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## **BACKGROUND**

The City of Edmonton's Infrastructure Asset Management Policy - C598 defines infrastructure assets as "The physical assets that support social, cultural and economic outcomes and deliverables (services), and also includes Natural Assets and software, but not data and information. Infrastructure assets are intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and rehabilitation of their components.".

City Hall



Asset Inventory has been collected annually in the City of Edmonton (The City) since 2000. Inventory of assets has been refined over the years, with a view of continuous improvement in data collection methods and ensuring the inventory is as inclusive as possible, capturing the assets we own and manage.

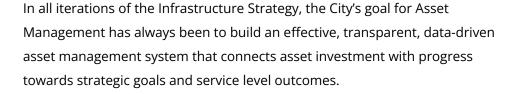
Asset inventory information provides the foundation for effective Asset Management. Asset Inventory information is the base input into decision models to substantiate asset investment requirements, identifying the asset areas with the greatest needs. By historically tracking the changes in the City's asset inventory, the City can assess the effectiveness of capital investments and provide a rationale for business decisions. Not only is an inventory or quantity of our assets collected, but we also collect the replacement value, average age, expected asset life, and assessment classification of all assets.

The importance of sound asset data cannot be stressed enough. Knowing what we own and manage is integral to providing service to our citizens and supporting the quality of life expected by Edmontonians.

# INFRASTRUCTURE STRATEGY

The City of Edmonton was one of the first Canadian cities to recognize the need for a strategic plan to manage assets and has worked aggressively to overcome its infrastructure challenge.

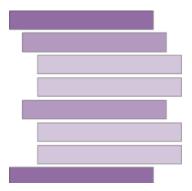
The City revamped the Infrastructure Strategy once again in 2018. This work was undertaken with support from the Federation of Canadian Municipalities (FCM) under the Leadership in Asset Management Program (LAMP). LAMP is a peer learning program that enables participating municipalities to access the Green Municipal Fund to develop and/or refresh their asset management strategies and policies. The purpose of the updated Infrastructure Strategy is to set out an agreed path forward for infrastructure asset management that is aligned with Council's vision for the City and corporate strategic plans and to set out the mandate for asset management processes in the City. The City has undergone dramatic changes in its organizational approach to the integrated delivery of infrastructure services. Through this version of the Infrastructure Strategy, the City is moving forward in better integrating asset management and sustainability efforts, to improve the connection between investment decisions, level of service commitments to citizens, and sustainable outcomes for communities.





Edmonton's Sustainability Lens

## **ASSET HIERARCHY**



The hierarchy of Edmonton's municipal assets, or how assets are viewed or classified, has been adjusted and refined in the last 20 years. Edmonton's first Asset Inventory in 2000, simply contained the major assets that we were confident at the time could be reported on in any significant detail. The City has taken a new approach to how service is provided to Edmontonians. With the new lens on a service-based approach, it was prudent to consider how municipal assets are managed as well. To that end, a significant update of the asset hierarchy was required, which took place in 2018.

Continued improvements in data collection generate a more consistent analysis that will enable the City to make more informed decisions regarding the need for asset renewal, upgrading or expansion, and provide a useful perspective on the overall state and condition of our assets. The new asset hierarchy consists of seven portfolios and 26 asset classes. This new breakdown of Edmonton's municipal assets is more detailed and comprehensive than in the past 20 years. However, there is always room for improvement, and as assets change, the City will adjust its measurement and reporting to accommodate and improve.

Asset Inventory is an iterative process with the expectation that data refinements will continue year over year until such time as a fully comprehensive inventory is tracked for everything owned and managed by the City. The majority of the assets listed within the following table are included with the analysis. As we work towards continually refining our collection of assets and asset attributes, assets such as those listed within Culture and Heritages are recognized as assets we know we own, but work will be required to include these assets in future reports.

	- Infrastructu	ıre Asset Hieraı	rchy and Description
Portfolio	Description	Asset Class	Description
Ancillary Infrastructure	Assets which are part of an overall system and/or	Barrier / Separation Infrastructure	Assets which separates two modes of traffic provides a safety function or is supporting the function of another asset.
	support in the delivery of service for which other asset types rely on.	Engineered Drainage	Built assets whose primary function is to mitigate the flow of water on to, or away from other built assets
	asset types rely on	Fleet	Rolling stock assets, supporting services offered by the city; includes all heavy equipment, municipal fleet vehicles, fire trucks and associated equipment to maintain the assets.
		Research and Testing	Labs and equipment intended to collect and analyze information in support of maintaining municipal assets.
		Signs and Signals	Performs the function of traffic control and roadway safety for users, including signs, traffic signals, street lighting and traffic control.
		Technology Equipment	Assets that support the communication and information collection and dissemination to internal and external partners; excludes technology assets from Library and Police.
Culture and Heritage Assets	Assets intended to preserve the city's heritage.	City's Heritage Collection	Man-made items of cultural or historical significance, preserved to maintain our history
		Public Art	All forms of artistic expression owned by the City and installed for the enjoyment of all citizens, includes monuments, statues, murals, and memorials.
Facilities	Vertical structures are comprised of several systems and house	Affordable Housing	Housing facilities which are in support of not-for-profit and community housing and provide affordable options for Edmontonians
	programs delivered by the City.	Buildings	All structures that are owned by the City of Edmonton, housing programs, service, or operations run by the City in support of citizen needs. Examples include City Hall, recreation centres, fire halls, and office buildings.

7 City of Edmonton

Infrastructure	Asset Hierarchy and	d Description	
Portfolio	Description	Asset Class	Description
Goods and People Movement	Supports the movement of vehicle, pedestrian and intermodal	Active Mode	Mainly pedestrian traffic promotes health and wellness, includes bike paths, sidewalks, shared-use paths and trails.
		Allows transition of vehicles and pedestrians to traverse over or under other assets, includes all manner of structure that supports a traffic load either under or over another mode of transportation.	
		Light Rail Transit	LRT related assets and systems to support the travel of trains and movement of passengers; excludes transit stations
	Road	Roads	The primary function of the assets is the movement of vehicle traffic.
		Transit Bus System	Supports the bus systems and connection to other mass transit options, excludes major bus stations
Open Space	Open-air assets with a predominance of green space, minimal hard	Green Infrastructure	Naturally occurring or human developed natural assets that support ecological functions and processes, such as trees and wetlands.
	surface and supports a sustainable natural environment.	Park Space	Assets intended to maintain a connection to the natural environment and promote outdoor play and activities
		Play Space	Programmable spaces and assets dedicated to sports and play in an outdoor setting

	Infrastructi	ure Asset Hierai	rchy and Description
Portfolio	Description	Asset Class	Description
Service Delivery	Assets which provides direct service to citizens in support of quality of life.	Attractions	Assets having multiple components and asset types which function as a whole facility. These assets have paying customers and generally are open to the public such as Fort Edmonton Park or the Valley Zoo.
		Cemeteries	Assets which support the memorialization of individuals in perpetuity.
		Fire Rescue	Assets that are for use only by Fire Rescue in performing a specialized function, not found in other areas of the city, excluding rolling stock and buildings which are captured in the Ancillary Infrastructure and Facilities portfolios respectively.
		Library	Materials and equipment supporting programs and services which are open to the public, excluding buildings which are captured in the Facilities portfolio.
		Police	Assets that are for use only by Edmonton Police Service, specialized in nature, not found in other areas of the city, including Police rolling stock and specialized IT equipment, but excluding buildings which are captured in the Facilities portfolio.
		Recreation	All assets which support the programming of a recreation facility, excluding the buildings which are captured in the Facilities portfolio.
Utilities	Assets which provide service to citizens and are regulated by an	Renewable Energy	Technology and assets supporting the development of renewable energy generation and delivery; excludes buildings which are captured in the Facilities portfolio.
	external body.	Waste Services	Assets that support the collection and management of waste produced within the city.

#### **USE OF INVENTORY DATA**

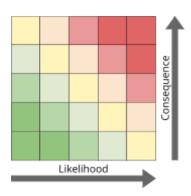
Robust and accurate data is the foundation for effective asset management at the City of Edmonton. The actual amount of Assets investment required is substantiated by inputting asset data into decision models or management tools which then analyze what areas have the greatest needs. Based on these outcomes, renewal priorities and budget allocations can then be determined.

Assets	Replacement	Average	Expected	Condition				
		Age		Good (A & B)		Poor (D & F)		
Facilities	\$8,175,871,546	32	50	68.04%	119.34%	7.01%		
Affordable Housing	\$458,467,368	43	50	39.93%	16.60%	43.47%		
Partnership Housing	\$450,467,360	43	50	39.93%	16.60%	43.47%		
Buildings	\$7,717,404,178	31	50	69.71%	125.44%	4.849		
Ambulance	\$2,724,090,678	28	50	33.08%	64.18%	2.749		
Assembly/Gallery/Museum/Theatre	\$2,289,295,811	31	47	30.27%	62.95%	0.779		
Clubhouse/Senior Centre	\$104,865,075	40	50	17.39%	82.61%	0.009		
Commercial	\$439,215,499	27	50	7.27%	76.36%	16.36%		
Fire Station	\$188,707,496	31	50	43.33%	56.67%	0.00%		
Fitness Facility	\$1,005,690,791	28	50	80.00%	20.00%	0.009		
Fort Edmonton	\$60,376,057	43	50	15.52%	81.90%	2.599		
Historic	\$125,747,314	59	100	10.00%	73.33%	16.67%		
Ice Arena	\$779,415,457	44	50	17.65%	82.35%	0.009		
Library	\$205,670,124	26	50	71.43%	28.57%	0.009		
LRT Stations	\$618,980,972	23	50	47.22%	52.78%	0.009		
Mechanical/Electrical	\$6,516,014	15	25	25.00%	70.83%	4.179		
Office Buildings	\$413,323,752	35	50	0.00%	100,00%	0.009		
Parkade	\$299,065,116	30	50	0.00%	100.00%	0.009		
Police	\$369,566,080	20	50	47.37%	47.37%	5.269		
Residential	\$22,744,661	53	50	0.00%	100.00%	0.009		
Restroom	\$15,707,188	35	50	18.60%	65.12%	16.28%		
Service and Operations	\$736,210,679	31	50	35.29%	57.65%	7.069		
Shelter	\$17,339,651	15	25	66.67%	30.43%	2.909		
Stadium	\$213,738,917	31	50	50.00%	50.00%	0.00%		
Storage	\$108,196,332	23	25	30,93%	69.07%	0.009		
Structures	\$138,577,829	35	25	7.89%	84.21%	7.899		
Swimming Pool	\$99,767,000	43	50	27.27%	72.73%	0.00%		
Training Centre	\$33,202,822	27	50	50.00%	50.00%	0.009		
Transit Bus Facility	\$28,062,371	16	50	78.95%	21.05%	0.00%		
Vehicle Repain/Vehicle Storage	\$789,108,021	32	50	35.71%	64.29%	0.009		
Visitor Centre	\$42,416,581	27	50	50.00%	45.00%	5.009		
Wash/Fuel Facility	\$7,435,761	25	50	36.36%	54.55%	9.099		
200	\$32,016,130	19	50	33.33%	54,17%	12,50%		

Consistent data collection ensures that all aspects of municipal assets are collected regularly and consistently across the corporation. Regular exercises in data collection not only ensure that the data is collected, it allows the opportunity to continually refine data collection activities and potentially improves the accuracy. Over the years, data collection has improved as evidenced through a comparison of the first asset Inventory report in 2000 to the most recent report in 2020. Through consistency, Edmonton has enabled the opportunity to continually add to the inventory as assets not previously considered are now added to the reporting. The more assets captured through this exercise provides a better opportunity to better manage municipal assets.

The base data collected through the annual Asset Inventory is used to support decisions related to asset management. This information is input into the Risk-based Infrastructure Management System (RIMS) which supports decisions on the renewal needs of municipal assets.

## **RISK ASSESSMENT**



Risk is defined as the product of the likelihood of suffering loss and the consequence that loss would have on the affected party. With Risk Assessment Methodology it is possible to determine the level of risk to an asset associated with its failure. A risk approach is a balanced approach that integrates the municipality's social (e.g. health and safety of citizens), environmental (e.g. impact on the environment) and economic (e.g. cost of failure) objectives into the decision-making process. Edmonton's current risk methodology addresses controllable factors only - those closely related to the funding of asset rehabilitation projects. With the RIMS model, the physical condition of an asset is projected over time, yielding a picture of the

controllable (via investments and maintenance) deterioration of each asset type. Within the limited financial resources available, Administration can assist decision-makers in determining where the available funding can limit risk exposure to the City.

# RISK-BASED INFRASTRUCTURE MANAGEMENT SYSTEM (RIMS)



RIMS is a made-for-Edmonton solution to help determine, justify and rank the rehabilitation needs of the City, as well as optimize the allocation of funds to ensure long-term value. The model can run a variety of scenarios to assist decision-makers on investments that would provide the most benefit, including a "Do Nothing" simulation that gives asset managers an idea of how quickly assets will deteriorate without the necessary intervention. The "Budget Allocation" function allocates a set dollar amount to those assets that will require the most re-investment. The "Cost Minimization" simulation provides the optimum renewal strategy to achieve or maintain certain performance levels of assets, and has been the basis of the City's renewal program since 2012. The model can also recommend asset reinvestment given a certain level of funding.

#### DEMANDS ON INFRASTRUCTURE ASSETS

Assets support the services the City of Edmonton provides to its citizens. Without the service there is no need for the asset. As the demand for services intensifies or changes, so too must the assets that support the service. There are many reasons for the changing demand for municipal assets. Population growth, demographic shifts, technological advancements, policy shifts, and the wants and needs of citizens change over time.

Our existing assets, which were built, in some cases, several decades ago, were designed for a lower level of use. Over time, the use of the assets has increased significantly, which places more pressure on the asset than originally planned. For instance, youth and adult sports participation has significantly increased in the past few decades, as such skating rinks and

premium sports fields are operated at or beyond planned capacity, putting added strain on the assets to maintain the expected level of service.

In addition to the pressures on the existing assets, the City of Edmonton is expecting to double in population to 2 million residents. As such, the City will continue to build and acquire assets to accommodate the increase in population over time. New assets built today will need to be renewed sometime in the future. As a result, the need for investment in renewal to support existing and future assets will continue to grow. Not only to address the backlog of assets but to ensure the ongoing support is available for anything we build today.

Not only is Edmonton extending into greenfield areas, but we are also actively promoting infill in mature neighbourhoods. Both of these actions have an impact on the demand for assets. As Edmonton continues towards a population of two million, it will be required to provide more services such as transit, recreation, fire services, police and waste collection. These additional services will require new and upgraded assets to support the required services. In addition to buildings and equipment, the City needs to ensure associated operations and maintenance are supported along with required staff to provide the service. Construction of new assets reflects only initial costs. Funding is also required to eventually rehabilitate or replace the asset in the future. Therefore the cost for assets is not a 'one and done' situation, assets require sustained, long-term investment to ensure that we provide safe and effective services to Edmontonians in support of future growth within our existing municipal boundary.

# CRITERIA TO EVALUATE THE STATE AND CONDITION

Edmonton uses a standardized rating system to evaluate the state and condition of existing infrastructure assets. A standardized 5-point rating system on a scale of A to F (Very Good to Very Poor) is used to identify asset condition. The rating system enables a comparison of disparate asset types regardless of their complexity. Complex assets, such as facilities and roads which use very detailed evaluation methods to determine their condition are translated to this 5-point system.

The ranking system helps City Council and Administration compare the condition of all its assets and improves the quality of information used to make more informed decisions and establish priority projects. For the renewal program, all of the City's assets are assessed under the Physical Condition criterion and this information is used as an input into RIMS, which determines a recommended budget allocation based on the Physical Condition and other asset characteristics.

In past reports, measures for Demand/Capacity and Functionality were reported alongside asset condition. After a review of these measures, their inputs, and the use of their outputs, a determination was made that these measures do not meet the needs of the City. Therefore, beginning with this report, Demand/Capacity and Functionality will not be reported. Administration is currently exploring the replacement of these measures, and their use in prioritization for future reports.



**Condition Rating** 

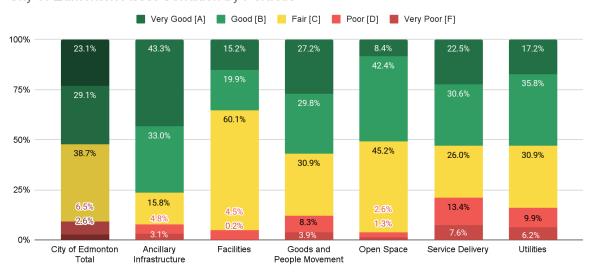
For the 2021 reporting year, the City's existing assets remain in good to very good condition in the vast majority of asset classes, with 52.2% in Good and Very Good condition, 38.7% in Fair condition and 9.1% in Poor or Very Poor condition. The City of Edmonton uses the percentage of assets in Poor and Very Poor condition as its measure of performance for asset condition, as assets in poor condition are at a higher risk of failure, which in turn,



negatively impacts the service that can be provided to citizens by those assets.

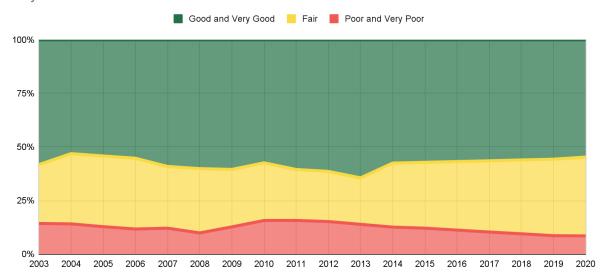
The following chart illustrates the City of Edmonton condition rating overall, as well as breaks down the conditions per portfolio. Additional detail is provided for each portfolio later in the report.

# City of Edmonton Asset Condition by Portfolio



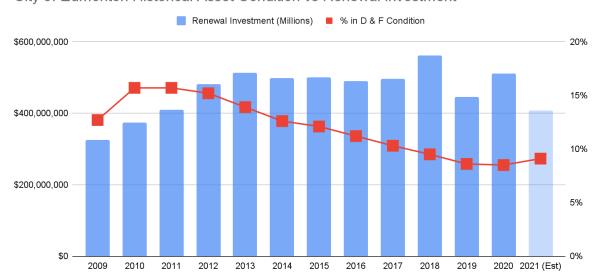
In the following chart, we see the progression of asset condition ratings over a period of 17 years. By 2011, there was a swell of assets in Good and Very Good condition, directly correlating to a swell in assets in Poor and Very Poor Condition. In the years previous to this, during the Province's last big financial boom, more focus was directed toward growth projects than renewal projects. As a result, the City had many new assets, but its existing assets did not get the required attention and fell to disrepair. Since this time, the City has strategically moved from rapid growth and upgrade to a more balanced approach, with measured growth, and focused renewal, which has resulted in a significant reduction of assets in Poor and Very Poor condition.





The level of capital renewal investment in the City's assets has increased over the years, with a higher priority being placed on the renewal of assets that have fallen into Poor condition. The following chart overlays the levels of renewal investment with the overall condition of the City's assets. As demonstrated by the chart, the increased, focused investment has enabled the improvement of the City's assets, however, as the City grows, this level of investment will need to be sustained to maintain these conditions.

# City of Edmonton Historical Asset Condition vs Renewal Investment

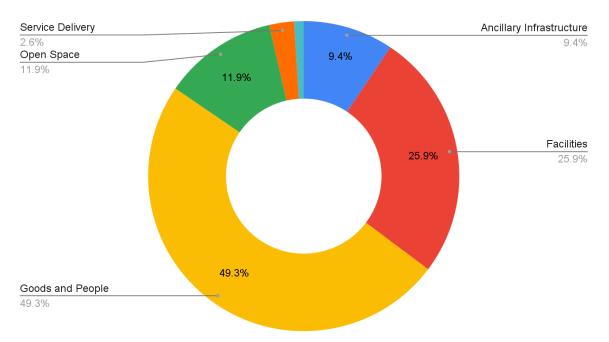


## **Replacement Value**

The 2021 total replacement value of the City's assets is \$31.2 billion, an increase from the 2020 value, which can be attributed to slight growth in the City, increased market costs, and improved data collection procedures.

The following pie chart illustrates the breakdown of the total 2021 replacement value by Portfolio.

# City of Edmonton Distribution of Replacement Value



The Goods and People Movement Portfolio, which includes roadways, bridges, and LRT, equates to nearly half of the City's replacement value. Facilities assets, which include all City buildings and City-owned Affordable Housing units, equate to approximately one quarter of the City's replacement value. The remaining quarter of the replacement value is made up from Open Spaces, Ancillary Infrastructure, and Service Delivery assets.

In addition to the assets noted above, the City owns a portfolio of over 9000 land holdings, with a combined area of over 8,900 hectares. As land assets are not replaced in the same manner as physical infrastructure assets, a replacement value is not recorded.

The following chart shows the breakdown of replacement values for all Asset Classes in the City.

\$10,000,000,000

\$5,000,000,000

\$2,500,000,000

\$2,500,000,000

\$2,500,000,000

\$2,500,000,000

\$2,500,000,000

\$2,500,000,000

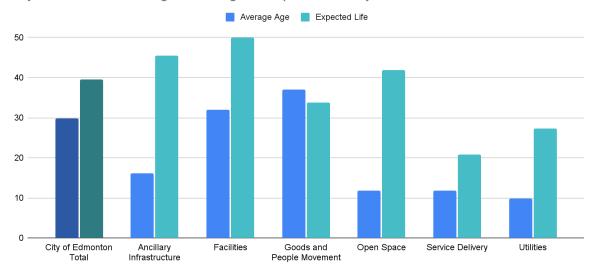
City of Edmonton Replacement Value by Asset Class

# Average and Expected Age

The average asset age and the expected life of an asset are general indicators of an asset's ability to perform throughout the asset life cycle and are used as an input into advanced deterioration modelling. The expected life of city assets can range anywhere from one year to 100 years depending on the asset type. Assets such as Buildings or Bridges tend to have a longer expected life than many Technology assets. Overall, the aggregate average age of the City's assets is approximately 30 years and the average life expectancy is approximately 40 years.

It is important to note that an asset is not automatically replaced as it passes its expected life. An asset can perform well beyond its expected lifespan if adequately maintained, and strategically renewed throughout its life cycle. Replacement of an asset considers the performance, risks, and costs associated with an older asset, with the cost, risks, and benefits to replace and upgrade the asset to current service standards. This cost/benefit analysis is used to determine if and when an asset can be replaced.

City of Edmonton Average Asset Age vs Expected Life by Portfolio



# **BREAKDOWN OF ASSET PORTFOLIOS**

#### **Ancillary Infrastructure**

This portfolio is composed of assets that are part of an overall system and/or support the delivery of service for which other asset types rely on. This Portfolio includes Barrier / Separation Infrastructure; Engineered Drainage; Fleet Assets; Research and Testing Assets; Signs and Signals; and Technology Equipment.

Technology Equipment Assets in the City of Edmonton Data Centre



The total Replacement Value of this portfolio is \$2.675 billion, with the Signs and Signals Class making up approximately half of the Portfolio, and the Fleet Class making up more than a third.

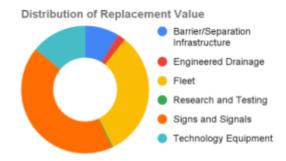
Overall, the condition of the assets in this portfolio is excellent, with three quarters of the Portfolio rated in Very Good (A) or Good (B) condition and only 8.6 percent of the portfolio in Poor (D) or Very Poor (F) condition. Barrier / Separation Infrastructure is rated well below the Portfolio average and will require some attention in the next fiscal cycle to bring these numbers in line with the other Classes.

This portfolio has a higher than average expected life, primarily due to the signs and signals assets. The majority of the assets in this Class have been replaced with galvanized poles and have a long life expectancy.

See the following page for data and charts for the Ancillary Infrastructure Portfolio.

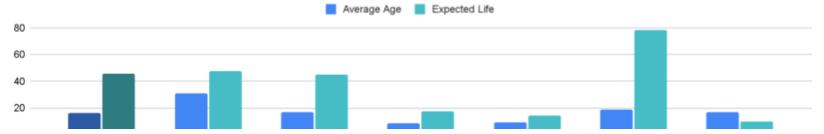
# **Ancillary Infrastructure Data and Charts**

	Replacement	Average	Expected	Condition Rating Distribution					
Asset Class	Value	Age	Life	Α	В	С	D	F	
Ancillary Infrastructure Total	\$2,974,019,821	16	45	43.3%	33.0%	15.8%	4.8%	3.1%	
Barrier/Separation Infrastructure	\$257,565,000	31	48	3.8%	35.8%	40.3%	13.4%	6.7%	
Engineered Drainage	\$60,000,000	17	45	20.0%	40.0%	40.0%	0.0%	0.0%	
Fleet	\$956,022,800	9	17	29.8%	44.4%	16.4%	6.2%	3.1%	
Research and Testing	\$8,640,583	9	14	15.4%	41.8%	32.9%	7.0%	2.8%	
Signs and Signals	\$1,270,955,887	19	78	67.6%	16.7%	9.9%	3.3%	2.5%	
Technology Equipment	\$420,835,551	17	10	28.8%	53.1%	13.2%	1.5%	3.5%	



#### **Asset Condition by Class**





#### **Facilities**

This portfolio is composed of two asset classes, Affordable Housing, and Buildings. The facilities identified in this portfolio are owned by the City. Facilities that are leased, or in the case of Affordable Housing, are owned by other orders of government or corporations are not included.

The total Replacement Value of this portfolio is \$8.176 billion, with the Buildings class making up the vast majority (94.4%) of the Portfolio.

Clareview Recreation Centre

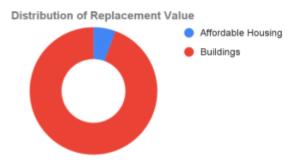


Overall, the condition of the assets in this portfolio is good to fair, with only 4.7 percent of the portfolio in Poor (D) or Very Poor (F) condition. Affordable Housing is rated well below the Portfolio average and will require some attention in the next fiscal cycle to bring these numbers in line with the other Classes.

See the following page for data and charts for the Facilities Portfolio.

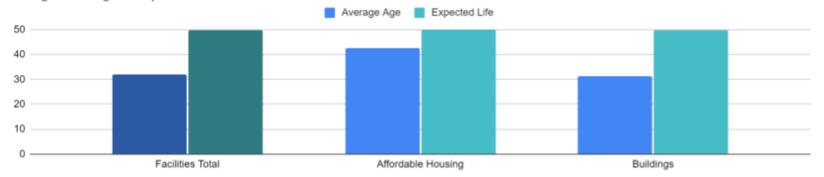
### **Facilities Data and Charts**

	Replacement	Average E	Expected	Condition Rating Distribution					
Asset Class	Value	_	Life	Α	В	С	D	F	
Facilities Total	\$8,175,871,546	32	50	15.2%	19.9%	60.1%	4.5%	0.2%	
Affordable Housing	\$458,467,368	43	50	2.2%	37.7%	16.6%	43.5%	0.0%	
Buildings	\$7,717,404,178	31	50	16.0%	18.8%	62.7%	2.2%	0.2%	



# **Asset Condition by Class**





#### **Goods and People Movement**

This portfolio is composed of assets that support the movement of vehicle, pedestrian and intermodal travel options. This Portfolio includes Active Modes; Bridges; Light Rail Transit; Roads; and Transit Bus Systems (Buses are included in Fleet).

The total Replacement Value of this portfolio is \$14.969 billion, with the Roads Class making up nearly two thirds of the Portfolio.

Walterdale Bridge



Overall, the condition of the assets in this portfolio is good, with more than half of the Portfolio rated in Very Good (A) or Good (B) condition and 11.1 percent of the portfolio in Poor (D) or Very Poor (F) condition. The Bridges portfolio has a smaller portion of its Class in Very Good (A) or Good (B) condition and no assets in Very Poor (F) condition. These values are influenced by the Roadway bridges which typically have long lives and are in the middle or end of life, rated in Fair (C) condition. The lack of assets in Very Poor (F) condition is a result of the City's asset management strategies to prioritize the renewal of these assets to prevent them from falling into Very Poor condition.

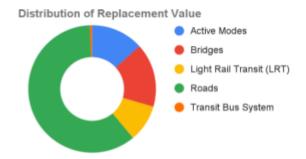
This portfolio has an average expected life, with a broad range of assets such as bridges having very long lives and bus and LRT assets having shorter lives.

See the following page for data and charts for the Goods and People Movement Portfolio.

# **Goods and People Movement Data and Charts**

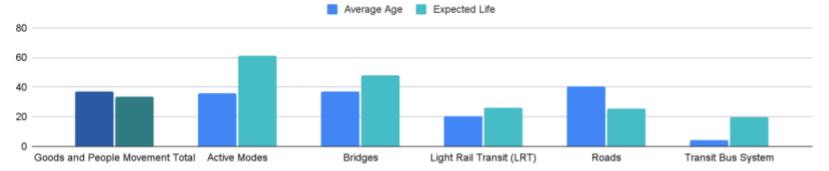
	Replacement	Average	Expected	Condition Rating Distribution					
Asset Class	Value	Age	Life	Α	В	С	D	F	
Goods and People Movement Total	\$15,591,229,848	37	34	27.2%	29.8%	30.9%	8.3%	3.9%	
Active Modes	\$2,073,738,778	36	61	57.3%	14.5%	17.4%	10.3%	0.5%	
Bridges	\$2,526,489,582	37	48	8.0%	18.0%	64.7%	9.3%	0.0%	
Light Rail Transit (LRT)	\$1,472,346,630	20	26	19.2%	34.3%	23.6%	13.0%	9.9%	
Roads	\$9,424,497,458	40	25	26.0%	35.0%	27.5%	7.0%	4.5%	
Transit Bus System	\$94,157,400	4	20	37.5%	39.8%	9.8%	6.0%	6.9%	

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# **Asset Condition by Class**





#### **Open Spaces**

This portfolio is composed of open-air assets with a predominance of green space, minimal hard surface and supports a sustainable natural environment. This Portfolio includes Green Infrastructure; Park Space; and Play Space.

The total Replacement Value of this portfolio is \$3.754 billion, with the Park Space Class making nearly two thirds of the Portfolio.

Overall, the condition of the assets in this portfolio is good, with two thirds of the Portfolio rated in Very Good (A) or Good (B) condition and only 3.1 percent of the portfolio in Poor (D) or Very Poor (F) condition. Green Infrastructure, which consists mostly of living assets, is rated at 97.3 percent in Good (B) condition.

Louise McKinney Park

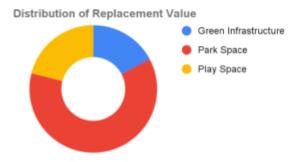


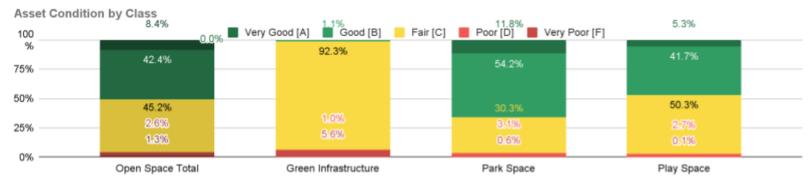
This portfolio has an average expected life, with Green Infrastructure having a longer than average expected life. Within this Class are wetlands and wooded areas which can last for centuries.

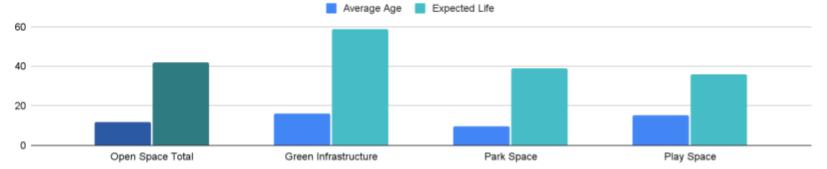
See the following page for data and charts for the Open Space Portfolio.

# **Open Spaces Data and Charts**

	Replacement	Average	Expected	Condition Rating Distribution						
Asset Class	Value	Age	Life	A	В	С	D	F		
Open Space Total	\$3,753,740,047	12	42	8.4%	42.4%	45.2%	2.6%	1.3%		
Green Infrastructure	\$648,107,550	16	59	0.0%	1.1%	92.3%	1.0%	5.6%		
Park Space	\$2,315,070,759	9	39	11.8%	54.2%	30.3%	3.1%	0.6%		
Play Space	\$790,561,738	15	36	5.3%	41.7%	50.3%	2.7%	0.1%		







#### **Service Delivery**

This portfolio is composed of assets which provide direct service to citizens in support of quality of life. This Portfolio includes Attractions; Cemeteries; Fire Rescue; Library; Police; and Recreation.

The total Replacement Value of this portfolio is \$792 million, with the Attractions Class making up a little more than one third of the Portfolio, and the Police Class making up approximately a quarter.

Edmonton Valley Zoo



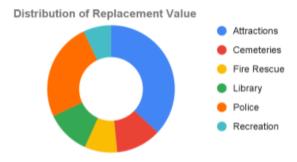
Overall, the condition of the assets in this portfolio is good to fair, with half of the Portfolio rated in Very Good (A) or Good (B) condition and 21.9 percent of the portfolio in Poor (D) or Very Poor (F) condition. This Portfolio has a greater number of assets in Poor (D) and Very Poor (F) condition than the City average. Much of this can be attributed to the short expected life of the assets. With a short life span, the cost to rehabilitate an asset mid life becomes less cost effective than to replace it at the end of life, so these types of assets are typically managed using "Run-To-Fail" strategies.

As noted above, this portfolio has a lower than average expected life, primarily due to the prevalence of smaller, high use items such as radios and exercise equipment.

See the following page for data and charts for the Service Delivery Portfolio.

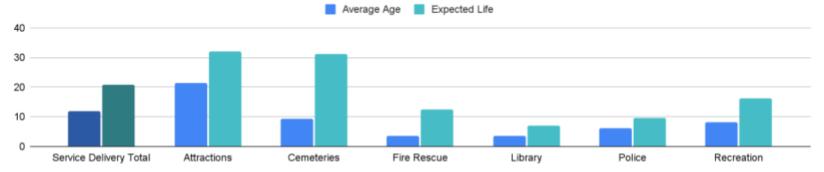
# Service Delivery Data and Charts

	Replacement	Average	Expected	Condition Rating Distribution						
Asset Class	Value	Age	Life	A	В	С	D	F		
Service Delivery Total	\$815,137,214	12	21	22.5%	30.6%	26.0%	13.4%	7.6%		
Attractions	\$301,240,911	21	32	11.0%	33.4%	30.2%	14.8%	10.7%		
Cemeteries	\$93,646,951	9	31	14.9%	39.7%	30.1%	11.5%	3.8%		
Fire Rescue	\$67,481,622	3	12	30.3%	31.8%	30.6%	4.2%	3.0%		
Library	\$91,559,207	4	7	41.6%	13.9%	11.0%	11.9%	21.6%		
Police	\$203,284,920	6	9	31.4%	23.6%	24.8%	18.5%	1.7%		
Recreation	\$57,923,604	8	16	23.5%	51.3%	19.5%	4.0%	1.6%		



# **Asset Condition by Class**





#### **Utilities**

This portfolio is composed of assets supporting the provision of regulated services. This Portfolio includes Renewable Energy; and Waste assets.

The total Replacement Value of this portfolio is \$316 million, with the Waste Class making up more than 96 percent of the Portfolio.

Overall, the condition of the assets in this portfolio is good, with half of the the portfolio in Poor (D) or Very Poor (F) condition. The entirety of the Renewable Energy Class is in Very Good (A) condition as these assets are brand new, having been installed in support of the Blatchford

Portfolio rated in Very Good (A) or Good (B) condition and only 14.1 percent of neighbourhood.

This portfolio has an average expected life based primarily on the weighting of the assets in the Waste Class. The assets in the Renewable Energy Class have a longer than average expected life, which is expected as these assets are used for power generation and distribution.

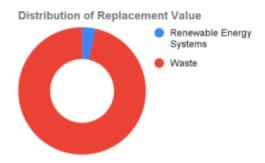
See the following page for data and charts for the Utilities Portfolio.





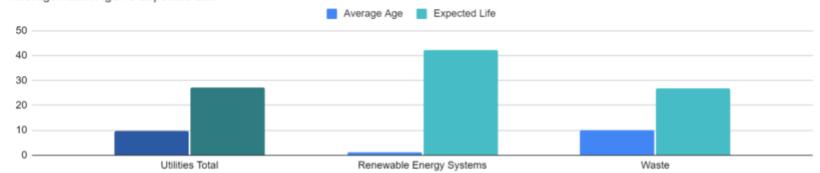
# **Service Delivery Data and Charts**

	Replacement	Average	Expected	Condition Rating Distribution						
Asset Class	Value	Age	Life	Α	В	С	D	F		
Utilities Total	\$316,067,762	10	27	17.2%	35.8%	30.9%	9.9%	6.2%		
Renewable Energy Systems	\$10,838,430	1	42	100%	0.0%	0.0%	0.0%	0.0%		
Waste	\$305,229,332	10	27	14.2%	37.1%	32.0%	10.2%	6.4%		



# **Asset Condition by Class**





# **APPENDIX 1: CONSOLIDATED CITY ASSET CLASS TABLE**

Assets	Replacement	Average	Expected		Condition	
	Value	Age	Life	Good (A & B)	Fair (C)	Poor (D & F)
Ancillary Infrastructure	\$2,974,019,821	16	45	76.29%	15.78%	7.93%
Barrier/Separation Infrastructure	\$257,565,000	31	48	39.61%	40.31%	20.07%
Roadside Barrier	\$55,265,000	25	47	31.30%	33.67%	35.03%
Roadside structures	\$202,300,000	33	48	41.88%	42.13%	15.99%
Engineered Drainage	\$60,000,000	17	45	60.00%	40.00%	0.00%
Snow Storage Sites	\$60,000,000	17	45	60.00%	40.00%	0.00%
Fleet	\$956,022,800	9	17	74.26%	16.45%	9.29%
Emergency Response Vehicles	\$89,942,903	9	16	66.29%	30.98%	2.74%
Municipal Department Vehicles	\$155,762,788	5	10	60.72%	18.93%	20.35%
Shop Equipment	\$89,133,996	8	21	79.98%	9.18%	10.83%
Transit Buses	\$621,183,114	9	19	77.99%	14.77%	7.25%
Research and Testing	\$8,640,583	9	14	57.24%	32.92%	9.84%
All labs	\$3,831,764	8	12	58.03%	24.45%	17.52%
Asphalt Lab	\$698,057	10	16	84.27%	14.04%	1.69%
Binder Lab	\$617,293	8	13	84.62%	9.62%	5.77%
Concrete Lab	\$521,026	13	20	84.15%	14.63%	1.22%
Density Lab	\$268,800	10	22	82.05%	10.26%	7.69%
Environmental Lab	\$478,579	6	11	65.00%	16.00%	19.00%
Field Testing Equipment	\$1,883,000	12	16	20.18%	79.82%	0.00%
Geotechnical Lab	\$342,064	13	20	76.60%	19.50%	3.90%
Survey Equipment	\$1,943,000	7	9	30.83%	39.42%	29.75%
Traffic Monitoring	\$1,546,700	7	13	88.10%	6.72%	5.17%
Signs and Signals	\$1,270,955,887	19	78	84.31%	9.91%	5.78%
Parking	\$4,818,387	6	10	0.00%	100.00%	0.00%
Street Lighting	\$935,667,100	19	82	88.89%	6.90%	4.21%
Traffic Signals	\$229,035,000	19	76	75.63%	15.26%	9.11%
Traffic Signs	\$101,435,400	19	54	65.68%	21.38%	12.95%
Technology Equipment	\$420,835,551	17	10	81.84%	13.16%	5.00%
Data Centre Facilities	\$360,000	5	13	72.22%	27.78%	0.00%
Desktops & Mobile Equipment	\$13,020,196	5	7	57.70%	29.70%	12.59%
IT Equipment	\$217,645	6	9	67.24%	26.90%	5.86%
Servers	\$5,967,000	3	5	53.82%	17.77%	28.41%
Software & Applications	\$325,493,250	20	9	87.10%	11.98%	0.92%
Storage	\$6,185,000	4	5	100.00%	0.00%	0.00%

Assets	Replacement Value	Average Age	Expected Life	Condition		
	value		Lile	Good (A & B)	Fair (C)	Poor (D & F)
Facilities	\$8,175,871,546	32	50	35.14%	60.14%	4.72%
Affordable Housing	\$458,467,368	43	50	39.93%	16.60%	43.47%
Partnership Housing	\$458,467,368	43	50	39.93%	16.60%	43.47%
Buildings	\$7,717,404,178	31	50	34.86%	62.72%	2.42%
Ambulance	\$2,724,090,678	28	50	33.08%	64.18%	2.74%
Assembly/Gallery/Museum/Theatre	\$2,289,295,811	31	47	30.27%	68.95%	0.77%
Clubhouse/Senior Centre	\$104,865,075	40	50	17.39%	82.61%	0.00%
Commercial	\$439,215,499	27	50	7.27%	76.36%	16.36%
Fire Station	\$188,707,496	31	50	43.33%	56.67%	0.00%
Fitness Facility	\$1,005,690,791	28	50	80.00%	20.00%	0.00%
Fort Edmonton	\$60,376,057	43	50	15.52%	81.90%	2.59%
Historic	\$125,747,314	59	100	10.00%	73.33%	16.67%
Ice Arena	\$779,415,457	44	50	17.65%	82.35%	0.00%
Library	\$205,670,124	26	50	71.43%	28.57%	0.00%
LRT Stations	\$618,980,972	23	50	47.22%	52.78%	0.00%
Mechanical/Electrical	\$6,516,014	15	25	25.00%	70.83%	4.17%
Office Buildings	\$413,323,752	35	50	0.00%	100.00%	0.00%
Parkade	\$299,065,116	30	50	0.00%	100.00%	0.00%
Police	\$369,566,080	20	50	47.37%	47.37%	5.26%
Residential	\$22,744,661	53	50	0.00%	100.00%	0.00%
Restroom	\$15,707,188	35	50	18.60%	65.12%	16.28%
Service and Operations	\$736,210,679	31	50	35.29%	57.65%	7.06%
Shelter	\$17,339,651	15	25	66.67%	30.43%	2.90%
Stadium	\$213,738,917	31	50	50.00%	50.00%	0.00%
Storage	\$108,196,332	23	25	30.93%	69.07%	0.00%
Structures	\$138,577,829	35	25	7.89%	84.21%	7.89%
Swimming Pool	\$99,767,000	43	50	27.27%	72.73%	0.00%
Training Centre	\$33,202,822	27	50	50.00%	50.00%	0.00%
Transit Bus Facility	\$28,062,371	16	50	78.95%	21.05%	0.00%
Vehicle Repair/Vehicle Storage	\$789,108,021	32	50	35.71%	64.29%	0.00%
Visitor Centre	\$42,416,581	27	50	50.00%	45.00%	5.00%
Wash/Fuel Facility	\$7,435,761	25	50	36.36%	54.55%	9.09%
Zoo	\$32,016,130	19	50	33.33%	54.17%	12.50%

Assets	Replacement Value	Average Age	Expected Life	Condition		
				Good (A & B)	Fair (C)	Poor (D & F)
Goods and People Movement	\$15,591,229,848	37	34	55.49%	30.05%	11.86%
Active Modes	\$2,073,738,778	36	61	71.75%	17.38%	10.86%
Arterial Sidewalks	\$287,378,517	36	61	85.15%	11.68%	3.17%
Neighborhood Sidewalks	\$1,786,360,261	36	61	69.60%	18.30%	12.10%
Bridges	\$2,526,489,582	37	48	21.85%	54.28%	7.76%
Below Grade Structure	\$406,851,764	0	0	0.00%	0.00%	0.00%
Culvert	\$28,941,660	33	57	43.40%	46.52%	10.08%
Pedestrian Bridges	\$180,831,970	25	57	28.30%	46.82%	24.88%
Rail Bridges	\$56,400,000	29	57	0.00%	100.00%	0.00%
Roadway Bridge	\$1,853,464,188	46	57	26.35%	65.66%	8.00%
Light Rail Transit (LRT)	\$1,472,346,630	20	26	53.53%	23.57%	22.89%
Communications	\$146,755,000	16	35	52.36%	12.26%	35.38%
Fare Collection	\$10,375,000	11	14	18.99%	28.98%	52.03%
Light Rail Vehicles	\$564,000,000	22	17	21.84%	38.21%	39.95%
LRT Line	\$721,868,487	20	31	77.73%	15.07%	7.20%
LRT Specialized Equipment	\$29,348,143	27	27	85.52%	6.16%	8.32%
Roads	\$9,424,497,458	40	25	61.01%	27.55%	11.44%
Paved Roads	\$9,369,839,015	40	25	61.16%	27.42%	11.42%
Unpaved Roads	\$54,658,443	39	30	35.77%	49.54%	14.69%
Transit Bus System	\$94,157,400	4	20	77.28%	9.83%	12.89%

Assets	Replacement Value	Average Age	Expected Life	Condition		
				Good (A & B)	Fair (C)	Poor (D & F)
Open Space	\$3,753,740,047	12	42	50.81%	45.23%	3.96%
Green Infrastructure	\$648,107,550	16	59	1.14%	92.29%	6.56%
Enhanced Assets	\$648,107,550	16	59	1.14%	92.29%	6.56%
Park Space	\$2,315,070,759	9	39	66.03%	30.31%	3.66%
Bioretention and/or Hydro Feature	\$24,355,450	12	35	30.98%	63.27%	5.75%
Furniture	\$53,096,226	3	15	77.39%	19.70%	2.91%
Statues and Plaques	\$98,746,400	20	100	88.01%	8.62%	3.37%
Horticulture	\$706,498,320	11	51	76.25%	20.98%	2.77%
Park Structures	\$306,838,604	8	28	54.48%	40.90%	4.62%
Protection Elements	\$79,566,416	6	24	65.29%	29.58%	5.13%
Park Utilities	\$241,603,395	12	50	62.17%	36.19%	1.64%
Parks Access and Circulation	\$804,365,948	7	26	60.30%	35.14%	4.56%
Play Space	\$790,561,738	15	36	46.96%	50.32%	2.72%
Play Areas	\$364,628,546	14	28	75.58%	23.96%	0.46%
Sports Fields / Fixtures	\$425,933,191	16	43	22.46%	72.89%	4.66%

Assets	Replacement Value	Average	Expected Life		Condition	
	value	Age	Lite	Good (A & B)	Fair (C)	Poor (D & F)
Service Delivery	\$815,137,214	12	21	53.08%	25.95%	20.97%
Attractions	\$301,240,911	21	32	44.38%	30.15%	25.47%
Fort Edmonton Park	\$23,995,988	5	33	87.59%	11.91%	0.49%
Golf Courses	\$104,321,623	29	31	43.98%	35.57%	20.46%
John Janzen Nature Centre	\$2,187,400	16	32	17.73%	74.80%	7.47%
Valley Zoo	\$170,735,900	19	33	38.89%	28.84%	32.27%
Fire Rescue	\$67,481,622	3	12	62.18%	30.64%	7.18%
Communication Equipment	\$9,630,440	5	12	82.22%	17.78%	0.00%
Fitness / Wellness Equipment	\$1,615,743	8	10	94.59%	5.41%	0.00%
On-board Equipment	\$11,241,709	7	12	70.83%	23.49%	5.68%
Personal Fire Specialized Equipment	\$41,288,188	2	13	50.90%	39.03%	10.07%
Specialized Traffic Equipment	\$1,987,542	3	10	100.00%	0.00%	0.00%
Specialty Team Equipment	\$1,718,000	6	10	90.10%	7.06%	2.84%
Library	\$91,559,207	4	7	55.47%	11.01%	33.52%
Library Contents	\$11,716,824	13	21	77.08%	16.12%	6.81%
Library Information Technology	\$12,410,333	3	5	52.14%	20.04%	27.82%
Library Materials	\$66,747,050	2	5	51.89%	8.51%	39.60%
Library Vehicles	\$685,000	5	10	95.50%	3.50%	1.00%
Police	\$203,284,920	6	9	54.98%	24.80%	20.22%
Communications	\$30,088,763	10	7	60.32%	34.20%	5.49%
Police Special Equipment	\$33,143,336	6	9	35.47%	51.86%	12.67%
Police Technology Equipment	\$78,777,908	5	8	53.80%	16.26%	29.94%
Police Vehicles	\$61,274,913	6	13	64.43%	16.54%	19.03%
Recreation	\$57,923,604	8	16	74.84%	19.54%	5.62%
General Equipment	\$9,232,575	8	13	62.04%	28.31%	9.65%
Fitness Equipment	\$7,624,008	5	10	94.81%	5.19%	0.00%
Program Equipment	\$9,421,016	9	14	75.42%	15.18%	9.40%
Fixed Equipment	\$31,646,005	8	19	73.59%	21.74%	4.66%
Cemeteries	\$93,646,951	9	31	54.58%	30.14%	15.28%
Columbarium niches	\$1,323,117	5	60	96.57%	2.20%	1.23%
Protection Elements	\$961,520	9	25	60.80%	14.20%	25.00%
Grade Beam and Monument Bases	\$15,395,972	12	30	24.98%	49.86%	25.16%
Green Space / Horticulture	\$3,736,000	14	51	70.60%	21.40%	8.00%
Monuments	\$4,735,000	14	75	96.55%	3.45%	0.00%
Structures	\$647,500	6	20	72.50%	2.50%	25.00%
Access and Circulation	\$51,772,902	6	20	53.80%	33.20%	13.00%
Utilities	\$14,951,440	16	50	65.20%	14.80%	20.00%
Scattering Markers	\$123,500	15	75	100.00%	0.00%	0.00%
Furniture	\$325,278	3	15	86.06%	8.95%	4.99%

2021 Infrastructure State and Condition Attachment 2

Assets	Replacement	Average	Expected	Condition		
	Value	Age	Life	Good (A & B)	Fair (C)	Poor (D & F)
Utilities	\$316,067,762	10	27	53.00%	30.94%	16.06%
Renewable Energy Systems	\$10,838,430	1	42	100.00%	0.00%	0.00%
Distribution lines (Distribution Piping System)	\$1,626,169	1	50	100.00%	0.00%	0.00%
Energy Centres	\$2,100,000	1	13	100.00%	0.00%	0.00%
Fee-Simple Townhouse	\$130,000	1	10	100.00%	0.00%	0.00%
Geoexchange Field	\$6,982,261	1	50	100.00%	0.00%	0.00%
Waste	\$305,229,332	10	27	51.33%	32.04%	16.63%
Environmental Facilities	\$26,254,000	6	39	84.40%	13.11%	2.49%
EWMC Site Common	\$18,168,697	12	30	96.37%	3.08%	0.55%
Vehicles & Equipment	\$95,116,000	7	13	53.40%	17.39%	29.21%
Waste Processing	\$154,690,635	13	33	35.69%	49.94%	14.36%