to the rest of the Canadian AM industry	Above Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year - Confirm the estimated useful life by species based on location-specific information. For example, some trees in more built up areas of the City may have a different useful life than a tree of the same species in a more suburban environment. This would require including an additional field in the tree database that can be used as "Asset Level 2", with the species of tree becoming Asset Level 3 in the analytical system.

Asset Group: Parking	
Maturity of asset information with respect to asset management planning operationalization	High
Maturity of asset information with respect to the rest of the Canadian AM industry	Above Average
Opportunities for Refinement of Future Versions of Analytical System	• Next Year – Confirm the current condition of each parking lot. • 1 to 5 years – Include the number of spots at each lot in the parking lot inventory managed in GIS. This will enable the analysis of the parking lot performance that can be weighting both on an area basis and a per-space basis.

Asset Group Fleet	
Maturity of asset information with respect to asset management planning operationalization	High
Maturity of asset information with respect to the rest of the Canadian AM industry	Above Average
Opportunities for Refinement of Future Versions of Analytical System	• Next Year – None • 1 to 5 years – Analyze the existing maintenance history of the fleet assets to understand how the mileage, hours of operation or historic maintenance costs can be used to establish the performance of the assets.

Asset Group Fire Services	
Maturity of asset information with respect to asset management planning operationalization	Medium
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next Year – none • 1 to 5 years – Refine the equipment asset inventory to include the year of acquisition. This will provide sufficient information to operationalize the fire equipment in the analytical system.

Asset Group: Furniture and Fixtures	
Maturity of asset information with respect to asset management planning operationalization	Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year - Prepare a comprehensive inventory of all furniture and fixtures. This will include the collection of additional asset information and the current condition (or age/Expected Service Life) of all assets in the inventory.

Asset Group: IT	
Maturity of asset information with respect to asset management planning operationalization	Medium
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next Year - Refine the inventory of all IT assets. This will include the collection of additional asset information and the current condition (or age/Expected Service Life) of all assets in the inventory.

Asset Group: Lands	
Maturity of asset information with respect to asset management planning operationalization	Medium
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next year – None • 1 to 5 years – Establish the intended use of each land parcel owned by the City, and whether the parcel is currently suitable for its intended use. In cases where it is not suitable, establish an associated cost that would be required to prepare the parcel to bring it to a point where it is suitable for its intended use.

Asset Group: Cemeteries	
Maturity of asset information with respect to asset management planning operationalization	Low
Maturity of asset information with respect to the rest of the Canadian AM industry	Average
Opportunities for Refinement of Future Versions of Analytical System	• Next Year – The full inventory of cemetery assets needs to be confirmed, including current condition, replacement cost and estimated service life of each asset. • 1 to 5 years - Collect any missing inventory and condition information.

APPENDIX B: PUBLIC ENGAGEMENT STRATEGY

1. Introduction

Municipalities across Canada are increasingly engaging their citizens in helping staff develop recommendations - and Council make decisions - about their strategic direction and priorities for resource allocations. This is particularly true in these times of competing priorities and limited resources.

A particular issue for municipalities is the emerging strength of special interest groups and individuals who are vociferous in expressing opinions about how cities and towns should allocate resources. Council members often feel pressured to accommodate these special interests. Without a robust citizen engagement strategy, the views of the silent majority of citizens are not taken into consideration. This can lead to citizens feeling disenfranchised, and result in a mistrust of the political process - and of politicians and city employees themselves.

The most effective citizen engagement strategy is one whereby all of a municipality's citizens (or a representative cross section of them) can provide their views and opinions to council in a statistically valid way.

2. Background

Previous efforts of citizen engagement in the City of Waterloo have generally been completed on an ad-hoc basis to support an ongoing initiative. To effectively engage the public over the long term in making asset management-related decisions it is essential that the City have a proactive, long-term strategy.

A survey of similar-sized municipalities across Ontario – as well as municipalities outside the province that have embraced citizen engagement in a constructive way – indicates that none have surveyed the public in asset management planning in particular. Many have engaged their citizens on budget priorities and/or on particular components of asset management plans (e.g. parks and recreation facilities).

During the survey of these municipalities, responding representatives shared their opinions on their city's engagement strategies and practices, including participation rates and the effectiveness of various engagement tactics. See Appendix 1 for a report of the survey results.

The strategy outlined below takes into account the views expressed about citizen engagement by the participating municipalities, and a reasonable budget allocation for an Asset Management Planning Engagement Strategy for the City of Waterloo.

3. Recommended Approach to Citizen Engagement

The International Association for Public Participating (IAP2) has established the following spectrum of public participation:

	Increasing Level of Public Input →				
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decisions.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example techniques	• Fact sheets • Websites • Open houses	• Public Comment • Focus Groups • Surveys • Public meetings	• Workshops • Deliberative polling	• Citizen advisory committees • Consensus building • Participatory decision making	• Citizen juries • Ballots • Delegated decision

It is recommended that the City of Waterloo "consult" with its citizens on the Asset Management Plan. This will enable the public to have input into the plan for the consideration of staff and council, without the requirement that decisions about the plan be directly related to the feedback received.

However, we do not recommend that citizens be consulted on all 15 asset groups. Some of these groups include assets that do not affect citizens in any meaningful way in their daily lives, and are simply things the City owns and must manage. These include:

- Information Management and Technology Services
- Fire Services (i.e. the equipment used for this service)
- Fleet
- Cemeteries
- Corporate Furniture and Fixtures
- Lands

The asset groups which will offer the best opportunity for community input are:

- Transportation
- Water Management (including sanitary sewer, water distribution and storm sewer and stormwater management)
- Facilities
- Parks
- Parking
- Forestry

Most of the municipalities surveyed about public engagement in asset management planning responded that open houses have not proven to be valuable in consulting with their communities, since turnout is usually very low, and those in attendance often have special interests to advance.

The proposed public engagement strategy comprised of two major tactics – one formal and one informal. The first would be a mechanism to conduct formal market research to understand community views about how to prioritize investments in infrastructure by the City of Waterloo. A statistically valid telephone survey of a cross section of City of Waterloo residents by a professional polling firm is recommend to achieve this understanding.

At the same time, we recognize that citizens other than those surveyed may wish to provide their opinions about asset management planning priorities. They would be provided with an opportunity to provide feedback via the existing "engageWaterloo" online forum. This would be the informal engagement mechanism. While not statistically valid, it does allow for all citizens of the municipality a chance to express their opinions.

The results of the telephone survey – and to a lesser extent, the forum responses - will allow staff to develop an asset management plan based on the feedback from the public and their own understanding of priorities that must be addressed.

The plan would then go before Council with an explanation of how it was developed and how the survey results influenced the recommended priorities, along with an explanation of priorities determined by a staff's unique knowledge, regulatory requirements, etc. (i.e. those asset groups not included in the telephone survey questions).

Once Council decides on and approves the plan, highlights of this plan should be communicated to the public, with an explanation of how community engagement influenced the decisions.

The details of the engagement recommendations are provided in the following sections.

Telephone Survey

To achieve a standard confidence interval of 95% and margin of error of 5%, approximately 500 residents will be required to participate. The confidence interval of 95% indicates that the mean for the entire population of Waterloo falls within a particular range of responses – which is quite strong. Stated another way, the 95% confidence level indicates that in 19 out of 20 times this survey could be conducted, the results would land within a 5% margin of error.

In essence, the public opinion survey will serve as a barometer to identify those asset groups which local residents would be most willing to further invest in, given limited budgets and resources. The survey's responses will provide staff and council with statistically valid information about the level of public support (or lack thereof) for the City's investments in future infrastructure assets.

It is proposed that this public opinion survey act as a baseline against which future surveys on the City's asset management would be measured. The City should conduct a similar survey on a regular basis (e.g. every two or three years) to monitor trends and preferences among Waterloo residents.

The benefits of a random telephone survey of some 500 Waterloo residents include:

- It is a scientific tool to determine the opinion of the Waterloo community
- Confirms (or not) support for investment in certain assets with a randomly-selected population
- Gauges the views of a wide spectrum of the community, by gender, age and ethnicity
- Collects information difficult to access at public events, such as attitudes, values, beliefs, and behavior
- Ensures capital investment decisions are informed by public input
- Is relatively cost-effective in comparison to hosting several public events and,
- Provides a baseline with which to monitors trends over time

The survey will also broadly capture the trade-offs residents would be willing to make to support investments in certain asset groups.

In anticipation of conducting the survey this fall, three reputable market research firms were contacted to gain a sense of the scope and fees involved. The firms are Ipsos, EKOS Research Associates and Telepoll Market Research Inc. The community engagement consultant, in cooperation with the Asset Management Plan Steering Committee, will initially work with the selected firm to develop a questionnaire that is focused, clear and concise, and propose that the length of the survey take no more than 15 minutes to complete.

Based on the preliminary fees estimated by the market research firms to conduct the Waterloo public opinion survey, the anticipated costs will range between $20,000 and $25,000. The cost will vary based on the exact sample size and the actual length of the survey.

Notification of the upcoming survey would be posted on the City's website, Facebook page and Twitter feed, along with an advertisement in the *Waterloo Chronicle* (one-half page on two separate weeks). This

ad would alert citizens to the survey, the importance of participation by the people contacted, the topics to be surveyed and also provide information about how the results would be used in the decision-making process around asset management planning. The ad would also notify citizens not contacted by the polling company about the opportunity to make comments about asset management priorities through the "engageWaterloo" forum (see below).

engageWaterloo Forum

Comments received through the "engageWaterloo" forum would supplement the statistically valid poll results. This forum is a valuable component in the engagement process in that it would provide all citizens an opportunity to offer their opinions on asset management priorities.

Information about the asset management planning process would appear on the forum page, along with the asset groups in the draft plan for which feedback is requested, broken down into smaller categories (e.g. for traffic, this would include roads, sidewalks, bike lanes, pathways, etc.).

The development of this forum topic would be done by the community engagement consultant in cooperation with the Asset Management Plan Steering Committee and the "engageWaterloo" coordinator.

Communication beyond Asset Management Planning

Once the 2016 Asset Management Plan (AMP) is approved by council, it is recommended that the City conduct routine and ongoing communication activities to convey the plan to residents. The themes of this communication strategy are as follows:

- The City needs to spend more money to ensure the services provided by its infrastructure systems can be sustained over the long term.
- The City understands what the public wants to see as a priority based on the statistically valid consultation activities that have been completed.
- The AMP recognizes the priorities of the public, but also recognizes that there are other considerations that must be factored into the plan. These other considerations, such as economic development priorities or regulated needs, may conflict with the public's priorities.
- The AMP is the best plan considering the input of all stakeholders.

The communication methods should begin with a full-page newspaper ad in the Waterloo Chronicle to explain the plan, the process by which it was developed, the decisions made and how community engagement influenced the final plan. This advertisement allows the City complete control over the messages it wishes to convey and will serve to inform the community of the City's asset management priorities. This newspaper ad will supplement information about the plan that may appear as a result of regular news media coverage or a news release issued by the City's communications staff. Other opportunities to communicate the AMP to the public could include hosting a booth at local community events, social media campaigns, or other activities as deemed appropriate by the City's communications staff.

Ongoing Engagement

The information used to prepare the 2016 AMP will be continually improved and refined over the coming years. It is recommend that the community engagement strategy be managed by a community engagement consultant retained by the City of Waterloo and be repeated on an ongoing basis (e.g. every three to five years) to continue to gauge community opinions on asset management priorities. The City should strive to retain some degree of consistency with the questions that are asked. This will ensure that trends can be appropriately established as subsequent surveys are completed

Benefits of this Approach to Community Engagement

The recommended approach to community engagement has the following benefits:

1. It is cost-effective in terms of the use of staff and external resources.
2. It can be completed in a relatively short period of time.
3. It allows staff to obtain information about community priorities before developing a draft plan. This is a saving of staff time and effort, compared to the option of staff providing a draft plan for later public input.
4. It will provide accurate, statistically-valid information about citizen priorities (as opposed to an open house for example, which provides limited information from special interest groups).
5. It allows staff to provide – and council to determine – a plan that is informed by the feedback of the majority of Waterloo citizens.
6. It allows everyone in the community – and not only those participating in the telephone survey – an opportunity for feedback.
7. It can be repeated fairly easily and cost effectively on an ongoing basis to monitor any shifting community priorities.

4. Timeline

The following detail task description is provided for consideration, together with the anticipated duration of each task. In total the recommended approach can be completed in a seven month timeframe, with the communication of the plan being an ongoing exercise.

Task	Anticipated Duration of Undertaking
Task 1: Retain community engagement consultant	12 weeks
Task 2: Obtain bids / Select market research firm for survey	2 weeks
Task 3: Develop questionnaire, draft newspaper ad, and develop “engageWaterloo” copy and comment mechanism	4 weeks
Task 4: Test the survey and place ½ page newspaper ads	2 weeks
Task 5: Conduct the survey and launch topic for “engageWaterloo” community input	2 weeks
Task 6: Complete Summary Report / PowerPoint Presentation	4 weeks
Task 7: Place full-page newspaper ad outlining Council’s approved plan, and how community engagement influenced the decisions made	ongoing

5. Costs

The following table summarizes the expected costs of the recommended public engagement strategy. The total cost of approximately $50,000 is reasonable when compared to the costs to complete other traditional public engagement activities.

Description	Cost
Survey Firm Cost	$20,000 - $25,000
Newspaper ad copy development, design and placement for 2 half-page ads and one full-page ad with spot colour in the *Waterloo Chronicle* (with one set of changes to copy and design)	$7,000
Consulting Costs for Community Consultation Project Management - to interview and select survey firm; attend two meetings with steering committee; work with survey firm to develop questions and oversee the work to be done, work with committee and "engageWaterloo" coordinator to launch topic for online citizen engagement, and write final report. Assumes 80 hours @ $175	$14,000
Miscellaneous – Travel, long-distance telephone, printed materials, etc.	$1,000
TOTAL	**$42,000– $47,000**

Appendix 1
City of Waterloo Community Engagement for Asset Management Planning Survey Results Report

Introduction:

As part of its asset management planning on how Waterloo's communities might be engaged in this planning process, a survey of other municipalities was undertaken in March and April, 2016 to determine what they are doing in this regard.

Members of the Asset Management Plan Steering Committee requested that questions about community engagement be specifically directed toward asset management planning, and not community engagement that municipalities have conducted for other reasons.

Participating Municipalities:

Eleven of the 16 municipalities approached participated in the survey:

- Barrie*
- Brantford
- Burlington
- Cambridge*
- Guelph*
- Kingston*
- Niagara Falls*
- Oakville
- Oshawa
- St. Catharines
- Windsor
- Fredericton
- Kitchener
- Mississauga
- Edmonton
- Saskatoon

* indicates municipalities that did not respond to requests to participate.

Questions:

The following questions were developed to be asked of participating municipalities regarding community engagement for asset management planning:

1. Has your municipality undertaken citizen engagement specifically related to asset management planning? If so, was this an ad-hoc exercise or part of a broader engagement program (e.g. for a budget exercise or part of a regular engagement program done by your municipality)? Was the citizen engagement you undertook one time or is it an ongoing process? Please elaborate.

2. Was your asset management engagement for all assets, or for any one or more groups of assets? Please explain.

3. What tactics have you used to do this?
   - Telephone Surveys
   - E-Surveys or Online Forums (e.g. Open City Hall)
   - Open Houses/PICs
   - Focus Groups
   - Workshops
   - Other (Specify)

4. Was there specific demographic information that you collected (e.g. age, neighbourhood, # and ages of people in household)?

5. Can you share the questions that residents of your municipality were asked? Are you able to share the results? Can we contact you again in future about this?

6. Are you able to share information about participation rates in your engagement for asset management planning?

7. Is there anything that you have done in engaging your community about asset management planning that has been particularly successful or unique?

8. What engagement tactics have not worked so well for your municipality and why?

9. How have the outcomes of your engagement on asset management planning affected the decision making process – Inform, Consult, Involve, Collaborate, or Empower?

10. Who (which department) has been responsible for doing engagement for asset management planning?

11. Does your city have staff allocated specifically to community engagement? If so, how many and what is their reporting responsibility? Are any of these staff specifically dedicated to community engagement on asset management planning?

12. Would you like a copy of the results of this survey?

Individuals Interviewed:

Each municipality was requested to have the most appropriate person respond to questions about community engagement for asset management planning. The job titles of the individuals identified varied widely, ranging from a communications advisors, to an asset planning director and a deputy treasurer. The following individuals were interviewed:

Brantford	Geoff Linschoten	Director of Facilities & Asset Management

Burlington	Sharon Will	Communications Advisor
Oakville	Lynn Horlor	Deputy Treasurer & Director of Financial Operations
Oshawa	Melissa McCabe	Manager of Infrastructure Services
St. Catharines	Cindy Upshall	Manager of Corporate Communications
Windsor	Melissa Osborne	Senior Manager of Asset Planning
Fredericton	Wayne Knorr	Communications Manager
Kitchener	Hans Gross	Director of Asset Management
Mississauga	Ivana Di Millo	Director of Communications
Edmonton	Cory Segin	Manager of Public Engagement
Saskatoon	Carla Blumers	Director of Communications

Summary of Results:

None of the municipalities surveyed have initiated community engagement specifically for asset management planning. Several indicated that they do engage their communities in broad strategic planning exercises, budget planning, and/or planning for components of the municipality's assets (such as planning for Parks and Recreation Services, the development of the Transportation Master Plan, etc.). Some also engage their communities in decision making on a particular topic or asset (such as a park redevelopment). Most municipalities indicated that they intend to place a greater emphasis on community engagement for all initiatives in future.

In spite of the fact that no responding municipalities have engaged in community engagement for asset management planning, in a free-flowing discussion most did provide general commentary about their community engagement in related areas (e.g. for budget planning), which is summarized below.

Specific Responses by Municipality:

Brantford – Brantford does no formal outreach to its citizens, however ward meetings are organized for consultation on items such as the capital budget (for infrastructure spending plans). Ward meetings are held because turnout has been poor for general public meetings about the budget. Brantford has found that each ward is unique in terms of its priorities (e.g. parks versus roads). Until now, each department has done its own community outreach for things such as EA processes. Council has expressed an interest in more public engagement and a new communications employee has been hired to take on some of this responsibility.

Burlington – Burlington has done no community engagement to date specifically related to asset management planning, but indicates that this will be a focus in future. This municipality has initiated online, open data engagement for budget planning, and does extensive community outreach on a number of municipal issues, programs and projects.

Oakville – Oakville has indicated that it initiates a considerable amount of community engagement related to budget planning. Oakville is now in the midst of developing an asset management plan related to three specific areas – roads, environment and land improvements (parks) – looking at condition, life cycle and risk. On the asset management planning front, Oakville is looking to define what type of engagement it wishes to do and to what extend it will be doing it. This includes which tactics it will use and to what extent council will make decisions on asset management priorities, as opposed to gathering citizen

commentary on preferences on spending priorities (e.g. for infrastructure projects). The challenge of escaping silos is one that Oakville is grappling with. This municipality has found that open houses are not particularly worthwhile as a means of meaningful citizen engagement, since few people attend them, except for individuals and groups with special interests.

Oshawa – Oshawa does no community engagement specifically for asset management planning as a whole. This municipality is "taking baby steps" in its asset management planning. Community engagement has been used in broad strategic planning exercises, transportation master planning, and for planning surrounding municipal services and parks redevelopment. This engagement has included public information meetings, focus groups, information kiosks, surveys, workshops and online engagement (Connect to Oshawa). Oshawa notes that the PICs undertaken for Environmental Assessment processes have had poor turnouts. Community consultation has traditionally been performed by related departments, or by consultants for EAS, although a shift is underway for more involvement of the Communications Department.

St. Catharines - St. Catharines is in the early stages of asset management planning. Community engagement is done according to the requirements of the Planning Act, with further engagement having occurred for the development of the city's Recreation Master Plan (including targeted stakeholder group meetings, focus groups, an online survey, phone survey and public meetings) and zoning by-laws. Some individual departments plan for some level of community engagement while others do not.

Windsor – No community engagement has been done directly for asset management planning. There has been community engagement for master planning for parks, the creation of a new city hall and the 20-year strategic plan. The municipality is now looking at asset management planning – and possible engagement - around sewers, sidewalks and transit. Community engagement has included a radio call-in show, open houses, mall displays, workshops and town hall meetings hosted by local councillors. Windsor would like to establish a more formal engagement process. "We started to realize that everyone wants what their world is exposed to – such as soccer fields, transit or bike trails." At present, Windsor is determining how to engage the community on the management of its road assets.

Fredericton – Fredericton follows public sector accounting board practices to quantify assets, and to inform long-term financial planning. Water and sewer assets are planned separately. The goal is to pay attention at the right time, and invest the right money so as not to pay extra for mismanagement that leads to more expensive repairs at a later date. Council has a facilities management plan and has set an 8% debt limit. No community engagement occurs around asset management planning as a whole. Consultation is done around the specific details of new builds, such as the new performing arts centre, indoor pool, arenas and the convention centre. Citizens are not asked for their preferences on which capital project should go forward, but are presented with options for each project that does (e.g. should the performing arts centre be large or small, and facilities housed in one building or two?). For its community engagement, Fredericton holds open house presentations followed by workshops, and has a mechanism for email comments to be directed to the City through its website. A new web site is being constructed to offer citizens more opportunities for transactions and community engagement (e.g. a polling option and possibly a citizen lab tool) driven by the Drupal content management system. A telephone citizen engagement survey is done every second year. Community engagement is the responsibility of the one-person Corporate Communications Department.

Kitchener - Kitchener responded to the request for a telephone interview with an email message, indicating it has not yet engaged the community on asset management planning as it relates to levels of service and the associated costs.

Mississauga – Mississauga does not engage in community consultation for asset management planning per se, but does for components such as new parks or park renovations. Public consultation occurs after council sets its budget, and prior to master planning. Engagement occurs through stakeholder sessions, public meetings, information published on the city's website, through online engagement, and through surveys of particular stakeholder groups (e.g. neighbours). A citizen satisfaction survey is done every two years. Engagement is project based, led by the applicable department and supported by the Communications Department.

Edmonton – This city does not engage in community engagement for asset management planning as a whole, but does for its budget, strategic plan, program services reviews, city priorities, large capital projects and projects of particular community interest. The Edmonton Insight Community is an online citizen panel (of 5,000 citizens) who provide comments about city policies, initiatives and issues. Members complete surveys and participate in discussion forums on a wide range of topics at least twice a month. The city also conducts surveys (phone, point of service and e-surveys), workshops, organizes citizen panels, and uses an online budget tool (although this is mostly to create awareness rather than promote engagement). The city finds the Insight tool very effective for citizen engagement, but open-house type meetings with technical experts less so. Small group meetings have been found to be more valuable in garnering community input. While project teams do their own engagement (departments have staff specifically devoted to engagement and also have consultants do this), the city has a Department of Communications and Public Engagement, whose staff work on major and ongoing initiatives and report directly to the city manager.

Saskatoon – Community engagement has been undertaken in Saskatoon specifically related to the roads asset. The city has since decided to initiate separate engagement for road conditions and road services. Roads are always ranked by citizens as a top municipal priority. This year, eight assets will be targeted for review and engagement, as well as service levels. Annual surveys include a telephone survey of approximately 500 citizens and an online survey of 800, conducted by an outside research company. The city's Finance Division is proposing a more formalized process in developing asset management plans, with a common tool to determine the condition of assets, their desired condition (as determined by council) and the costs to enhance their conditions. Saskatoon has found that its citizens are more interested in levels of services, rather than assets. This would include how long it would take to fix a pothole, remove snow, etc. The Communications Division is responsible for citizen engagement, working alongside staff in other divisions. Tactics for consultation over the city's budget have included the use of an online engagement tool, annual survey, web page, series of videos, open houses, citizen panels, and surveys at such locations as a farmers' market, libraries, and leisure facilities. These surveys were done online (on ipads) and in hard (paper) copy. Council slightly increased spending on roads, based on survey responses that indicated this preference in budget spending and that citizens were prepared to pay more for road maintenance. Saskatoon now has an online advisory panel (with 1,100 citizens signed up) and will be using this in a broader way – as well as its other tactics - for more citizen engagement in future.