

Calgary



CITY OF CALGARY  
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CITY CLERK'S DEPARTMENT

# 2020 Infrastructure Status Report





# Executive summary

## About the Report

The Infrastructure Status Report (ISR) is a key reporting document that is produced every business cycle. It highlights the status of City-owned assets and identifies potential areas of short and long-term infrastructure risks.

The report serves as a guide for City Council to make informed infrastructure investment decisions ahead of the development of 2023-2026 service plans and budgets.

### DATA COLLECTED FROM:

**11**

Business  
Units



The Calgary  
Police Service



Calgary Parking  
Authority

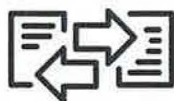


Calgary Public  
Library

The data for the 2020  
ISR is based on The City's  
portfolio of assets as of  
Jan. 1, 2020.

### NEW APPROACH IN 2020

We have **aligned our assets data** with the service lines.



We have better aligned our asset categories with the **Canadian Infrastructure Report Card (CIRC)**.

### TWO IMPORTANT DEVELOPMENTS SINCE THE 2017 REPORT

An initiative to **highlight natural infrastructure** within current asset management reporting mechanisms, and;



Connecting **energy consumption** to Asset Management practices.

# Executive summary

## Key Indicators

The ISR provides a snapshot of The City of Calgary's current infrastructure inventory, offers an understanding of the condition of its assets and identifies investment needs over a ten-year horizon.

CURRENT  
REPLACEMENT  
VALUE (CRV)



Calculates cost to replace the assets at the current price.

ASSETS CONDITION



VERY GOOD  
 GOOD  
 FAIR  
 POOR  
 VERY POOR  
 NO DATA

INFRASTRUCTURE  
FUNDING GAP



Estimates unfunded infrastructure needs over a 10-year horizon.

2017  
**\$84.70 billion**

2020  
**\$93.91 B**

2020 CRV value:  
The value of City's land holdings is not included in the CRV.

DETERIORATION IN CONDITION  
SINCE 2017

GOOD/VERY GOOD:

↓ 88 per cent to **79** per cent

FAIR:

↑ 9.7 per cent to **11** per cent

POOR/VERY POOR:

↑ 2.3 per cent to **7** per cent

2017  
**\$5.67 billion**

2020  
**\$7.73 B**

## What will we do with this information?

This report is a precursor to the Corporate Asset Management Plan (CAMP). Through solid asset management practices, The City is building action plans that justify rational investment to address the infrastructure gap, ensure public safety and service continuity, and balance fiscal prudence and affordability of investment.

Once the Corporate Asset Management Plan is delivered, Infrastructure Calgary will use the information to balance the needs for investing available resources and present investment plans to Council as part of the next budget and business planning process.



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## 1.0 Introduction

The Infrastructure Status Report (ISR) is a key reporting document that highlights the status of City-owned assets and identifies potential areas of short and long-term infrastructure risks. It is produced every business cycle and the 2020 version is the sixth iteration of the document. The information on City-owned assets is examined in more detail during the creation of business unit specific asset management plans. This process enables the Corporation to optimize investments, mitigate risks and maintain its ability to deliver services to the residents of Calgary.

The ISR also serves as a guide for City Council to make informed infrastructure investment decisions by highlighting the needs and performance of its infrastructure ahead of the development of 2023-2026 service plans and budgets.

The data for the 2020 ISR is based on The City's portfolio of assets as of Jan. 1, 2020. Information used in this report was collected from 11 business units as well as Calgary Police Service, Calgary Parking Authority and Calgary Public Library. These areas collectively steward 99 per cent of The City's assets.

It's important to mention that the Corporate Coordinated Operations and Maintenance (CCOM) Program was rolled out in 2018, which centralizes The City's facility operations and maintenance services from several business units to one, i.e. Facility Management (FM). Therefore, building assets that were previously reported in the 2017 ISR by Calgary Recreation, Calgary Parks, Calgary Fire Department and Roads business units, are now reported through FM.





The following key principles guide the development of this report:

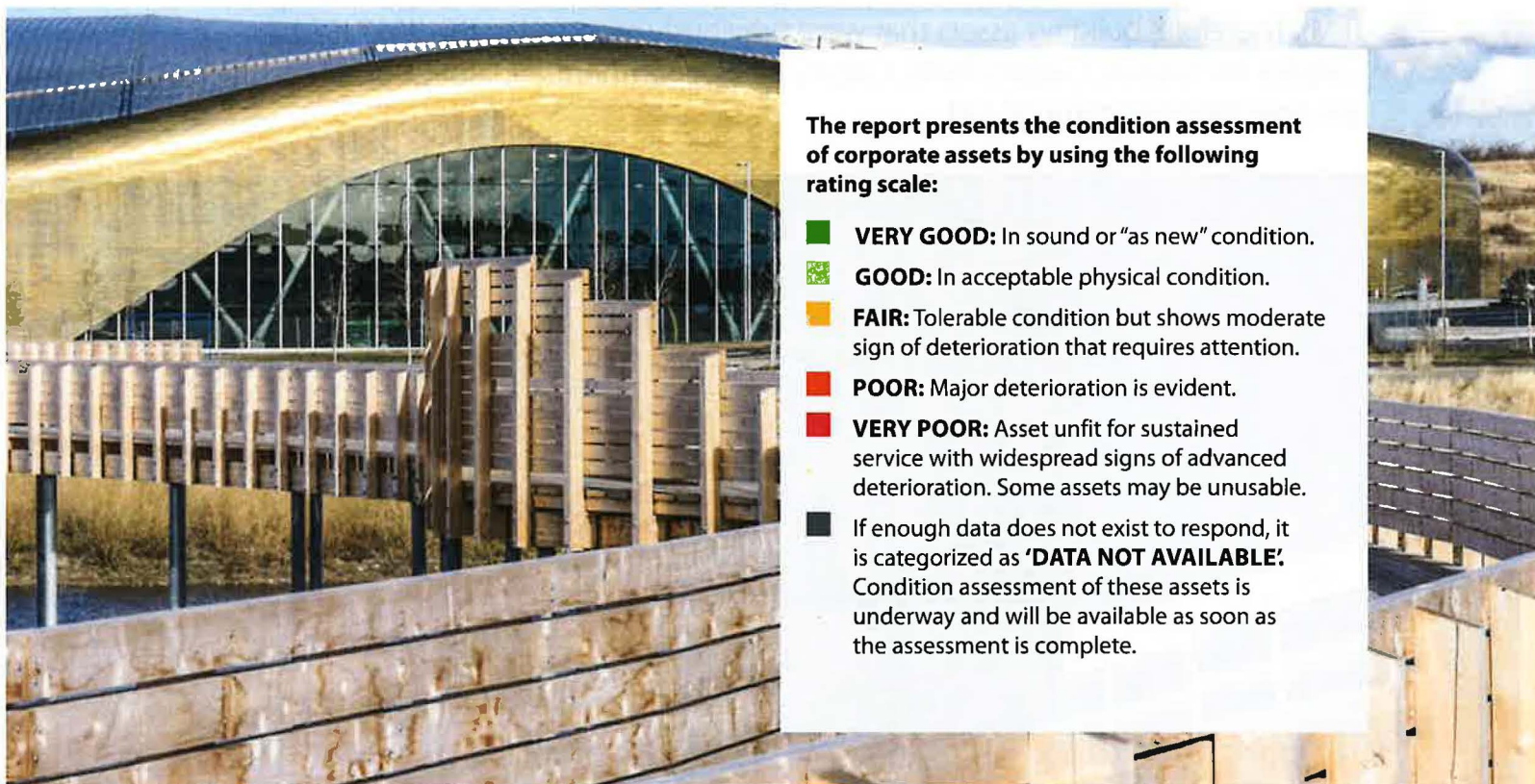
- The ISR reports the Current Replacement Value (CRV)<sup>1</sup> of City-owned assets which is the cost to replace an asset at the current price. The City of Calgary also reports the value of its infrastructure in its annual financial statements. These statements, however, report depreciated asset values<sup>2</sup> in compliance with the Public-Sector Accounting Board's PS3150 Tangible Capital Asset reporting requirements. Depreciated asset value is an accounting concept which differs significantly from, and usually much lower than, the CRV.
- The ISR benchmarks future infrastructure needs over a 10-year horizon. These include operating, capital maintenance and capital growth requirements. Operating and capital maintenance requirements relate to maintenance and upgrades of existing infrastructure. Capital growth costs relate to investments required to support the city's expansion (drivers not only include growth in undeveloped land but also economic growth, population growth and demographic changes).

There have been two important developments since the last business cycle:

1. An initiative to highlight natural infrastructure within current asset management reporting mechanisms, and;
2. Connecting energy consumption to Asset Management practices.

The City has identified natural infrastructure (grasslands, forests, riparian areas, watercourses, wetlands, public trees etc.) as a pillar necessary to building a resilient city, through the Resilient Calgary Strategy (2019) and the Climate Resilience Strategy (2018). To achieve a full understanding of the numerous social, economic and environmental benefits these assets provide, financial valuation and condition assessment of natural assets is an important step. This understanding will help us better manage our natural assets.

Information related to natural infrastructure is not available at this time from all stewards of City owned natural assets. Only Calgary Parks have quantified and included natural vegetation (i.e. wetlands, aspen forest grassy areas and trees excluding trees in manicured areas and street trees) for the purpose of this report.



**The report presents the condition assessment of corporate assets by using the following rating scale:**

- **VERY GOOD:** In sound or "as new" condition.
- **GOOD:** In acceptable physical condition.
- **FAIR:** Tolerable condition but shows moderate sign of deterioration that requires attention.
- **POOR:** Major deterioration is evident.
- **VERY POOR:** Asset unfit for sustained service with widespread signs of advanced deterioration. Some assets may be unusable.
- If enough data does not exist to respond, it is categorized as **'DATA NOT AVAILABLE'**. Condition assessment of these assets is underway and will be available as soon as the assessment is complete.

<sup>1</sup> Current replacement value is calculated by appreciating the original purchase cost using escalation rates that depend on market conditions and inflation.

<sup>2</sup> Depreciated asset value is calculated by depreciating the original purchase cost over the useful life of the asset.



The report itself has also been revamped from previous versions for two reasons:

1. First, we have aligned our infrastructure data with our service lines<sup>3</sup> to better show how infrastructure enables the services we provide to citizens. Detailed information on assets and related services is available in Section 3.
2. Second, we have better aligned our asset categories with the Canadian Infrastructure Report Card (CIRC) where applicable/possible for more consistent reporting across all levels of government.

This report is a precursor to the Corporate Asset Management Plan (CAMP). Through solid asset management practices, The City is building action plans that justify rational investment to address the infrastructure gap, ensure public safety and service continuity, and balance fiscal prudence and affordability of investment. Once the Corporate Asset Management Plan is delivered, Infrastructure Calgary will use the information to balance the needs for investing available resources and present investment plans to Council as part of the next budget and business planning process.



## 1.1 Report Overview

This section summarizes the methodology used in the report. The second section provides an infrastructure overview and a visual comparison with past data. Section three connects the asset base to the services that The City provides to its citizens and includes the total value of each infrastructure category, its overall physical condition and the ten-year estimated infrastructure gap. Section four and five conclude the report and discuss next steps.

## 1.2 Methodology

Although there are many commonalities across the Corporation in terms of how different areas manage their assets and record asset data and transactions, there are also many differences. To complete the ISR in a consistent manner, the following methodology was adopted:

- The largest business units/service areas (that steward over 99 per cent of The City's assets) were contacted to provide their asset data.
- Corporate Analytics and Innovation (CAI) acted in a supporting and coordinating role to collect the data from asset stewards.
- CAI collected the responses, consolidated the data, aligned it with service lines, conducted analyses and compiled the report.

<sup>3</sup> Of the 61 City of Calgary services, we were able to associate asset data with nearly half of them. The rest of the services are either not asset dependent (e.g. some enabling services and services supporting Council priority of a 'A Well-Run City') or their asset base is significantly small. Areas with a small asset base do not typically follow corporate asset management practices and account for only a very small percentage of the City-owned assets.



## 2.0 Infrastructure Overview

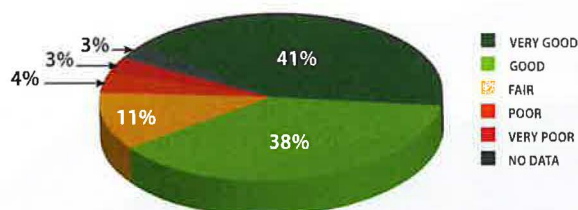
This report is based on the best available data, as of Jan. 1, 2020, supplied by the business units/service areas. Consolidation of this data shows that the current replacement value (CRV) of The City's infrastructure is \$93.91 billion (up from \$84.70 billion in 2017). The following factors have been identified as the key contributors for this increase:

- **Cost escalation factor:** CRV is calculated by using the inflationary index against the original cost and this value tends to increase with every passing year.
- **Asset management maturity:** As The City's asset management practices mature, we have a better understanding of the asset base.
- **New cost evaluation methods:** New methods were developed for certain asset types to help standardize the methodology.
- **Revised asset categories:** Some categories were not reported on in 2017 based on the asset hierarchy used at the time.

The current asset base of \$93.91 billion does not include City-owned land holdings. City-owned land is valued at \$4.73 billion (which in most cases is the book value and not assessed or market value). The reason land is excluded is because land assets are managed and valued differently, and they do not depreciate like other engineered assets.

Asset condition is another useful indicator for The City because it helps us understand when interventions may be required to improve or maintain our levels of service.

Analysis of the data shows that **79 per cent** of The City's assets are in good or very good condition, 11 per cent are in fair condition and 7 per cent are in poor or very poor condition<sup>4</sup>. Condition data is currently not available for 3 per cent of the assets<sup>5</sup>.



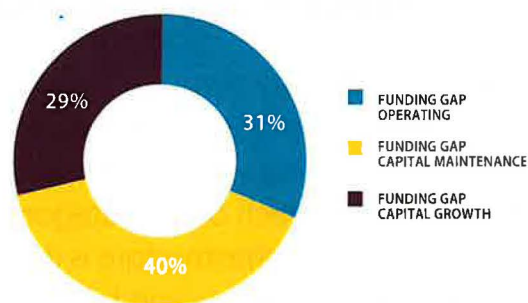
The data shows that the condition profile has deteriorated in comparison to 2017 (Good/Very Good down from 88 per cent to 79 per cent; Fair up from 9.7 per cent to 11 per cent and; Poor/Very poor up from 2.3 per cent to 7 per cent respectively). While this deterioration raises concern, it is important to highlight that public and employee safety is always the top priority for The City. Asset stewards monitor assets closely to identify and immediately address any infrastructure concerns that could pose a threat to safety.

<sup>4</sup> Assets in poor and very poor condition include streetlights, signals, local/collector/arterial roads (replacement value: \$2.3 billion), Housing units (replacement value: \$781.7 million), Parks infrastructure e.g. irrigation system, landscaping, playground equipment, trails and some pathways (replacement value: \$570 million), Transit Rail control systems, maintenance facilities and specialized transit (replacement value: \$325 million), Facility Management (FM) stewarded buildings (replacement value: \$184 million), Calgary Fire Department's vehicles and equipment (replacement value: \$63.6 million), 3 Police stewarded buildings (replacement value: \$26 million), Athletic Parks (replacement value: \$16 million), Golf Courses (replacement value: \$15 million). Water, Waste & Recycling and Parking infrastructure has also been reported in poor or very poor condition, but their life cycle maintenance and upgrades are addressed through their individual funding streams.

<sup>5</sup> Condition assessments for most of these assets is underway and will be available as soon as the assessment is complete.

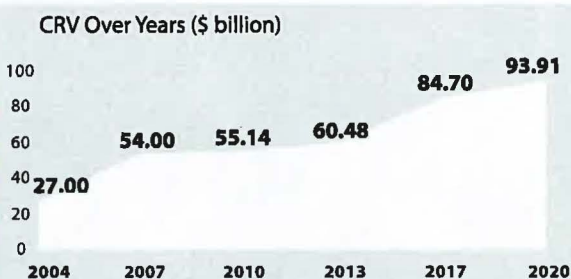


The last indicator used in this report is the estimation of the unfunded infrastructure needs of The City over the next ten-year horizon. Available data indicates that The City of Calgary requires an additional investment of \$7.73 billion to fund its infrastructure maintenance<sup>6</sup>, growth<sup>7</sup> and operating<sup>8</sup> requirements (collectively called the infrastructure funding gap<sup>9</sup>). In the 2017 ISR, the 10-year gap was reported as \$5.67 billion. This indicates that the risk has increased. However, given the economic condition, it's recognized that all the required funding may not be available. Business units, hence, are actively working on their Asset Management plans to identify strategies and mitigate any service level risks.

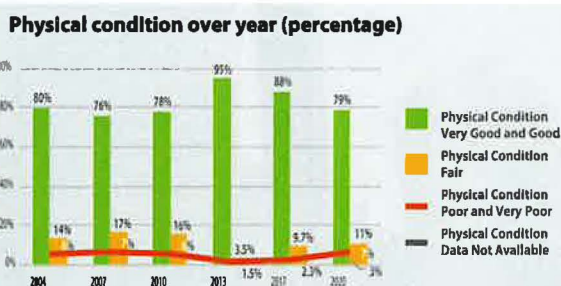


## 2.1 Trends/visual comparison with past data

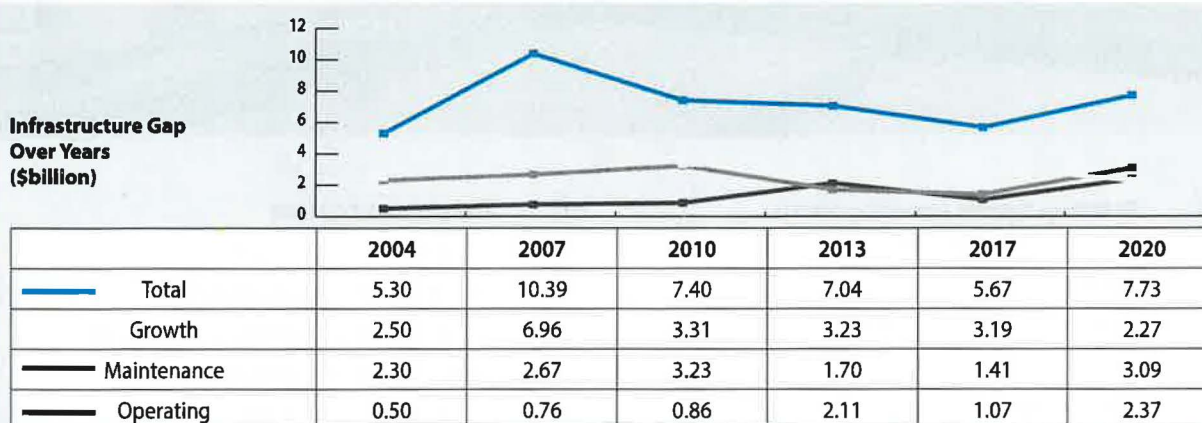
### 2.1.1 Current replacement value reported over years



### 2.1.2 Physical condition reported over year



### 2.1.3 Infrastructure gap over years



<sup>6</sup> Capital maintenance gap: Unfunded investments required to maintain and upgrade existing infrastructure assets.

<sup>7</sup> Capital growth gap: Unfunded investments required to support the city's expansion. Primary drivers of growth-related expenditures are economic growth, population growth and demographic changes.

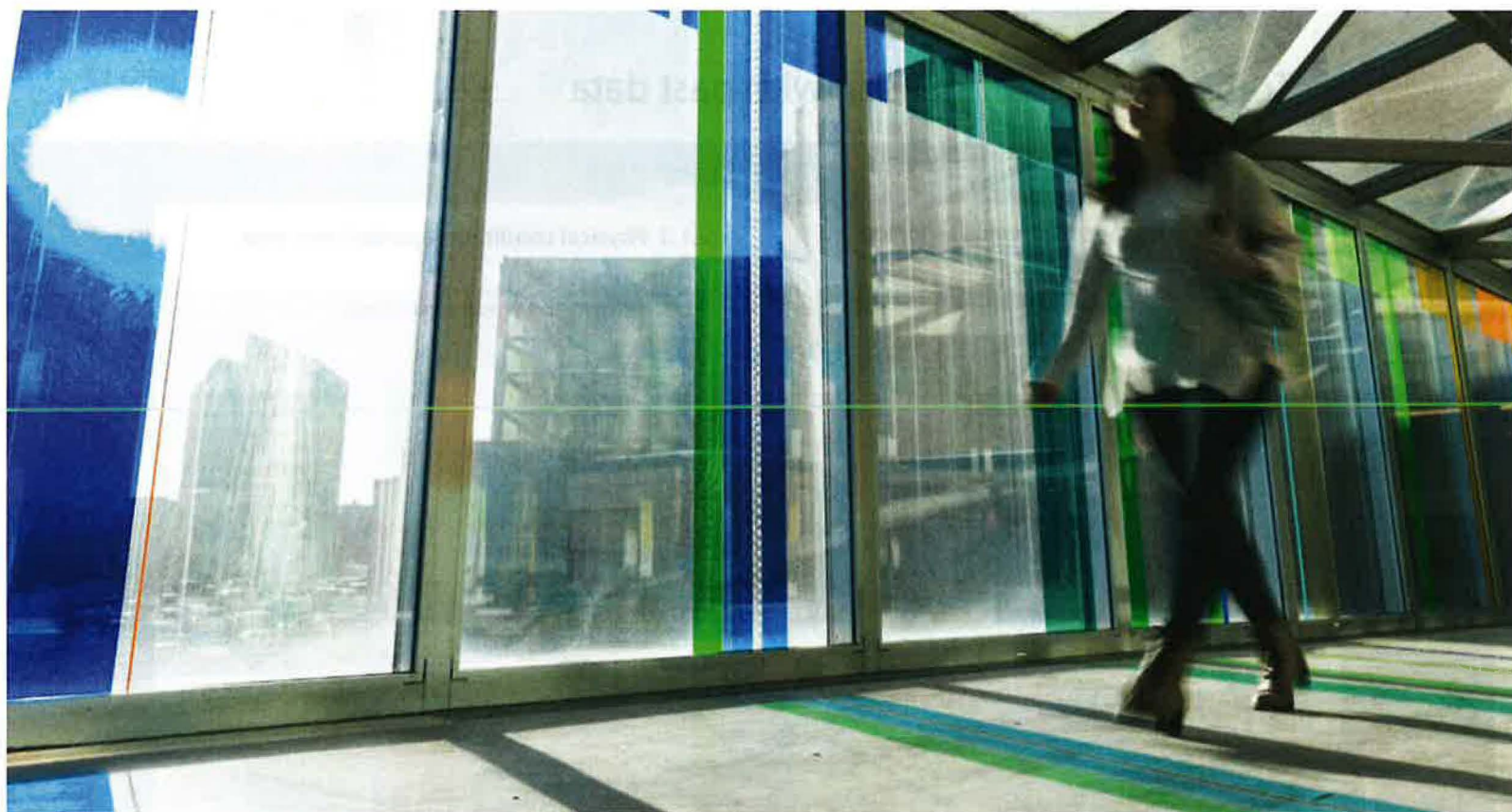
<sup>8</sup> Operating gap: Funding shortfall required to bring existing assets to a minimum acceptable level for operation over their service life.

<sup>9</sup> An estimate of the total unfunded investment.



### 3.0 Assets/Services Overview

The City of Calgary owns and maintains \$93.91 billion worth of total assets to support more than 28 services<sup>10</sup>. For the purpose of this report, we have created 18 categories of The City/Partners/Authority infrastructure (based on the services they support). A summary on each of the categories is provided in the tables below. Information on the City-owned infrastructure is in alphabetical order and presented first, followed by Parking, Police, libraries and land related information.



- |  |  |
|--|--|
| 1. Buildings/Spaces providing Sports and Recreation Facilities | 9. Transit Infrastructure                  |
| 2. Buildings (Others)  | 10. Vehicles and Equipment                 |
| 3. Fire Safety and Emergency                                   | 11. Waste & Recycling Infrastructure       |
| 4. Housing Units   | 12. Water Infrastructure for Potable Water |
| 5. Information Technology                                      | 13. Water Infrastructure for Wastewater    |
| 6. Parks Infrastructure  | 14. Water Infrastructure for Stormwater    |
| 7. Parks, Pathways and Trails                                  | 16. Police Infrastructure                  |
| 8. Roads, Bridges and Tunnels                                  | 17. Public Libraries                       |
|  | 18. Land Holdings                          |

<sup>10</sup> Of the 61 City of Calgary services, we were able to associate asset data with nearly half of them. The rest of the services are either not asset dependent (e.g. some enabling services and services supporting Council's priority of a 'A Well-Run City') or their asset base is significantly small. Areas with a small asset base do not typically follow corporate asset management practices and account for only a very small percentage of the City-owned assets.



# 1. Buildings/Spaces providing Sports and Recreation Facilities



## STEWARDS

Facility Management (FM) and  
Calgary Recreation

## SERVICE SUPPORTED

Recreation Opportunities

## CRV

**\$761 M**

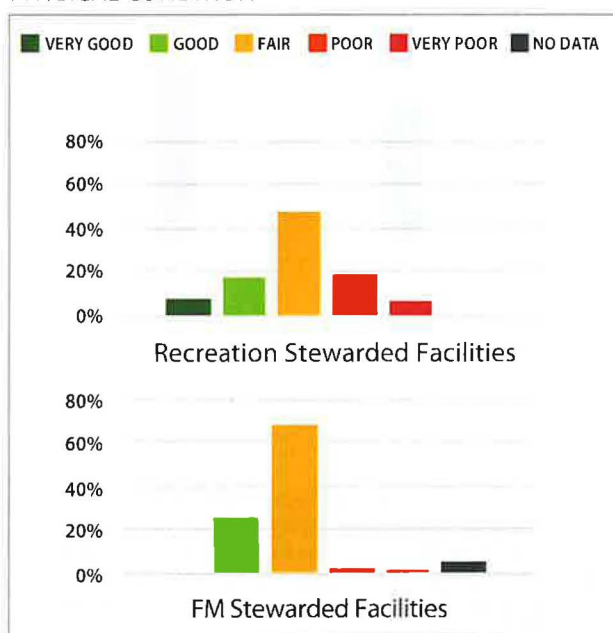
Of the \$761 million, Calgary Recreation stewards and maintains roughly 15% (\$115 million) and FM 85% (\$ 646 million) of the assets. All Sports and Recreation facilities are within 5Km to a maximum of 20Km radius from nearby residents.

FM stewarded buildings included in this section primarily support "Recreation Opportunities" but support other services as well.

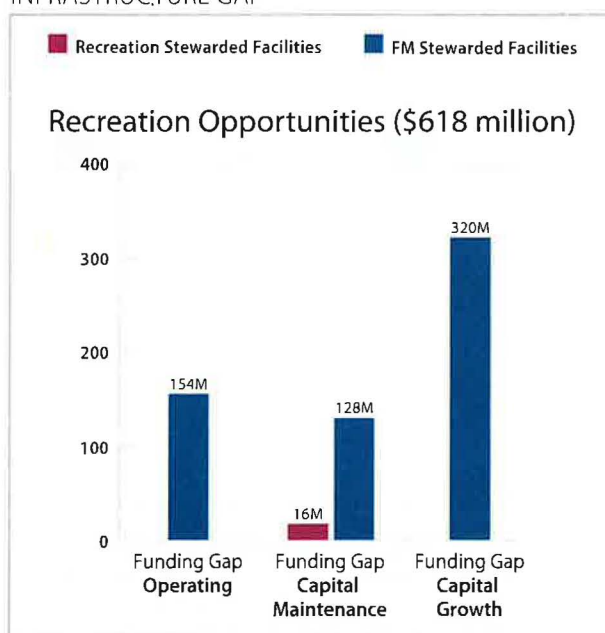
## RECREATION OPPORTUNITIES

|  |                                   |
|--|-----------------------------------|
| <b>37</b> Rectangular Sports fields (Natural turf) | <b>32</b> Ball Diamonds           |
| <b>24</b> Outdoor Tennis and/or Pickle Ball courts | <b>2</b> Tracks and Athletics     |
| <b>5</b> Golf courses                              | <b>9</b> Athletic Parks           |
| <b>15</b> Artificial turf sports fields            | <b>12</b> Aquatic/Fitness centres |
| <b>8</b> Outdoor pools                             | <b>10</b> Arenas                  |
| Calgary Soccer Centre                              | Babe Ruth Fieldhouse              |

## PHYSICAL CONDITION

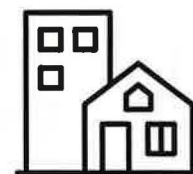


## INFRASTRUCTURE GAP





## 2. Buildings (Others)



### STEWARDS

Facility Management (FM)

### SERVICES SUPPORTED

Multiple

**85** Community-facing buildings

**129** Operations facilities

**31** Buildings providing office accommodation

**6** Processing facilities

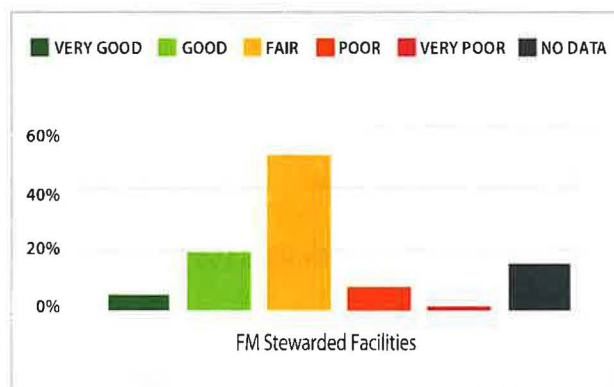
**2** Buildings in housing portfolio

### CRV

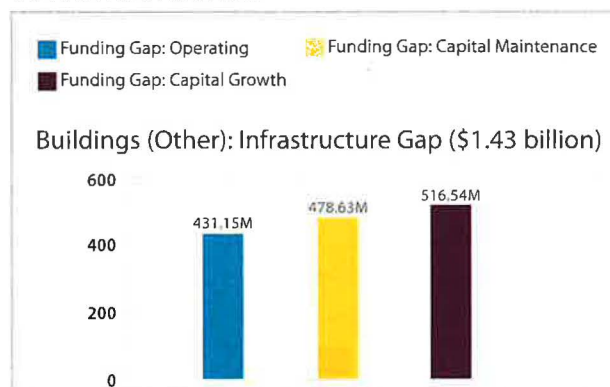
**\$1.35 B**

FM stewards and maintains the majority of City of Calgary buildings. These buildings not only provide office accommodation, but also support the delivery of 25 other services<sup>11</sup> to the public. FM also stewards and maintains storage, operations, and processing facilities

### PHYSICAL CONDITION<sup>12</sup>



### INFRASTRUCTURE GAP



<sup>11</sup> All City of Calgary services are supported by FM stewarded assets. Though service mapping was underway at the time of reporting, services with a significant portion of the asset base include: Affordable Housing, Arts & Culture, Bylaw Education & Compliance, City Cemeteries, Community Strategies, Corporate Security, Facility Management, Emergency Management & Business Continuity, Fleet Management, IT Solutions & Support, Mayor & Council, Neighborhood Support, Parks & Open Spaces, Pet Ownership and Licensing, Police Services, Procurement & Warehousing, Recreation, Stormwater Management, Streets, Taxation, Waste & Recycling and Water Treatment & Supply. Some buildings also provide multiple services within the same complex.

<sup>12</sup> 18% of all FM stewarded buildings had no data at the time of reporting. FM has an ongoing assessment program and is on schedule to complete assessments by the end of 2022 on existing buildings.



### 3. Fire Safety and Emergency



#### STEWARDS

Facility Management (FM) and  
Calgary Fire Department (CFD)

#### SERVICES SUPPORTED

Fire & Emergency Response, Fire Inspection  
& Enforcement and Fire Safety Education

#### CRV

**\$563 M**

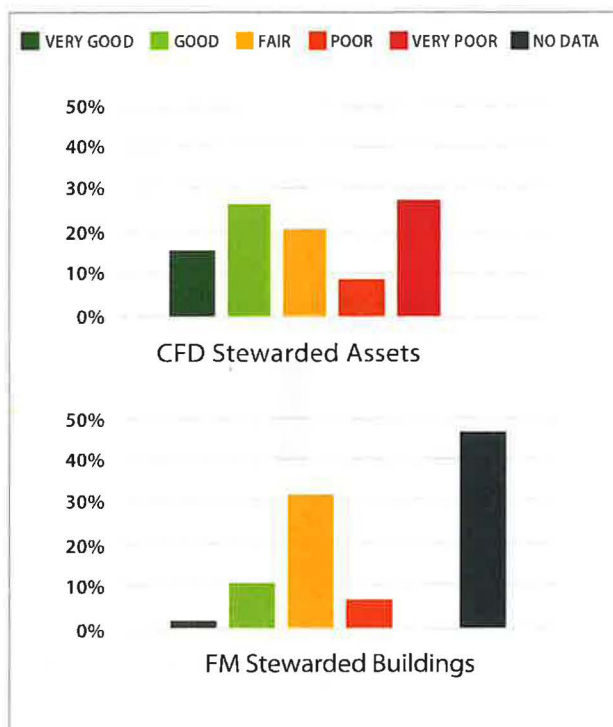
FM stewards all 51 buildings (\$392 million)  
and CFD owns and maintains vehicles and  
machinery and equipment (\$171 million).

**51 Buildings**  
(Fire Stations, EMS,  
Training Academy and  
administrative buildings)

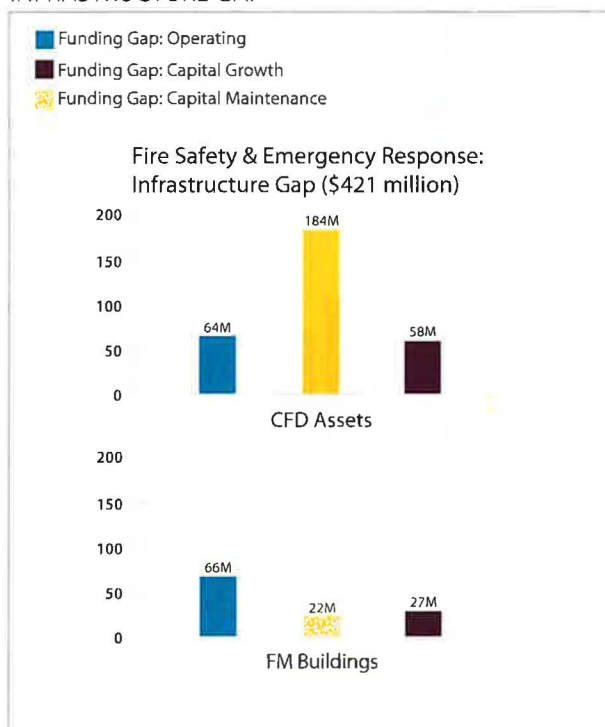
**Vehicles**

**Machinery & Equipment**

#### PHYSICAL CONDITION



#### INFRASTRUCTURE GAP





## 4. Housing Units



### STEWARDS

Calgary Housing Company

Low Rise units

High Rise Units

### SERVICE SUPPORTED

Townhomes

Single-Family  
Housing

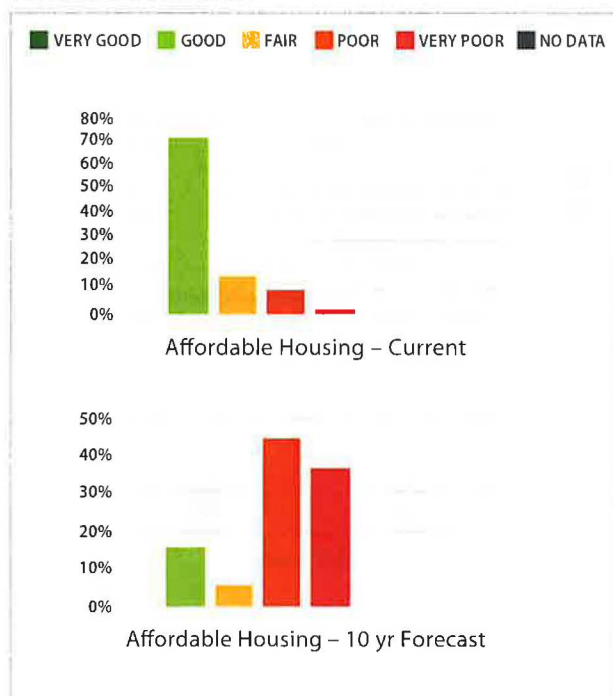
Affordable Housing

### CRV

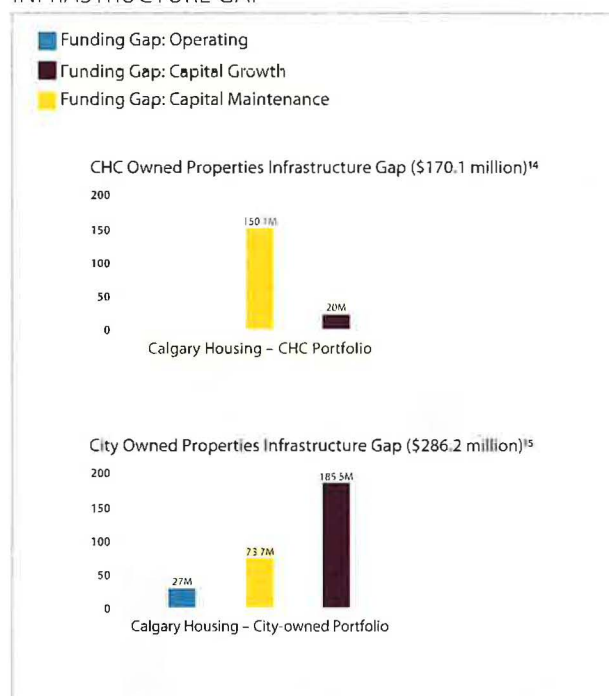
**\$781.7 M**

The Affordable Housing service line is supported through Calgary Housing that includes City owned properties: (\$399.4 million) and Calgary Housing Company owned properties (CHC – wholly owned subsidiary: \$382.3 million).

### PHYSICAL CONDITION<sup>13</sup>



### INFRASTRUCTURE GAP



- 13 Major capital investments of over \$25M by The City in the this budget cycle have improved our asset conditions from prior cycles and with further sustained funding will be able to continue to increase the overall condition of the Affordable Housing infrastructure.
- 14 Two modifiers not reflected in the above graphics that occur after the production of this report include a \$15M capital investment in CHC Owned properties by the Province through the Municipal Stimulus Plan as well as Council's decision to decommission Bridgeland 2, a major contributor to the above City Owned properties operating and maintenance gap.
- 15 Operating funding gap assumes the non-renewal of the 4 year, \$34M Provincial Operating Agreement at its expiry in 2024.



## 5. Information Technology



### STEWARDS

Information Technology

### Hardware

(computers, servers, peripherals, storage and computer networks)

### SERVICE SUPPORTED

IT Solutions & Support

### Software

Assets to enable data centre functions

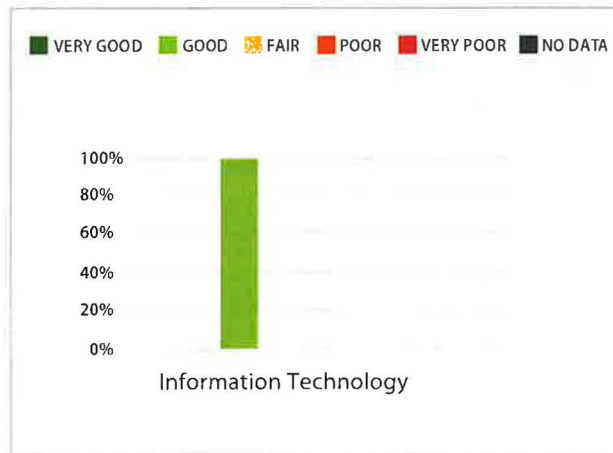
### Fibre Plant-Towers

### CRV

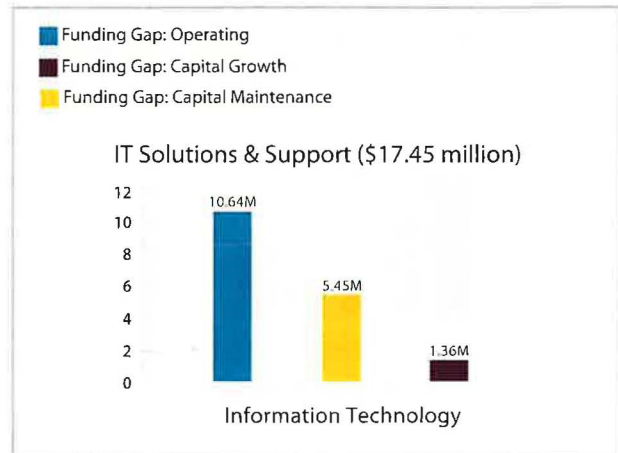
**\$400.78 M**

Broadly categorized as engineered structures (\$66 million) and Machinery & Equipment (\$334.7 million)

### PHYSICAL CONDITION



### INFRASTRUCTURE GAP





## 6. Parks Infrastructure



### STEWARDS

Calgary Parks

### SERVICES SUPPORTED

Parks & Open Spaces/City Cemeteries

Playgrounds  
equipment and  
surfacing

Irrigation  
systems

Bollards, fencing,  
seating, garbage  
cans etc. and  
landscaping  
(turf, planted beds  
and habitats)<sup>16</sup>

Machinery and  
equipment

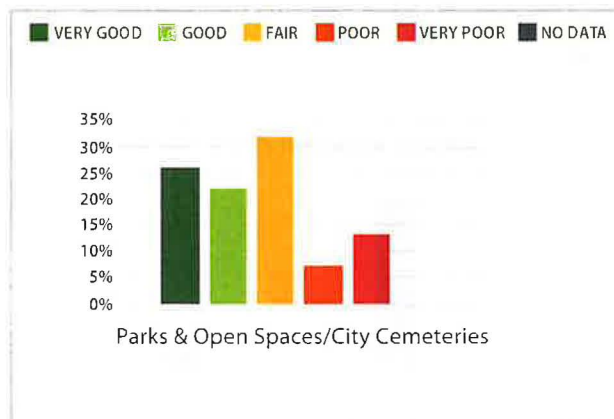
Buildings i.e.  
picnic shelters

### CRV

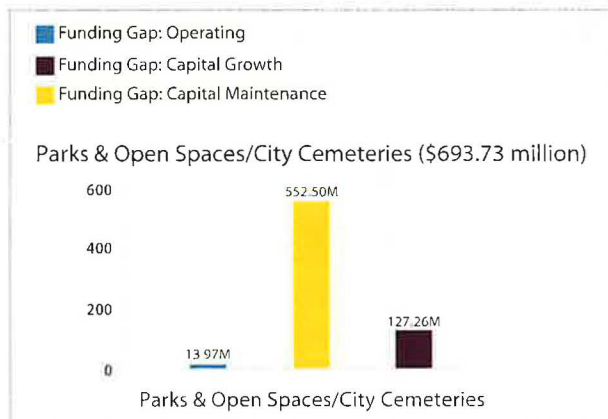
**\$2.63 B**

Total value of assets in Parks network (parks, open spaces and cemeteries) across 8,878 hectares of stewarded land. All of the facilities are within 450 metres radius from residents. 100% of the picnic shelters are wheelchair accessible and 65 of the 1,104 playgrounds have accessible components.

### PHYSICAL CONDITION



### INFRASTRUCTURE GAP



<sup>16</sup> Calgary Parks have quantified and included natural vegetation (i.e. wetlands, aspen forest grassy areas and trees excluding trees in manicured areas and street trees)





## 7. Parks, Pathways and Trails

### STEWARDS

Calgary Parks

**995 km**  
of paved  
pathways

**115 km**  
of formal trails

### SERVICE SUPPORTED

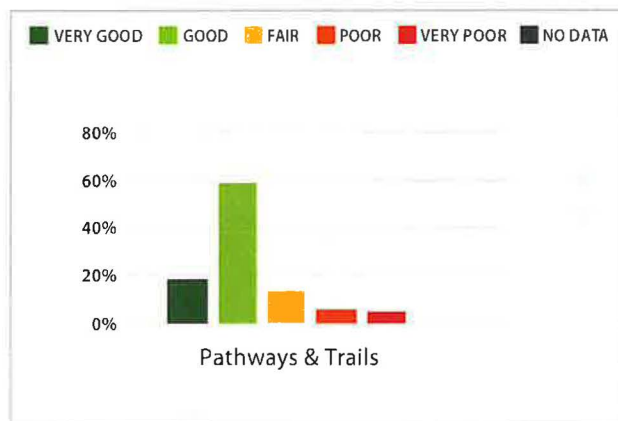
Sidewalks & Pathways

### CRV

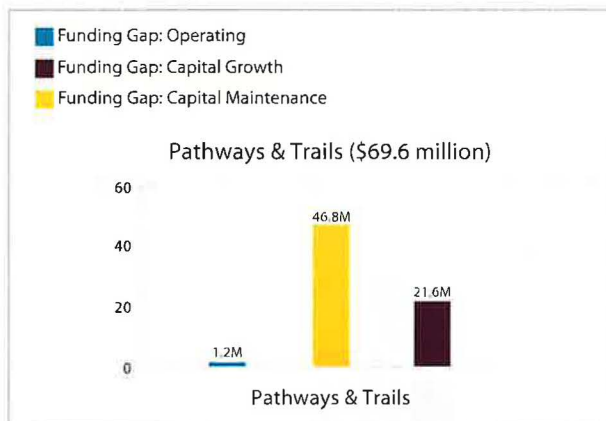
**\$224.74 M**

Pathways (\$222.55 million) and Trails (\$2.19 million). 58% of the pathways are snow cleared and are accessible all year. Trails, however, are not snow cleared and, therefore, are not accessible year-round.

### PHYSICAL CONDITION

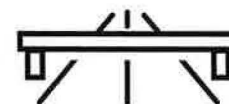


### INFRASTRUCTURE GAP





## 8. Roads, Bridges and Tunnels



### STEWARDS

#### Roads

**16,000** Ln-km of arterial, collector and local roads with 186 bridges

### SERVICES SUPPORTED

#### Streets and Sidewalks & Pathways

**19** Tunnels, 5 culverts greater than 3 meters in diameter

**5,600** km of sidewalks

**1,600** km of lanes and alleys

**86** Plus 15s and 169 footbridges

### CRV

**\$21.42 B**

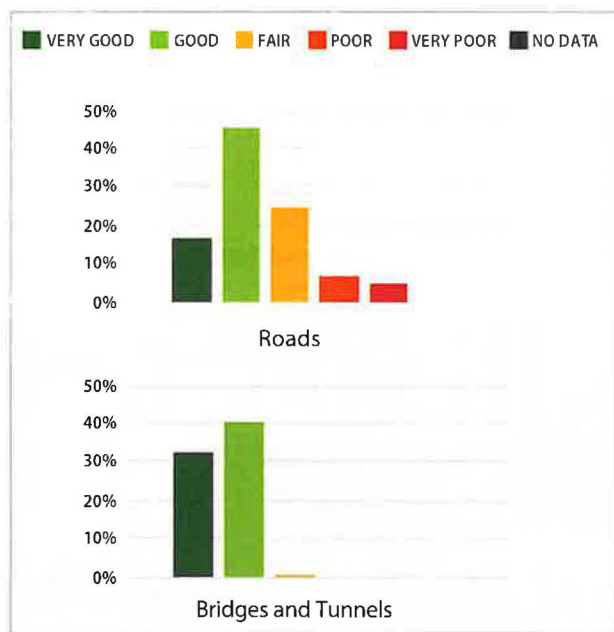
Broadly categorized as Roads (\$18.98 billion) and Bridges and Tunnels (\$2.44 billion) that collectively support 2 service lines (Streets and Sidewalks & Pathways).

**6,600** km curbs and gutters

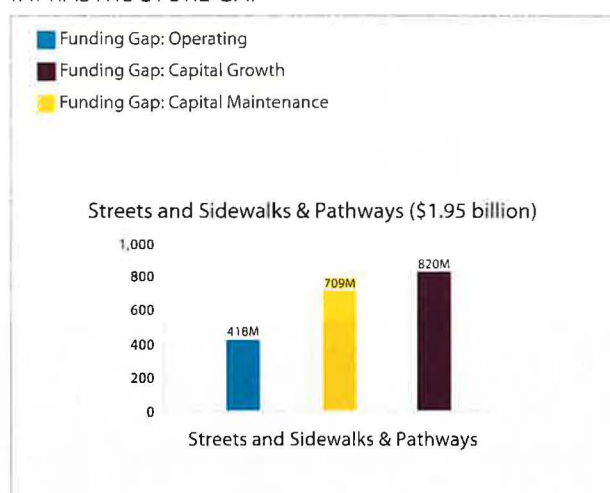
**1,100** Signalized intersections and 86,400 streetlight poles

Thousands of other roadway assets

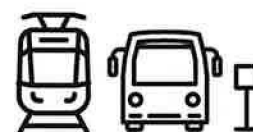
### PHYSICAL CONDITION



### INFRASTRUCTURE GAP



## 9. Transit Infrastructure



### STEWARDS

Calgary Transit (CT)

### SERVICES SUPPORTED

Public Transit and Specialized Transit

### CRV

**\$3.88 B**

**Transit Fleet (\$1.49 billion):** Light rail, buses and specialized vehicles.

**Transit infrastructure (\$2.39 billion):** Tracks, passenger focused facilities, maintenance and storage facilities and rail control systems. All of Transit fleet and public infrastructure allow 100% accessibility.

**111 Passenger focused facilities**  
(45 Stations and terminals, transit shelters, 33 parking lots and passenger drop off facilities)

**1,329 Buses and Trains**

Tracks infrastructure including 23 Bridges and 9 Tunnels

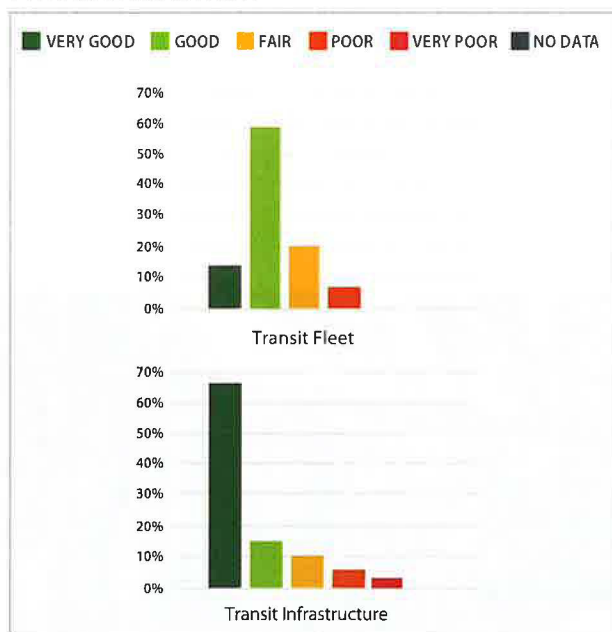
**7 Maintenance facilities**

Rail Control Systems

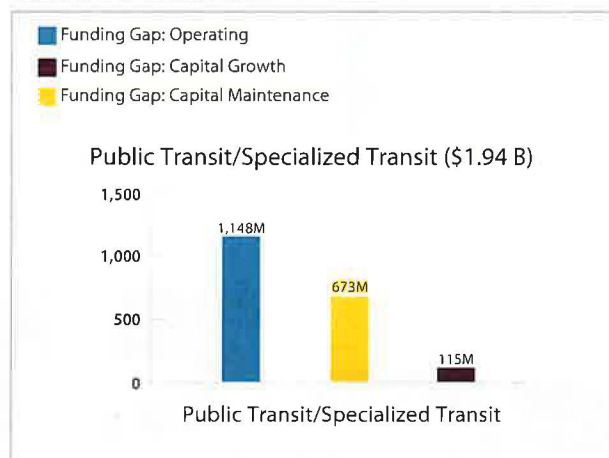
Other machinery and equipment

Transit is funded partially through fare collections and partially through funding allocated through the budget process. The One Calgary Budget has only allocated money through to the end of 2022 and the resulting gap exists if no additional budget is allocated.

### PHYSICAL CONDITION<sup>17</sup>



### INFRASTRUCTURE GAP



17

The data for the ISR was provided by CT based on the best available data as of early 2020 (summarized snapshot above). This snapshot may not reflect capital work and upgrades that occurred after the data was collected. CT assets categorized as being in very poor condition are based on age, rehabilitation/replacement needs, limits on sustained use, etc. CT has operational and capital programs aimed at managing the operational condition of these assets and providing safe service delivery based on criticality, risk, history, etc. With a huge asset base, this fraction of assets may exist and need to be monitored closely/improved or replaced when feasible. Through planning, asset priorities are identified and addressed to maintain states of good repair and acceptable levels of service.



# 10. Vehicles and Equipment



## STEWARDS

Fleet Services

## SERVICE SUPPORTED

Fleet Management

## 1,947 Vehicles

leased to Waste & Recycling, Roads, Water Services, Parks, Animal Bylaw, Fleet Services, Facility Management, Corporate Analytics & Information, Recreation, Supply Management, Corporate Security and IT

## CRV

**\$336.4 M**

Vehicles (\$261.38 million) and Machinery and Equipment (\$75.02 million).

## 1,020 Units of machinery and equipment

(trailers, sanders, mowers, tractors, sweepers, graders, rollers, pavers, forklifts etc.) leased to Roads, Water Services, Parks, Recreation, Fleet Services, Waste & Recycling, Supply Management and Facility Management

## PHYSICAL CONDITION



## INFRASTRUCTURE GAP

Self-funded



# 11. Waste & Recycling Infrastructure



## STEWARDS

Waste & Recycling Services

## SERVICE SUPPORTED

Waste & Recycling

**3** Active Waste Management facilities

**5** Closed landfills

## CRV

**\$568.9 M**

**Building Infrastructure:** 61 Buildings supporting Collection, Diversion and Landfill operations.

**Collection Infrastructure:** Waste, Recycling, and Organics Carts serving over 330,000 single family households, over 5900 Collection Bins serving businesses and organizations, and 17 Community Recycling Depots.

**Waste Management Facilities:** 3 active Waste Management Facilities including an Industrial Waste Facility, and 5 closed landfill sites.

**Landfill Management and Operations Support Infrastructure:** Leachate, Gas Collection, and Drainage Systems, along with Landfill Roads and Pads, Monitoring Wells, and Fences.

**Diversion Infrastructure:** A Composting Facility at Shepard and Throw N' Go Infrastructure with specialty drop-offs for Household Hazardous Waste (HHW), construction and demolition waste, and electronics at each of the Waste Management Facilities.

## PHYSICAL CONDITION



## INFRASTRUCTURE GAP

Funded through Gas Tax Fund (GTF) grant, self-supported debt, and self-funded Sustainment (Capital) Reserve capitalized from user fees and revenues.



# 12. Water Infrastructure for Potable Water



## STEWARDS

Water Resources and Water Services

## SERVICE SUPPORTED

Water Treatment & Supply

## CRV

**\$24.34 B**

Non-linear (\$5.74 billion)

Linear (\$18.60 billion)

**2** Water treatment facilities

**2** Water reservoirs (before intake)

**23** Storage tanks (after intake, not part of treatment plant)

**41** Water pump stations

**4,842** km Local water pipes (diameter < 500 mm)

**488** Feedermain manholes

**465** km Transmission pipes (diameter ≥ 500 mm)

**462** Distribution chambers

**61,530** Distribution valves

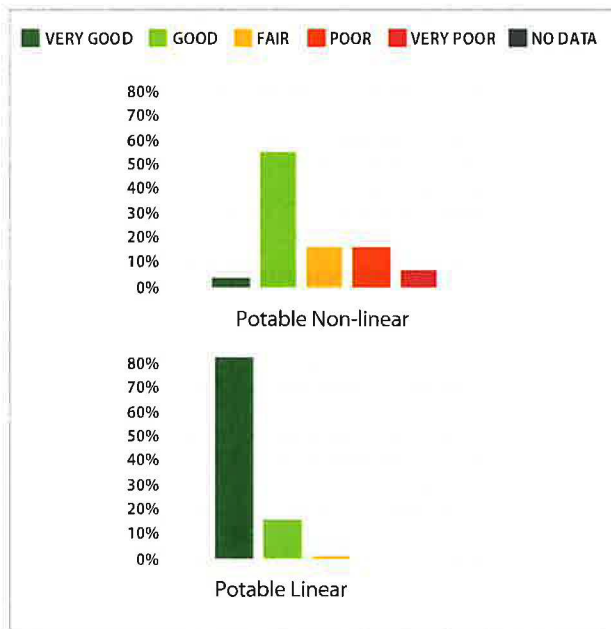
**399** Feedermain valve chambers

**341,310** Services and service valves

**16,758** Hydrants

**341,396** Billing meters

## PHYSICAL CONDITION



## INFRASTRUCTURE GAP



# 13. Water Infrastructure for Wastewater



## STEWARDS

Water Resources and Water Services

## SERVICE SUPPORTED

Wastewater Collection & Treatment

## CRV

**\$19.74 B**

Non-linear (\$3.72 billion)

Linear (\$16.02 billion)

**3** Wastewater treatment plants

**2** Pump stations

**43** Lift stations

**55,673** Manholes and chambers

Lagoon system

Storage tanks

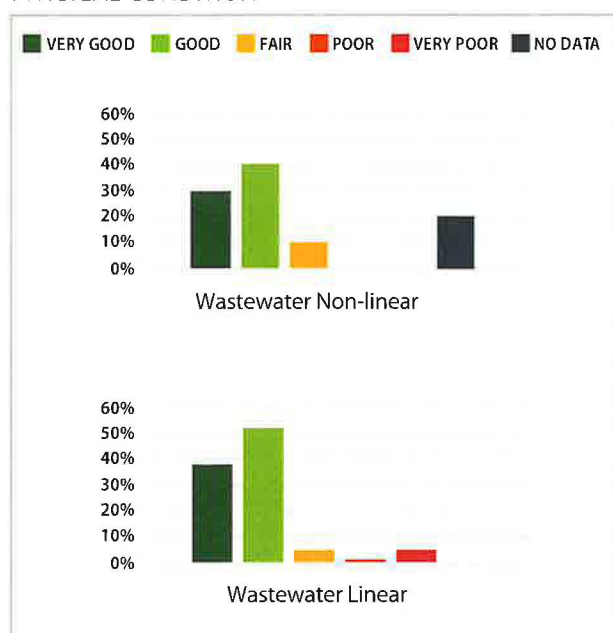
**4,624** km of Sewer pipes (diameter < 450 mm)

**106** km of Sanitary force mains

**515** km of Sewer pipes (diameter ≥ 450 mm and < 1500 mm)

**57** km of Sewer pipes (diameter ≥ 1500 mm)

## PHYSICAL CONDITION<sup>18</sup>



## INFRASTRUCTURE GAP

Self-funded

<sup>18</sup> 20% of plant assets have unknown conditions, mainly due to the complexity of unit operations that drive these plants and the significant number of child assets linked to these unit operations (headwork pumps/primary-secondary clarifiers etc.)



# 14. Water Infrastructure for Stormwater



## STEWARDS

Water Resources and Water Services

## SERVICE SUPPORTED

Stormwater Management

## CRV

**\$15.49 B**

Non-linear (\$1.56 billion)

Linear (\$13.93 billion)

**33** Stormwater pump stations

**334** Ponds and wetlands

**154** Other end of pipe facilities

**49** km Culverts (diameter < 3 m)

**97** Open ditches

**2,991** km of Storm pipes (diameter < 450 mm)

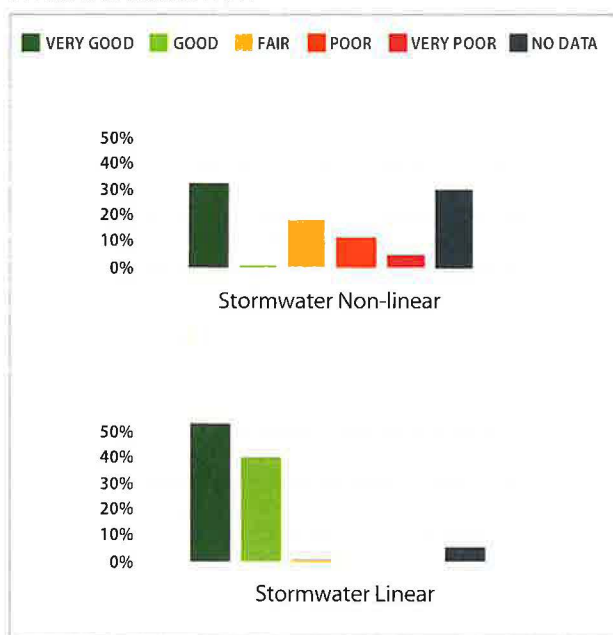
**934** Outfalls

**2,144** km of Storm pipes (diameter ≥ 450 mm and < 1,500 mm)

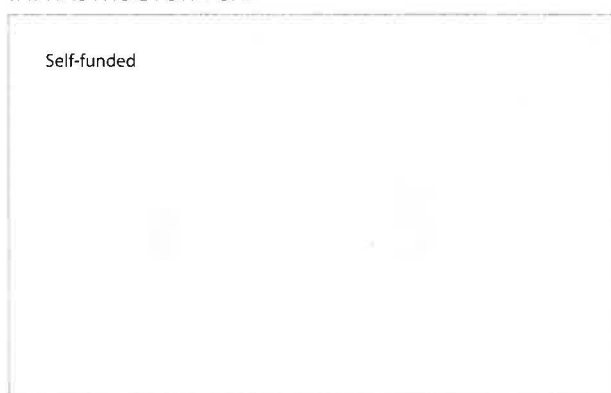
**294** km of Storm pipes (diameter ≥ 1500 mm)

**58,057** Manholes and chambers

## PHYSICAL CONDITION<sup>19</sup>

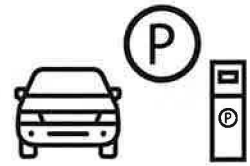


## INFRASTRUCTURE GAP



<sup>19</sup> With historical focus on water and wastewater assets, total kilometers of assessed stormwater assets are limited. Given that these assets are well below their anticipated lifecycles, a lag on assessment of stormwater assets is expected. The Utility, however, has been able to achieve acceptable levels of service for stormwater assets, with implementation of rehabilitation programs resulting from proactive assessments.

# 15. Parking Infrastructure



STEWARDS

Calgary Parking Authority

SERVICE SUPPORTED

Parking

**7,833** Stalls across

**11** Parkades

**32** Surface lots

CRV

**\$707 M**

PHYSICAL CONDITION



INFRASTRUCTURE GAP

Self-funded





## 1.6. Police Infrastructure



### STEWARDS

Calgary Police Service

### SERVICE SUPPORTED

Police Services

### CRV

**\$610 M**

**29** buildings owned by The City and 6 leased from third parties (including but not limited to Westwinds Campus, eight District offices, multi-service and leased facilities, stable, canine training centre, and indoor shooting range).

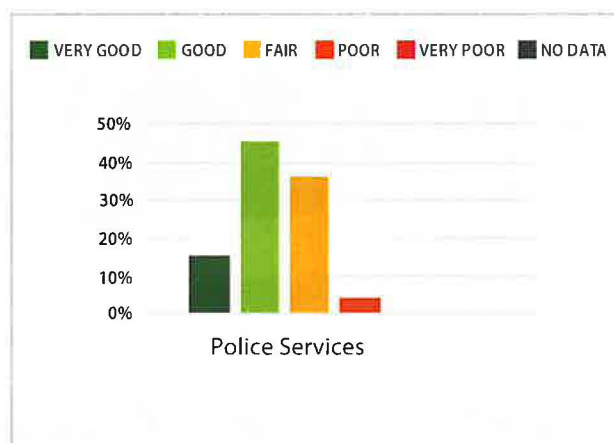
**2,488** mobile or portable radio and other telecommunication systems.

Digital traffic cameras and related infrastructure and Automated Fingerprint Identification System (AFIS).

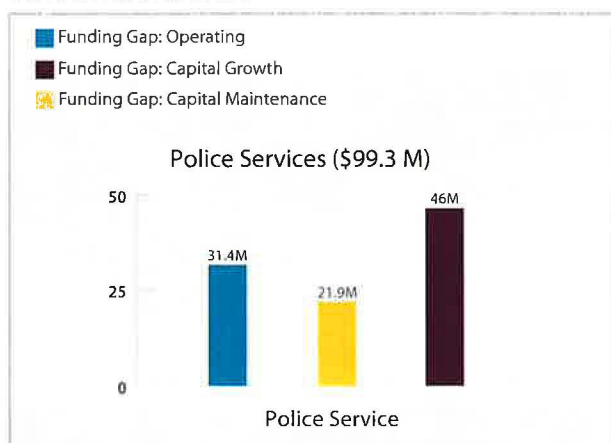
Various traffic equipment, robots and breathalyzer equipment.

Approximately 1,260 vehicles, 2 helicopters, about 4,050 personal computers, laptops and printers, 527 vehicle mobile workstations.

### PHYSICAL CONDITION



### INFRASTRUCTURE GAP



# 17. Public Libraries



## STEWARDS

Calgary Public Library

## SERVICE SUPPORTED

Library Services

10 Standalone libraries

7 Libraries in multi-use buildings

4 Libraries in leased spaces

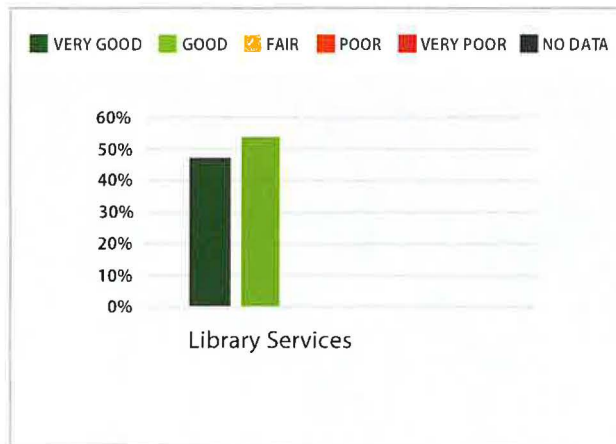
38 Vehicles

9 Sorting machines

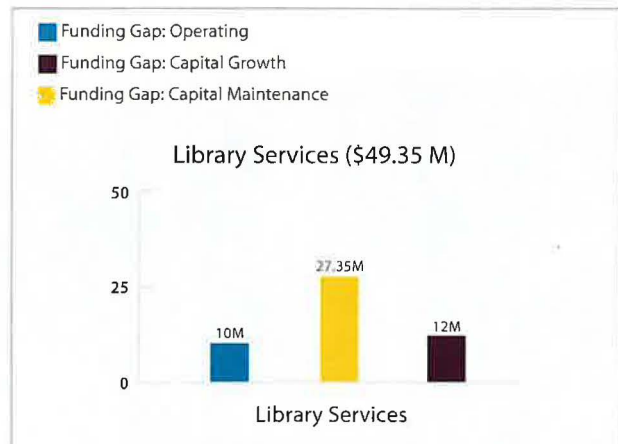
## CRV

\$109.69 M

## PHYSICAL CONDITION



## INFRASTRUCTURE GAP





# 18. Land Holdings



STEWARDS

Multiple

SERVICE SUPPORTED

Land Development & Sales and Real Estate and other services supported by land stewards.

Calgary Parks

Calgary Transit

Roads

Calgary Police Service

Calgary Fire Department

Real Estate and Development Services

Facility Management

Calgary Housing

Calgary Parking Authority

CRV

\$4.73 B

This \$4.73 billion is the book value and not assessed or market value.





## 4.0 Conclusion

As we prepare for the next four-year service plans and budgeting cycle, it is important to manage the infrastructure funding gap through comprehensive asset management. The current economic environment has created additional funding constraints which means the allocation of scarce resources must be prioritized very carefully.

This report is a precursor to the Corporate Asset Management Plan (CAMP). The CAMP will be released in 2022 and will be drawing on the business unit asset management plans and addressing some of these questions in more detail. It will highlight the investment needs through the next business cycle by focusing on service performance objectives, asset performance trends, asset condition and risks. This work is critical to ensure citizens receive the services they expect from The City.

The Next Steps section below highlights some of the work that will be undertaken or continued in order to balance cost, risk, and service levels as investments are prioritized in the next business planning and budgeting cycle.





## 5.0 Next Steps

As part of the asset management planning process and the creation of asset management plans, several initiatives are either underway or will begin in order to support this work:

- Complete comprehensive criticality reviews across the Corporation to better understand the link between asset performance and the service(s) they enable.
- Formalize a risk-based approach and understand reinvestment needs for critical assets to mitigate the risk of failure. For example, critical asset classes need to be maintained in better conditions, while less critical asset classes can deteriorate to a lower condition without increasing risk. This concept will be used to develop a criticality-to-condition relationship and threshold.
- Develop cost savings and deferral strategies to help bridge the funding gap.
- Include energy metrics in asset management planning to help reduce energy cost to the Corporation. Reductions in overall energy consumption also supports the long-term objective of The City's Climate Resilience Strategy (80 per cent reduction in city-wide emissions below 2005 levels by 2050).
- Continue to develop comprehensive service level targets to better understand the impact of changes to capital and lifecycle funding.

